ORGANICS
Raw Data

Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y273.D Vial: 73
Acq On : 2 May 19 13:58 Operator: MA,SS
Sample : AZ90100W21 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:56 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	176554	40.00000 ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	769546	40.00000 ppb	-0.03
41) Acenaphthene-D10(IS)	8.77	164	458178	40.00000 ppb	-0.02
65) Phenanthrene-D10(IS)	10.53	188	789498	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.64	240	701952	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.48	264	691635	40.00000 ppb	0.02
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.68	112	923040	174.84991 ppb	-0.11
Spiked Amount 250.000			Recovery =	69.940%	
6) Phenol-D6 (S)	4.88	99	1143441	165.67589 ppb	-0.06
Spiked Amount 250.000			Recovery =	66.270%	
22) Nitrobenzene-D5(S)	5.92	82	592775	91.13548 ppb	-0.05
Spiked Amount 125.000			Recovery =	72.908%	
46) 2-Fluorobiphenyl(S)	7.98	172	1068298	78.93585 ppb	-0.04
Spiked Amount 125.000			Recovery =	63.149%	
64) 2,4,6-Tribromophenol(S)	9.71	330	236752	194.89297 ppb	-0.01
Spiked Amount 250.000			Recovery =	77.957%	
82) Terphenyl-D14(S)	12.40	244	1052012	76.63751 ppb	0.00
Spiked Amount 125.000			Recovery =	61.310%	
Target Compounds					Qvalue
86) Bis (2-ethylhexyl) phthala	13.63	149	2489412	165.83820 ppb	99

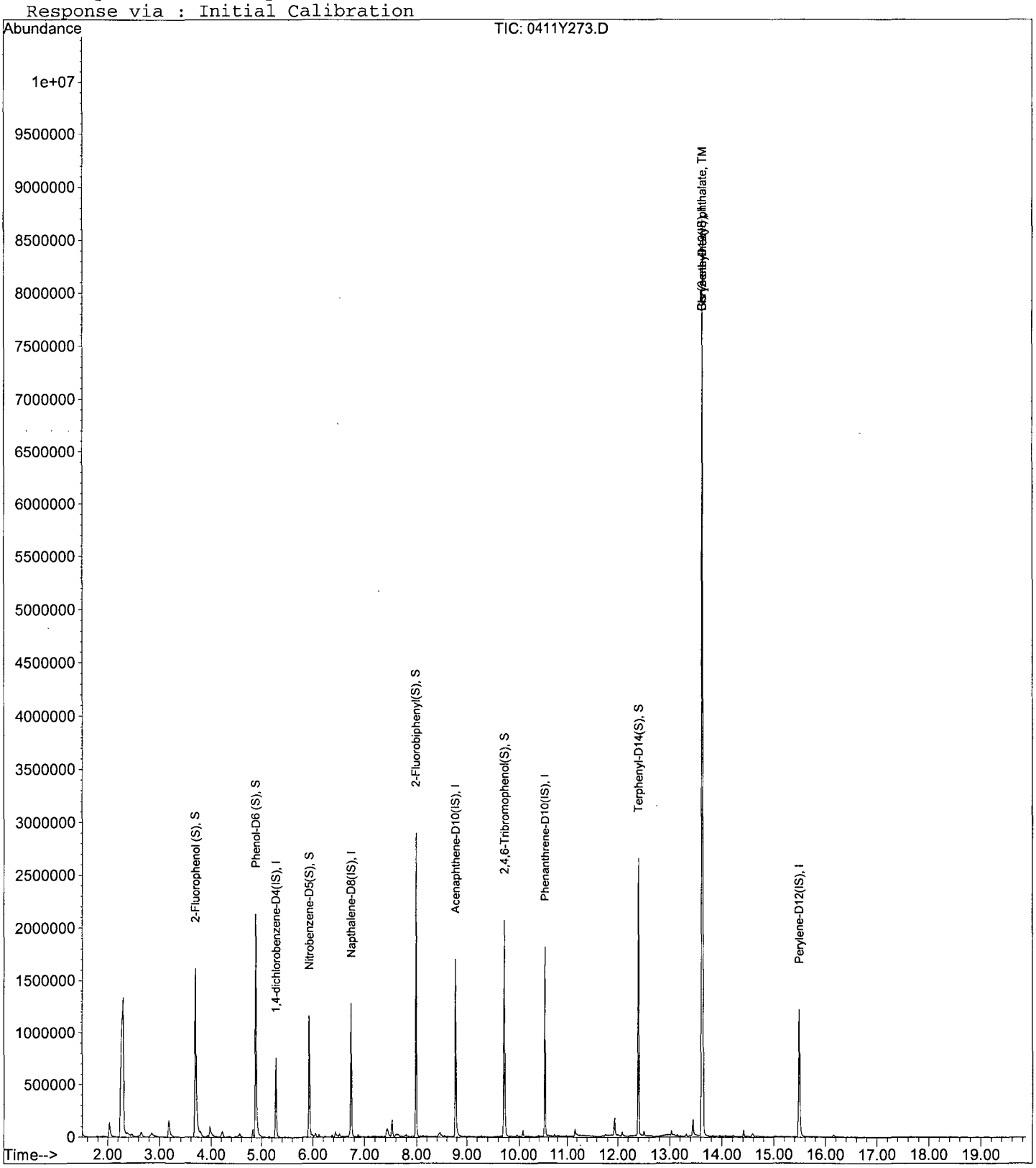
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y273.D Vial: 73
Acq On : 2 May 19 13:58 Operator: MA,SS
Sample : AZ90100W21 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:56 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y274.D Vial: 74
Acq On : 2 May 19 14:26 Operator: MA,SS
Sample : AZ90102W22 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:59 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	172749	40.00000 ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	762406	40.00000 ppb	-0.03
41) Acenaphthene-D10(IS)	8.78	164	454729	40.00000 ppb	-0.01
65) Phenanthrene-D10(IS)	10.53	188	756283	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.64	240	680116	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.48	264	665891	40.00000 ppb	0.01
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.68	112	858323	166.17193 ppb	-0.11
Spiked Amount 250.000			Recovery =	66.469%	
6) Phenol-D6 (S)	4.89	99	1059009	156.82209 ppb	-0.06
Spiked Amount 250.000			Recovery =	62.729%	
22) Nitrobenzene-D5(S)	5.93	82	567678	88.09433 ppb	-0.04
Spiked Amount 125.000			Recovery =	70.475%	
46) 2-Fluorobiphenyl(S)	7.99	172	1025556	76.35243 ppb	-0.03
Spiked Amount 125.000			Recovery =	61.082%	
64) 2,4,6-Tribromophenol(S)	9.72	330	231794	192.25883 ppb	0.00
Spiked Amount 250.000			Recovery =	76.904%	
82) Terphenyl-D14(S)	12.40	244	823488	61.91593 ppb	0.00
Spiked Amount 125.000			Recovery =	49.533%	
Target Compounds					Qvalue
32) Naphthalene	6.77	128	531418	32.19782 ppb	99
39) 2-Methylnaphthalene	7.56	142	91423	8.68680 ppb	98
40) 1-Methylnaphthalene	7.68	142	118146	10.83166 ppb	98
86) Bis (2-ethylhexyl) phthala	13.63	149	3092074	212.59943 ppb	99

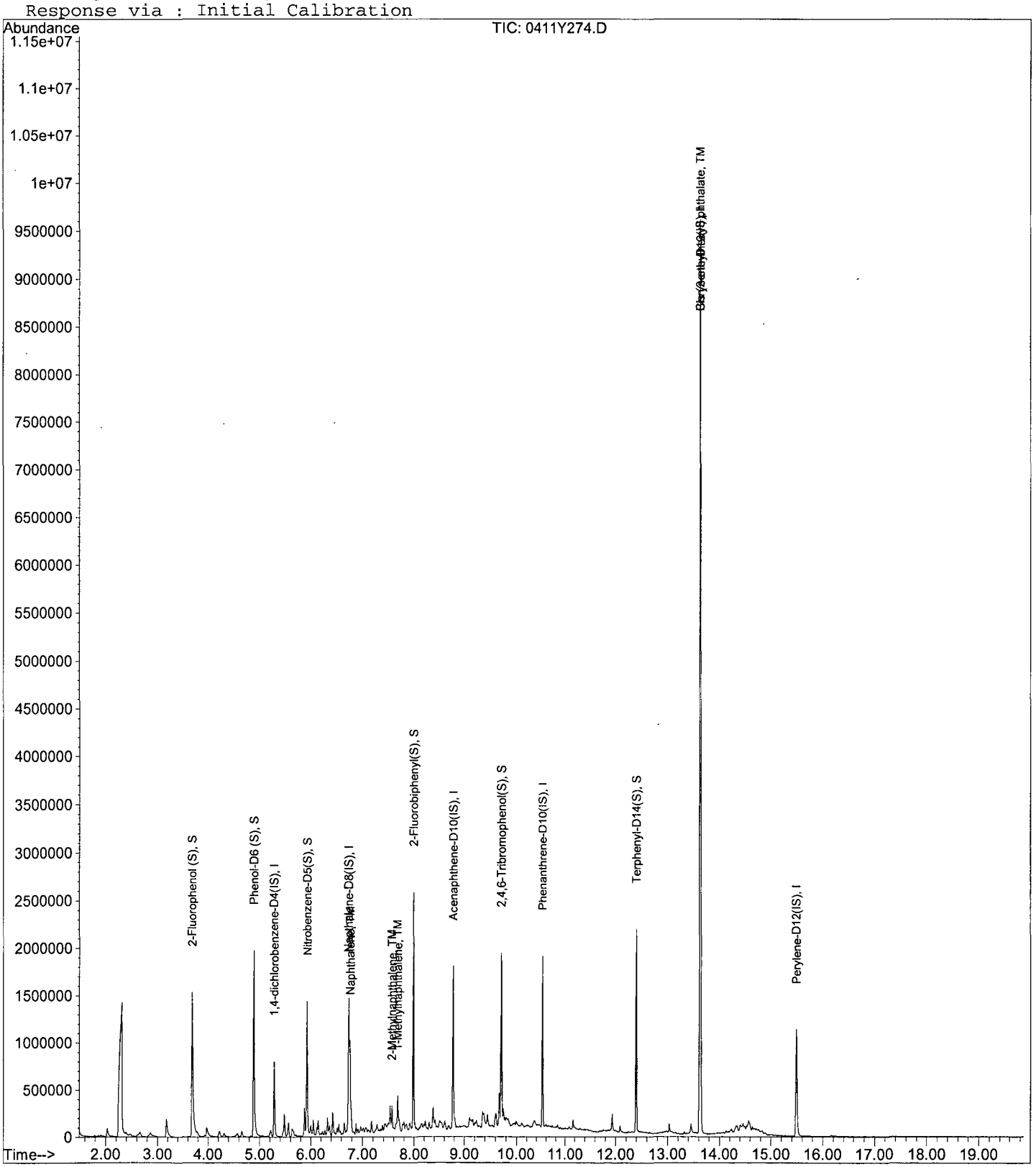
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y274.D Vial: 74
Acq On : 2 May 19 14:26 Operator: MA,SS
Sample : AZ90102W22 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:59 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y275.D Vial: 75
Acq On : 2 May 19 14:54 Operator: MA,SS
Sample : AZ90103W08 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 16:00 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	159301	40.00000 ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	706230	40.00000 ppb	-0.03
41) Acenaphthene-D10(IS)	8.78	164	441998	40.00000 ppb	-0.01
65) Phenanthrene-D10(IS)	10.53	188	735531	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.64	240	663939	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.49	264	648363	40.00000 ppb	0.03
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.68	112	892536	187.38278 ppb	-0.11
Spiked Amount 250.000			Recovery =	74.953%	
6) Phenol-D6 (S)	4.89	99	1081029	173.59690 ppb	-0.05
Spiked Amount 250.000			Recovery =	69.439%	
22) Nitrobenzene-D5(S)	5.93	82	568396	95.22194 ppb	-0.04
Spiked Amount 125.000			Recovery =	76.178%	
46) 2-Fluorobiphenyl(S)	7.99	172	997314	76.38845 ppb	-0.03
Spiked Amount 125.000			Recovery =	61.110%	
64) 2,4,6-Tribromophenol(S)	9.72	330	223508	190.72583 ppb	0.00
Spiked Amount 250.000			Recovery =	76.290%	
82) Terphenyl-D14(S)	12.40	244	640502	49.33106 ppb	0.00
Spiked Amount 125.000			Recovery =	39.465%	
Target Compounds					Qvalue
32) Naphthalene	6.77	128	501168	32.78036 ppb	99
39) 2-Methylnaphthalene	7.56	142	86498	8.87259 ppb	100
40) 1-Methylnaphthalene	7.68	142	113063	11.19017 ppb	100
86) Bis (2-ethylhexyl) phthala	13.62	149	368713	25.96902 ppb	98

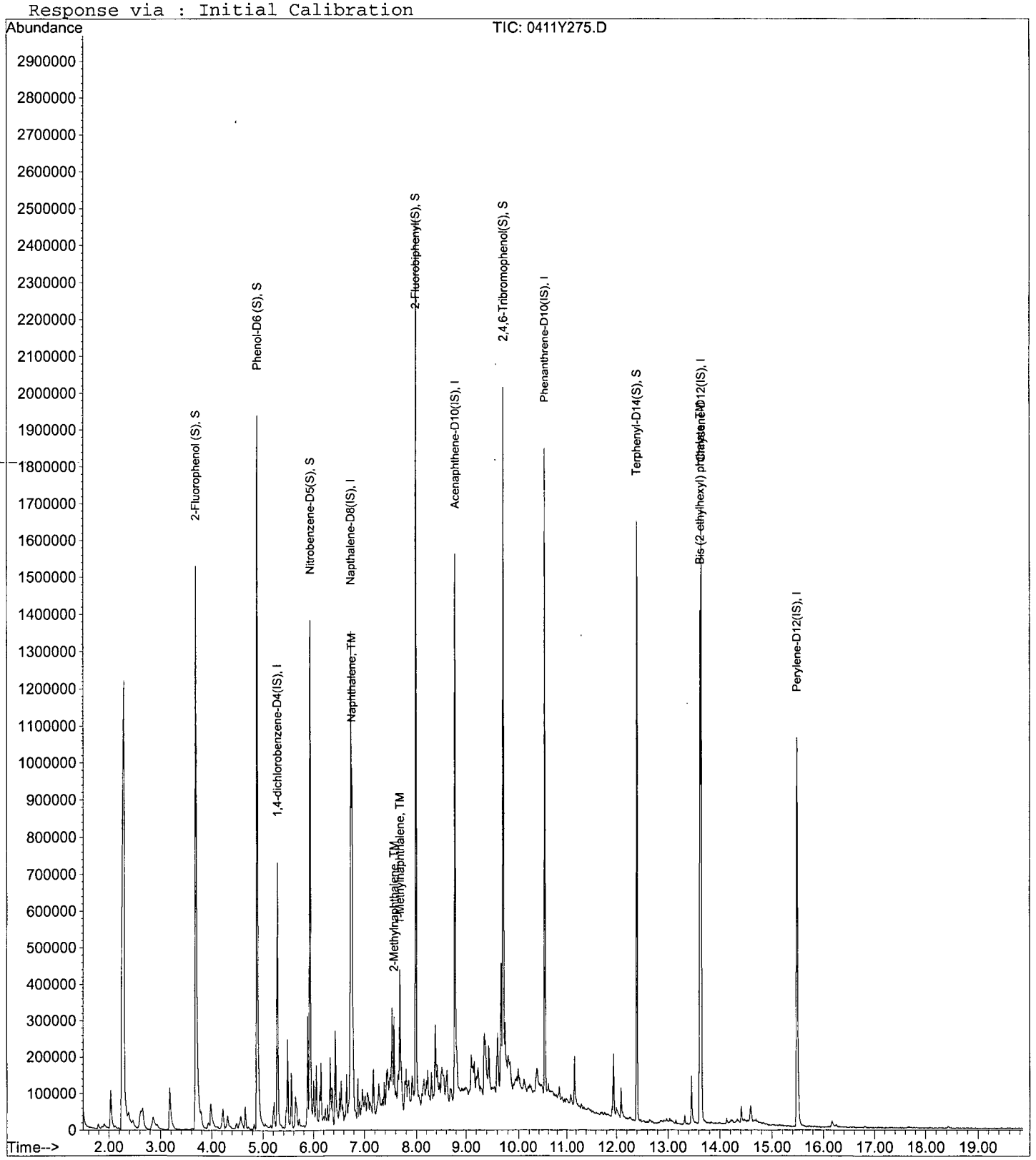
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y275.D Vial: 75
Acq On : 2 May 19 14:54 Operator: MA,SS
Sample : AZ90103W08 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 16:00 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y276.D Vial: 76
Acq On : 2 May 19 15:22 Operator: MA,SS
Sample : AZ90105W21 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 16:01 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	158241	40.00000 ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	720418	40.00000 ppb	-0.03
41) Acenaphthene-D10(IS)	8.77	164	439723	40.00000 ppb	-0.02
65) Phenanthrene-D10(IS)	10.53	188	753798	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.64	240	659785	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.49	264	646243	40.00000 ppb	0.02
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.69	112	780557	164.97117 ppb	-0.10
Spiked Amount 250.000			Recovery =	65.988%	
6) Phenol-D6 (S)	4.88	99	942705	152.39822 ppb	-0.06
Spiked Amount 250.000			Recovery =	60.959%	
22) Nitrobenzene-D5(S)	5.92	82	479622	78.76744 ppb	-0.05
Spiked Amount 125.000			Recovery =	63.014%	
46) 2-Fluorobiphenyl(S)	7.99	172	852267	65.61643 ppb	-0.03
Spiked Amount 125.000			Recovery =	52.493%	
64) 2,4,6-Tribromophenol(S)	9.71	330	186208	159.71875 ppb	-0.01
Spiked Amount 250.000			Recovery =	63.888%	
82) Terphenyl-D14(S)	12.39	244	804901	62.38327 ppb	0.00
Spiked Amount 125.000			Recovery =	49.906%	
Target Compounds					Qvalue
86) Bis (2-ethylhexyl) phthala	13.62	149	673597	47.74115 ppb	100

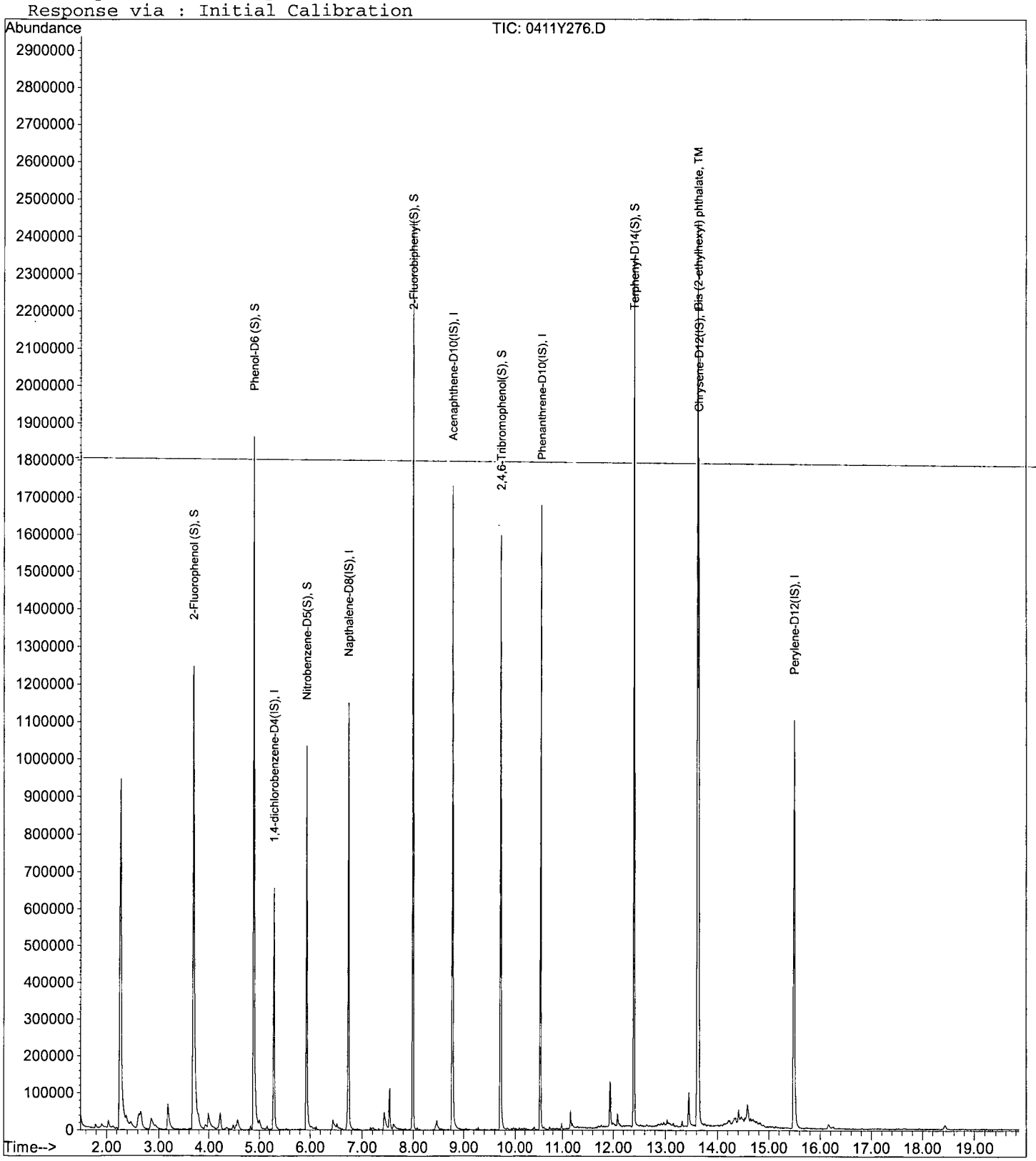
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y276.D Vial: 76
Acq On : 2 May 19 15:22 Operator: MA,SS
Sample : AZ90105W21 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 16:01 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y277.D Vial: 77
Acq On : 2 May 19 15:50 Operator: MA,SS
Sample : AZ90107W18 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 16:03 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	164084	40.00000 ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	731728	40.00000 ppb	-0.03
41) Acenaphthene-D10(IS)	8.77	164	446791	40.00000 ppb	-0.02
65) Phenanthrene-D10(IS)	10.53	188	764274	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.64	240	660372	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.49	264	662447	40.00000 ppb	0.02
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.69	112	884865	180.35709 ppb	-0.10
Spiked Amount 250.000			Recovery =	72.143%	
6) Phenol-D6 (S)	4.88	99	1103063	171.97178 ppb	-0.06
Spiked Amount 250.000			Recovery =	68.789%	
22) Nitrobenzene-D5(S)	5.92	82	572912	92.63400 ppb	-0.05
Spiked Amount 125.000			Recovery =	74.107%	
46) 2-Fluorobiphenyl(S)	7.98	172	1050109	79.56940 ppb	-0.03
Spiked Amount 125.000			Recovery =	63.655%	
64) 2,4,6-Tribromophenol(S)	9.71	330	230788	194.82539 ppb	-0.01
Spiked Amount 250.000			Recovery =	77.930%	
82) Terphenyl-D14(S)	12.40	244	1086985	84.17111 ppb	0.00
Spiked Amount 125.000			Recovery =	67.337%	
Target Compounds					Qvalue
86) Bis (2-ethylhexyl) phthala	13.65	149	7924812	561.17140 ppb	# 96

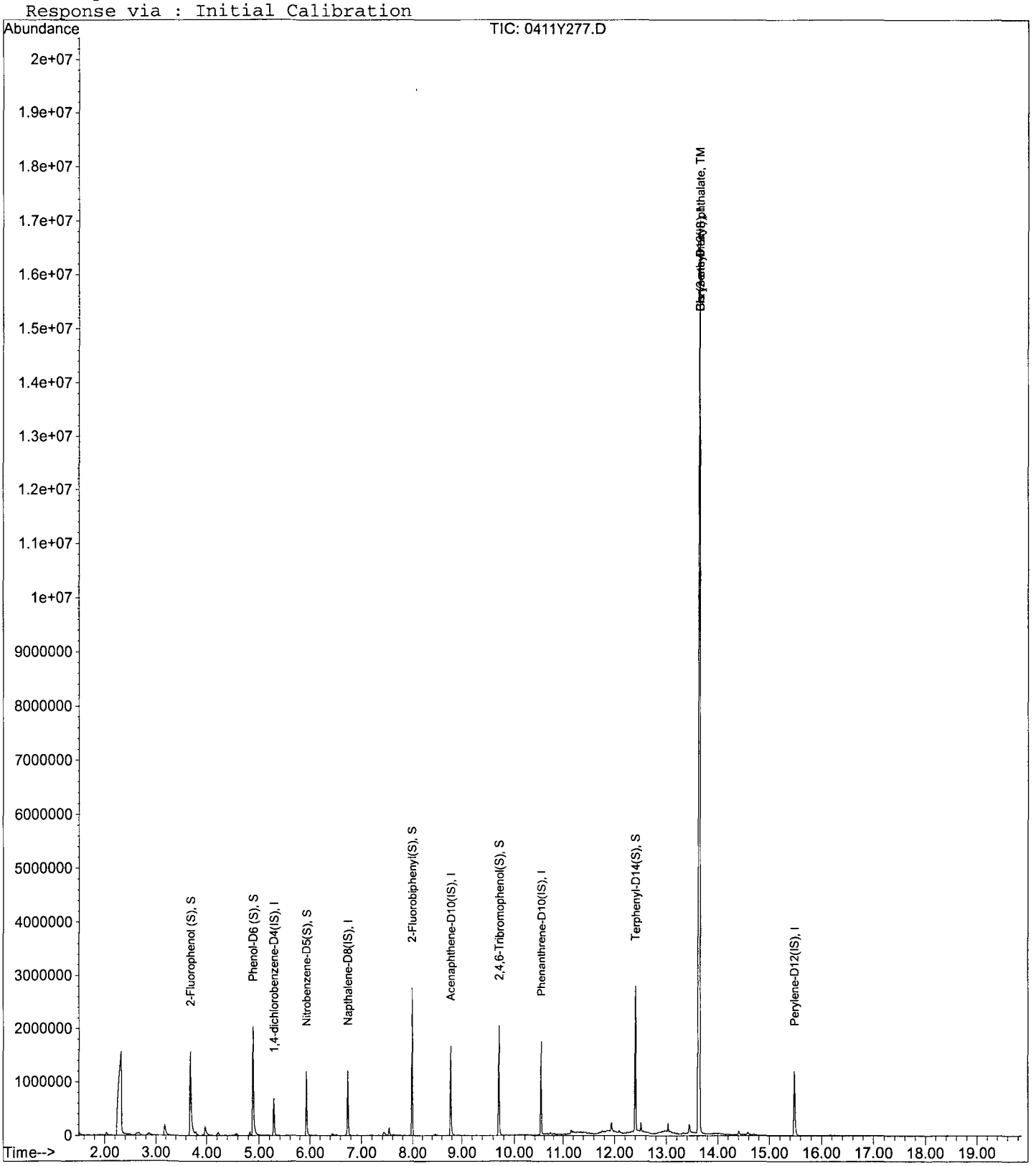
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y277.D Vial: 77
Acq On : 2 May 19 15:50 Operator: MA,SS
Sample : AZ90107W18 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 16:03 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y278.D Vial: 78
Acq On : 2 May 19 16:18 Operator: MA,SS
Sample : AZ90109W21 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 13 13:07 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

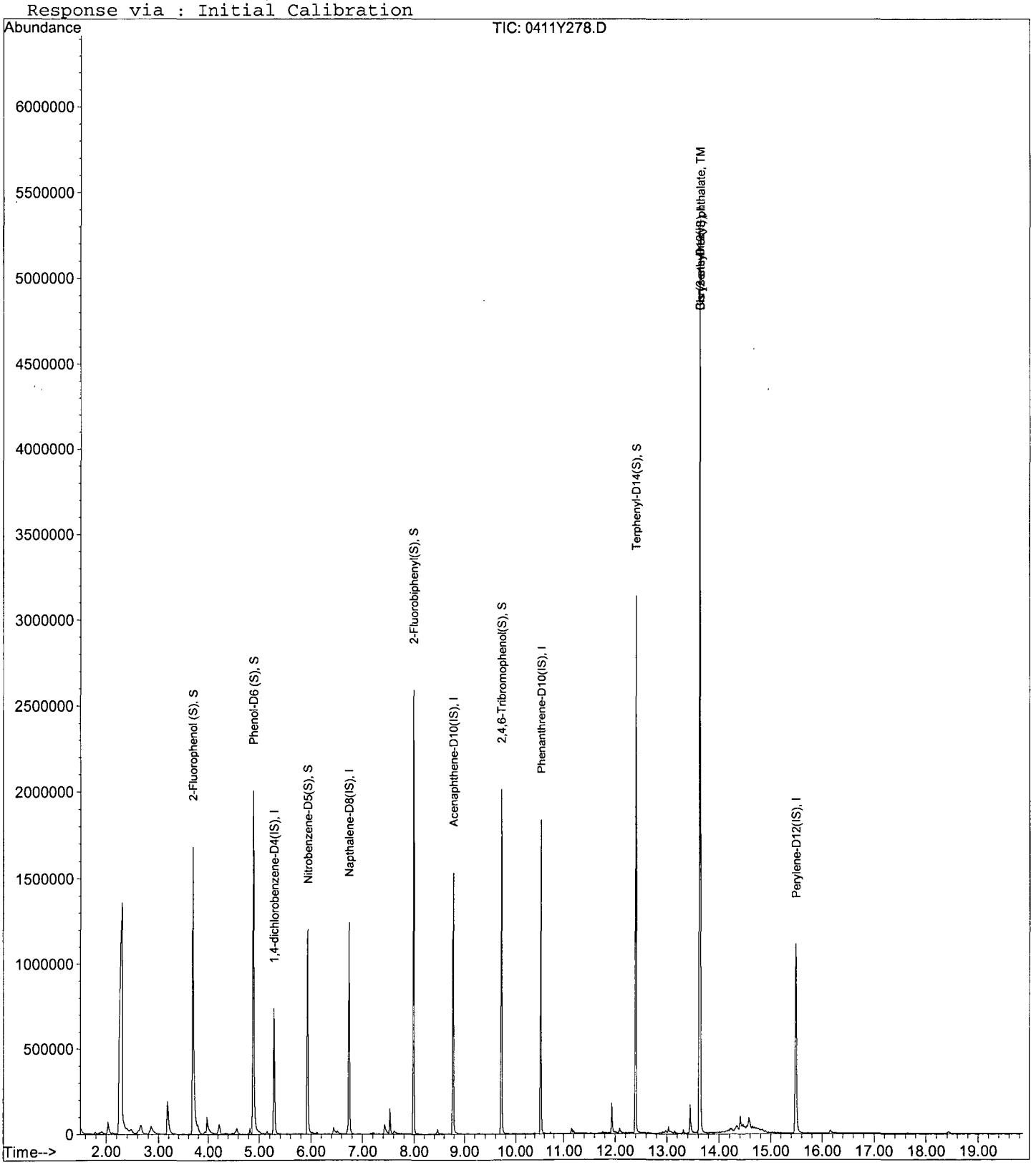
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	161112	40.00000 ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	707979	40.00000 ppb	-0.03
41) Acenaphthene-D10(IS)	8.78	164	445340	40.00000 ppb	-0.01
65) Phenanthrene-D10(IS)	10.53	188	761299	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.64	240	675056	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.48	264	662035	40.00000 ppb	0.02
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.68	112	905044	187.87295 ppb	-0.11
Spiked Amount 250.000			Recovery =	75.149%	
6) Phenol-D6 (S)	4.89	99	1116858	177.33448 ppb	-0.05
Spiked Amount 250.000			Recovery =	70.934%	
22) Nitrobenzene-D5(S)	5.93	82	578950	96.75042 ppb	-0.04
Spiked Amount 125.000			Recovery =	77.400%	
46) 2-Fluorobiphenyl(S)	7.98	172	1057842	80.41651 ppb	-0.04
Spiked Amount 125.000			Recovery =	64.334%	
64) 2,4,6-Tribromophenol(S)	9.71	330	233822	198.02974 ppb	-0.01
Spiked Amount 250.000			Recovery =	79.212%	
82) Terphenyl-D14(S)	12.40	244	1088255	82.43640 ppb	0.00
Spiked Amount 125.000			Recovery =	65.949%	
Target Compounds					Qvalue
86) Bis (2-ethylhexyl) phthala	13.63	149	1610196	111.54090 ppb	99

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190411\0411Y278.D Vial: 78
Acq On : 2 May 19 16:18 Operator: MA,SS
Sample : AZ90109W21 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 13 13:07 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190513\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 13 12:17:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y270.D Vial: 70
Acq On : 2 May 19 12:35 Operator: MA,SS
Sample : 190430A BLK 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:57 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	199329	40.00000 ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	866269	40.00000 ppb	-0.03
41) Acenaphthene-D10(IS)	8.77	164	470806	40.00000 ppb	-0.02
65) Phenanthrene-D10(IS)	10.53	188	780417	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.64	240	707014	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.49	264	699190	40.00000 ppb	0.02
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.68	112	994011	166.77968 ppb	-0.11
Spiked Amount 250.000			Recovery = 66.712%		
6) Phenol-D6 (S)	4.88	99	1189292	152.63043 ppb	-0.06
Spiked Amount 250.000			Recovery = 61.052%		
22) Nitrobenzene-D5(S)	5.92	82	594572	81.20521 ppb	-0.05
Spiked Amount 125.000			Recovery = 64.964%		
46) 2-Fluorobiphenyl(S)	7.98	172	1072133	77.09439 ppb	-0.03
Spiked Amount 125.000			Recovery = 61.675%		
64) 2,4,6-Tribromophenol(S)	9.71	330	236281	189.28821 ppb	-0.01
Spiked Amount 250.000			Recovery = 75.715%		
82) Terphenyl-D14(S)	12.40	244	1139929	82.44758 ppb	0.00
Spiked Amount 125.000			Recovery = 65.958%		
Target Compounds					Qvalue
86) Bis (2-ethylhexyl) phthala	13.62	149	1184826	78.36493 ppb	97

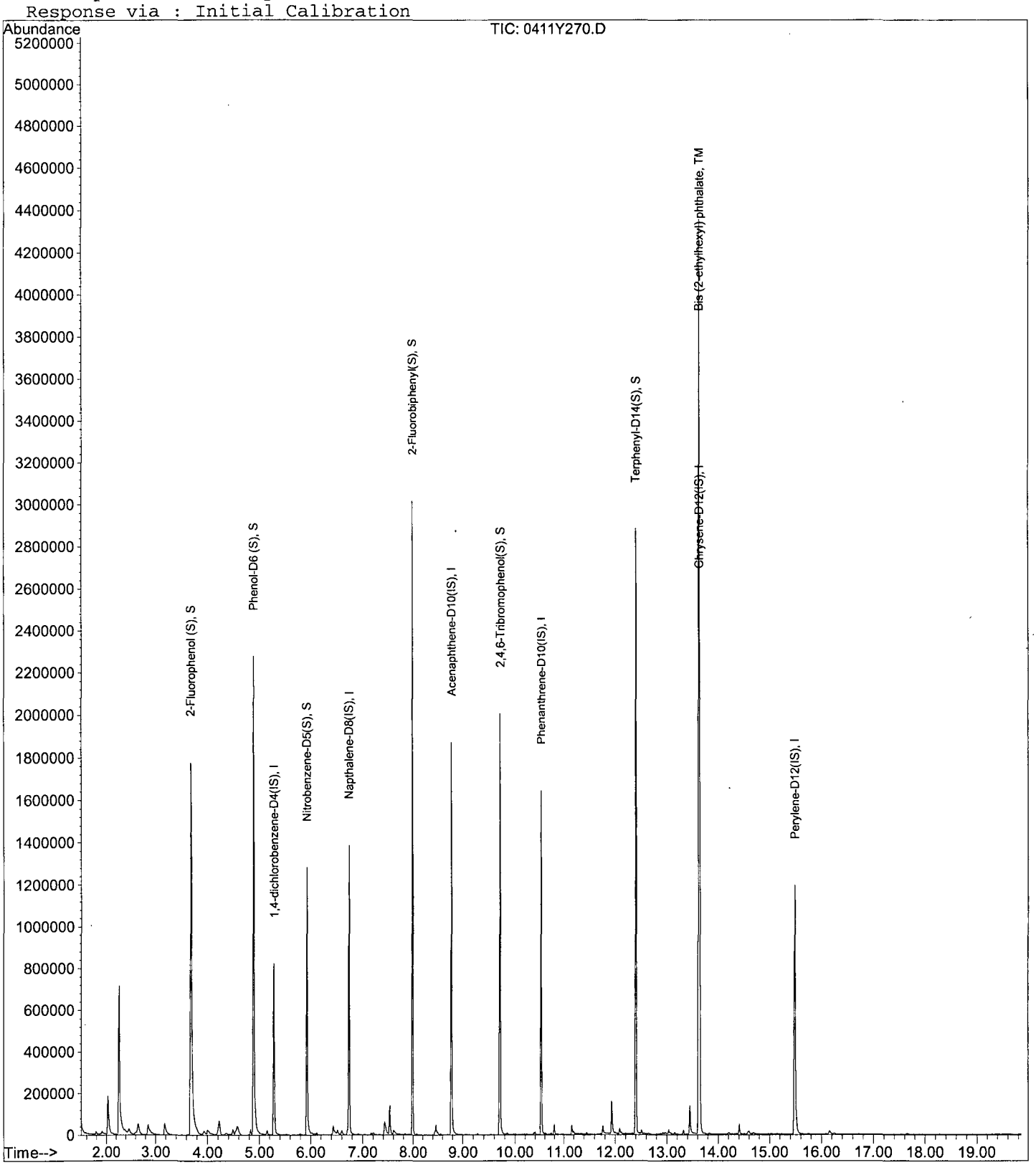
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y270.D Vial: 70
Acq On : 2 May 19 12:35 Operator: MA,SS
Sample : 190430A BLK 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:57 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y271.D Vial: 71
Acq On : 2 May 19 13:03 Operator: MA,SS
Sample : 190430A LCS-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:43 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	167547	40.00000 ppb		-0.05
21) Napthalene-D8(IS)	6.74	136	753242	40.00000 ppb		-0.03
41) Acenaphthene-D10(IS)	8.78	164	443671	40.00000 ppb		-0.01
65) Phenanthrene-D10(IS)	10.53	188	766016	40.00000 ppb		0.00
79) Chrysene-D12(IS)	13.64	240	688048	40.00000 ppb		0.01
89) Perylene-D12(IS)	15.49	264	671650	40.00000 ppb		0.02
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.68	112	995932	198.79959 ppb		-0.11
Spiked Amount 250.000			Recovery = 79.520%			
6) Phenol-D6 (S)	4.89	99	1223356	186.78385 ppb		-0.06
Spiked Amount 250.000			Recovery = 74.714%			
22) Nitrobenzene-D5(S)	5.93	82	578286	90.83231 ppb		-0.04
Spiked Amount 125.000			Recovery = 72.666%			
46) 2-Fluorobiphenyl(S)	7.99	172	1048479	80.00457 ppb		-0.03
Spiked Amount 125.000			Recovery = 64.004%			
64) 2,4,6-Tribromophenol(S)	9.72	330	231509	196.80838 ppb		0.00
Spiked Amount 250.000			Recovery = 78.723%			
82) Terphenyl-D14(S)	12.40	244	1125139	83.62104 ppb		0.00
Spiked Amount 125.000			Recovery = 66.897%			
Target Compounds						Qvalue
2) 1,4-Dioxane	1.61	58	4750	5.23463		94
3) n-Nitrosodimethylamine	1.85	42	87008	51.08103 ppb		95
4) Pyridine	1.85	79	186085	45.42575 ppb		91
7) Phenol	4.91	94	375402	51.80059 ppb		82
8) Aniline	4.91	93	277130	39.22601 ppb	#	68
9) Bis (2-chloroethyl) ether	4.99	63	168812	52.41018 ppb		96
10) 2-Chlorophenol	5.05	128	280095	53.12619 ppb		97
11) 1,3-DCB	5.22	146	253290	45.76523 ppb		98
12) 1,4-DCB	5.30	146	263369	46.27519 ppb		98
13) Benzyl alcohol	5.47	108	170724	55.68687 ppb		94
14) 1,2-DCB	5.47	146	248340	47.08106 ppb		97
15) 2-Methylphenol	5.60	107	239314	52.10439 ppb		98
16) Bis (2-chloroisopropyl) et	5.60	45	247142	52.09168 ppb		96
17) Acetophenone	5.75	105	383722	54.55278 ppb		87
18) 3&4-Methylphenol	5.77	107	601539	109.10642 ppb		100
19) n-Nitrosodi-n-propylamine	5.75	70	207767	53.81860 ppb		95
20) Hexachloroethane	5.85	117	89118	41.59593 ppb		96
23) Nitrobenzene	5.95	77	312995	50.89377 ppb		90
24) Isophorone	6.22	82	543732	50.84061 ppb		98
25) 2-Nitrophenol	6.31	139	160076	51.34667 ppb		92
26) 2,4-Dimethylphenol	6.37	122	233264	47.46694 ppb		98
27) Benzoic acid	6.54	105	204558	60.57672 ppb		96
28) Bis (2-chloroethoxy) metha	6.47	93	331064	50.67484 ppb		99
29) 2,4-Dichlorophenol	6.60	162	222645	53.43002 ppb		95
30) 1,2,4-Trichlorobenzene	6.67	180	204475	44.70065 ppb		99
31) 3,4-Dimethylphenol	6.71	107	370813	51.02624 ppb		99
32) Naphthalene	6.77	128	793698	48.67402 ppb		100
33) 4-Chloroaniline	6.84	127	119480	19.87532 ppb		96
34) 2,6-Dichlorophenol	6.84	162	210977	50.35622 ppb		97
35) Hexachloropropene	6.86	213	77307	30.41635 ppb		100
36) Hexachlorobutadiene	6.90	225	90700	40.42133 ppb		99
37) Caprolactum	7.28	55	104842	49.93201 ppb		97

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190411\0411Y271.D Vial: 71
Acq On : 2 May 19 13:03 Operator: MA,SS
Sample : 190430A LCS-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:43 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.42	107	265136	52.49028	ppb		98
39)	2-Methylnaphthalene	7.56	142	501782	48.25821	ppb		100
40)	1-Methylnaphthalene	7.68	142	520049	48.25832	ppb		99
42)	Hexachlorocyclopentadiene	7.73	237	1287	20.11178	ppb	#	91
43)	1,2,4,5-Tetrachlorobenzene	7.76	216	200849	43.34275	ppb		99
44)	2,4,6-Trichlorophenol	7.91	196	148785	49.92747	ppb		100
45)	2,4,5-Trichlorophenol	7.96	196	157007	49.02216	ppb		92
47)	1,1'-Biphenyl	8.10	154	649860	44.29371	ppb		100
48)	2-Chloronaphthalene	8.13	162	497040	45.04104	ppb		98
49)	2-Nitroaniline	8.27	65	169259	46.80028	ppb		95
50)	Dimethyl phthalate	8.46	163	618243	48.20322	ppb		99
51)	2,6-DNT	8.56	165	143083	47.70813	ppb		97
52)	Acenaphthylene	8.61	152	767682	43.95395	ppb		99
53)	3-Nitroaniline	8.75	138	113334	34.37840	ppb		85
54)	Acenaphthene	8.82	154	511724	45.48712	ppb		99
55)	2,4-Dinitrophenol	8.90	184	62380	45.07265	ppb		95
56)	4-Nitrophenol	8.98	65	118642	63.19255	ppb	#	71
57)	Dibenzofuran	9.02	168	697306	45.67294	ppb		96
58)	2,4-DNT	9.03	165	196273	48.42082	ppb		95
59)	2,3,4,6-Tetrachlorophenol	9.18	232	107873	53.04112	ppb		96
60)	Diethyl phthalate	9.29	149	596076	47.09410	ppb		99
61)	4-Chlorophenyl phenyl ethe	9.42	204	271994	46.62072	ppb		100
62)	Fluorene	9.42	166	581825	45.68519	ppb		99
63)	4-Nitroaniline	9.49	138	139964	41.96948	ppb		95
66)	4,6-Dinitro-2-methylphenol	9.51	198	113147	49.48879	ppb		95
67)	Diphenyl amine	9.57	169	885294	86.10902	ppb		99
68)	n-Nitrosodiphenylamine	9.57	169	885294	86.10902	ppb		99
69)	1,2-Diphenylhydrazine	9.61	77	612765	42.58625	ppb		96
70)	4-Bromophenyl phenyl ether	10.00	248	144499	45.04682	ppb		86
71)	Hexachlorobenzene	10.07	284	135956	45.63425	ppb	#	82
72)	Atrazine	10.20	200	76698	21.82993	ppb		93
73)	Pentachlorophenol	10.31	266	61395	56.99910	ppb		99
74)	Phenanthrene	10.55	178	827791	44.20835	ppb		99
75)	Anthracene	10.62	178	852901	43.11887	ppb		100
76)	Carbazol	10.81	167	808921	44.40847	ppb		99
77)	Di-n-butylphthalate	11.20	149	1048492	45.96731	ppb		100
78)	Fluoranthene	11.95	202	882694	45.08509	ppb	#	96
80)	Benzidine	12.14	184	16658	3.81562	ppb		97
81)	Pyrene	12.22	202	925142	45.58873	ppb		100
83)	Butyl benzylphthalate	12.97	149	482992	47.01695	ppb		92
84)	3,3'-Dichlorobenzidine	13.60	252	117284	22.98764	ppb		98
85)	Benz (a) anthracene	13.63	228	815637	45.45233	ppb		99
86)	Bis (2-ethylhexyl) phthala	13.62	149	653569	44.41891	ppb		96
87)	Chrysene	13.67	228	770114	44.51135	ppb		99
88)	Di-n-octylphthalate	14.37	149	1171963	46.19369	ppb		98
90)	Benzo (b) fluoranthene	14.94	252	847642	53.00526	ppb		98
91)	Benzo (k) fluoranthene	14.98	252	675971	42.27022	ppb		96
92)	Benzo (a) pyrene	15.41	252	696073	43.70455	ppb		99
93)	Indeno (1,2,3-cd) pyrene	17.39	276	748292	43.67087	ppb		98
94)	Dibenz (a,h) anthracene	17.41	278	670623	44.64010	ppb		99
95)	Benzo (g,h,i) perylene	17.97	276	629749	46.05354	ppb		97

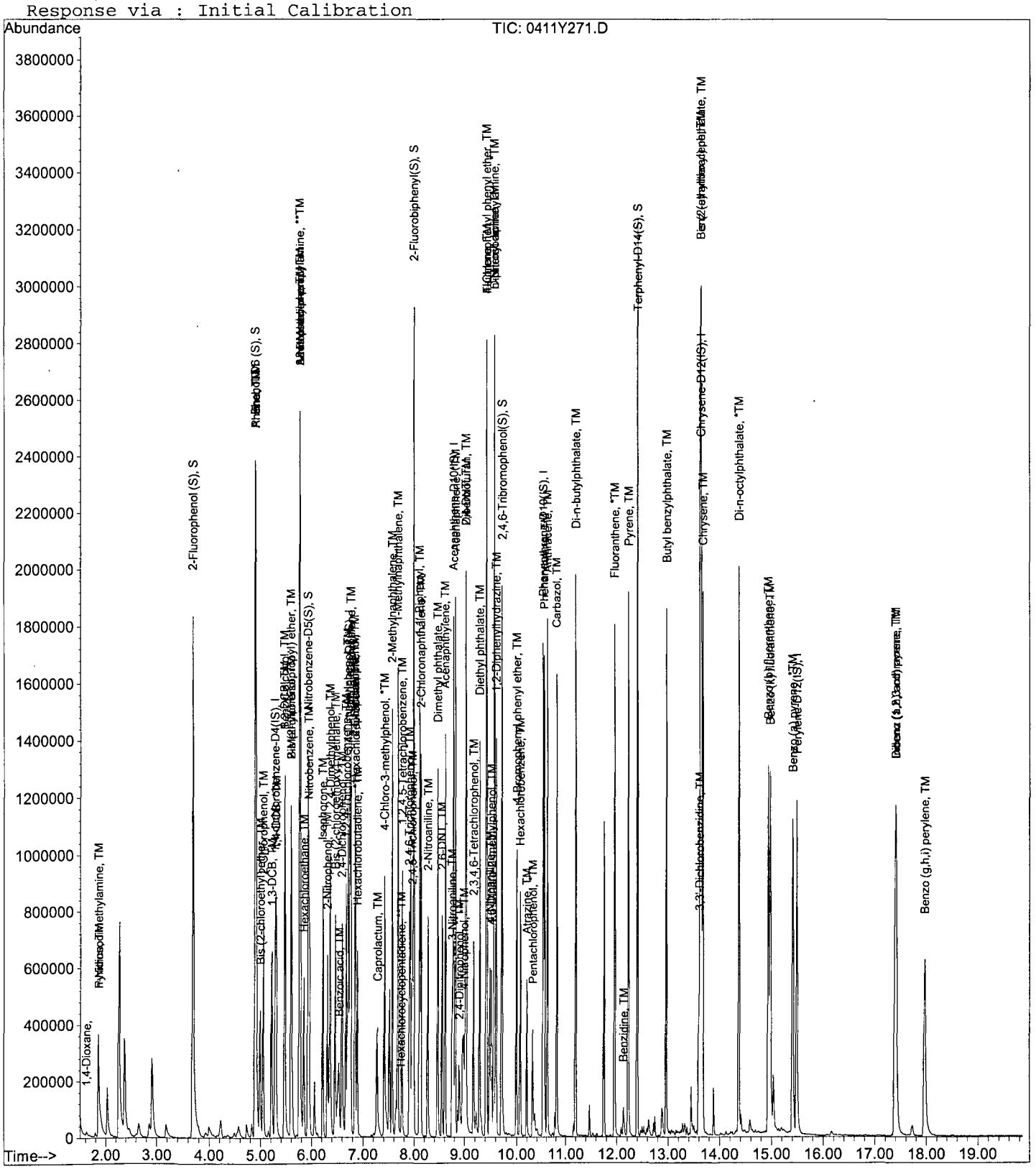
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y271.D Vial: 71
Acq On : 2 May 19 13:03 Operator: MA,SS
Sample : 190430A LCS-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:43 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y272.D Vial: 72
Acq On : 2 May 19 13:31 Operator: MA,SS
Sample : 190430A LCSD-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:43 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	159395	40.00000 ppb		-0.05
21) Napthalene-D8(IS)	6.74	136	719335	40.00000 ppb		-0.03
41) Acenaphthene-D10(IS)	8.78	164	448864	40.00000 ppb		-0.01
65) Phenanthrene-D10(IS)	10.53	188	760800	40.00000 ppb		0.00
79) Chrysene-D12(IS)	13.65	240	689946	40.00000 ppb		0.02
89) Perylene-D12(IS)	15.49	264	668653	40.00000 ppb		0.02
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.68	112	1009611	211.83700 ppb		-0.11
Spiked Amount 250.000			Recovery = 84.735%			
6) Phenol-D6 (S)	4.89	99	1244862	199.78811 ppb		-0.05
Spiked Amount 250.000			Recovery = 79.915%			
22) Nitrobenzene-D5(S)	5.93	82	586838	96.52043 ppb		-0.04
Spiked Amount 125.000			Recovery = 77.216%			
46) 2-Fluorobiphenyl(S)	7.99	172	1062465	80.13384 ppb		-0.03
Spiked Amount 125.000			Recovery = 64.107%			
64) 2,4,6-Tribromophenol(S)	9.72	330	244209	205.20297 ppb		0.00
Spiked Amount 250.000			Recovery = 82.081%			
82) Terphenyl-D14(S)	12.40	244	1113070	82.49650 ppb		0.00
Spiked Amount 125.000			Recovery = 65.997%			
Target Compounds						Qvalue
2) 1,4-Dioxane	1.61	58	4842	5.60892		75
3) n-Nitrosodimethylamine	1.85	42	85262	52.61602 ppb		90
4) Pyridine	1.86	79	185793	47.67405 ppb		94
7) Phenol	4.91	94	384370	55.75060 ppb		84
8) Aniline	4.91	93	301066	44.79343 ppb	#	75
9) Bis (2-chloroethyl) ether	4.99	63	171994	56.12903 ppb		96
10) 2-Chlorophenol	5.05	128	289406	57.69960 ppb		95
11) 1,3-DCB	5.22	146	247809	47.06485 ppb		98
12) 1,4-DCB	5.30	146	258633	47.76716 ppb		98
13) Benzyl alcohol	5.47	108	175056	60.02017 ppb		92
14) 1,2-DCB	5.48	146	249614	49.74282 ppb		98
15) 2-Methylphenol	5.60	107	247125	56.55680 ppb		99
16) Bis (2-chloroisopropyl) et	5.60	45	250888	55.58578 ppb		96
17) Acetophenone	5.75	105	384437	57.44964 ppb		89
18) 3&4-Methylphenol	5.77	107	611513	116.58808 ppb		99
19) n-Nitrosodi-n-propylamine	5.75	70	209387	57.01216 ppb		94
20) Hexachloroethane	5.85	117	82932	40.68830 ppb		98
23) Nitrobenzene	5.95	77	316177	53.83452 ppb		92
24) Isophorone	6.22	82	555845	54.42306 ppb		98
25) 2-Nitrophenol	6.31	139	160999	54.07700 ppb		91
26) 2,4-Dimethylphenol	6.37	122	243675	51.92277 ppb		96
27) Benzoic acid	6.54	105	214178	66.41520 ppb		97
28) Bis (2-chloroethoxy) metha	6.47	93	334125	53.55410 ppb		99
29) 2,4-Dichlorophenol	6.60	162	223121	56.06814 ppb		94
30) 1,2,4-Trichlorobenzene	6.67	180	204400	46.79052 ppb		98
31) 3,4-Dimethylphenol	6.71	107	376157	54.20147 ppb		99
32) Naphthalene	6.77	128	801294	51.45614 ppb		100
33) 4-Chloroaniline	6.84	127	114193	19.89124 ppb		97
34) 2,6-Dichlorophenol	6.84	162	215211	53.78805 ppb		96
35) Hexachloropropene	6.86	213	73809	30.40891 ppb		98
36) Hexachlorobutadiene	6.89	225	84432	39.40159 ppb		99
37) Caprolactum	7.28	55	107959	53.84011 ppb		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y272.D Vial: 72
Acq On : 2 May 19 13:31 Operator: MA,SS
Sample : 190430A LCSD-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:43 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.42	107	276924	57.40823	ppb		98
39)	2-Methylnaphthalene	7.56	142	496602	50.01128	ppb		100
40)	1-Methylnaphthalene	7.68	142	529066	51.40923	ppb		98
42)	Hexachlorocyclopentadiene	7.73	237	1571	20.42536	ppb		96
43)	1,2,4,5-Tetrachlorobenzene	7.76	216	201007	42.87501	ppb		97
44)	2,4,6-Trichlorophenol	7.91	196	150835	50.02980	ppb		98
45)	2,4,5-Trichlorophenol	7.96	196	160653	49.58023	ppb		92
47)	1,1'-Biphenyl	8.10	154	656749	44.24538	ppb		99
48)	2-Chloronaphthalene	8.13	162	496432	44.46549	ppb		99
49)	2-Nitroaniline	8.27	65	171757	46.94155	ppb		94
50)	Dimethyl phthalate	8.46	163	620724	47.83675	ppb		100
51)	2,6-DNT	8.56	165	144411	47.59386	ppb		99
52)	Acenaphthylene	8.61	152	775499	43.88782	ppb		99
53)	3-Nitroaniline	8.75	138	115013	34.48408	ppb		85
54)	Acenaphthene	8.82	154	513076	45.07966	ppb		100
55)	2,4-Dinitrophenol	8.90	184	66521	47.03261	ppb		93
56)	4-Nitrophenol	8.98	65	123706	64.68733	ppb	#	77
57)	Dibenzofuran	9.02	168	696868	45.11618	ppb		94
58)	2,4-DNT	9.03	165	199214	48.57778	ppb		96
59)	2,3,4,6-Tetrachlorophenol	9.18	232	113461	55.14330	ppb		95
60)	Diethyl phthalate	9.29	149	598780	46.76042	ppb		99
61)	4-Chlorophenyl phenyl ethe	9.42	204	274009	46.42274	ppb		99
62)	Fluorene	9.42	166	596913	46.32766	ppb		99
63)	4-Nitroaniline	9.49	138	142546	42.24921	ppb		95
66)	4,6-Dinitro-2-methylphenol	9.51	198	115562	50.89161	ppb		95
67)	Diphenyl amine	9.57	169	900597	88.19804	ppb		98
68)	n-Nitrosodiphenylamine	9.57	169	900597	88.19804	ppb		98
69)	1,2-Diphenylhydrazine	9.61	77	618101	43.25161	ppb		96
70)	4-Bromophenyl phenyl ether	10.00	248	145086	45.53991	ppb		85
71)	Hexachlorobenzene	10.07	284	135533	45.80417	ppb	#	84
72)	Atrazine	10.20	200	77439	22.19194	ppb		96
73)	Pentachlorophenol	10.31	266	63028	58.65007	ppb		96
74)	Phenanthrene	10.55	178	837876	45.05372	ppb		100
75)	Anthracene	10.62	178	855054	43.52408	ppb		99
76)	Carbazol	10.81	167	822263	45.45041	ppb		99
77)	Di-n-butylphthalate	11.20	149	1048062	46.26347	ppb		100
78)	Fluoranthene	11.96	202	894525	46.00262	ppb		96
80)	Benzidine	12.13	184	22821	5.21291	ppb		96
81)	Pyrene	12.22	202	936783	46.03538	ppb		99
83)	Butyl benzylphthalate	12.97	149	554986	53.87660	ppb		92
84)	3,3'-Dichlorobenzidine	13.60	252	109043	21.31361	ppb		98
85)	Benz (a) anthracene	13.63	228	818735	45.49945	ppb		99
86)	Bis (2-ethylhexyl) phthala	13.62	149	814494	55.20368	ppb		97
87)	Chrysene	13.67	228	779811	44.94783	ppb		99
88)	Di-n-octylphthalate	14.37	149	1212981	47.67892	ppb		98
90)	Benzo (b) fluoranthene	14.94	252	750155	47.11940	ppb		97
91)	Benzo (k) fluoranthene	14.97	252	784215	49.25880	ppb		97
92)	Benzo (a) pyrene	15.41	252	704842	44.45349	ppb		98
93)	Indeno (1,2,3-cd) pyrene	17.40	276	759417	44.51879	ppb		98
94)	Dibenz (a,h) anthracene	17.41	278	681899	45.59413	ppb		98
95)	Benzo (g,h,i) perylene	17.96	276	639591	46.98293	ppb		99

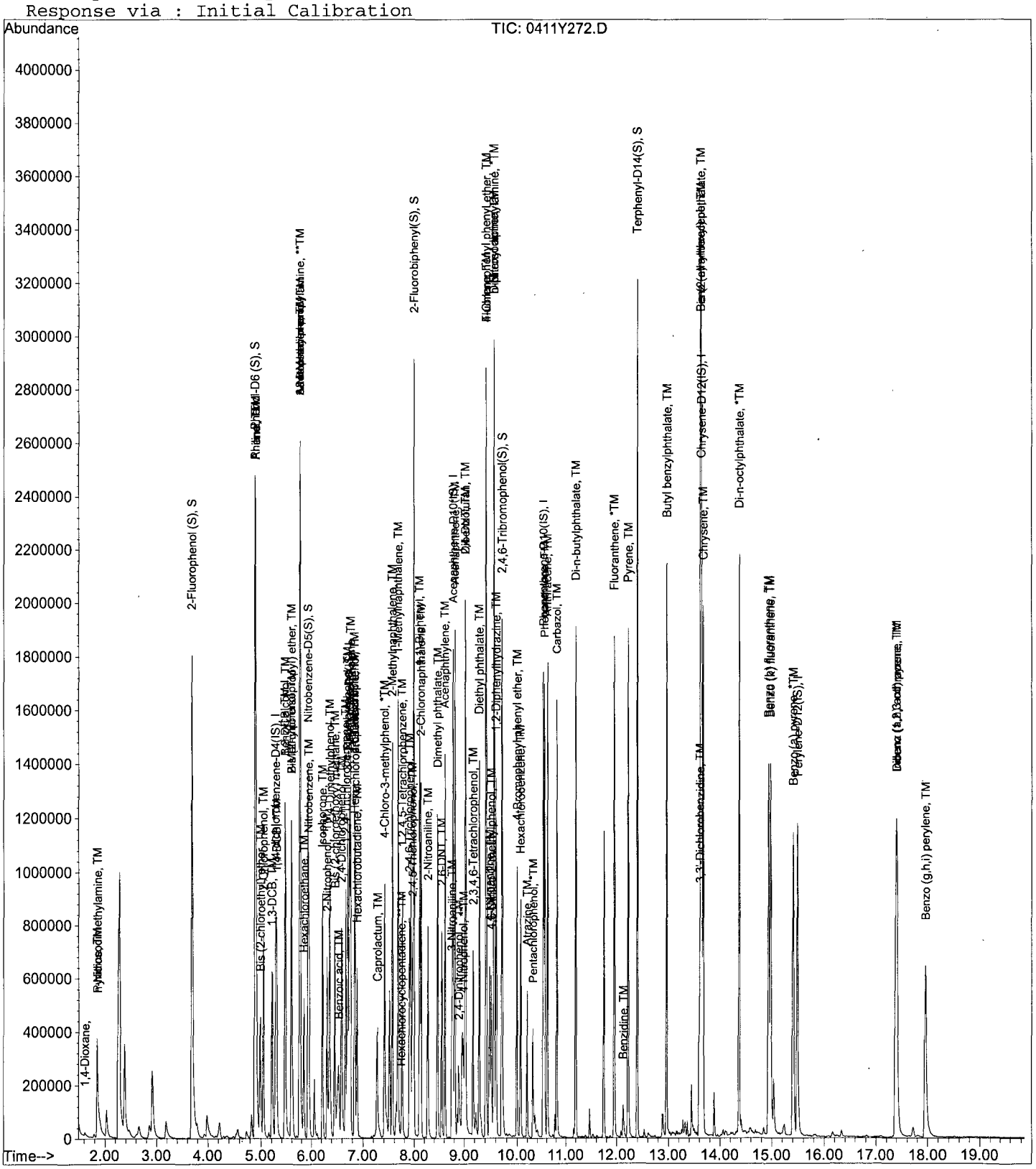
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y272.D Vial: 72
Acq On : 2 May 19 13:31 Operator: MA,SS
Sample : 190430A LCSD-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

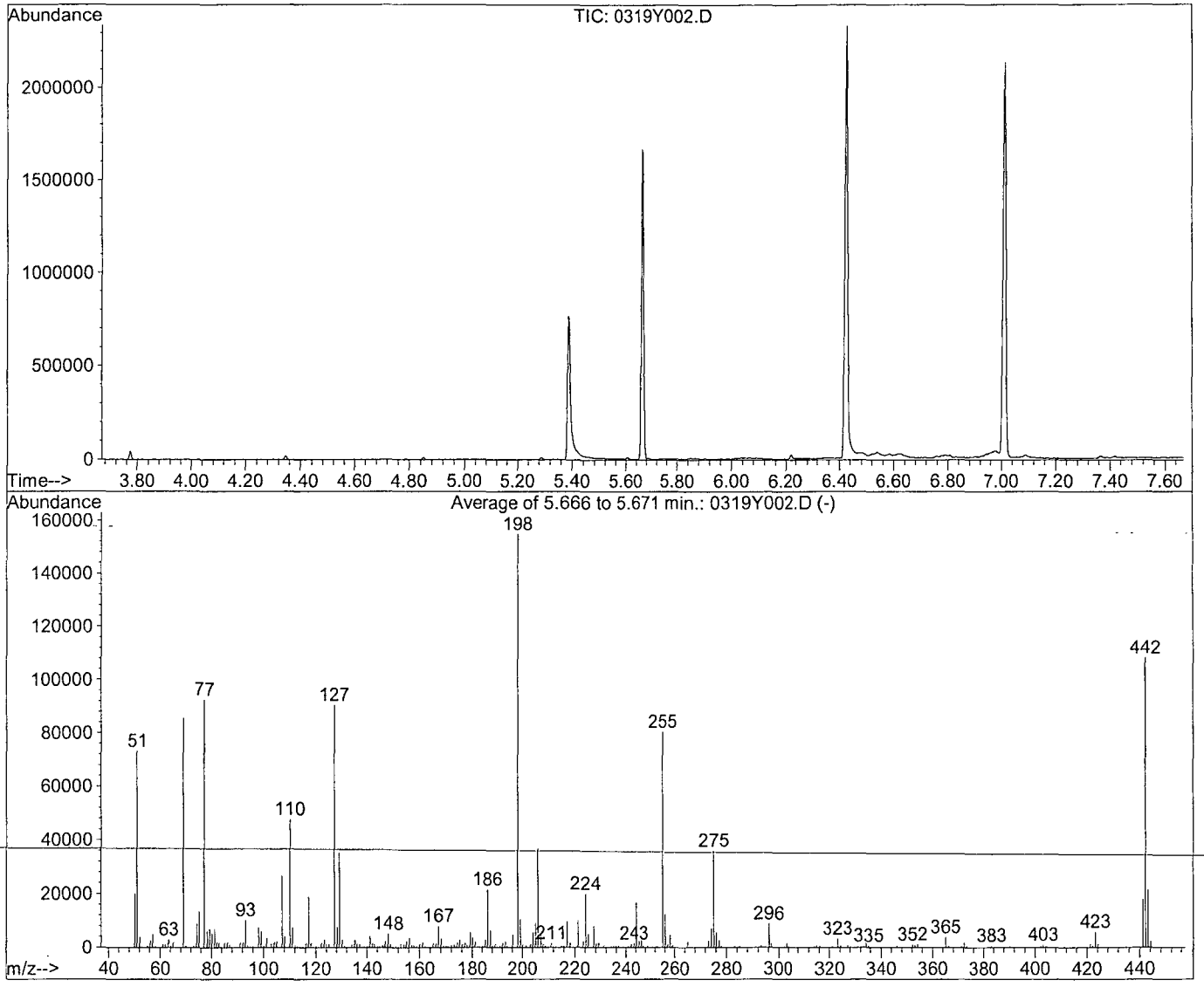
Quant Time: May 2 15:43 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Data File : M:\YODA\DATA\Y190319\0319Y002.D Vial: 2
Acq On : 19 Mar 19 18:15 Operator: MA
Sample : SV Tune 11/10/18 Inst : Yoda
Misc : Multiplr: 1.00

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C



AutoFind: Scans 833, 834, 835; Background Corrected with Scan 824

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	47.2	73142	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.6	492	PASS
127	198	10	80	58.4	90499	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	154987	PASS
199	198	5	9	6.7	10387	PASS
275	198	10	60	23.1	35872	PASS
365	198	1	100	2.4	3731	PASS
441	442	0.01	24	16.3	17617	PASS
442	198	50	150	69.9	108320	PASS
443	442	15	24	19.7	21288	PASS

Data File Name:	**0319Y002.D**
Data File Path:	**M:\YODA\DATA\Y190319**
Operator:	**MA**
Date Acquired:	**19 Mar 2019 18:15**
Method File:	**DFTPP2.M**
Sample Name:	**SV Tune 11/10/18**
Vial Number:	**2**
Instrument Name:	**Yoda**

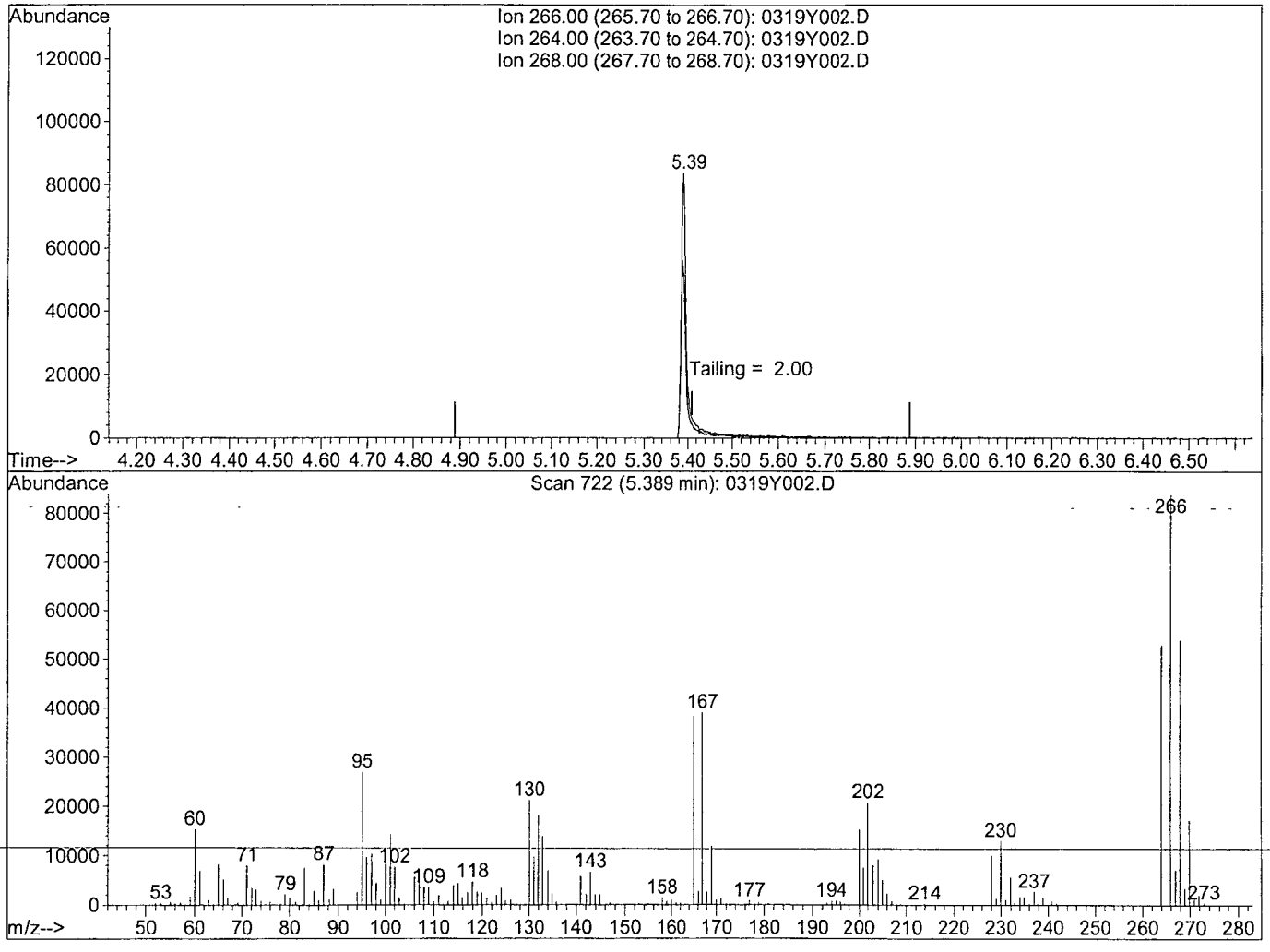
#	Name	Ret Time	Target Response
1)	DDT	7.01	15502300
2)	DDD	6.80	149561
3)	DDE	6.95	46466

Breakdown **1.25**

Quantitation Report

Data File : M:\YODA\DATA\Y190319\0319Y002.D Vial: 2
Acq On : 19 Mar 19 18:15 Operator: MA
Sample : SV Tune 11/10/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: Mar 19 19:13 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190319\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Wed Mar 20 00:14:48 2019
Response via : Single Level Calibration



TIC: 0319Y002.D

(5) Pentachlorophenol

5.39min 0.0000

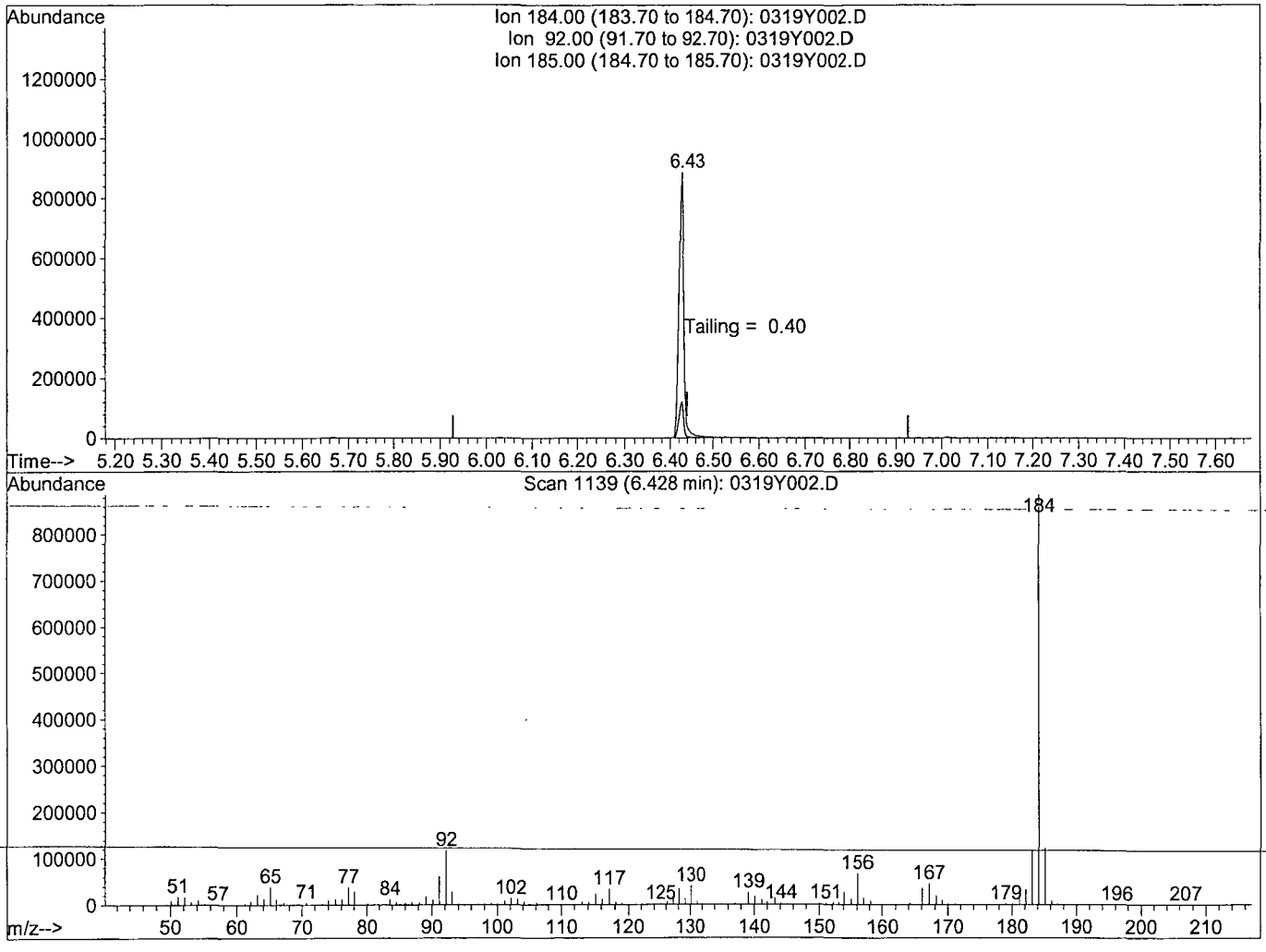
response 676097

Ion	Exp%	Act%
266.00	100	100
264.00	63.10	59.85
268.00	64.40	64.59
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190319\0319Y002.D Vial: 2
Acq On : 19 Mar 19 18:15 Operator: MA
Sample : SV Tune 11/10/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: Mar 19 19:13 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190319\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Wed Mar 20 00:14:48 2019
Response via : Single Level Calibration



TIC: 0319Y002.D

(6) Benzidine

6.43min 0.0000

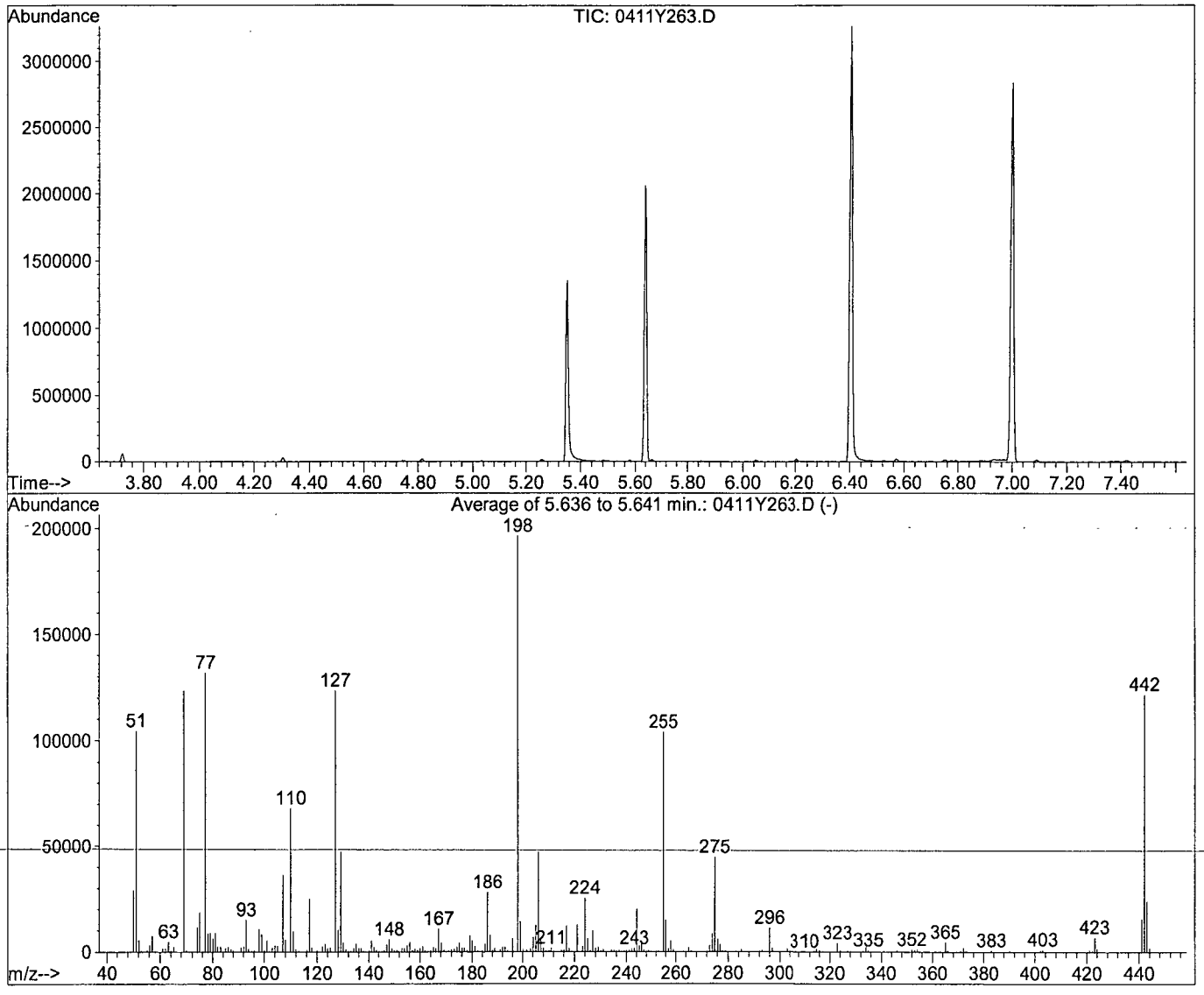
response 6732623

Ion	Exp%	Act%
184.00	100	100
92.00	13.20	13.26
185.00	13.60	13.98
0.00	0.00	0.00

DFTPP

Data File : M:\YODA\DATA\Y190411\0411Y263.D Vial: 63
Acq On : 2 May 19 9:11 Operator: MA
Sample : SV TUNE 10/11/18 Inst : Yoda
Misc : Multiplr: 1.00

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C



AutoFind: Scans 821, 822, 823; Background Corrected with Scan 813

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	53.1	104451	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.5	601	PASS
127	198	10	80	62.7	123312	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	196629	PASS
199	198	5	9	7.2	14195	PASS
275	198	10	60	22.7	44613	PASS
365	198	1	100	2.3	4505	PASS
441	442	0.01	24	12.8	15547	PASS
442	198	50	150	61.8	121419	PASS
443	442	15	24	19.7	23902	PASS

Data File Name:	**0411Y263.D**
Data File Path:	**M:\YODA\DATA\Y190411**
Operator:	**MA**
Date Acquired:	**2 May 19 9:11**
Method File:	**DFTPP2.M**
Sample Name:	**SV TUNE 10/11/18**
Vial Number:	**63**
Instrument Name:	**Yoda**

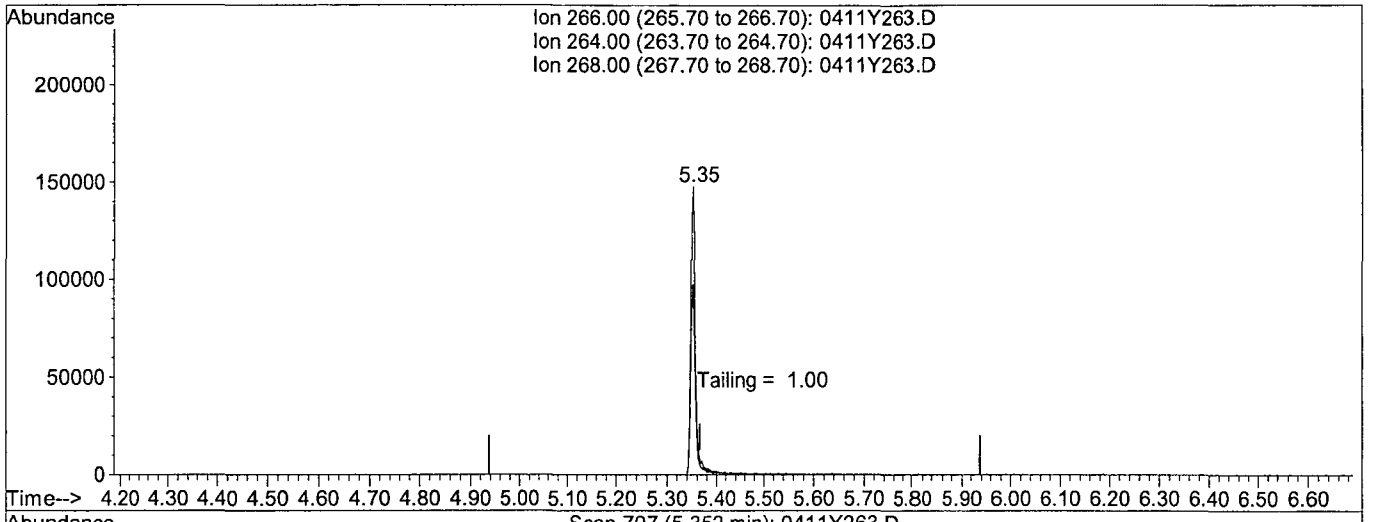
#	Name	Ret Time	Target Response
1)	DDT	7.08	20599800
2)	DDD	6.75	0
3)	DDE	6.86	0

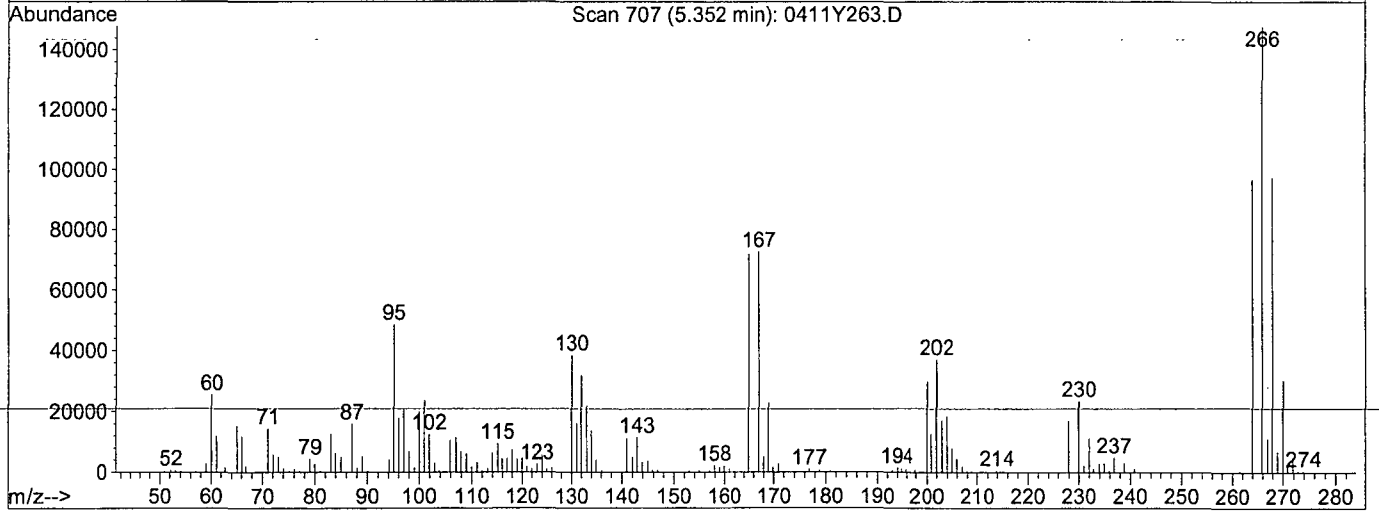
Breakdown **0.00**

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y263.D Vial: 63
Acq On : 2 May 19 9:11 Operator: MA
Sample : SV TUNE 10/11/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: May 2 9:29 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190411\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Mon Apr 22 13:05:57 2019
Response via : Single Level Calibration





TIC: 0411Y263.D

(5) Pentachlorophenol

5.35min 0.0000

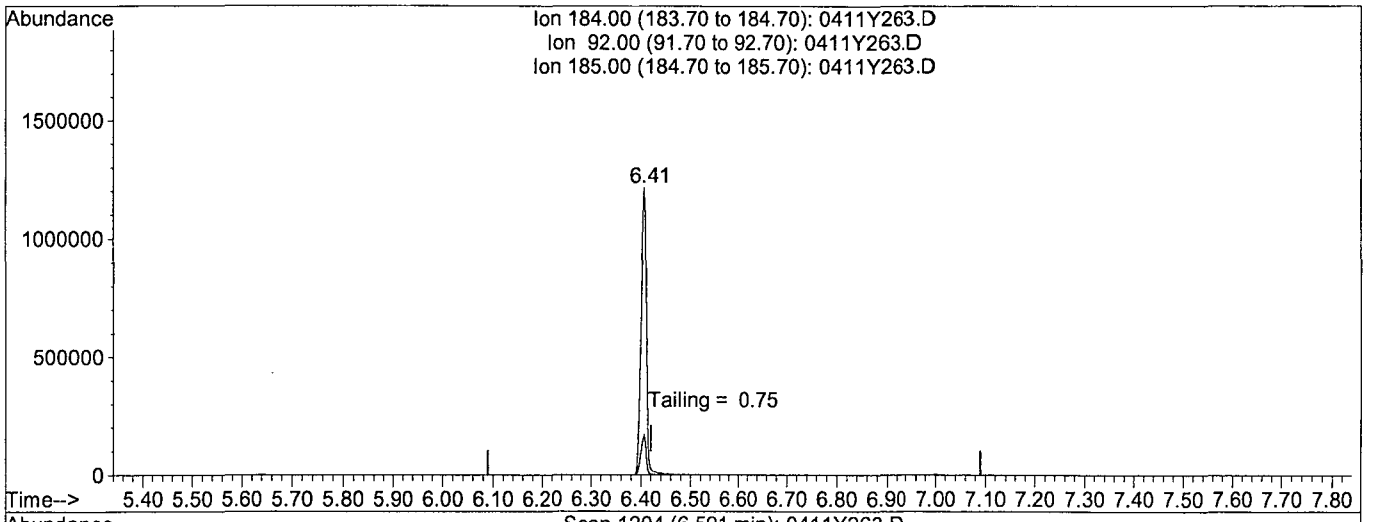
response 956612

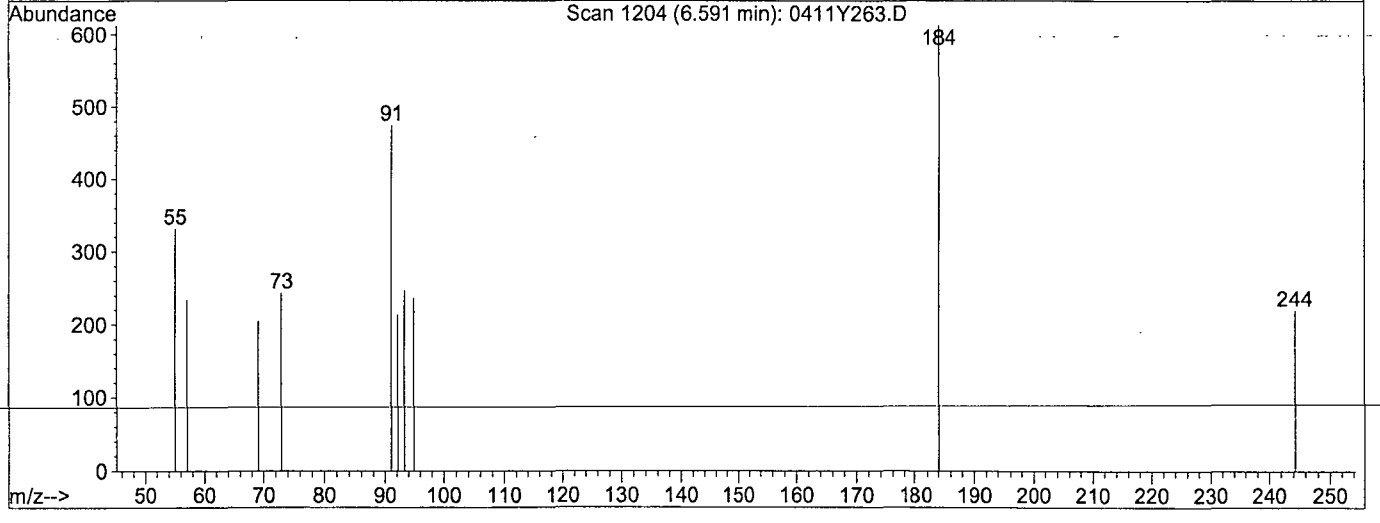
Ion	Exp%	Act%
266.00	100	100
264.00	61.20	63.94
268.00	65.20	63.63
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y263.D Vial: 63
Acq On : 2 May 19 9:11 Operator: MA
Sample : SV TUNE 10/11/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: May 2 9:29 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190411\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Mon Apr 22 13:05:57 2019
Response via : Single Level Calibration





TIC: 0411Y263.D

(6) Benzidine

6.59min 0.0000

response 0

Ion	Exp%	Act%
184.00	100	0.00
92.00	13.60	0.00#
185.00	14.10	0.00#
0.00	0.00	0.00

Name of Final Standard	8270 Full Scan Standard Curve	**Prep'd By (Initials)**	**GA**
Prep Date	03/13/19		
Exp Date	09/13/19		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
8270 Stock	APPL	8270 Stock	200 ug/mL	03/05/19	10/20/19	4 uL	200uL	MC 56258 192uL	4 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	10/17/18	09/27/19	4 uL	"	"	"
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	02/09/19	02/09/20	4 uL	"	"	"
8270 Stock	APPL	8270 Stock	200 ug/mL	03/05/19	10/20/19	5 uL	200uL	MC 56258 190uL	5 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	10/17/18	09/27/19	5 uL	"	"	"
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	02/09/19	02/09/20	4 uL	"	"	"
8270 Stock	APPL	8270 Stock	200 ug/mL	03/05/19	10/20/19	5 uL	100uL	MC 56258 90uL	10 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	10/17/18	09/27/19	5 uL	"	"	"
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	02/09/19	02/09/20	2 uL	"	"	"
8270 Stock	APPL	8270 Stock	200 ug/mL	03/05/19	10/20/19	10 uL	100uL	MC 56258 80uL	20 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	10/17/18	09/27/19	10 uL	"	"	"
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	02/09/19	02/09/20	2 uL	"	"	"
8270 Stock	APPL	8270 Stock	200 ug/mL	03/05/19	10/20/19	20 uL	100uL	MC 56258 60uL	40 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	10/17/18	09/27/19	20 uL	"	"	"
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	02/09/19	02/09/20	2 uL	"	"	"
8270 Stock	APPL	8270 Stock	200 ug/mL	03/05/19	10/20/19	50 uL	200 uL	MC 56258 100uL	50 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	10/17/18	09/27/19	50 uL	"	"	"
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	02/09/19	02/09/20	4 uL	"	"	"
8270 Stock	APPL	8270 Stock	200 ug/mL	03/05/19	10/20/19	30 uL	100uL	MC 56258 40uL	60 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	10/17/18	09/27/19	30 uL	"	"	"
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	02/09/19	02/09/20	2 uL	"	"	"
8270 Stock	APPL	8270 Stock	200 ug/mL	03/05/19	10/20/19	40 uL	100uL	MC 56258 20uL	80 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	10/17/18	09/27/19	40 uL	"	"	"
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	02/09/19	02/09/20	2 uL	"	"	"
8270 Stock	APPL	8270 Stock	200 ug/mL	03/05/19	10/20/19	50 uL	100uL	na	100 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	10/17/18	09/27/19	50 uL	"	"	"
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	02/09/19	02/09/20	2 uL	"	"	"

Name of Final Standard	8270 Full Scan Second Source	**Prep'd By (Initials)**	**GA**
Prep Date	**03/13/19**		
Exp Date	**09/13/19**		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
8270 SS Stock	o2si	8270 SS Stock	200 ug/mL	**03/05/19**	**01/08/20**	50 uL	200uL	**MC 56258 150uL**	50 ug/mL
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	**01/16/19**	**01/16/20**	4 uL	*	*	*

Name of Final Standard	8270 Full Scan Spike	Prep'd By (Initials)	GA
Prep Date	03/05/19		
Exp Date	10/20/19		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
10001	Absolute	10001	2000	051018-39827 051018-39828	03/05/20	2.0 mL	20 mL	NA	200 ug/mL
10002	Absolute	10002	2000	051018-39832 051018-39833	03/05/20	2.0 mL	*	*	200 ug/mL
10004	Absolute	10004	2000	031618-39836 031618-39839	01/30/20	2.0 mL	*	*	200 ug/mL
10005	Absolute	10005	2000	032018-40011 032018-40012	01/30/20	2.0 mL	*	*	200 ug/mL
10006	Absolute	10006	2000	071318-39842 071318-39843	01/30/20	2.0 mL	*	*	200 ug/mL
10007	Absolute	10007	2000	080116-40016 080116-40017	01/30/20	2.0 mL	*	*	200 ug/mL
10018	Absolute	10018	2000	062718-39847 062718-39848	01/30/20	2.0 mL	*	*	200 ug/mL
70023	Absolute	70023	1000	091217-39852 091217-39853	01/30/20	2.0 mL	*	*	100 ug/mL
82705	Absolute	82705	2000	081418-40020 081418-40021	01/30/20	2.0 mL	*	*	200 ug/mL
94552	Absolute	94552	various	102017-40026 102017-40027	10/20/19	2.0 mL	*	*	various

Name of Final Standard	8270 SS STOCK	Prep'd By (Initials)	GA
Prep Date	03/05/19		
Exp Date	01/08/20		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
10001	Absolute	10001	2000	031618-39202	03/05/20	1.0 mL	10 mL	NA	200 ug/mL
10002	Absolute	10002	2000	G34-020217-38182	02/02/20	1.0 mL	*	*	200 ug/mL
10004	Absolute	10004	2000	010815-38625	01/08/20	1.0 mL	*	*	200 ug/mL
10005	Absolute	10005	2000	041317-37804	03/05/20	1.0 mL	*	*	200 ug/mL
10006	Absolute	10006	2000	011718-38827	03/05/20	1.0 mL	*	*	200 ug/mL
10007	Absolute	10007	2000	020515-38627	02/05/20	1.0 mL	*	*	200 ug/mL
10018	Absolute	10018	2000	G34-030216-38195	03/05/20	1.0 mL	*	*	200 ug/mL
70023	Absolute	70023	1000	013118-38830	03/05/20	1.0 mL	*	*	100 ug/mL
82705	Absolute	82705	2000	090617-38832	03/05/20	1.0 mL	*	*	200 ug/mL
94552	Absolute	94552	various	013118-40453	01/31/20	1.0 mL	*	*	various

Name of Final Standard	8270 Internal Standard (Ampule)	**Prep'd By (Initials)**	**GA**
Prep Date	**02/09/19**		
Exp Date	**02/09/20**		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contlaner Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Semivolatile Internal Standard	Restek	31206	2mg/mL	**A0138585-39540**	**01/16/20**	1 mL	1 mL	**NA**	2mg/mL

Name of Final Standard	**8270 Surrogate 200/400 ppm**
Prep Date	**10/17/18**
Exp Date	**09/27/19**

Prep'd By (Initials) **GA**

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc. (range)
8270 Acid Surrogate Mix	Restek	33029	10,000 ug/mL	**A0136352-39395**	**10/17/19**	200 uL	5 mL	**MC 56258**	400 ug/mL
8270 B/N Surrogate Mix	Restek	31086	5000 ug/mL	**A0135243-39166**	**09/27/19**	200 uL			200 ug/mL

Name of Final Standard	8270 Full Scan Spike
Prep Date	01/30/19
Exp Date	10/20/19

Prep'd By (Initials) GA

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
10001	Absolute	10001	2000	051018-39825 051018-39826	01/30/20	2.0 mL	20 mL	NA	200 ug/mL
10002	Absolute	10002	2000	051018-39830 051018-39831	01/30/20	2.0 mL	"	"	200 ug/mL
10004	Absolute	10004	2000	031618-39834 031618-39835	01/30/20	2.0 mL	"	"	200 ug/mL
10005	Absolute	10005	2000	032018-39611 032018-40010	01/30/20	2.0 mL	"	"	200 ug/mL
10006	Absolute	10006	2000	071318-39840 071318-39841	01/30/20	2.0 mL	"	"	200 ug/mL
10007	Absolute	10007	2000	080116-39616 080116-40015	01/30/20	2.0 mL	"	"	200 ug/mL
10018	Absolute	10018	2000	062718-39845 062718-39846	01/30/20	2.0 mL	"	"	200 ug/mL
70023	Absolute	70023	1000	091217-39850 091217-39851	01/30/20	2.0 mL	"	"	100 ug/mL
82705	Absolute	82705	2000	081418-39620 081418-39621	01/30/20	2.0 mL	"	"	200 ug/mL
94552	Absolute	94552	various	102017-40025 102017-40225	10/20/19	2.0 mL	"	"	various

Name of Final Standard	8270 Surrogate 100/200 ppm
Prep Date	01/30/19
Exp Date	12/06/19

Prep'd By (Initials) GA

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
8270 Acid Surrogate Mix	Restek	33029	10,000 ug/mL	A0132399 -39396	01/30/20	5.0 mL	250 mL	Acetone #101717I	200 ug/mL
8270 B/N Surrogate Mix	Restek	31086	5000 ug/mL	A0140132 - 39546 & 39547	12/06/19 01/30/20	5.0 mL	250 mL	"	100 ug/mL

Name of Final Standard	8270 Full Scan Spike	Prep'd By (Initials)	GA
Prep Date	04/12/19		
Exp Date	10/20/19		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	+ Lot# (or APPL Prep Date)	Final Standard Conc (range)
10001	Absolute	10001	2000	020119-40371 020119-40372	04/12/20	2.0 mL	20 mL	NA	200 ug/mL
10002	Absolute	10002	2000	051018-40376 051018-40377	04/12/20	2.0 mL	*	*	200 ug/mL
10004	Absolute	10004	2000	031618-40382 031618-40383	04/12/20	2.0 mL	*	*	200 ug/mL
10005	Absolute	10005	2000	032018-40014 032018-40512	04/12/20	2.0 mL	*	*	200 ug/mL
10006	Absolute	10006	2000	110618-40387 110618-40388	04/12/20	2.0 mL	*	*	200 ug/mL
10007	Absolute	10007	2000	080116-40019 080116-40517	04/12/20	2.0 mL	*	*	200 ug/mL
10018	Absolute	10018	2000	120518-40392 120518-40393	04/12/20	2.0 mL	*	*	200 ug/mL
70023	Absolute	70023	1000	091217-40397 091217-40398	04/12/20	2.0 mL	*	*	100 ug/mL
82705	Absolute	82705	2000	081418-40023 081418-40024	04/12/20	2.0 mL	*	*	200 ug/mL
94552	Absolute	94552	various	102017-40029 102017-40528	10/20/19	2.0 mL	*	*	various

_LIQ003

Organic Extraction Worksheet

Method	Continuous Liquid/Liquid SVOC 3520C	Extraction Set	190430A	Extraction Method	LIQ003	Units	mL

Spiked ID 1	8270T Spike 4-12-19 exp 10-20-19		Surrogate ID 1	8270 Surrogate 4-10-19 exp 3-15-20	
Spiked ID 2	Sim Spike 3-20-19 exp 3-20-20		Surrogate ID 2	SIM Surrogate 3-25-19 exp 3-25-20	
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	YES	
Spiked ID 7			Ext. Start Time:	04/30/19 13:10, 05/01/19 11:30	
Spiked ID 8			Ext. End Time:	05/01/19 7:45, 05/02/19 05:45, 11:10	
			GC Requires Extract By:	05/02/19 0:00	

pH1	2	4/30/19 10:35:00 AM	Water Bath Temp Criteria 71,70 °C
pH2	14	5/01/19 11:10:00 AM	
pH3			

Spiked By: KY **Date** 04/30/19 **Witnessed By:** DL **Date** 04/30/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
1	190430A Blk				1,0.050	1,2	800	1	2/1	04/30/19 10:25	
						equip	e-hp51 E-WB6				
2	190430A LCS-1		0.250	1	1	1	800	1	2/1	04/30/19 10:25	
						equip	e-hp50 E-WB6				
3	190430A LCS-2		0.0250	2	0.050	2	800	1	2/1	04/30/19 10:25	
						equip	E-HP48 E-WB6				
4	190430A LCSD-1		0.250	1	1	1	800	1	2/1	04/30/19 10:25	
						equip	E-HP49 E-WB6				
5	190430A LCSD-2		0.0250	2	0.050	2	800	1	2/1	04/30/19 10:25	
						equip	E-HP47 E-WB6				
6	AZ90100	AZ90100W21			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88714
						equip	E-HP25 E-WB6				
7	AZ90102	AZ90102W22			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88714
						equip	E-HP26 E-WB5				
8	AZ90103	AZ90103W08			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88714
						equip	E-HP27 E-WB5				
9	AZ90105	AZ90105W21			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88714
						equip	E-HP28 E-WB5				
10	AZ90107	AZ90107W18			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88714
						equip	E-HP29 E-WB5				
11	AZ90109	AZ90109W21			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88714
						equip	E-HP30 E-WB5				
12	AZ90121 MS-1	AZ90121W22	0.250	1	1	1	800	1	2/1	04/30/19 10:25	88712
						equip	E-HP16 E-WB6				
13	AZ90121 MSD-1	AZ90121W19	0.250	1	1	1	800	1	2/1	04/30/19 10:25	88712
						equip	E-HP15 E-WB6				
14	AZ90121 MS-2	AZ90121W23	0.0250	2	0.050	2	800	1	2/1	04/30/19 10:25	88712
						equip	E-HP14 E-WB6				
15	AZ90121 MSD-2	AZ90121W20	0.0250	2	0.050	2	800	1	2/1	04/30/19 10:25	88712
						equip	E-HP13 E-WB6				
16	AZ90121	AZ90121W24			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88712
						equip	E-HP17 E-WB6				

Solvent and Lot#	
PH Strips	HC857466
Dichloromethane (DCM)	58240
1+1 H2SO4	4-22-19
10N NaOH	4-22-19
Filter Paper	400148
Acidified Na2SO4	2-28-19
B. Na2SO4	18D105205

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	SS
Date	5/2/19
Time	11:40
Refrigerator	GC-C

	Technician's Initials
Scanned By	DL
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	05/02/19 12:10:32 PM

Reviewed By: KS **Date** 5/2/19

Organic Extraction Worksheet

Method	Continuous Liquid/Liquid SVOC 3520C	Extraction Set	190430A	Extraction Method	LIQ003	Units	mL

Spiked ID 1	8270T Spike 4-12-19 exp 10-20-19		Surrogate ID 1	8270 Surrogate 4-10-19 exp 3-15-20	
Spiked ID 2	Sim Spike 3-20-19 exp 3-20-20		Surrogate ID 2	SIM Surrogate 3-25-19 exp 3-25-20	
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	YES	
Spiked ID 7			Ext. Start Time:	04/30/19 13:10 , 05/01/19 11:30	
Spiked ID 8			Ext. End Time:	05/01/19 7:45 , 05/02/19 05:45 , 11:10	
			GC Requires Extract By:	05/02/19 0:00	

pH1	2	4/30/19 10:35:00 AM	Water Bath Temp Criteria	71,70 °C
pH2	14	5/01/19 11:10:00 AM		
pH3				

Spiked By: KY **Date** 04/30/19 **Witnessed By:** DL **Date** 04/30/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
17	AZ90122	AZ90122W07			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88712
						equip	E-HP12 E-WB6				
18	AZ90213	AZ90213W21			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88736
						equip	E-HP11 E-WB6				
19	AZ90215	AZ90215W18			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88736
						equip	E-HP10 E-WB5				

Ky 5/2/19

Solvent and Lot#	
PH Strips	HC857466
Dichloromethane (DCM)	58240
1+1 H2SO4	4-22-19
10N NaOH	4-22-19
Filter Paper	400148
Acidified Na2SO4	2-28-19
B. Na2SO4	18D105205

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	
Date	
Time	
Refrigerator	

	Technician's Initials
Scanned By	DL
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	05/02/19 12:10:32 PM

Reviewed By: Ky **Date** 5/2/19

Injection Log

Directory: M:\YODA\DATA\Y190319\

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	2	0319Y002.D	1	SV Tune 11/10/18		19 Mar 19 18:15
2	3	0319Y003.D	1	50ug/mL 8270 03/13/19		19 Mar 19 18:31
3	4	0319Y004.D	1	4ug/mL 8270 03/13/19		19 Mar 19 18:58
4	5	0319Y005.D	1	5ug/mL 8270 03/13/19		19 Mar 19 19:26
5	6	0319Y006.D	1	10ug/mL 8270 03/13/19		19 Mar 19 19:54
6	7	0319Y007.D	1	20ug/mL 8270 03/13/19		19 Mar 19 20:22
7	8	0319Y008.D	1	40ug/mL 8270 03/13/19		19 Mar 19 20:49
8	9	0319Y009.D	1	60ug/mL 8270 03/13/19		19 Mar 19 21:17
9	10	0319Y010.D	1	80ug/mL 8270 03/13/19		19 Mar 19 21:44
10	11	0319Y011.D	1	100ug/mL 8270 03/13/19		19 Mar 19 22:11
11	12	0319Y012.D	1	SS-8270 03/13/19		19 Mar 19 22:39
12	63	0411Y263.D	1	SV TUNE 10/11/18		2 May 19 9:11
13	64	0411Y264.D	1	50ug/ml 8270 3/13/19		2 May 19 9:26
14	70	0411Y270.D	1.25	190430A BLK 1/800		2 May 19 12:35
15	71	0411Y271.D	1.25	190430A LCS-1 1/800		2 May 19 13:03
16	72	0411Y272.D	1.25	190430A LCSD-1 1/800		2 May 19 13:31
17	73	0411Y273.D	1.25	AZ90100W21 1/800		2 May 19 13:58
18	74	0411Y274.D	1.25	AZ90102W22 1/800		2 May 19 14:26
19	75	0411Y275.D	1.25	AZ90103W08 1/800		2 May 19 14:54
20	76	0411Y276.D	1.25	AZ90105W21 1/800		2 May 19 15:22
21	77	0411Y277.D	1.25	AZ90107W18 1/800		2 May 19 15:50
22	78	0411Y278.D	1.25	AZ90109W21 1/800		2 May 19 16:18
23	87	0411Y287.D	1	50ug/ml 8270 3/13/19		2 May 19 20:30

ORGANICS
Calibration Data

2MEE
EPA 8270

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 04/30/19
Matrix: Instrument: Yoda
Initials: MA/LP

			0430Y003.D	0430Y004.D	0430Y005.D	0430Y006.D	0430Y007.D	0430Y008.D	0430Y009.D	0430Y010.D								
		Compound	1	2	3	4	5	6	7	8			Avg	%RSD	Type	r^2	Q	MRF
1	I	1,4-dichlorobenzene-D4(IS)																
2	TML	2-(2-Methoxyethoxy)ethanol	0.0855	0.1071	0.1202	0.1690	0.1716	0.1510	0.1681	0.1572			0.14	23	TML	0.992		
3	I	Napthalene-D8(IS)																
4	I	Acenaphthene-D10(IS)																
5	I	Phenanthrene-D10(IS)																
6	I	Chrysene-D12(IS)																
7	I	Perylene-D12(IS)																
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
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34																		
35																		

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y003.D Vial: 3
Acq On : 30 Apr 19 9:27 Operator: MA
Sample : 50ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 12:16 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	184530	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	792854	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	436769	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	740242	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	652884	40.00000	ppb	0.01
7) Perylene-D12(IS)	15.14	264	661360	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.31	45	19721	51.20047	ppb	92

(#) = qualifier out of range (m) = manual integration

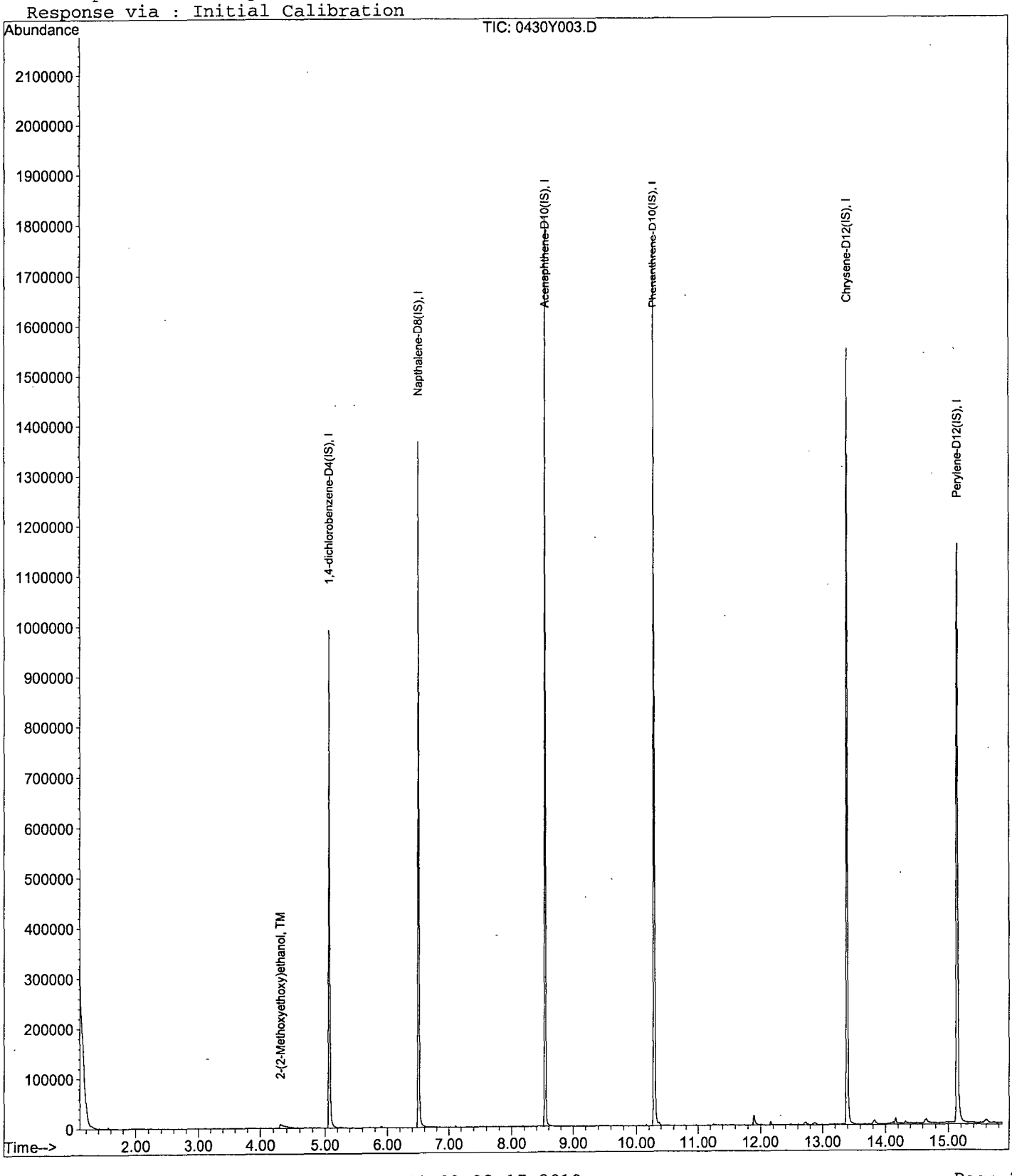
Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y003.D
Acq On : 30 Apr 19 9:27
Sample : 50ug/ml MEE 04/30/19
Misc : soil

Vial: 3
Operator: MA
Inst : Yoda
Multiplr: 1.00

Quant Time: Apr 30 12:16 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y004.D Vial: 4
Acq On : 30 Apr 19 9:50 Operator: MA
Sample : 100ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:44:52 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	187806	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	863865	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	468856	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	791427	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	668649	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	626815	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.27	45	50283	84.61640	ppb	97

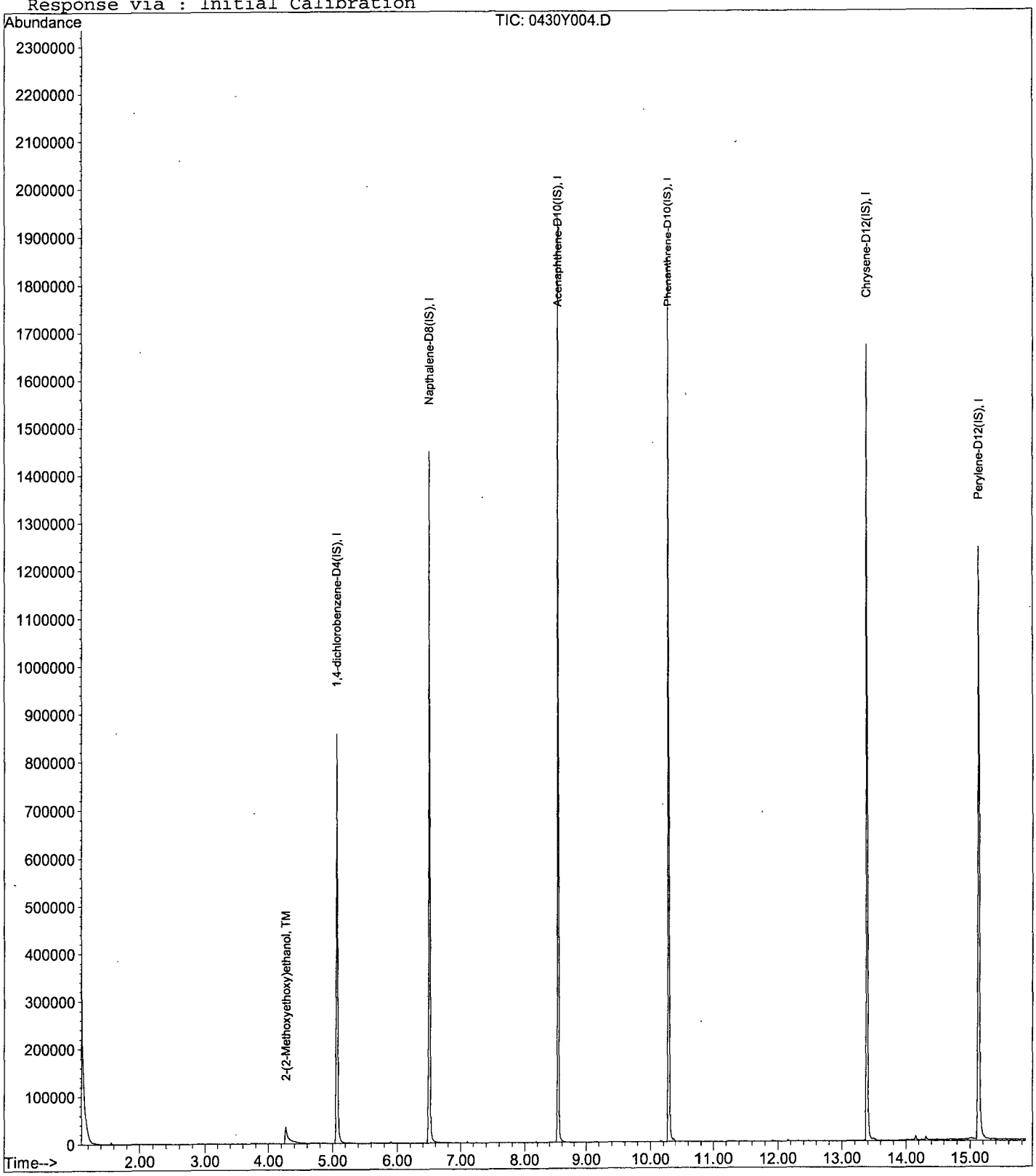
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y004.D Vial: 4
Acq On : 30 Apr 19 9:50 Operator: MA
Sample : 100ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y005.D Vial: 5
Acq On : 30 Apr 19 10:13 Operator: MA
Sample : 200ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:44:52 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	198152	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	841205	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	466203	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	786056	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	706531	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	682388	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.25	45	119065	189.90155	ppb	99

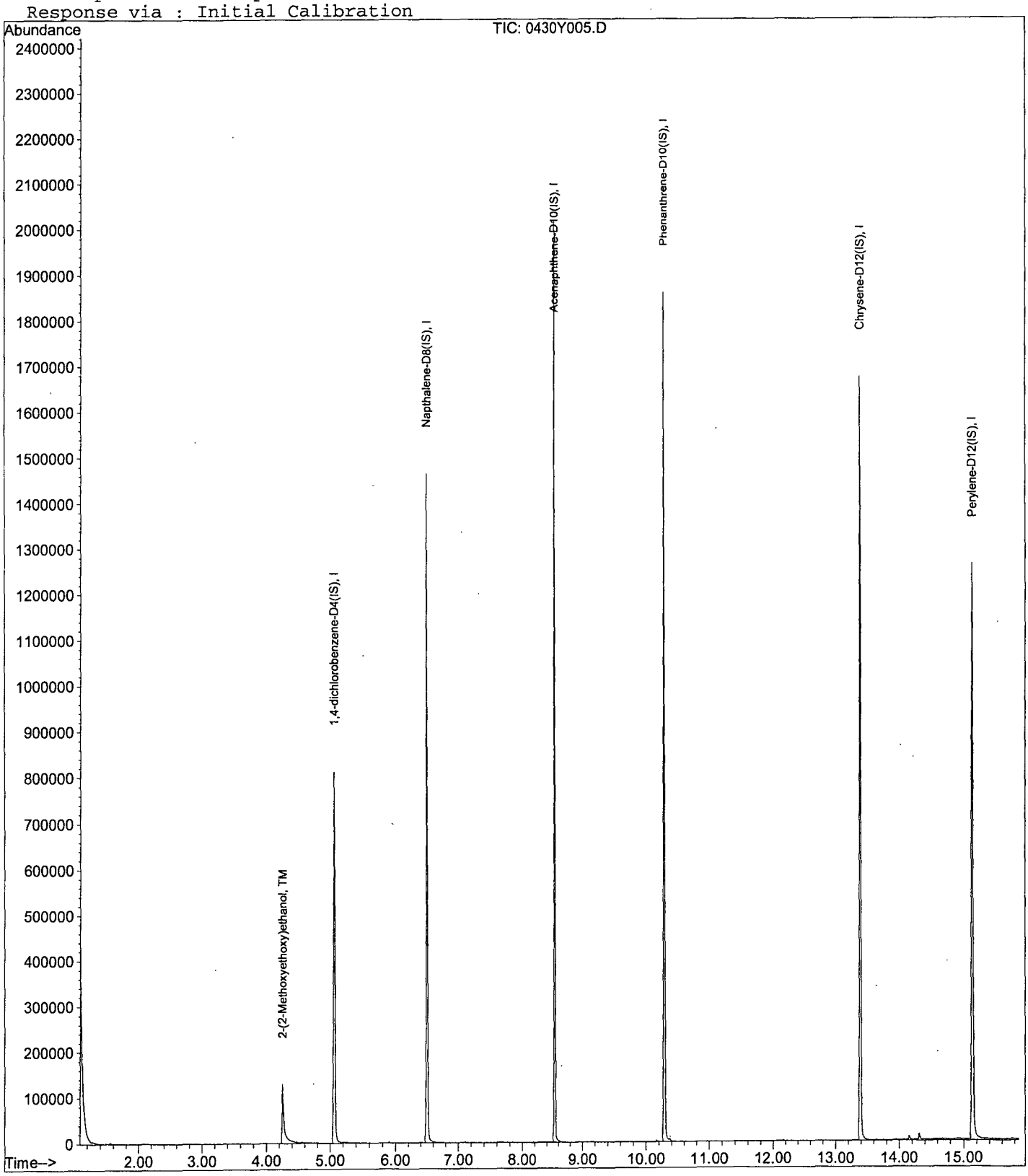
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y005.D Vial: 5
Acq On : 30 Apr 19 10:13 Operator: MA
Sample : 200ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y006.D Vial: 6
Acq On : 30 Apr 19 10:37 Operator: MA
Sample : 400ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:44:52 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	181654	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	797784	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	446801	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	742976	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	658989	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	628149	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.25	45	307070	534.23860	ppb	99

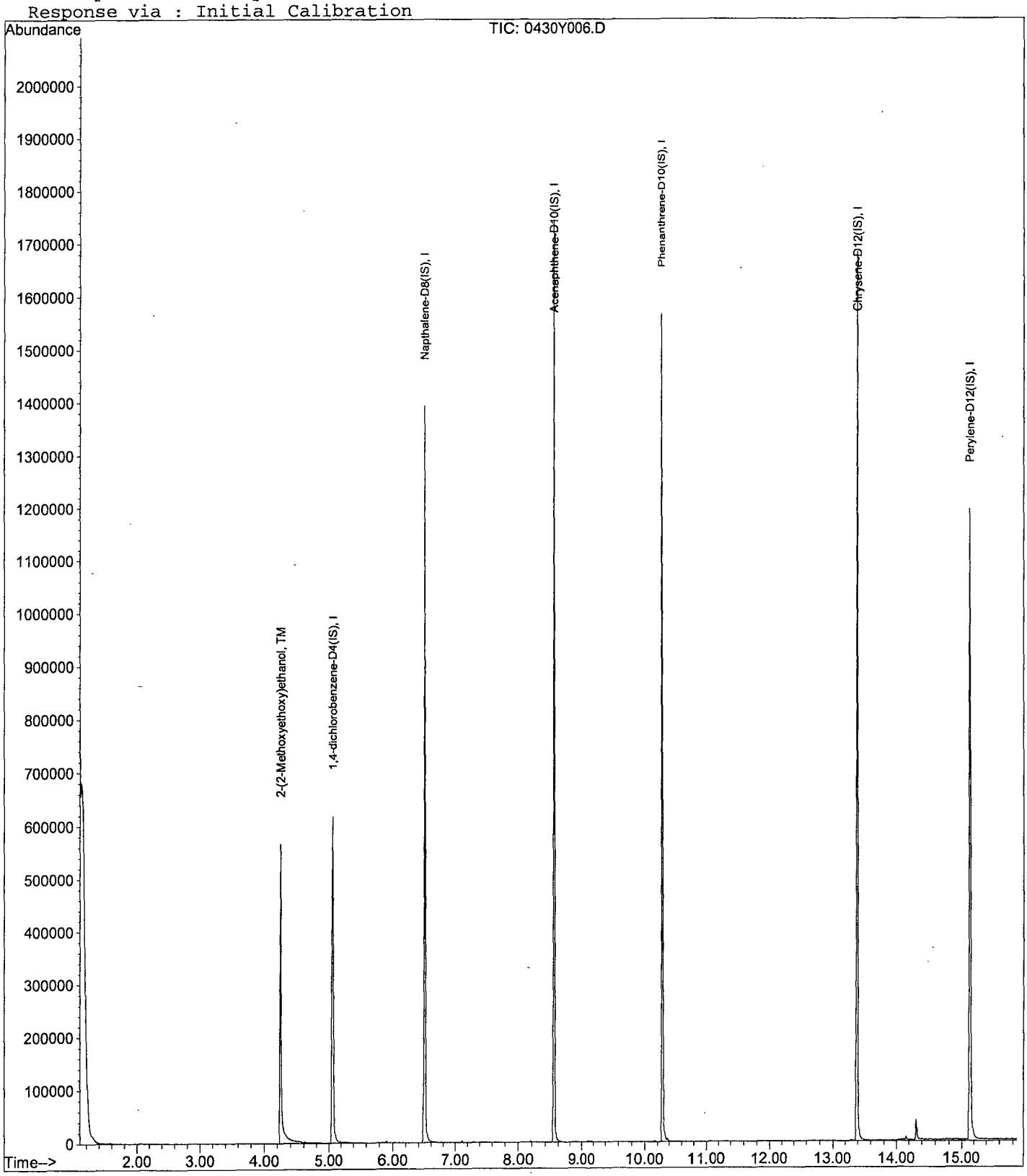
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y006.D Vial: 6
Acq On : 30 Apr 19 10:37 Operator: MA
Sample : 400ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y007.D Vial: 7
Acq On : 30 Apr 19 11:00 Operator: MA
Sample : 500ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:44:52 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	165959	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	714594	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	398927	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	678369	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	607331	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.14	264	593257	40.00000	ppb	0.00

System Monitoring Compounds

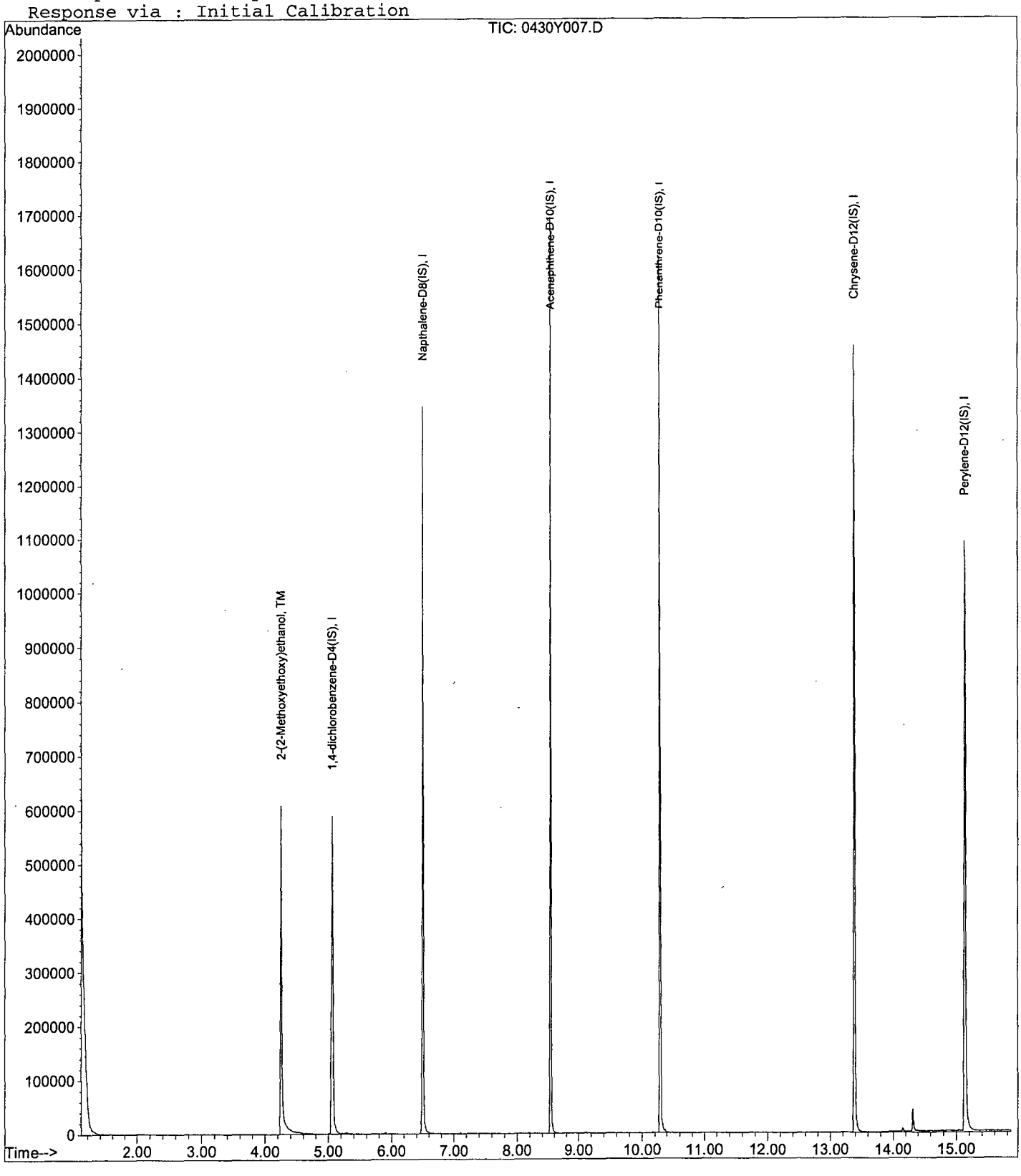
Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.25	45	356062	678.05928	ppb	100

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190430M\0430Y007.D Vial: 7
Acq On : 30 Apr 19 11:00 Operator: MA
Sample : 500ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y008.D Vial: 8
Acq On : 30 Apr 19 11:23 Operator: MA
Sample : 600ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:44:52 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	192050	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	832030	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	456909	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	771492	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	686371	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	672431	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.26	45	435053	715.93023	ppb	98

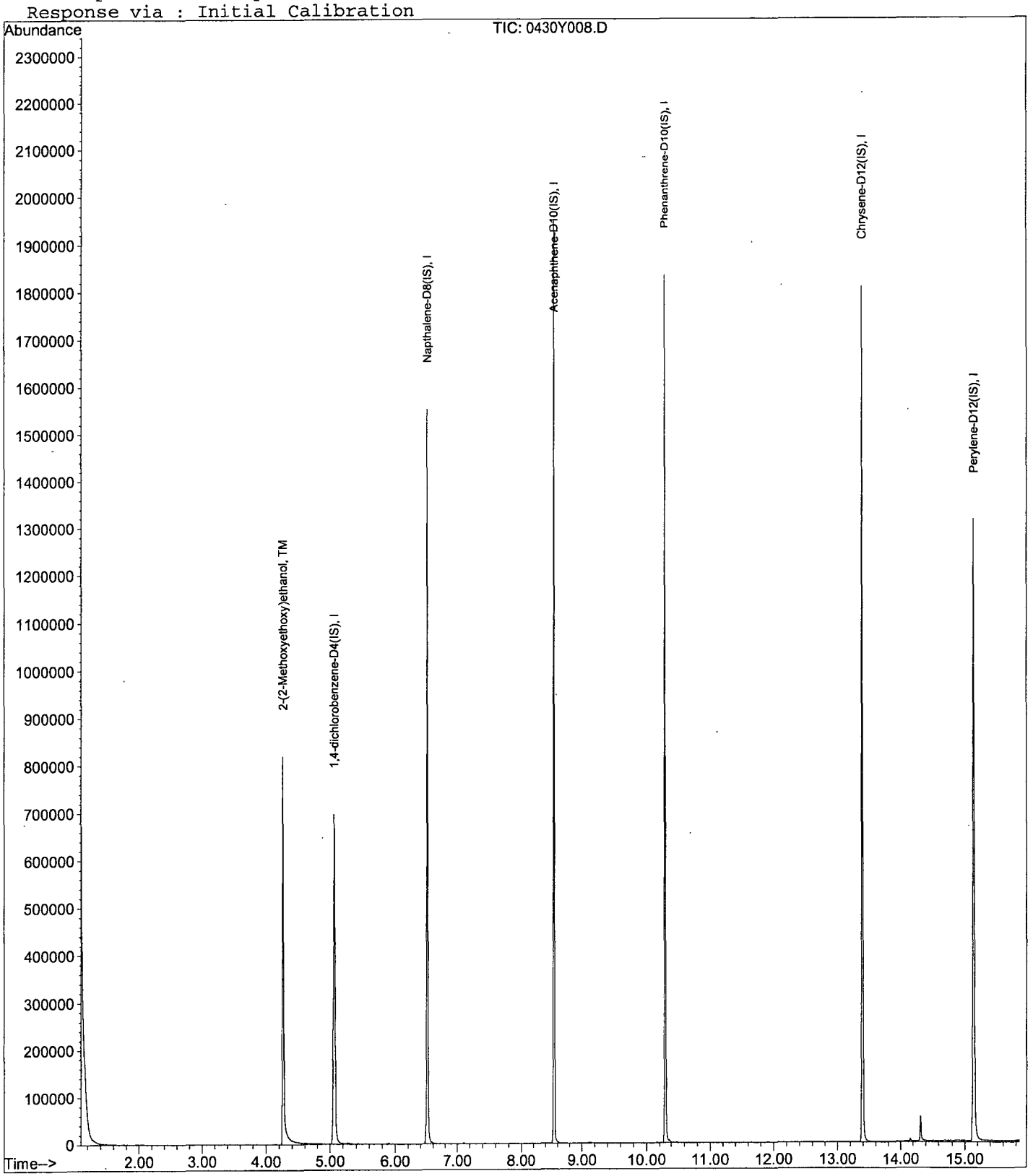
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y008.D Vial: 8
Acq On : 30 Apr 19 11:23 Operator: MA
Sample : 600ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y009.D Vial: 9
Acq On : 30 Apr 19 11:47 Operator: MA
Sample : 800ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:48 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:44:52 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	177494	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	809241	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	446680	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	765580	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	677822	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	648459	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.26	45	596711	1062.48599	ppb	99

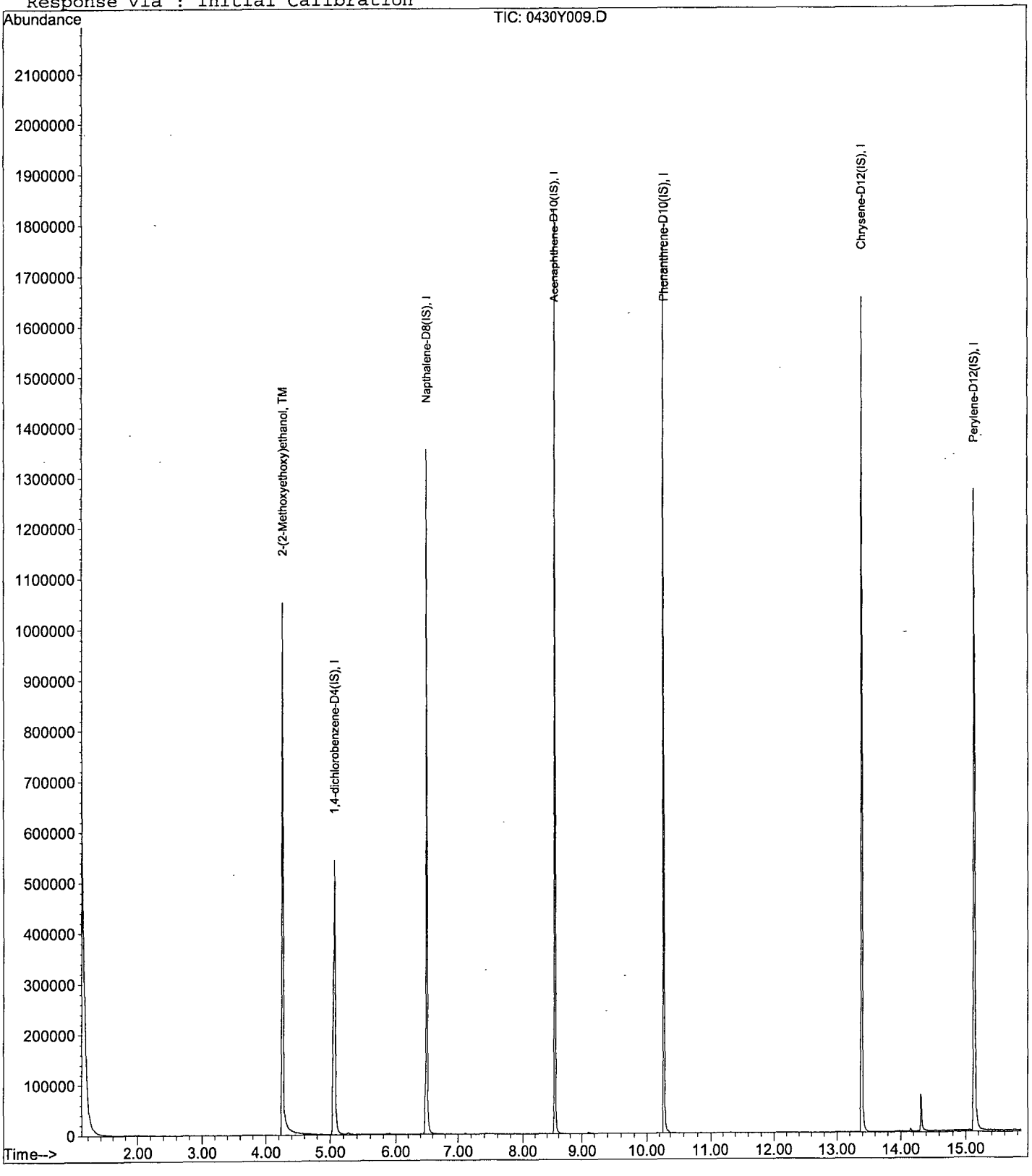
(#) = qualifier out of range (m) = manual integration
0430Y009.D YMEE0430.M Wed May 01 09:22:39 2019 Page 1

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y009.D Vial: 9
Acq On : 30 Apr 19 11:47 Operator: MA
Sample : 800ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:48 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y010.D Vial: 10
Acq On : 30 Apr 19 12:10 Operator: MA
Sample : 1000ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 12:15 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:49:24 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	194543	40.00000 ppb	0.01
3) Napthalene-D8(IS)	6.51	136	824746	40.00000 ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	455154	40.00000 ppb	0.00
5) Phenanthrene-D10(IS)	10.29	188	763926	40.00000 ppb	0.00
6) Chrysene-D12(IS)	13.39	240	675051	40.00000 ppb	0.00
7) Perylene-D12(IS)	15.13	264	668405	40.00000 ppb	0.00

System Monitoring Compounds

Target Compounds					Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.29	45	764768	949.70790 ppb	98

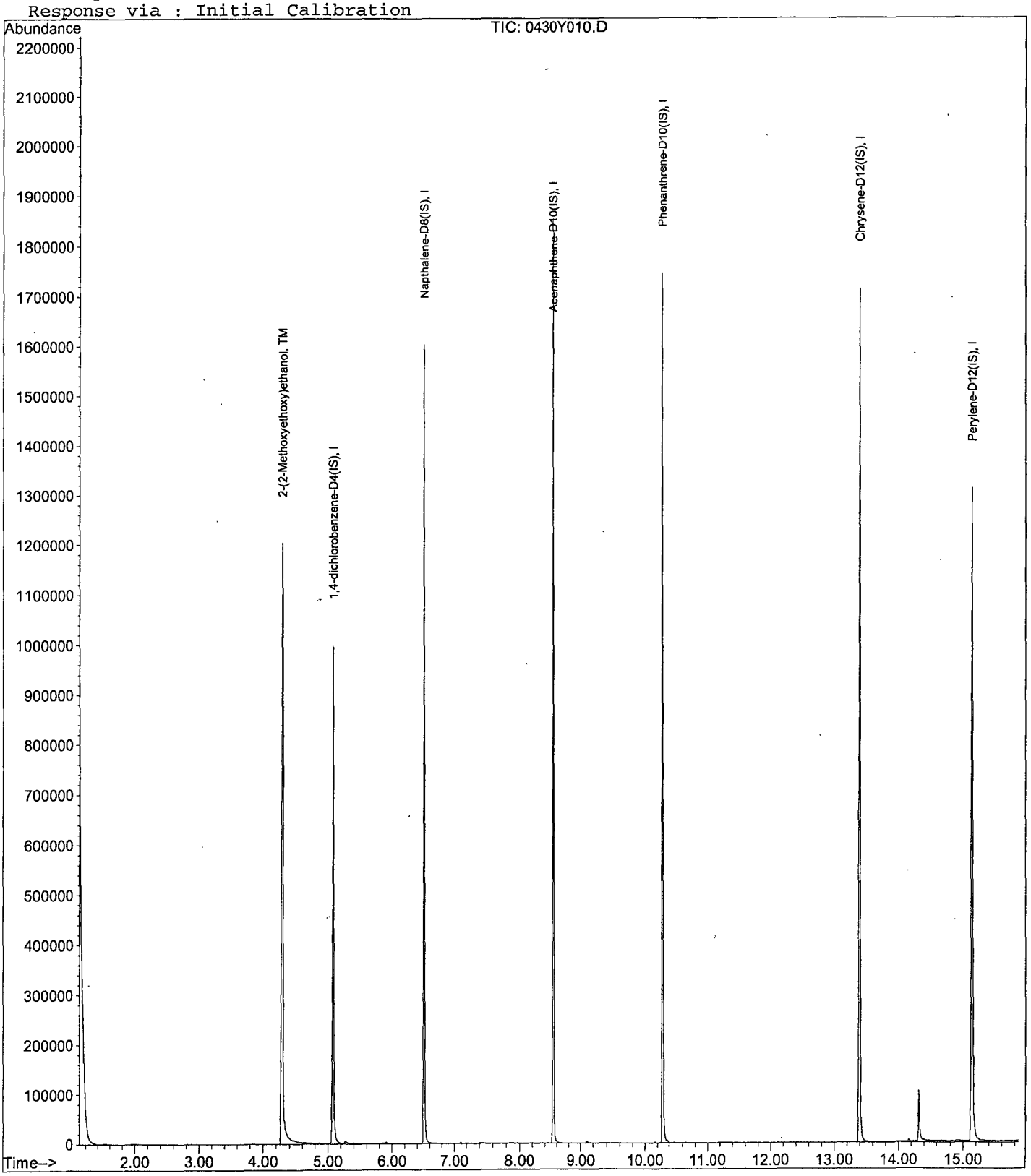
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y010.D Vial: 10
Acq On : 30 Apr 19 12:10 Operator: MA
Sample : 1000ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 12:15 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



2MEE
EPA 8270

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 04/30/19
Instrument: Yoda
Initial Cal. Date: 04/30/19
Data File: 0430Y011.D

		Compound	MEAN	CCRF	%D	%Drift	
1	TML	2-(2-Methoxyethoxy)ethanol	0.1412	0.1842	30	TML	16
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			30.0		

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y011.D Vial: 11
Acq On : 30 Apr 19 13:30 Operator: MA
Sample : SS ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 13:31 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	176322	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	756659	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	427777	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	702800	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	636036	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.14	264	617157	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.26	45	406011	577.68332	ppb	99

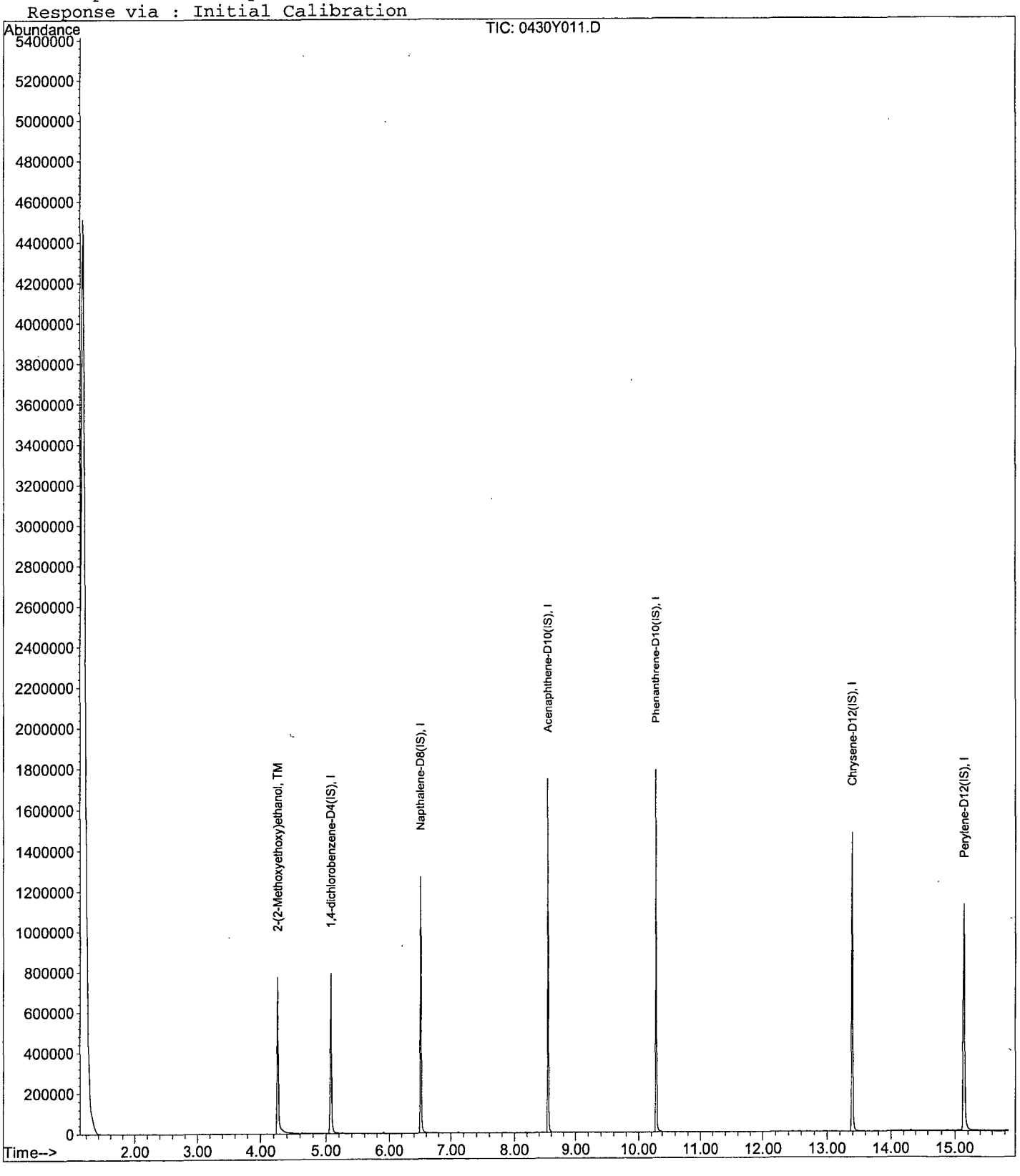
(#) = qualifier out of range (m) = manual integration
0430Y011.D YMEE0430.M Wed May 01 09:22:46 2019 Page 1

Data File : M:\YODA\DATA\Y190430M\0430Y011.D
Acq On : 30 Apr 19 13:30
Sample : SS ug/ml MEE 04/30/19
Misc : soil

Vial: 11
Operator: MA
Inst : Yoda
Multiplr: 1.00

Quant Time: Apr 30 13:31 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



2MEE
EPA 8270

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 04/30/19
Instrument: Yoda
Initial Cal. Date: 04/30/19
Data File: 0430Y037.D

		Compound	MEAN	CCRF	%D	%Drift	
1	I	1,4-dichlorobenzene-D4(IS)	ISTD			I	
2	TML	2-(2-Methoxyethoxy)ethanol	0.1412	0.1831	30	TML	15
3	I	Napthalene-D8(IS)	ISTD			I	
4	I	Acenaphthene-D10(IS)	ISTD			I	
5	I	Phenanthrene-D10(IS)	ISTD			I	
6	I	Chrysene-D12(IS)	ISTD			I	
7	I	Perylene-D12(IS)	ISTD			I	
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
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24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			30.0		

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y037.D Vial: 37
Acq On : 30 Apr 19 23:38 Operator: MA
Sample : 500ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 1 8:39 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	148022	40.00000	ppb	0.01
3) Napthalene-D8(IS)	6.51	136	650008	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	364717	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	610351	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	544837	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	526754	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.28	45	338753	574.29385	ppb	97

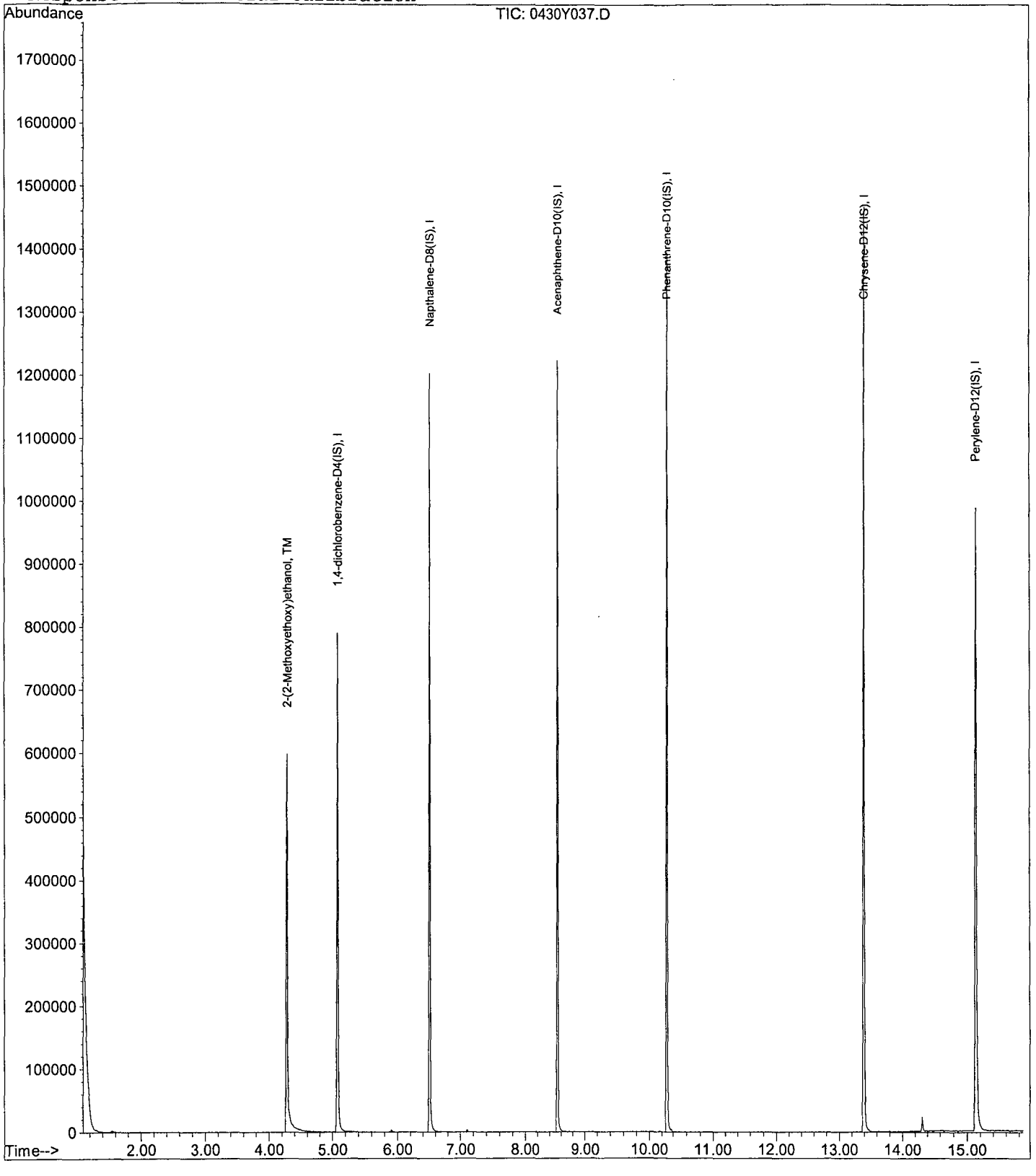
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y037.D Vial: 37
Acq On : 30 Apr 19 23:38 Operator: MA
Sample : 500ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 1 8:39 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



ORGANICS
Raw Data

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y029.D Vial: 29
Acq On : 30 Apr 19 20:31 Operator: MA
Sample : AZ90100W17 2/510 Inst : Yoda
Misc : soil Multiplr: 0.98

Quant Time: May 1 8:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	144653	40.0000	ppb	0.00
3) Napthalene-D8(IS)	6.50	136	649022	40.0000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	389438	40.0000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	673485	40.0000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	565764	40.0000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	539281	40.0000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

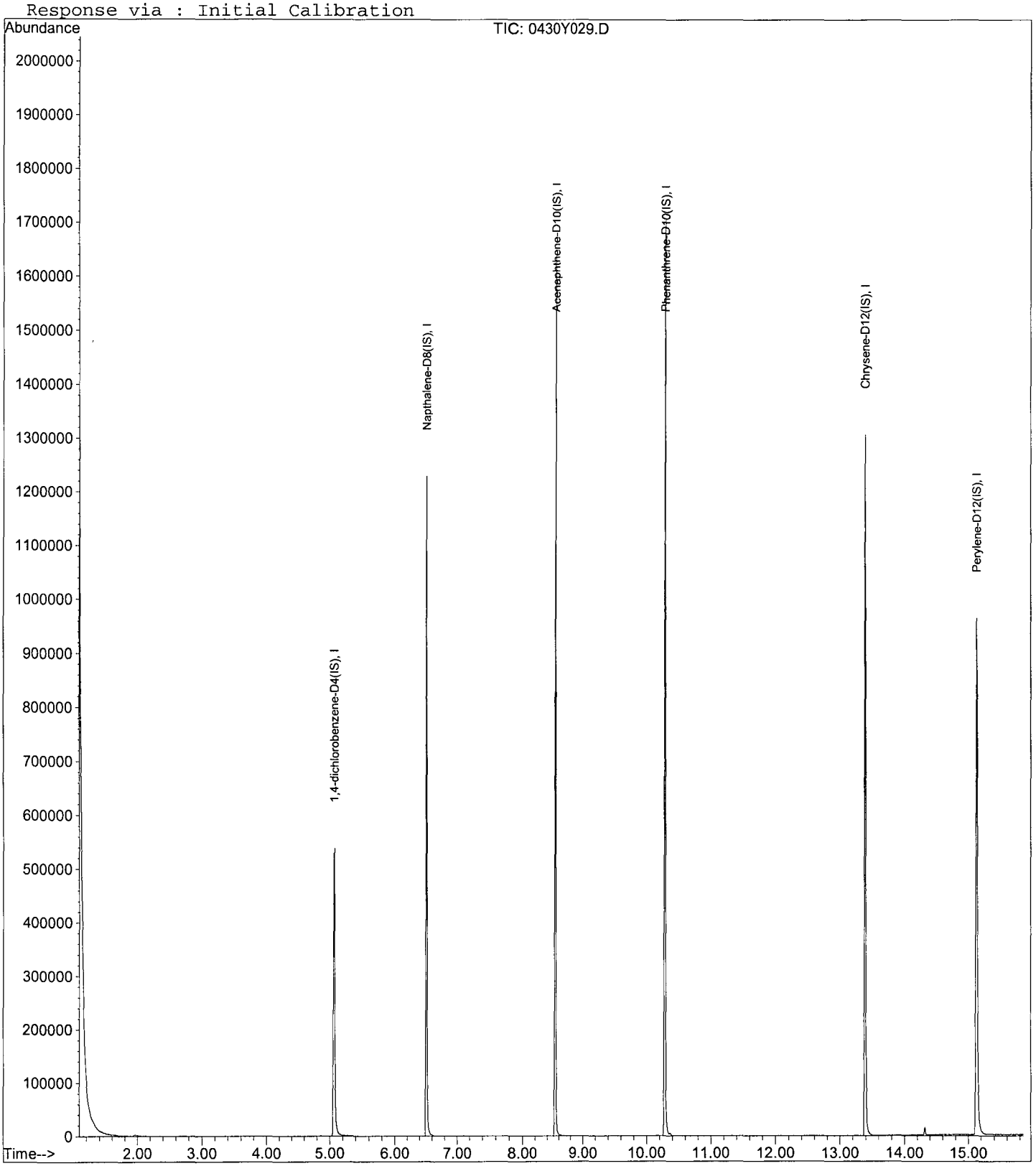
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y029.D Vial: 29
Acq On : 30 Apr 19 20:31 Operator: MA
Sample : AZ90100W17 2/510 Inst : Yoda
Misc : soil Multiplr: 0.98

Quant Time: May 1 8:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y030.D Vial: 30
Acq On : 30 Apr 19 20:54 Operator: MA
Sample : AZ90102W16 2/395 Inst : Yoda
Misc : soil Multiplr: 1.27

Quant Time: May 1 8:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	126045	40.0000	ppb	0.01
3) Napthalene-D8(IS)	6.51	136	600149	40.0000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	388860	40.0000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	661547	40.0000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	510518	40.0000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	471959	40.0000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

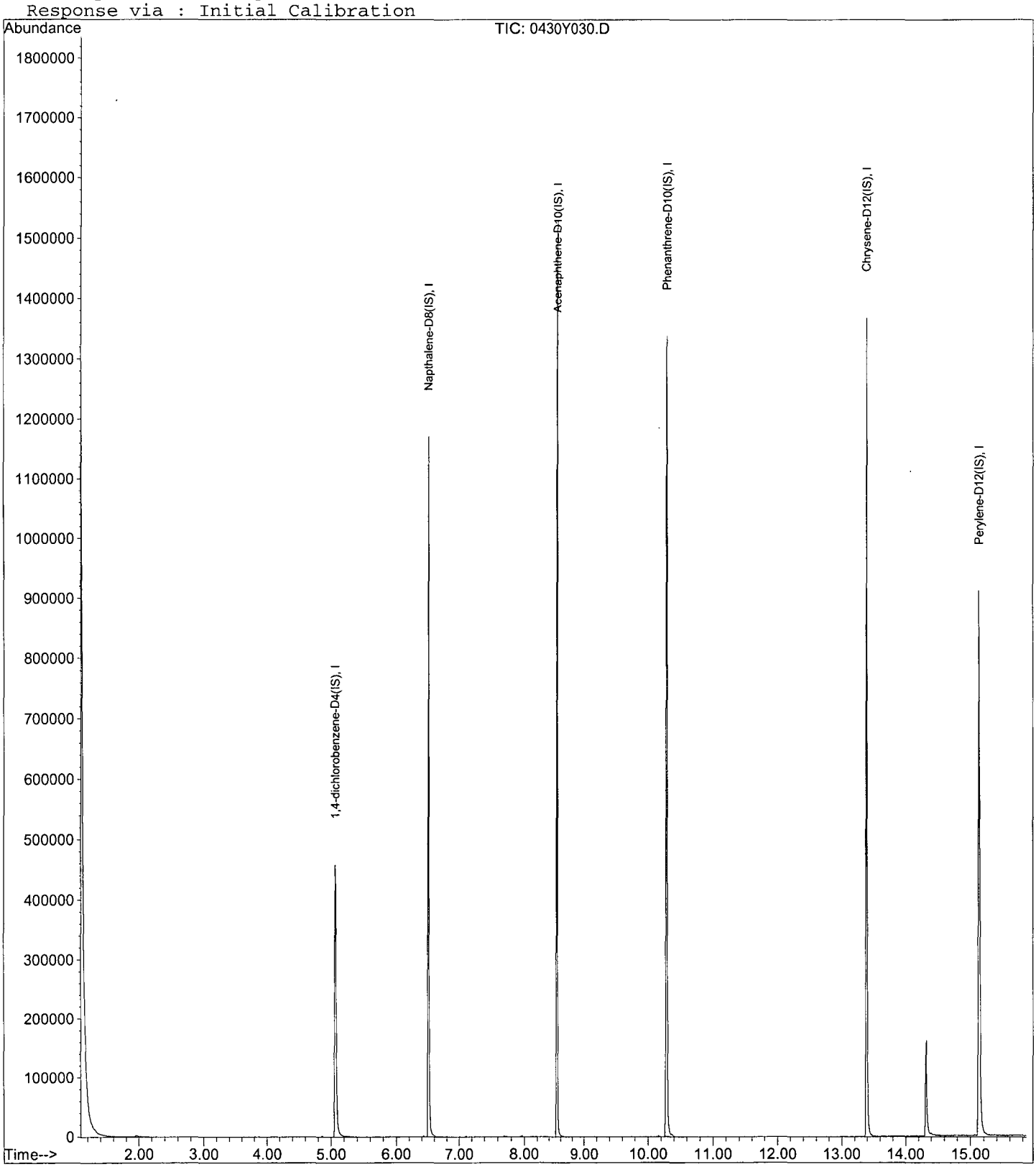
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y030.D Vial: 30
Acq On : 30 Apr 19 20:54 Operator: MA
Sample : AZ90102W16 2/395 Inst : Yoda
Misc : soil Multiplr: 1.27

Quant Time: May 1 8:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y031.D Vial: 31
Acq On : 30 Apr 19 21:18 Operator: MA
Sample : AZ90103W04 2/250 Inst : Yoda
Misc : soil Multiplr: 2.00

Quant Time: May 1 8:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	135985	40.0000	ppb	0.01
3) Napthalene-D8(IS)	6.51	136	632939	40.0000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	405860	40.0000	ppb	0.00
5) Phenanthrene-D10(IS)	10.29	188	694934	40.0000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	591709	40.0000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	568654	40.0000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

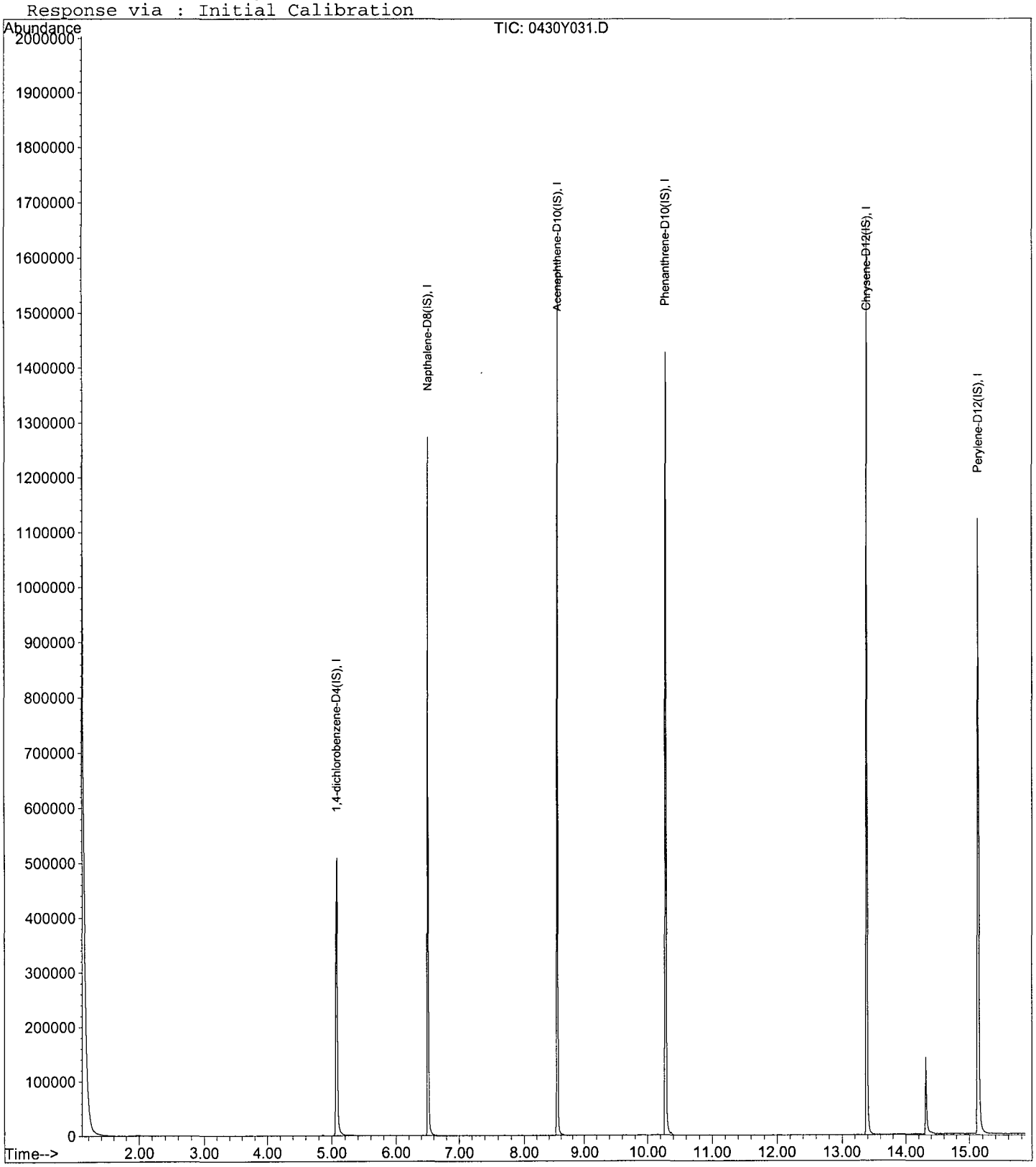
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y031.D Vial: 31
Acq On : 30 Apr 19 21:18 Operator: MA
Sample : AZ90103W04 2/250 Inst : Yoda
Misc : soil Multiplr: 2.00

Quant Time: May 1 8:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y032.D Vial: 32
Acq On : 30 Apr 19 21:41 Operator: MA
Sample : AZ90105W16 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 1 8:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	148199	40.0000 ppb	0.00
3) Napthalene-D8(IS)	6.51	136	663148	40.0000 ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	403045	40.0000 ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	692901	40.0000 ppb	0.00
6) Chrysene-D12(IS)	13.39	240	591947	40.0000 ppb	0.00
7) Perylene-D12(IS)	15.13	264	573790	40.0000 ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

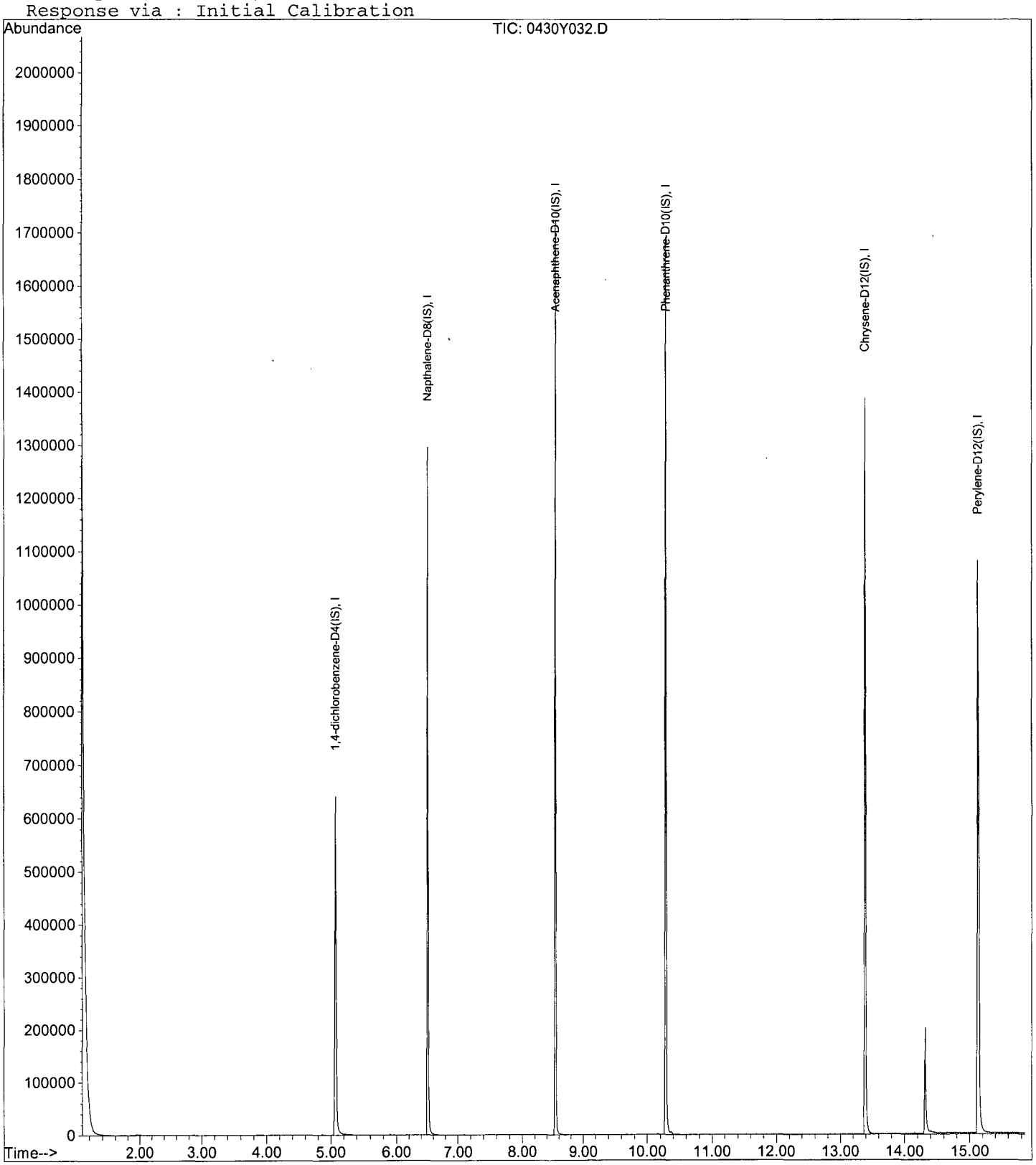
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y032.D Vial: 32
Acq On : 30 Apr 19 21:41 Operator: MA
Sample : AZ90105W16 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 1 8:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y033.D Vial: 33
Acq On : 30 Apr 19 22:05 Operator: MA
Sample : AZ90107W16 2/510 Inst : Yoda
Misc : soil Multiplr: 0.98

Quant Time: May 1 8:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	129283	40.0000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	657882	40.0000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	417326	40.0000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	706456	40.0000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	596103	40.0000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	580558	40.0000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

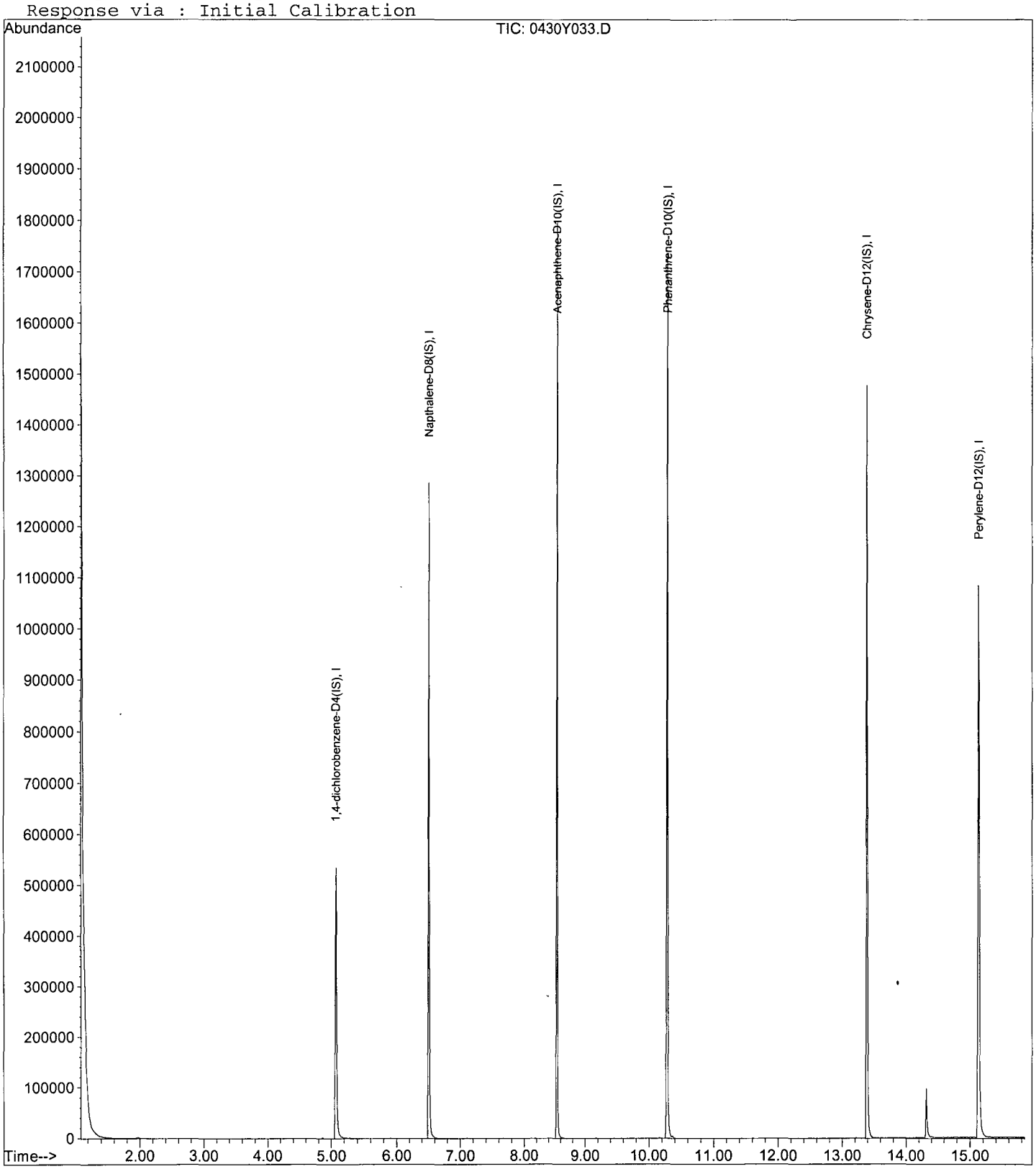
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y033.D Vial: 33
Acq On : 30 Apr 19 22:05 Operator: MA
Sample : AZ90107W16 2/510 Inst : Yoda
Misc : soil Multiplr: 0.98

Quant Time: May 1 8:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y034.D Vial: 34
Acq On : 30 Apr 19 22:28 Operator: MA
Sample : AZ90109W17 2/505 Inst : Yoda
Misc : soil Multiplr: 0.99

Quant Time: May 1 8:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	141910	40.0000	ppb	0.01
3) Napthalene-D8(IS)	6.51	136	658593	40.0000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	391048	40.0000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	652590	40.0000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	561669	40.0000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	545677	40.0000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

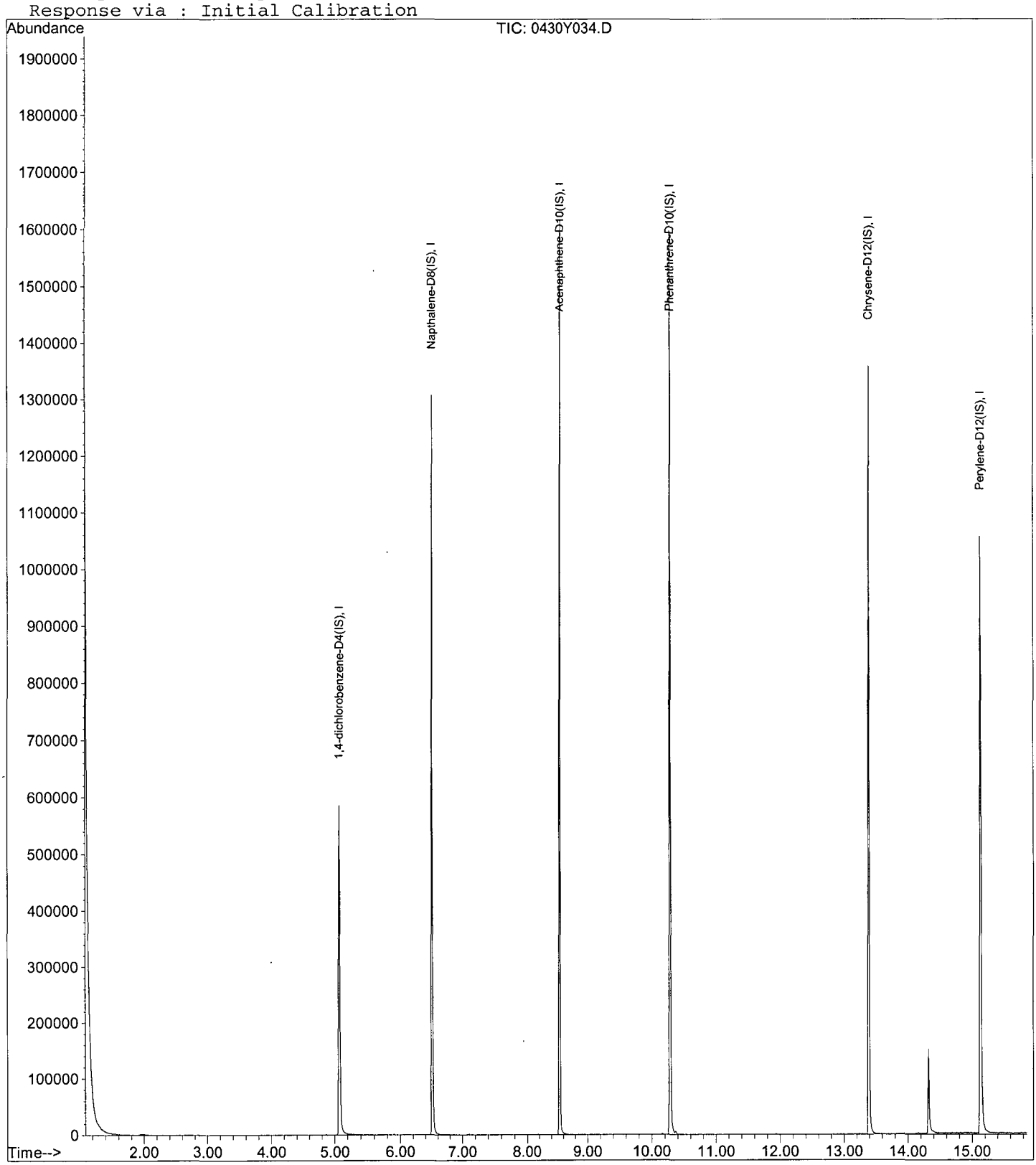
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y034.D Vial: 34
Acq On : 30 Apr 19 22:28 Operator: MA
Sample : AZ90109W17 2/505 Inst : Yoda
Misc : soil Multiplr: 0.99

Quant Time: May 1 8:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y013.D Vial: 13
Acq On : 30 Apr 19 14:13 Operator: MA
Sample : 190429A BLK 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 15:16 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	144443	40.0000 ppb	0.00
3) Napthalene-D8(IS)	6.51	136	680229	40.0000 ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	444226	40.0000 ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	771508	40.0000 ppb	0.00
6) Chrysene-D12(IS)	13.39	240	661861	40.0000 ppb	0.00
7) Perylene-D12(IS)	15.14	264	641475	40.0000 ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

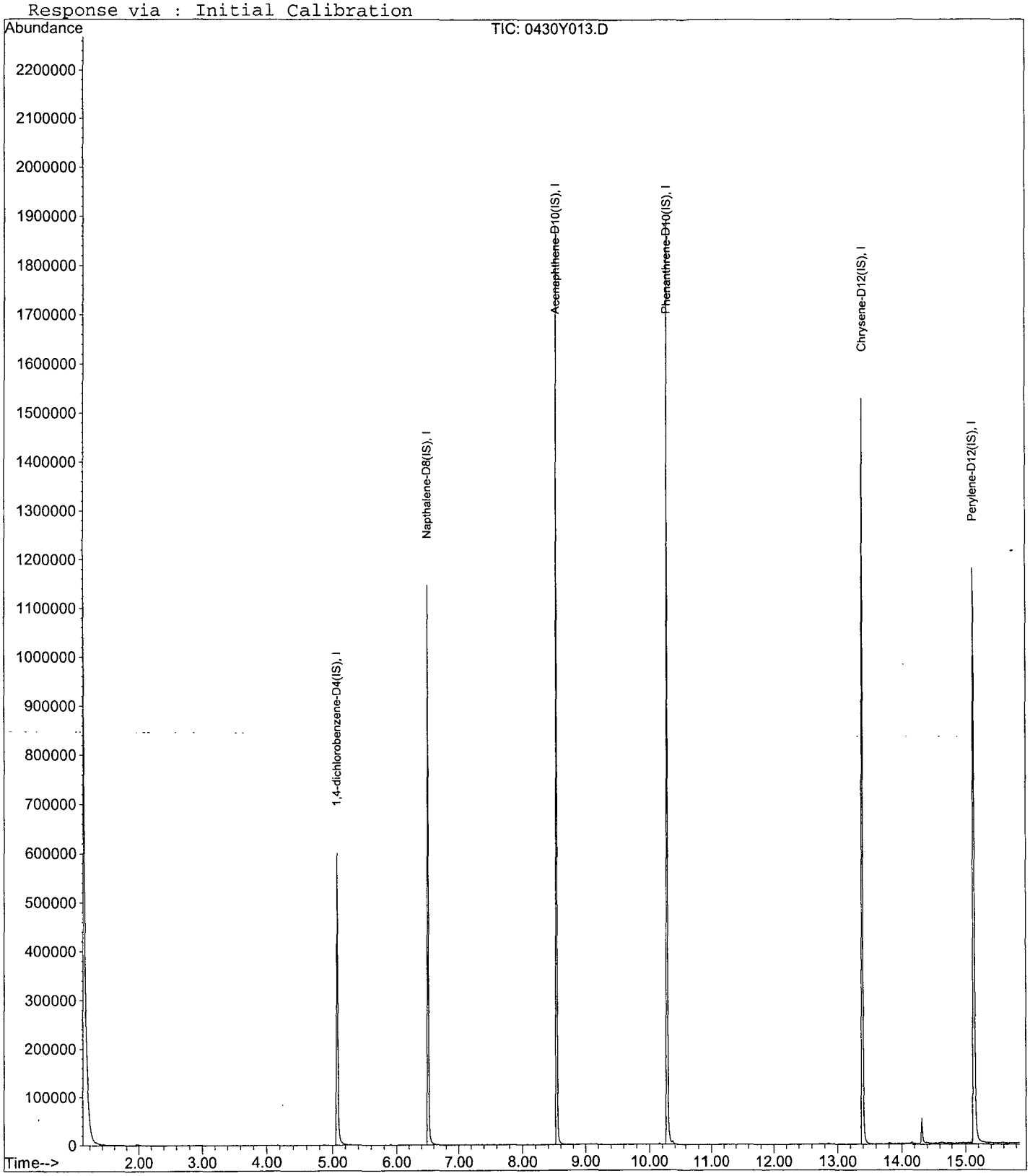
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y013.D Vial: 13
Acq On : 30 Apr 19 14:13 Operator: MA
Sample : 190429A BLK 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 15:16 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y014.D Vial: 14
Acq On : 30 Apr 19 14:37 Operator: MA
Sample : 190429A LCS-1 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 15:16 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	137259	40.0000 ppb	0.01
3) Napthalene-D8(IS)	6.51	136	622694	40.0000 ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	381830	40.0000 ppb	0.00
5) Phenanthrene-D10(IS)	10.29	188	657938	40.0000 ppb	0.00
6) Chrysene-D12(IS)	13.39	240	540582	40.0000 ppb	0.00
7) Perylene-D12(IS)	15.13	264	562285	40.0000 ppb	0.00

System Monitoring Compounds

Target Compounds					Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.34	45	38771	93.3025 ppb	98

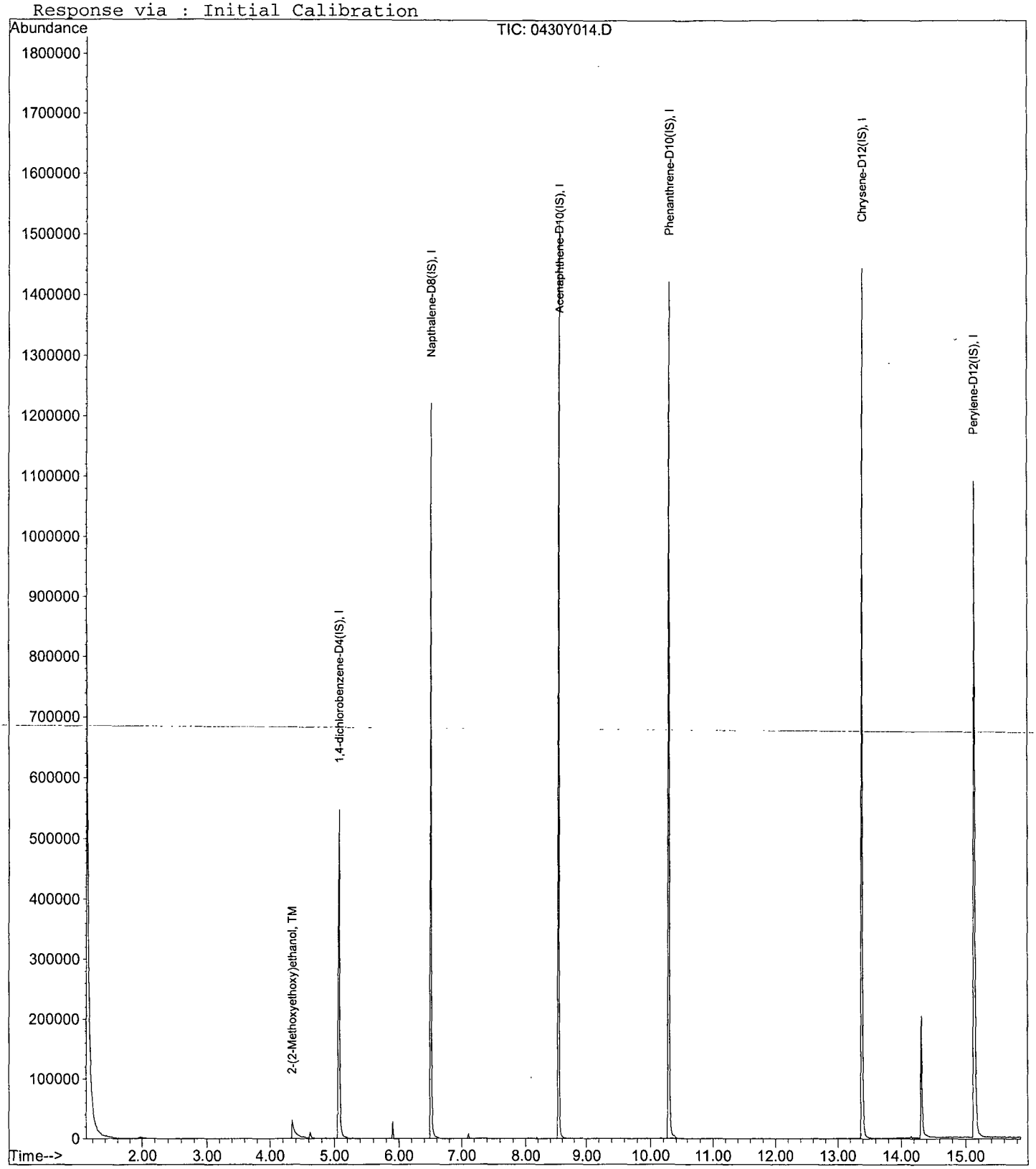
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y014.D Vial: 14
Acq On : 30 Apr 19 14:37 Operator: MA
Sample : 190429A LCS-1 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 15:16 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y015.D Vial: 15
Acq On : 30 Apr 19 15:01 Operator: MA
Sample : 190429A LCSD-1 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 15:16 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	114459	40.0000	ppb	0.01
3) Napthalene-D8(IS)	6.51	136	589204	40.0000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	427518	40.0000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	743005	40.0000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	629015	40.0000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	587575	40.0000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.34	45	47160	124.3667	ppb	97

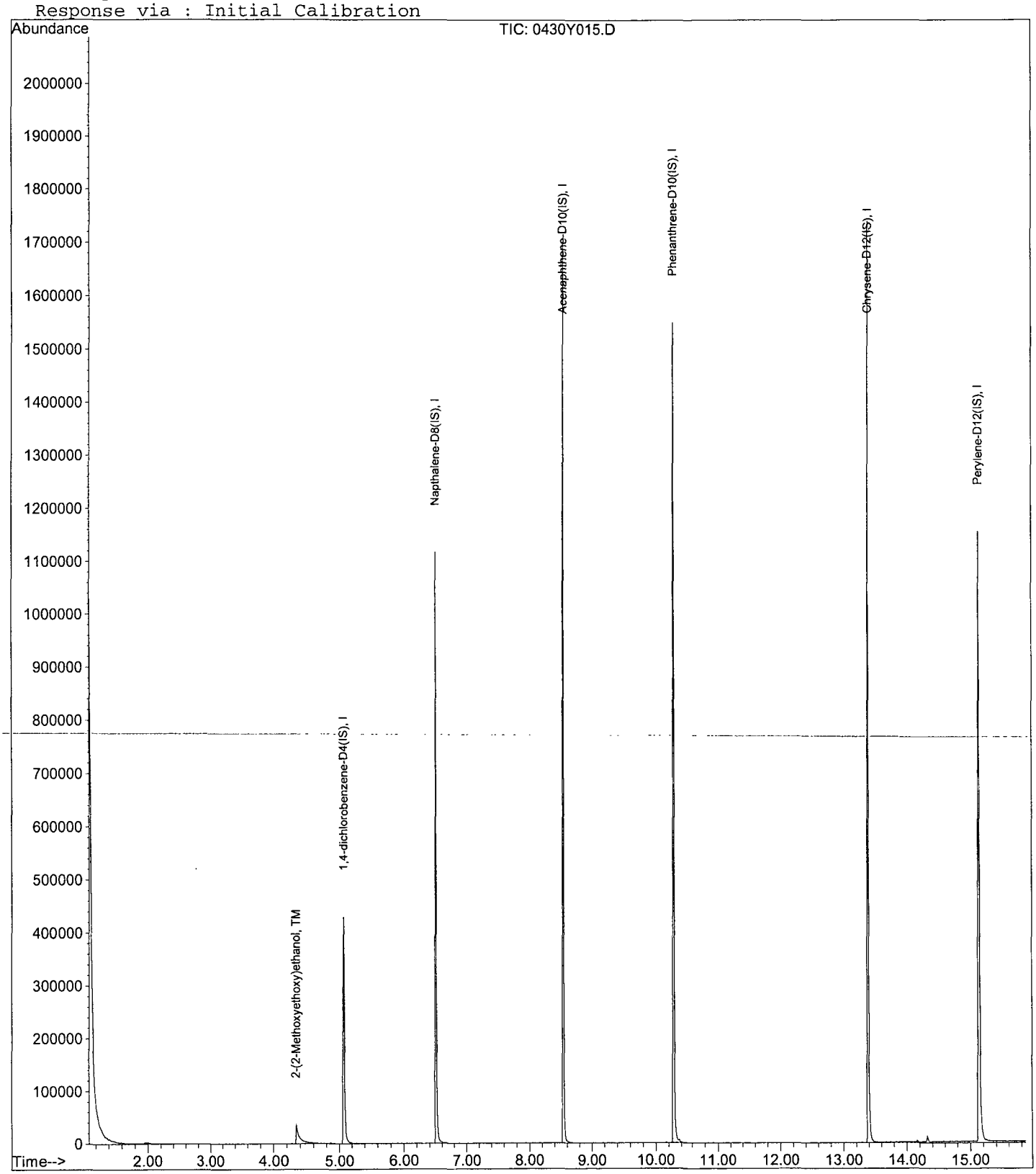
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y015.D Vial: 15
Acq On : 30 Apr 19 15:01 Operator: MA
Sample : 190429A LCSD-1 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 15:16 2019 Quant Results File: YMEE0430.RES

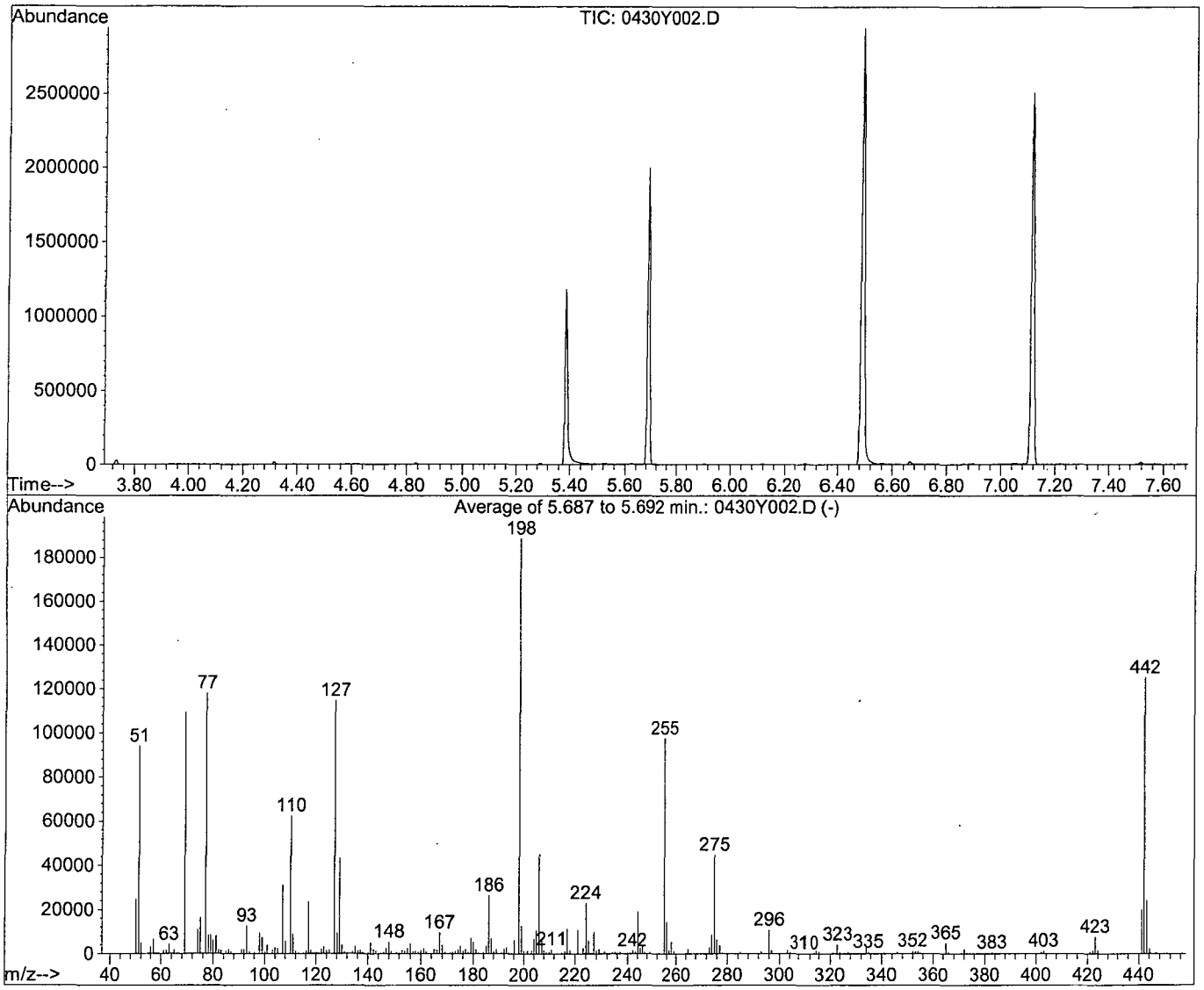
Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



DFTPP

Data File : M:\YODA\DATA\Y190430M\0430Y002.D Vial: 2
Acq On : 30 Apr 19 9:12 Operator: MA
Sample : SV Tune 03/07/18 Inst : Yoda
Misc : Multiplr: 1.00

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C



AutoFind: Scans 841, 842, 843; Background Corrected with Scan 833

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	49.7	93941	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.3	275	PASS
127	198	10	80	60.7	114675	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	189013	PASS
199	198	5	9	6.7	12705	PASS
275	198	10	60	23.7	44776	PASS
365	198	1	100	2.5	4785	PASS
441	442	0.01	24	16.0	20059	PASS
442	198	50	150	66.3	125365	PASS
443	442	15	24	19.3	24168	PASS

Data File Name:	**0430Y002.D**
Data File Path:	**M:\YODA\DATA\Y190430M**
Operator:	**MA**
Date Acquired:	**30 Apr 2019 09:12**
Method File:	**DFTPP2.M**
Sample Name:	**SV Tune 03/07/18**
Vial Number:	**2**
Instrument Name:	**Yoda**

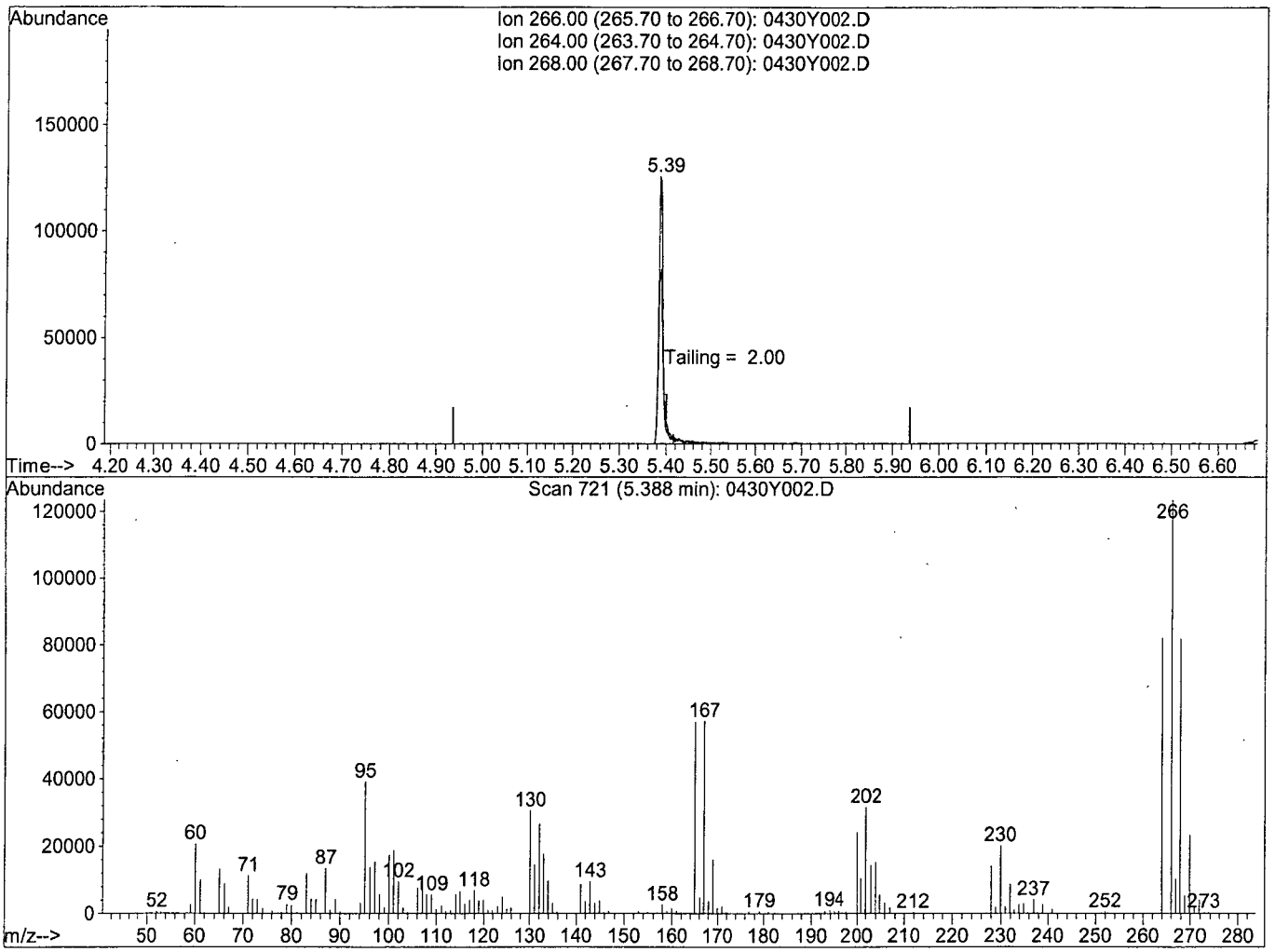
#	Name	Ret Time	Target Response
1)	DDT	7.08	19086100
2)	DDD	6.75	104656
3)	DDE	6.86	0

Breakdown **0.55**

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y002.D Vial: 2
Acq On : 30 Apr 19 9:12 Operator: MA
Sample : SV Tune 03/07/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: Apr 30 9:33 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190430M\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Mon Apr 22 13:05:57 2019
Response via : Single Level Calibration



TIC: 0430Y002.D

(5) Pentachlorophenol

5.39min 0.0000

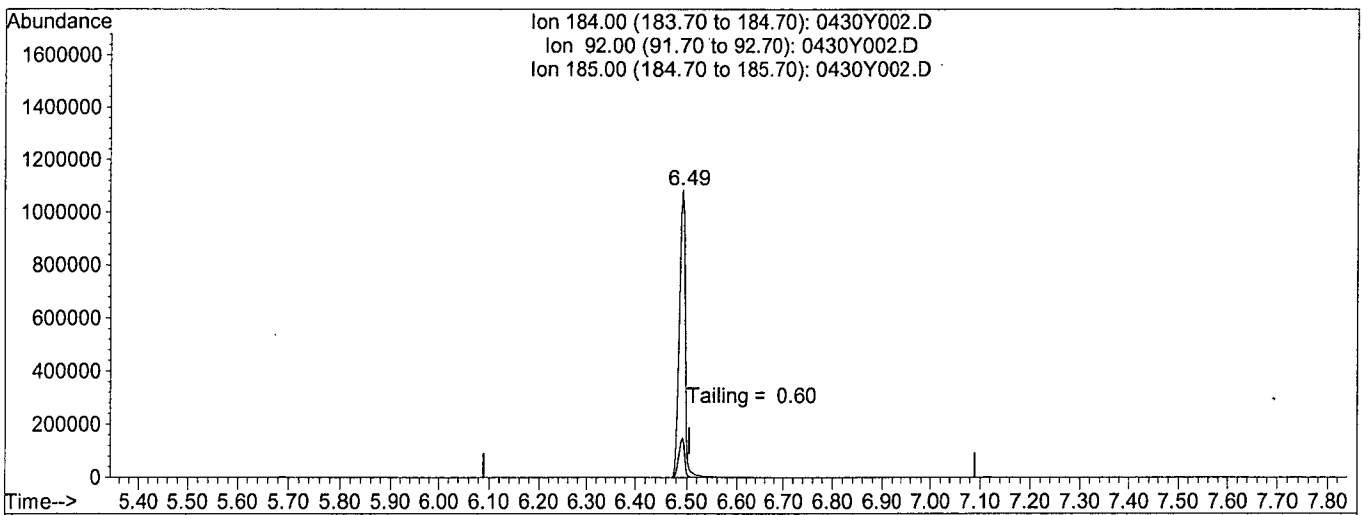
response 830307

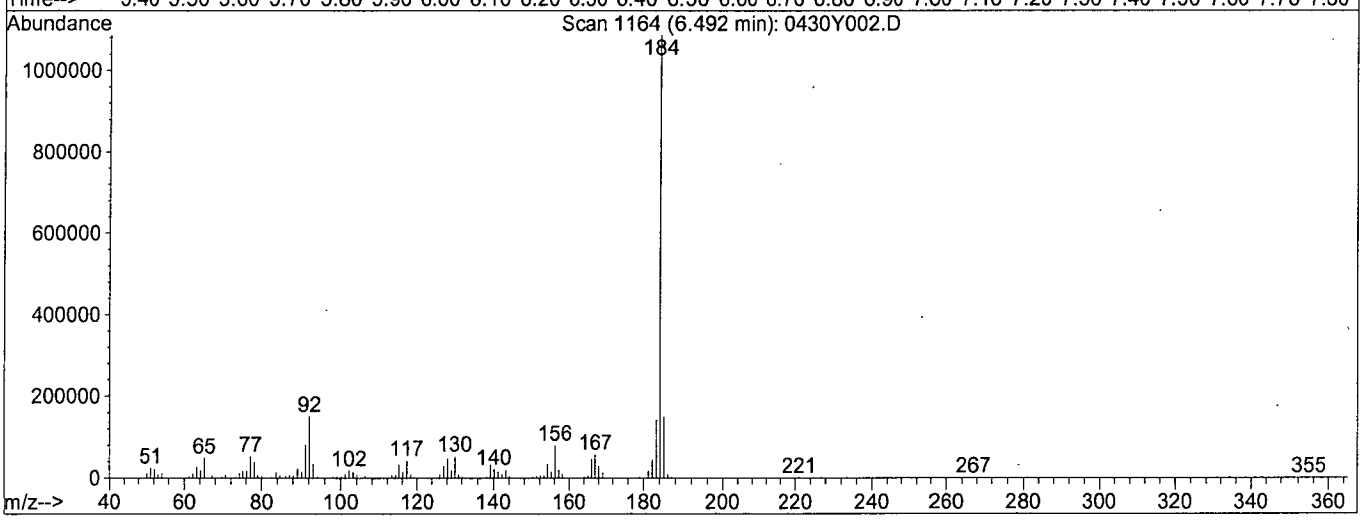
Ion	Exp%	Act%
266.00	100	100
264.00	61.20	61.48
268.00	65.20	62.81
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y002.D Vial: 2
Acq On : 30 Apr 19 9:12 Operator: MA
Sample : SV Tune 03/07/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: Apr 30 9:33 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190430M\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Mon Apr 22 13:05:57 2019
Response via : Single Level Calibration





TIC: 0430Y002.D

(6) Benzidine

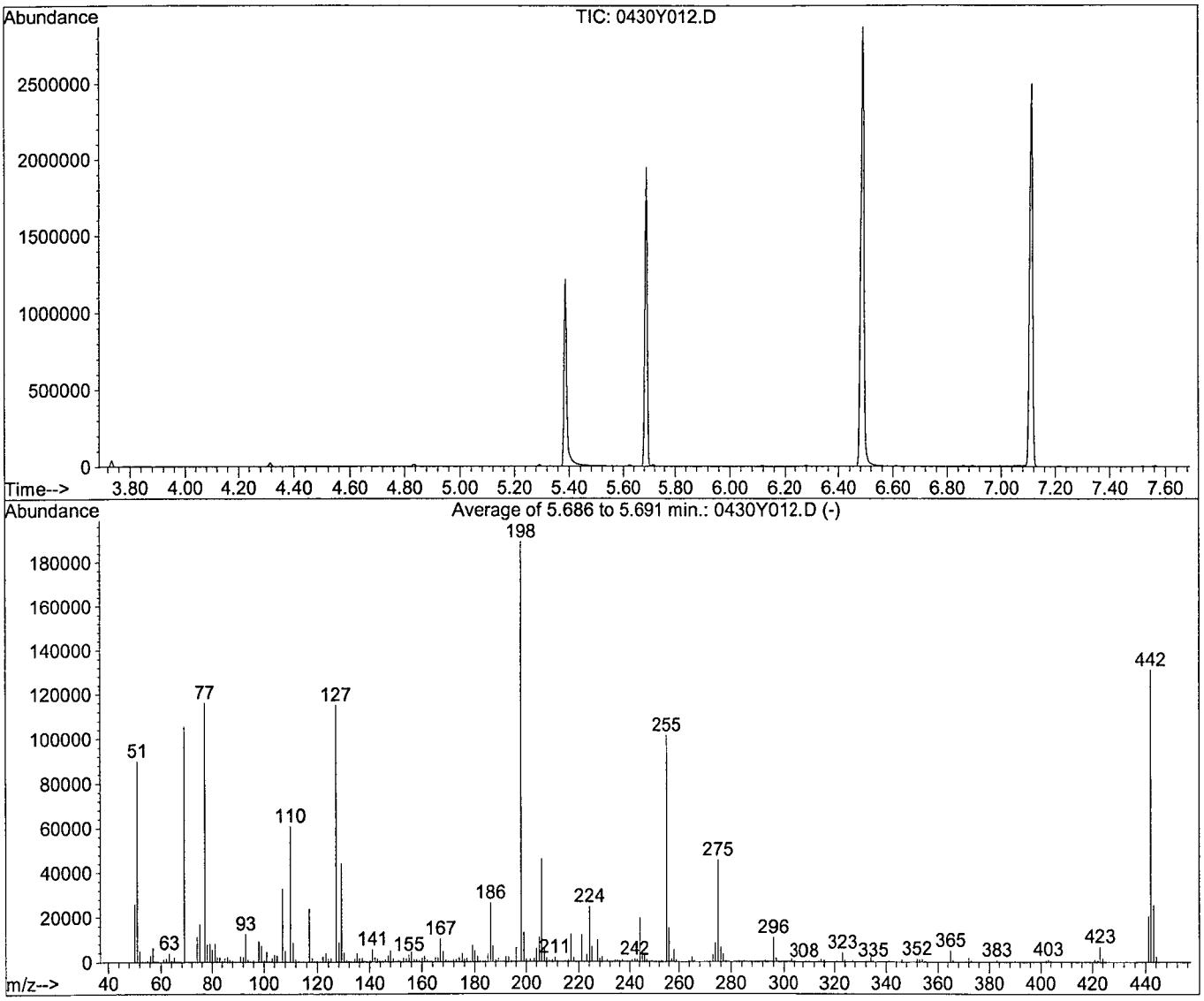
6.49min 0.0000

response 8412205

Ion	Exp%	Act%
184.00	100	100
92.00	13.60	13.24
185.00	14.10	13.47
0.00	0.00	0.00

Data File : M:\YODA\DATA\Y190430M\0430Y012.D Vial: 12
Acq On : 30 Apr 19 13:58 Operator: MA
Sample : SV Tune 03/07/18 Inst : Yoda
Misc : soil Multiplr: 1.00

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C



AutoFind: Scans 841, 842, 843; Background Corrected with Scan 833

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	47.4	89739	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.2	195	PASS
127	198	10	80	60.8	115021	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	189312	PASS
199	198	5	9	6.9	12995	PASS
275	198	10	60	24.1	45557	PASS
365	198	1	100	2.6	4955	PASS
441	442	0.01	24	15.7	20524	PASS
442	198	50	150	69.2	131056	PASS
443	442	15	24	19.4	25461	PASS

Data File Name:	**0430Y012.D**
Data File Path:	**M:\YODA\DATA\Y190430M**
Operator:	**MA**
Date Acquired:	**30 Apr 2019 13:58**
Method File:	**DFTPP2.M**
Sample Name:	**SV Tune 03/07/18**
Vial Number:	**12**
Instrument Name:	**Yoda**

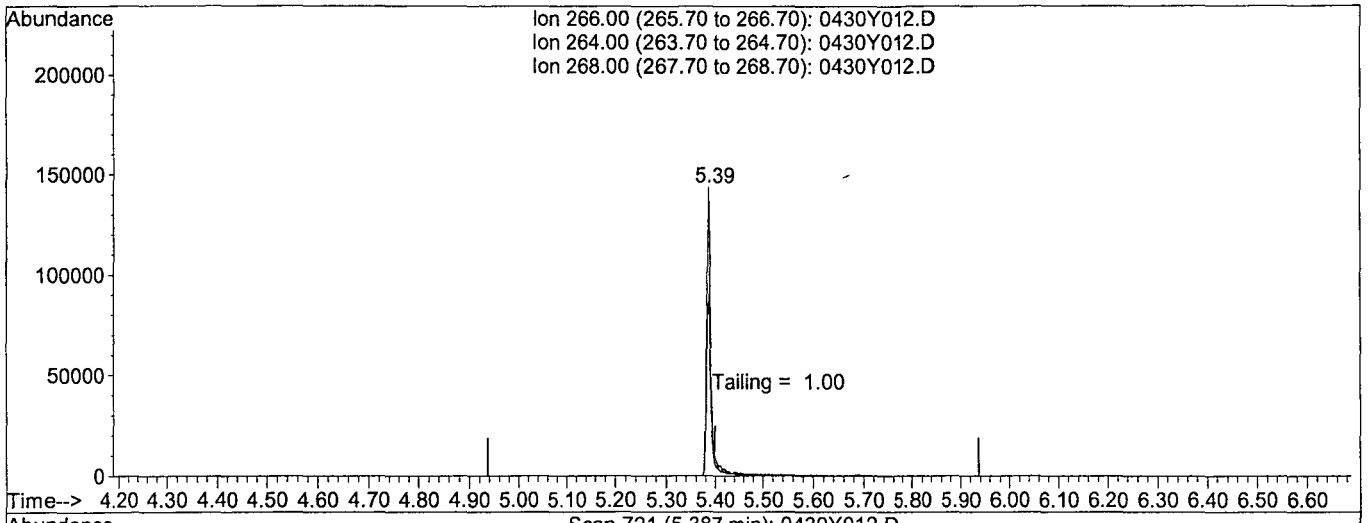
#	Name	Ret Time	Target Response
1)	DDT	7.08	18965500
2)	DDD	6.75	0
3)	DDE	6.86	0

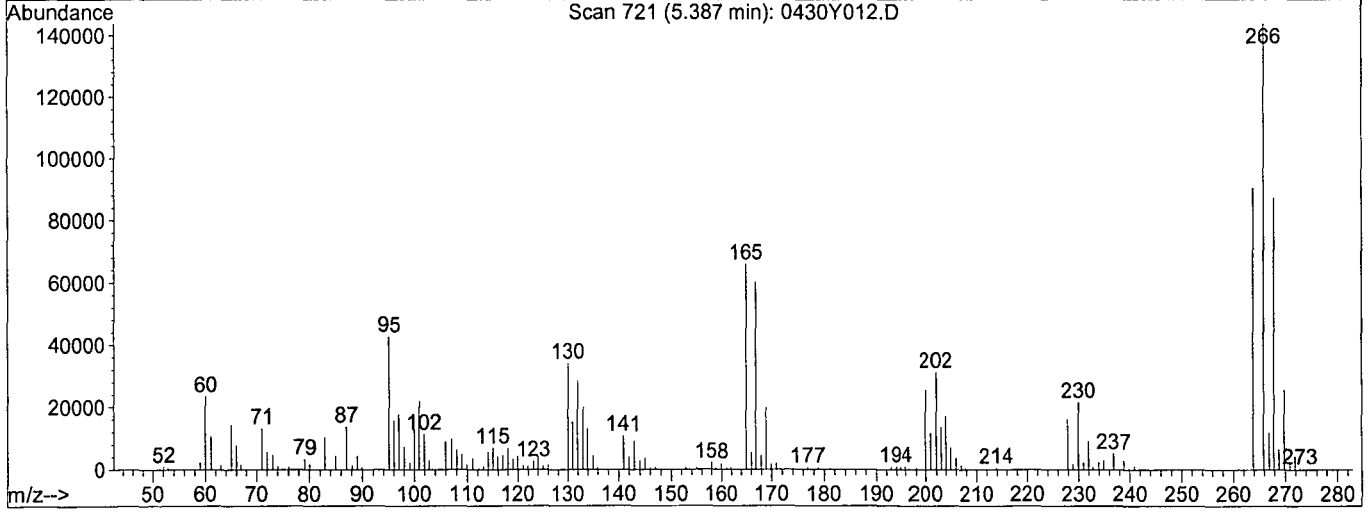
Breakdown **0.00**

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y012.D Vial: 12
Acq On : 30 Apr 19 13:58 Operator: MA
Sample : SV Tune 03/07/18 Inst : Yoda
Misc : soil Multiplr: 1.00
Quant Time: Apr 30 15:14 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190430M\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Mon Apr 22 13:05:57 2019
Response via : Single Level Calibration





TIC: 0430Y012.D

(5) Pentachlorophenol

5.39min 0.0000

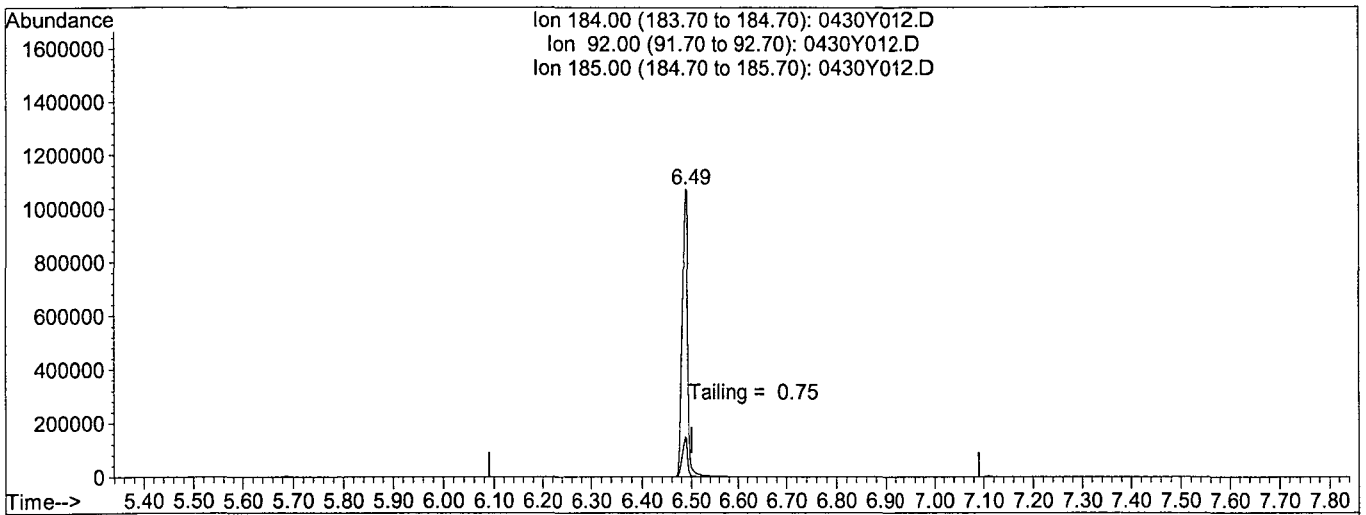
response 903595

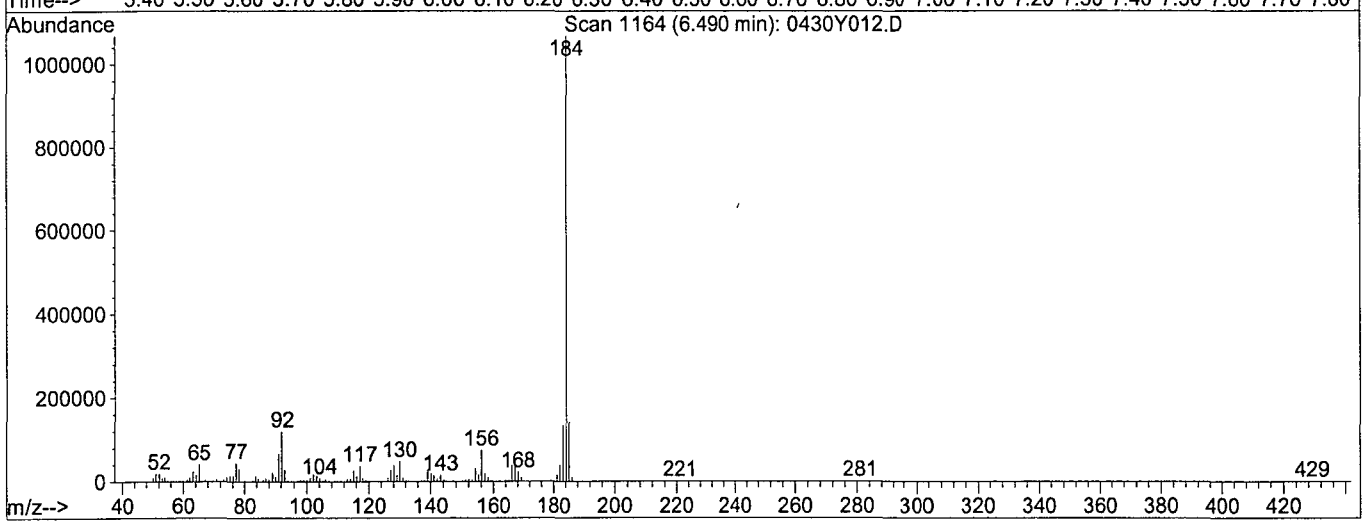
Ion	Exp%	Act%
266.00	100	100
264.00	61.20	63.20
268.00	65.20	62.05
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y012.D Vial: 12
Acq On : 30 Apr 19 13:58 Operator: MA
Sample : SV Tune 03/07/18 Inst : Yoda
Misc : soil Multiplr: 1.00
Quant Time: Apr 30 15:14 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190430M\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Mon Apr 22 13:05:57 2019
Response via : Single Level Calibration





TIC: 0430Y012.D

(6) Benzidine

6.49min 0.0000

response 8376584

Ion	Exp%	Act%
184.00	100	100
92.00	13.60	12.73
185.00	14.10	13.75
0.00	0.00	0.00

Name of Final Standard Diethylene Glycol **Prep'd By (Initials)** GA

Prep Date 01/31/19

Exp Date 01/31/20

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Diethylene glycol methyl ether	AccuStandard	S-72273	2000 ug/mL	**218101558-39888 39889**	**01/31/20**	2.0 mL	4 mL	**Methanol #042317C**	1000 ug/mL

Given to Extraction to do **MEE M STD Stock** (used for ICAL) Final concentration 2000ug/L

Name of Final Standard **2MEE Second Source Stock** **Prep'd By (Initials)** **GA**

Prep Date **08/03/18**

Exp Date **08/03/19**

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Methoxyethanol-Neat	Chem Service	N-12404-1G	Neat 99.5%	**7079100 - 39417**	**08/03/19**	0.1035g	10 mL	**MC #56258**	10320 ug/mL

Given to Extraction to do **MEE SS** (used for ICAL SS)

0.097ml were spiked in 500ml of water and extracted on 04/29/19 . Final concentration is 2000ug/L

_MWE2MEE

Organic Extraction Worksheet

Method	Solid Phase Extraction of 2MEE in Water	Extraction Set	190429A	Extraction Method	MWE2MEE	Units	mL

Spiked ID 1	Diethylene Glycol 1-31-19 EXP 1-31-20		Surrogate ID 1		
Spiked ID 2	2MEE SS 10320ug/mL 8-3-18 exp 8-3-19		Surrogate ID 2		
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	YES	
Spiked ID 7			Ext. Start Time:	04/29/19 10:50	
Spiked ID 8			Ext. End Time:	04/29/19 16:40	
			GC Requires Extract By:	**04/30/19 0:00**	

M STD AND SS PREPARATION

HA 5/1/19

				Water Bath Temp Criteria	
pH1					
pH2					
pH3					

Spiked By: KY **Date** 04/29/19 **Witnessed By:** DL **Date** 04/29/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
1	190429A Blk				NA	NA equip	500	2	7	04/29/19 10:50	
2	190429A LCS-1		0.040	1	NA	NA equip	500	2	7	04/29/19 10:50	
3	190429A LCSD-1		0.040	1	NA	NA equip	500	2	7	04/29/19 10:50	
4	AZ89958 MS-1	AZ89958W23	0.040	1	NA	NA equip	510	2	7	04/29/19 10:50	88687
5	AZ89958 MSD-1	AZ89958W22	0.040	1	NA	NA equip	510	2	7	04/29/19 10:50	88687
6	AZ89958	AZ89958W24			NA	NA equip	500	2	7	04/29/19 10:50	88687
7	AZ89959	AZ89959W06			NA	NA equip	480	2	7	04/29/19 10:50	88687
8	AZ89961	AZ89961W22			NA	NA equip	510	2	7	04/29/19 10:50	88687
9	AZ90051 MS-1	AZ90051W21	0.040	1	NA	NA equip	500	2	7	04/29/19 10:50	88701
10	AZ90051 MSD-1	AZ90051W25	0.040	1	NA	NA equip	500	2	7	04/29/19 10:50	88701
11	AZ90051	AZ90051W22			NA	NA equip	500	2	7	04/29/19 10:50	88701
12	AZ90052	AZ90052W05			NA	NA equip	505	2	7	04/29/19 10:50	88701
13	AZ90054	AZ90054W16			NA	NA equip	510	2	7	04/29/19 10:50	88701
14	AZ90056	AZ90056W16			NA	NA equip	510	2	7	04/29/19 10:50	88701
15	AZ90058	AZ90058W17			NA	NA equip	500	2	7	04/29/19 10:50	88701
16	AZ90060	AZ90060W17			NA	NA equip	505	2	7	04/29/19 10:50	88701

Solvent and Lot#	
ENVI-Carb Plus 400MG/1ML	.
Reverible Tube Lot:	11225702
PH Strip	HC 863463
Di Water	4-29-19
Dichloromethane	58240
Methanol	58179

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	
Date	
Time	
Refrigerator	

	Technician's Initials
Scanned By	DL
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	04/29/19 2:46:49 PM

Reviewed By: **Date**

Organic Extraction Worksheet

Method	Solid Phase Extraction of 2MEE in Water	Extraction Set	190429A	Extraction Method	MWE2MEE	Units	mL

Spiked ID 1	Diethylene Glycol 1-31-19 EXP 1-31-20		Surrogate ID 1		
Spiked ID 2	2MEE SS 10320ug/mL 8-3-18 exp 8-3-19		Surrogate ID 2		
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	YES	
Spiked ID 7			Ext. Start Time:	04/29/19 10:50	
Spiked ID 8			Ext. End Time:	04/29/19 16:40	
			GC Requires Extract By:	**04/30/19 0:00**	

pH1			Water Bath Temp Criteria	
pH2				
pH3				

Spiked By: KY **Date** 04/29/19 **Witnessed By:** DL **Date** 04/29/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
17	AZ90100	AZ90100W17			NA	NA equip	510	2	7	04/29/19 10:50	88714
18	AZ90102	AZ90102W16			NA	NA equip	395	2	7	04/29/19 10:50	88714
19	AZ90103	AZ90103W04			NA	NA equip	250	2	7	04/29/19 10:50	88714
20	AZ90105	AZ90105W16			NA	NA equip	500	2	7	04/29/19 10:50	88714
21	AZ90107	AZ90107W16			NA	NA equip	510	2	7	04/29/19 10:50	88714
22	AZ90109	AZ90109W17			NA	NA equip	505	2	7	04/29/19 10:50	88714
23	AZ90213	AZ90213W15			NA	NA equip	505	2	7	04/29/19 10:50	88736
24	AZ90215	AZ90215W16			NA	NA equip	500	2	7	04/29/19 10:50	88736
25	M STD		1	1	NA	NA equip	500	2	7	04/29/19 10:50	
26	SS		0.097	2	NA	NA equip	500	2	7	04/29/19 10:50	

Solvent and Lot#	
ENVI-Carb Plus 400MG/1ML	
Reverible Tube Lot:	11225702
PH Strip	HC 863463
Di Water	4-29-19
Dichloromethane	58240
Methanol	58179

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	
Date	
Time	
Refrigerator	

	Technician's Initials
Scanned By	DL
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	04/29/19 2:46:49 PM

Reviewed By: **Date**

Name of Final Standard MEE Curve **Prep'd By (Initials)** SS

Prep Date 04/30/19

Exp Date 10/30/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	5 uL	200uL	Methanol 195uL Lot# 208858	50 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	4 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	5 uL	100uL	Methanol 95uL Lot# 208858	100 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	2 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	10 uL	100uL	Methanol 90uL Lot# 208858	200 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	2 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	20 uL	100uL	Methanol 80 uL Lot# 208858	400 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	2 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	50 uL	200 uL	Methanol 150 uL	500 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	4 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	30 uL	100uL	Methanol 70 uL Lot# 208858	600 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	2 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	40 uL	100uL	Methanol 60 uL Lot# 208858	800 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	2 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	50 uL	100uL	Methanol 50uL Lot# 208858	1000 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	2 uL	"	"	"

Name of Final Standard MEE Second Source **Prep'd By (Initials)** SS

Prep Date 04/30/19

Exp Date 08/03/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
MEE SS	APPL		2000 ug/mL	04/29/19	08/03/19	50 uL	200uL	Methanol 150uL Lot# 208858	500 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	4 uL	"	"	"

Organic Extraction Worksheet

Method	Solid Phase Extraction of 2MEE in Water	Extraction Set	190429A	Extraction Method	MWE2MEE	Units	mL

Spiked ID 1	Diethylene Glycol 1-31-19 EXP 1-31-20		Surrogate ID 1		
Spiked ID 2	2MEE SS 10320ug/mL 8-3-18 exp 8-3-19		Surrogate ID 2		
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	YES	
Spiked ID 7			Ext. Start Time:	04/29/19 10:50	
Spiked ID 8			Ext. End Time:	04/29/19 16:40	
			GC Requires Extract By:	04/30/19 0:00	

pH1			Water Bath Temp Criteria
pH2			
pH3			

Spiked By: KY **Date** 04/29/19 **Witnessed By:** DL **Date** 04/29/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
1	190429A Blk				NA	NA equip	500	2	7	04/29/19 10:50	
2	190429A LCS-1		0.040	1	NA	NA equip	500	2	7	04/29/19 10:50	
3	190429A LCSD-1		0.040	1	NA	NA equip	500	2	7	04/29/19 10:50	
4	AZ89958 MS-1	AZ89958W23	0.040	1	NA	NA equip	510	2	7	04/29/19 10:50	88687
5	AZ89958 MSD-1	AZ89958W22	0.040	1	NA	NA equip	510	2	7	04/29/19 10:50	88687
6	AZ89958	AZ89958W24			NA	NA equip	500	2	7	04/29/19 10:50	88687
7	AZ89959	AZ89959W06			NA	NA equip	480	2	7	04/29/19 10:50	88687
8	AZ89961	AZ89961W22			NA	NA equip	510	2	7	04/29/19 10:50	88687
9	AZ90051 MS-1	AZ90051W21	0.040	1	NA	NA equip	500	2	7	04/29/19 10:50	88701
10	AZ90051 MSD-1	AZ90051W25	0.040	1	NA	NA equip	500	2	7	04/29/19 10:50	88701
11	AZ90051	AZ90051W22			NA	NA equip	500	2	7	04/29/19 10:50	88701
12	AZ90052	AZ90052W05			NA	NA equip	505	2	7	04/29/19 10:50	88701
13	AZ90054	AZ90054W16			NA	NA equip	510	2	7	04/29/19 10:50	88701
14	AZ90056	AZ90056W16			NA	NA equip	510	2	7	04/29/19 10:50	88701
15	AZ90058	AZ90058W17			NA	NA equip	500	2	7	04/29/19 10:50	88701
16	AZ90060	AZ90060W17			NA	NA equip	505	2	7	04/29/19 10:50	88701

Solvent and Lot#	
ENVI-Carb Plus 400MG/1ML	
Reverible Tube Lot:	11225702
PH Strip	HC 863463
Di Water	4-29-19
Dichloromethane	58240
Methanol	58179

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	SS
Date	4/30/19
Time	11:30
Refrigerator	6C-C

	Technician's Initials
Scanned By	DL
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	04/29/19 2:46:49 PM

Reviewed By: KY **Date** 4/30/19

04/30/19 12:56:21 PM Ext_ID 62632 Page 1 of 2

Organic Extraction Worksheet

Method	Solid Phase Extraction of 2MEE in Water	Extraction Set	190429A	Extraction Method	MWE2MEE	Units	mL

Spiked ID 1	Diethylene Glycol 1-31-19 EXP 1-31-20		Surrogate ID 1		
Spiked ID 2	2MEE SS 10320ug/mL 8-3-18 exp 8-3-19		Surrogate ID 2		
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	YES	
Spiked ID 7			Ext. Start Time:	04/29/19 10:50	
Spiked ID 8			Ext. End Time:	04/29/19 16:40	
			GC Requires Extract By:	04/30/19 0:00	

pH1			Water Bath Temp Criteria	
pH2				
pH3				

Spiked By: KY **Date** 04/29/19 **Witnessed By:** DL **Date** 04/29/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
17	AZ90100	AZ90100W17			NA	NA equip	510	2	7	04/29/19 10:50	88714
18	AZ90102	AZ90102W16			NA	NA equip	395	2	7	04/29/19 10:50	88714
19	AZ90103	AZ90103W04			NA	NA equip	250	2	7	04/29/19 10:50	88714
20	AZ90105	AZ90105W16			NA	NA equip	500	2	7	04/29/19 10:50	88714
21	AZ90107	AZ90107W16			NA	NA equip	510	2	7	04/29/19 10:50	88714
22	AZ90109	AZ90109W17			NA	NA equip	505	2	7	04/29/19 10:50	88714
23	AZ90213	AZ90213W15			NA	NA equip	505	2	7	04/29/19 10:50	88736
24	AZ90215	AZ90215W16			NA	NA equip	500	2	7	04/29/19 10:50	88736
25	M STD		1	1	NA	NA equip	500	2	7	04/29/19 10:50	
26	SS		0.097	2	NA	NA equip	500	2	7	04/29/19 10:50	

KY 4/30/19

Solvent and Lot#	
ENVI-Carb Plus 400MG/1ML	
Reverible Tube Lot:	11225702
PH Strip	HC 863463
Di Water	4-29-19
Dichloromethane	58240
Methanol	58179

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	
Date	
Time	
Refrigerator	

	Technician's Initials
Scanned By	DL
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	04/29/19 2:46:49 PM

Reviewed By: KY **Date** 4/30/19

04/30/19 12:56:21 PM Ext_ID 62632

Injection Log

Directory: M:\YODA\DATA\Y190430M\

Vial	FileName	Multiplier	SampleName	Misc Info	Injected
2	0430Y002.D	1	SV Tune 03/07/18		30 Apr 19 9:12
3	0430Y003.D	1	50ug/ml MEE 04/30/19	soil	30 Apr 19 9:27
4	0430Y004.D	1	100ug/ml MEE 04/30/19	soil	30 Apr 19 9:50
5	0430Y005.D	1	200ug/ml MEE 04/30/19	soil	30 Apr 19 10:13
6	0430Y006.D	1	400ug/ml MEE 04/30/19	soil	30 Apr 19 10:37
7	0430Y007.D	1	500ug/ml MEE 04/30/19	soil	30 Apr 19 11:00
8	0430Y008.D	1	600ug/ml MEE 04/30/19	soil	30 Apr 19 11:23
9	0430Y009.D	1	800ug/ml MEE 04/30/19	soil	30 Apr 19 11:47
10	0430Y010.D	1	1000ug/ml MEE 04/30/19	soil	30 Apr 19 12:10
11	0430Y011.D	1	SS ug/ml MEE 04/30/19	soil	30 Apr 19 13:30
12	0430Y012.D	1	SV Tune 03/07/18	soil	30 Apr 19 13:58
13	0430Y013.D	1	190429A BLK 2/500	soil	30 Apr 19 14:13
14	0430Y014.D	1	190429A LCS-1 2/500	soil	30 Apr 19 14:37
15	0430Y015.D	1	190429A LCSD-1 2/500	soil	30 Apr 19 15:01
29	0430Y029.D	0.98039	AZ90100W17 2/510	soil	30 Apr 19 20:31
30	0430Y030.D	1.26582	AZ90102W16 2/395	soil	30 Apr 19 20:54
31	0430Y031.D	2	AZ90103W04 2/250	soil	30 Apr 19 21:18
32	0430Y032.D	1	AZ90105W16 2/500	soil	30 Apr 19 21:41
33	0430Y033.D	0.98039	AZ90107W16 2/510	soil	30 Apr 19 22:05
34	0430Y034.D	0.9901	AZ90109W17 2/505	soil	30 Apr 19 22:28
37	0430Y037.D	1	500ug/ml MEE 04/30/19	soil	30 Apr 19 23:38

ORGANICS
Calibration Data

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/24/19
Matrix: water Instrument: Max
Initials: DG/LP

		Compound	1	2	3	4	5	6	7	8	9		Avg	%RSD	Type	r^2	Q	MRF
			0324M05 D	0324M06 D	0324M07.D	0324M08.D	0324M09.D	0324M10 D	0324M11.D	0324M12.D	0324M13 D							
1	I	Fluorobenzene (IS)																
2	TM	Dichlorodifluoromethane		0.0635	0.0693	0.0675	0.0762	0.0701	0.0732	0.0679	0.0629		0.07	6.5	TM			
3	TM	Freon 114		0.1012	0.0938	0.1001	0.0949	0.0941	0.0972	0.0920	0.0843		0.09	5.5	TM			
4	TM**L	Chloromethane		0.1465	0.1082	0.0912	0.1126	0.0971	0.1082	0.1038			0.11	16	TM**L	0.999		
5	TM*	Vinyl chloride		0.0921	0.1255	0.1141	0.1198	0.1125	0.1195	0.1149	0.1094		0.11	8.8	TM*			
6	TM	Bromomethane		0.0818	0.0854	0.0731	0.0733	0.0643	0.0669	0.0635	0.0624		0.07	12	TM			
7	TML	Chloroethane		0.2608	0.1278	0.1208	0.0863	0.0806	0.0784	0.0764			0.12	56	TML	1.000		
8	TM	Dichlorofluoromethane		0.2144	0.1899	0.1886	0.2066	0.1941	0.1977	0.1954	0.1869		0.20	4.8	TM			
9	TM	Trichlorofluoromethane		0.1220	0.1310	0.1535	0.1525	0.1474	0.1564	0.1458	0.1373		0.14	8.4	TM			
10	TM	Acrolein		0.0027	0.0027	0.0030	0.0033	0.0033	0.0033	0.0035	0.0038		0.00	12	TM			
11	TML	Acetone			0.0728	0.0437	0.0341	0.0279	0.0233	0.0223	0.0211		0.04	53	TML	1.000		
12	TM	Freon-113		0.0733	0.0795	0.0877	0.0905	0.0836	0.0867	0.0807	0.0749		0.08	7.5	TM			
13	TM*	1,1-DCE		0.1365	0.1369	0.1396	0.1471	0.1437	0.1492	0.1446	0.1392		0.14	3.3	TM*			
14	TM	Acetonitrile		0.0112	0.0108	0.0103	0.0109	0.0106	0.0101	0.0100	0.0104		0.01	3.8	TM			
15	TM	t-Butanol			0.0027	0.0061	0.0067	0.0066	0.0070	0.0081			0.01	29	TM		*	NT
16	TM	Methyl Acetate			0.0343	0.0339	0.0334	0.0337	0.0334	0.0341	0.0366		0.03	3.2	TM			
17	TML	Iodomethane			0.0380	0.0453	0.0823	0.0984	0.1177	0.1200	0.1246		0.09	40	TML	1.000		
18	TM	Acrylonitrile			0.0238	0.0269	0.0338	0.0338	0.0342	0.0327	0.0327		0.03	13	TM			
19	TM	Methylene chloride		0.1124	0.1130	0.1074	0.1110	0.1105	0.1131	0.1108	0.1078		0.11	2.0	TM			
20	TM	Carbon disulfide		0.2714	0.2784	0.2600	0.2731	0.2572	0.2695	0.2670	0.2589		0.27	2.8	TM			
21	TM	Methyl t-butyl ether (MtBE)		0.1080	0.1265	0.1233	0.1331	0.1368	0.1382	0.1365	0.1312		0.13	7.8	TM			
22	TM	Trans-1,2-DCE		0.0922	0.0912	0.1013	0.1079	0.0990	0.1071	0.1050	0.1002		0.10	6.3	TM			
23	TM	Diisopropyl Ether		0.3654	0.3588	0.3727	0.3917	0.3900	0.3978	0.3900	0.3787		0.38	3.7	TM			
24	TM**	1,1-DCA		0.1911	0.1986	0.1887	0.1987	0.1972	0.2065	0.2020	0.1969		0.20	2.9	TM**			
25	TM	Vinyl Acetate		0.1057	0.1017	0.0997	0.1034	0.0993	0.1021	0.0957	0.0928		0.10	4.2	TM			
26	TM	Ethyl tert Butyl Ether		0.2829	0.2984	0.3079	0.3469	0.3344	0.3473	0.3458	0.3331		0.32	7.7	TM			
27	TML	MEK (2-Butanone)			0.0418	0.0435	0.0341	0.0373	0.0367	0.0328	0.0307		0.04	13	TML	0.998		
28	TM	Cis-1,2-DCE		0.1286	0.1102	0.1136	0.1247	0.1221	0.1283	0.1235	0.1195		0.12	5.4	TM			
29	TM	2,2-Dichloropropane		0.1644	0.1669	0.1604	0.1758	0.1618	0.1659	0.1622	0.1561		0.16	3.5	TM			
30	TM*	Chloroform		0.1964	0.1951	0.1983	0.1965	0.1895	0.1967	0.1942	0.1916		0.19	1.5	TM*			
31	TM	Bromochloromethane		0.0572	0.0491	0.0591	0.0569	0.0568	0.0572	0.0577	0.0566		0.06	5.3	TM			
32	S	Dibromofluoromethane(S)	0.2250	0.2190	0.1683	0.1791	0.1920	0.1877	0.1903	0.1887	0.1712		0.19	10	S			
33	TM	1,1,1-TCA		0.1676	0.1700	0.1580	0.1656	0.1615	0.1700	0.1652	0.1589		0.16	2.9	TM			
34	TM	Cyclohexane		0.1238	0.1054	0.1110	0.0999	0.0994	0.1006	0.0952	0.0868		0.10	11	TM			
35	TM	1,1-Dichloropropene		0.1274	0.1225	0.1418	0.1441	0.1383	0.1430	0.1365	0.1317		0.14	5.8	TM			

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/24/19
Matrix: water Instrument: Max Initials:

		Compound	1	2	3	4	5	6	7	8	9		Avg	%RSD	Type		Q	MRF
36	TM	2,2,4-Trimethylpentane		0.2900	0.2859	0.2834	0.2934	0.2904	0.2956	0.2826	0.2625		0.29	3.6	TM			
37	S	1,2-DCA-D4(S)	0.2745	0.2518	0.1982	0.2074	0.2233	0.2148	0.2139	0.2111	0.1879		0.22	12	S			
38	TM	Carbon Tetrachloride		0.1036	0.0876	0.0946	0.1165	0.1108	0.1186	0.1230	0.1236		0.11	12	TM			
39	TM	Tert Amyl Methyl Ether		0.2612	0.2618	0.2601	0.2943	0.2946	0.2968	0.2906	0.2815		0.28	5.9	TM			
40	TM	1,2-DCA		0.1580	0.1390	0.1485	0.1564	0.1465	0.1506	0.1438	0.1389		0.15	4.9	TM			
41	TM	Benzene		0.4595	0.4486	0.4417	0.4619	0.4486	0.4553	0.4459	0.4341		0.45	2.1	TM			
42	TM	TCE		0.1094	0.1243	0.1104	0.1213	0.1164	0.1167	0.1154	0.1121		0.12	4.5	TM			
43	TM	2-Pentanone		0.0608	0.0558	0.0582	0.0625	0.0599	0.0614	0.0619	0.0590		0.06	3.7	TM			
44	TM*	1,2-Dichloropropane		0.1058	0.1126	0.1148	0.1142	0.1112	0.1144	0.1134	0.1097		0.11	2.7	TM*			
45	TM	Bromodichloromethane		0.1195	0.1215	0.1184	0.1328	0.1332	0.1346	0.1373	0.1426		0.13	6.9	TM			
46	TM	Methyl Cyclohexane		0.1706	0.1612	0.1645	0.1612	0.1596	0.1669	0.1614	0.1482		0.16	4.1	TM			
47	TM	Dibromomethane		0.0524	0.0523	0.0548	0.0612	0.0625	0.0609	0.0594	0.0574		0.06	7.0	TM			
48	TM	MIBK (methyl isobutyl ketone)		0.1016	0.0970	0.0727	0.0867	0.0805	0.0779	0.0764	0.0725		0.08	13	TM			
49	TM	1-Bromo-2-chloroethane		0.0789	0.0670	0.0676	0.0765	0.0725	0.0727	0.0724	0.0713		0.07	5.5	TM			
50	TM	2-Chloroethyl vinyl ether													TM			
51	TM	Cis-1,3-Dichloropropene		0.1663	0.1617	0.1587	0.1772	0.1789	0.1831	0.1824	0.1817		0.17	5.7	TM			
52	TM*	Toluene		0.4972	0.5110	0.5025	0.5105	0.5015	0.5148	0.5034	0.4921		0.50	1.5	TM*			
53	TM	Trans-1,3-Dichloropropene		0.1422	0.1303	0.1237	0.1466	0.1492	0.1569	0.1565	0.1575		0.15	8.7	TM			
54	TM	1,1,2-TCA		0.0660	0.0734	0.0673	0.0743	0.0721	0.0741	0.0732	0.0703		0.07	4.5	TM			
55	TM	2-Hexanone		0.0653	0.0549	0.0591	0.0564	0.0513	0.0500	0.0505	0.0463		0.05	11	TM			
56	I	Chlorobenzene-D5 (IS)																
57	S	Toluene-D8(S)	1.394	1.286	1.018	1.062	1.091	1.071	1.080	1.053	0.9367		1.1	13	S			
58	TM	1,2-EDB		0.1072	0.0990	0.1151	0.1223	0.1169	0.1185	0.1179	0.1118		0.11	6.5	TM			
59	TM	Tetrachloroethene		0.1523	0.1391	0.1369	0.1398	0.1349	0.1391	0.1320	0.1259		0.14	5.5	TM			
60	TM	1-Chlorohexane		0.1831	0.1948	0.1894	0.1920	0.1956	0.1983	0.1902	0.1801		0.19	3.3	TM			
61	TM	1,1,1,2-Tetrachloroethane		0.1278	0.1216	0.1226	0.1358	0.1371	0.1423	0.1472	0.1494		0.14	7.9	TM			
62	TM	m&p-Xylene		0.2826	0.2684	0.2631	0.2947	0.2836	0.2942	0.2860	0.2788		0.28	4.0	TM			
63	TM	o-Xylene		0.2816	0.2864	0.2793	0.2899	0.2899	0.2942	0.2872	0.2852		0.29	1.7	TM			
64	TM	Styrene		0.4550	0.4494	0.4297	0.4913	0.4738	0.4960	0.4861	0.4829		0.47	5.0	TM			
65	S	4-Bromofluorobenzene(S)	0.5102	0.4809	0.3610	0.3788	0.3957	0.3966	0.4009	0.3904	0.3516		0.41	13	S			
66	TM	1,3-Dichloropropane		0.2080	0.1956	0.2014	0.2199	0.2170	0.2165	0.2080	0.1968		0.21	4.5	TM			
67	TM	Dibromochloromethane		0.1050	0.0989	0.0879	0.1026	0.1069	0.1163	0.1191	0.1267		0.11	11	TM			
68	TM**	Chlorobenzene		0.4564	0.4155	0.4047	0.4545	0.4416	0.4497	0.4354	0.4311		0.44	4.2	TM**			
69	TM*	Ethylbenzene		0.6772	0.7012	0.6789	0.7466	0.7340	0.7446	0.7080	0.6930		0.71	4.0	TM*			
70	TM**L	Bromoform		0.0491	0.0562	0.0495	0.0546	0.0580	0.0640	0.0700	0.0774		0.06	17	TM**L	0.998		

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/24/19
Matrix: water Instrument: Max Initials:

		Compound	1	2	3	4	5	6	7	8	9		Avg	%RSD	Type		Q	MRF
71	I	1,4-Dichlorobenzene-D (IS)																
72	TM	Isopropylbenzene		1.387	1.372	1.385	1.421	1.361	1.388	1.352	1.319		1.4	2.2	TM			
73	TM**	1,1,2,2-Tetrachloroethane		0.3157	0.3309	0.3307	0.3468	0.3458	0.3351	0.3370	0.3415		0.34	3.0	TM**			
74	TM	1,2,3-Trichloropropane		0.0725	0.0794	0.0764	0.0889	0.0841	0.0838	0.0819	0.0763		0.08	6.6	TM			
75	TM	t-1,4-Dichloro-2-Butene			0.0382	0.0276	0.0301	0.0284	0.0303	0.0320	0.0303		0.03	11	TM			
76	TM	Bromobenzene		0.3670	0.3936	0.3568	0.3853	0.3711	0.3772	0.3683	0.3633		0.37	3.2	TM			
77	TM	n-Propylbenzene		1.569	1.539	1.580	1.559	1.529	1.547	1.507	1.461		1.5	2.5	TM			
78	TM	4-Ethyltoluene		1.305	1.346	1.365	1.395	1.380	1.390	1.355	1.322		1.4	2.4	TM			
79	TM	2-Chlorotoluene		0.9027	1.006	1.002	0.9602	0.9521	0.9493	0.9180	0.8984		0.95	4.3	TM			
80	TM	1,3,5-Trimethylbenzene		1.144	1.154	1.193	1.197	1.165	1.165	1.128	1.093		1.2	2.9	TM			
81	TM	4-Chlorotoluene		1.108	1.112	1.136	1.119	1.116	1.124	1.072	1.054		1.1	2.5	TM			
82	TM	Tert-Butylbenzene		0.9405	1.211	1.007	1.092	1.019	1.018	0.9872	0.9548		1.0	8.4	TM			
83	TM	1,2,4-Trimethylbenzene		1.178	1.136	1.152	1.199	1.188	1.177	1.154	1.128		1.2	2.2	TM			
84	TM	Sec-Butylbenzene		1.282	1.376	1.398	1.430	1.378	1.379	1.352	1.305		1.4	3.5	TM			
85	TM	p-Isopropyltoluene		0.5856	0.6249	0.6134	0.6694	0.6475	0.6492	0.6225	0.6144		0.63	4.2	TM			
86	TM	Benzyl Chloride		0.2555	0.2395	0.2479	0.2873	0.2808	0.3131	0.3202	0.3306		0.28	12	TM			
87	TM	1,3-DCB		0.6855	0.6569	0.6628	0.6869	0.6823	0.6942	0.6750	0.6746		0.68	1.9	TM			
88	TM	1,4-DCB		0.3624	0.3348	0.3208	0.3509	0.3475	0.3468	0.3505	0.3432		0.34	3.6	TM			
89	TM	n-Butylbenzene		0.4922	0.5100	0.4955	0.5388	0.5024	0.5237	0.5207	0.5078		0.51	3.1	TM			
90	TM	1,2-DCB		0.5627	0.5926	0.6208	0.6461	0.6553	0.6508	0.6445	0.6293		0.63	5.2	TM			
91	TML	Hexachloroethane		0.0561	0.0479	0.0556	0.0463	0.0447	0.0582	0.0613	0.0730		0.06	17	TML	0.995		
92	TM	1,2-Dibromo-3-chloropropane			0.0397	0.0356	0.0470	0.0461	0.0484	0.0521	0.0491		0.05	13	TM			
93	TM	1,2,4-Trichlorobenzene		0.3600	0.3690	0.3442	0.4149	0.3972	0.4184	0.4272	0.4113		0.39	7.9	TM			
94	TM	Hexachlorobutadiene		0.1929	0.2069	0.2007	0.2166	0.1970	0.2136	0.2059	0.1911		0.20	4.6	TM			
95	TM	Naphthalene		0.6138	0.5370	0.5736	0.6586	0.6984	0.7193	0.7531	0.6922		0.66	11	TM			
96	TM	1,2,3-Trichlorobenzene		0.3268	0.2954	0.3072	0.3453	0.3525	0.3672	0.3725	0.3520		0.34	8.1	TM			
97																		
98																		
99																		
100																		
101																		
102																		
103																		
104																		
105																		

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M05.D Vial: 3
Acq On : 24 Mar 19 12:56 Operator: PM,DG,SV,CMM,KV
Sample : 0.3ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.31	96	567297	25.000	ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	414490	25.000	ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	209079	25.000	ppb		0.00
System Monitoring Compounds							
32) Dibromofluoromethane(S)	4.60	111	25529	5.883	ppb		0.00
Spiked Amount 25.000			Recovery =	23.532%			
37) 1,2-DCA-D4(S)	4.95	65	31146	6.230	ppb		0.00
Spiked Amount 25.000			Recovery =	24.920%			
57) Toluene-D8(S)	7.13	98	115538	6.278	ppb		0.00
Spiked Amount 25.000			Recovery =	25.112%			
65) 4-Bromofluorobenzene(S)	10.52	95	42297	6.263	ppb		0.00
Spiked Amount 25.000			Recovery =	25.052%			
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.13	85	521	0.334	ppb		98
3) Freon 114	1.23	85	638	0.297	ppb	#	68
4) Chloromethane	1.27	50	1219	0.471	ppb	#	81
5) Vinyl chloride	1.36	62	684	0.266	ppb	#	1
6) Bromomethane	1.61	94	684	0.423	ppb	#	69
7) Chloroethane	1.70	64	5267	2.132	ppb		93
8) Dichlorofluoromethane	1.87	67	1440	0.323	ppb	#	82
9) Trichlorofluoromethane	1.91	101	999	0.307	ppb		99
10) Acrolein	2.30	56	723	9.988	ppb	#	81
11) Acetone	2.46	43	1016	-0.762	ppb		86
12) Freon-113	2.39	101	454	0.244	ppb	#	91
13) 1,1-DCE	2.37	61	896	0.278	ppb		98
14) Acetonitrile	2.71	41	2892	12.104	ppb	#	74
15) t-Butanol	3.03	59	550	3.905	ppb		94
16) Methyl Acetate	2.79	43	274	0.353	ppb	#	53
18) Acrylonitrile	3.10	53	107	0.151	ppb	#	18
19) Methylene chloride	2.83	84	730	0.291	ppb		87
20) Carbon disulfide	2.55	76	1906	0.315	ppb		96
21) Methyl t-butyl ether (MtBE	3.14	73	822	0.280	ppb	#	89
22) Trans-1,2-DCE	3.11	96	735	0.322	ppb	#	53
23) Diisopropyl Ether	3.64	45	2392	0.277	ppb	#	77
24) 1,1-DCA	3.50	63	1312	0.293	ppb	#	87
25) Vinyl Acetate	3.61	43	774	0.341	ppb		100
26) Ethyl tert Butyl Ether	4.00	59	2080	0.282	ppb		98
27) MEK (2-Butanone)	4.15	43	388	-1.150	ppb	#	46
28) Cis-1,2-DCE	4.10	96	838	0.304	ppb		90
29) 2,2-Dichloropropane	4.09	77	1154	0.310	ppb	#	88
30) Chloroform	4.44	83	1186	0.268	ppb		84
31) Bromochloromethane	4.34	128	248	0.194	ppb	#	67
33) 1,1,1-TCA	4.60	97	967	0.259	ppb	#	83
34) Cyclohexane	4.66	41	926	0.397	ppb	#	61
35) 1,1-Dichloropropene	4.79	75	825	0.268	ppb	#	68
36) 2,2,4-Trimethylpentane	5.12	57	2329	0.360	ppb	#	76
38) Carbon Tetrachloride	4.78	117	622	0.250	ppb	#	68
39) Tert Amyl Methyl Ether	5.18	73	1967	0.309	ppb	#	79
40) 1,2-DCA	5.03	62	894	0.267	ppb	#	65
41) Benzene	5.01	78	3056	0.300	ppb	#	87
42) TCE	5.73	95	1066	0.406	ppb	#	64
43) 2-Pentanone	5.97	43	14419	10.601	ppb		90

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M05.D Vial: 3
Acq On : 24 Mar 19 12:56 Operator: PM,DG,SV,CMM,KV
Sample : 0.3ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
44)	1,2-Dichloropropane	5.97	63	637	0.251 ppb	#	89
45)	Bromodichloromethane	6.28	83	905	0.307 ppb		84
46)	Methyl Cyclohexane	5.94	83	1260	0.343 ppb		99
47)	Dibromomethane	6.09	93	409	0.313 ppb	#	69
48)	MIBK (methyl isobutyl ket	7.06	43	523	0.277 ppb	#	47
49)	1-Bromo-2-chloroethane	6.64	63	494	0.301 ppb		94
51)	Cis-1,3-Dichloropropene	6.82	75	824	0.209 ppb	#	39
52)	Toluene	7.21	91	3481	0.304 ppb		92
53)	Trans-1,3-Dichloropropene	7.51	75	879	0.266 ppb		89
54)	1,1,2-TCA	7.71	83	473	0.292 ppb	#	90
55)	2-Hexanone	8.11	43	650	0.528 ppb	#	32
58)	1,2-EDB	8.32	107	581	0.309 ppb		93
59)	Tetrachloroethene	7.87	164	541	0.237 ppb	#	77
60)	1-Chlorohexane	8.99	91	904	0.286 ppb		84
61)	1,1,1,2-Tetrachloroethane	9.09	131	507	0.226 ppb	#	56
62)	m&p-Xylene	9.30	106	2560	0.549 ppb		91
63)	o-Xylene	9.82	106	1337	0.281 ppb		85
64)	Styrene	9.84	104	2251	0.289 ppb		96
66)	1,3-Dichloropropane	7.92	76	994	0.288 ppb	#	65
67)	Dibromochloromethane	8.19	129	428	0.239 ppb		90
68)	Chlorobenzene	8.97	112	2341	0.324 ppb		92
69)	Ethylbenzene	9.14	91	3488	0.296 ppb	#	80
70)	Bromoform	10.05	173	244	1.798 ppb	#	29
72)	Isopropylbenzene	10.34	105	3178	0.277 ppb		96
73)	1,1,2,2-Tetrachloroethane	6.28	83	905	0.323 ppb	#	84
74)	1,2,3-Trichloropropane	10.78	110	201	0.299 ppb	#	17
76)	Bromobenzene	10.70	156	784	0.251 ppb		75
77)	n-Propylbenzene	10.91	91	3937	0.306 ppb		95
78)	4-Ethyltoluene	11.06	105	3158	0.278 ppb		89
79)	2-Chlorotoluene	10.98	91	2361	0.298 ppb		92
80)	1,3,5-Trimethylbenzene	11.16	105	2869	0.297 ppb		81
81)	4-Chlorotoluene	11.14	91	2795	0.302 ppb		93
82)	Tert-Butylbenzene	11.61	119	2561	0.298 ppb		91
83)	1,2,4-Trimethylbenzene	11.68	105	2952	0.303 ppb		94
84)	Sec-Butylbenzene	11.91	105	3308	0.290 ppb		93
85)	p-Isopropyltoluene	12.14	119	1509	0.287 ppb		93
86)	Benzyl Chloride	12.36	91	632	0.266 ppb	#	62
87)	1,3-DCB	12.02	146	1645	0.290 ppb	#	80
88)	1,4-DCB	12.15	146	931	0.323 ppb	#	85
89)	n-Butylbenzene	12.72	91	1221	0.285 ppb		83
90)	1,2-DCB	12.67	146	1513	0.289 ppb		88
91)	Hexachloroethane	13.01	117	168	2.403 ppb	#	4
93)	1,2,4-Trichlorobenzene	14.99	180	796	0.242 ppb	#	85
94)	Hexachlorobutadiene	15.28	225	528	0.311 ppb	#	74
95)	Naphthalene	15.32	128	1254	0.229 ppb	#	75
96)	1,2,3-Trichlorobenzene	15.67	180	808	0.284 ppb		94

(#) = qualifier out of range (m) = manual integration

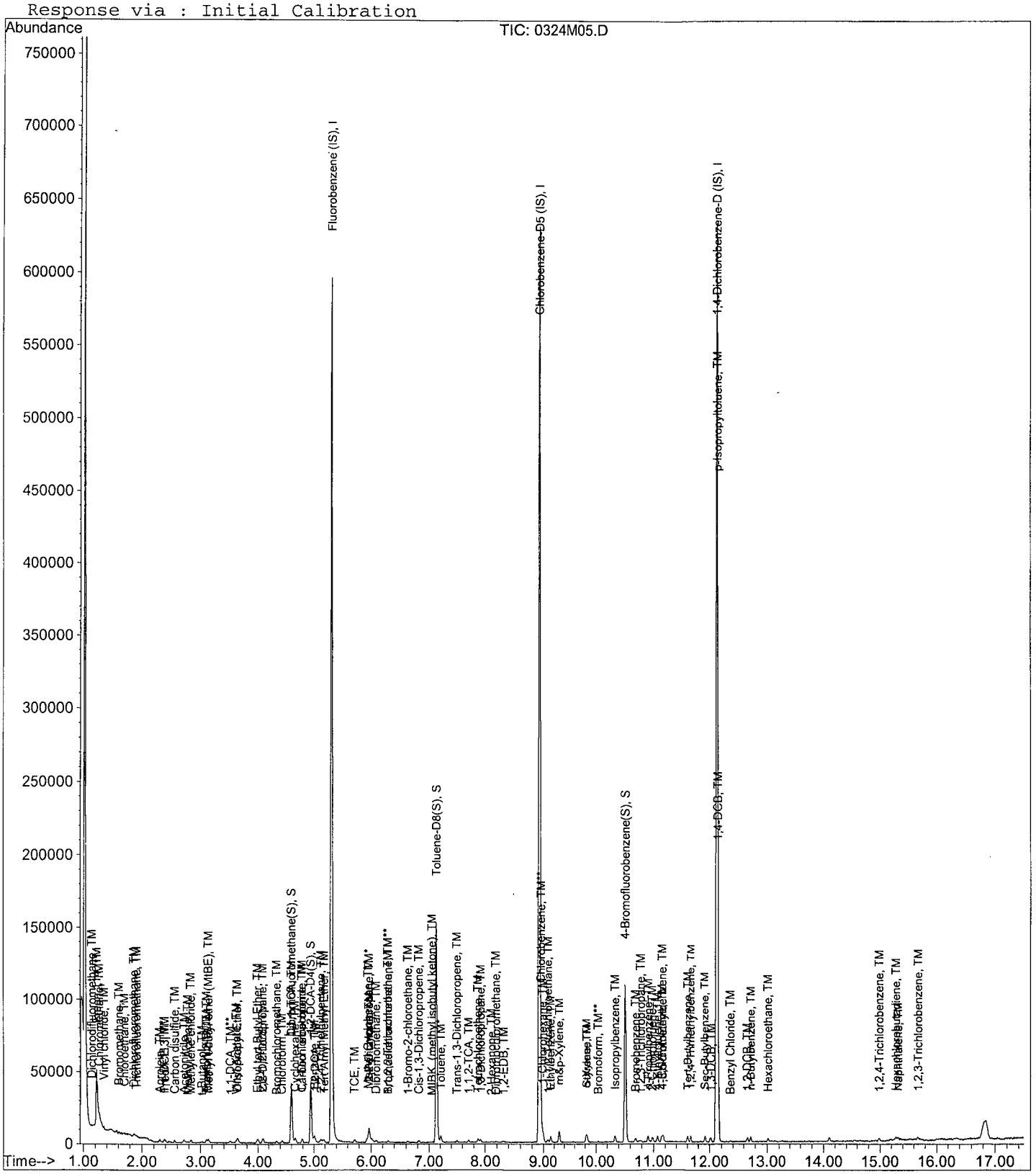
Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M05.D
Acq On : 24 Mar 19 12:56
Sample : 0.3ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 3
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M06.D
Acq On : 24 Mar 19 13:25
Sample : 0.5ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 4
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.31	96	548649	25.000	ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	408005	25.000	ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	207647	25.000	ppb		0.00
System Monitoring Compounds							
32) Dibromofluoromethane(S)	4.60	111	24026	5.724	ppb		0.00
Spiked Amount 25.000			Recovery	=	22.896%		
37) 1,2-DCA-D4(S)	4.95	65	27628	5.714	ppb		0.00
Spiked Amount 25.000			Recovery	=	22.856%		
57) Toluene-D8(S)	7.13	98	104917	5.791	ppb		0.00
Spiked Amount 25.000			Recovery	=	23.164%		
65) 4-Bromofluorobenzene(S)	10.52	95	39240	5.903	ppb		0.00
Spiked Amount 25.000			Recovery	=	23.612%		
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.14	85	697	0.461	ppb	#	80
3) Freon 114	1.23	85	1110	0.534	ppb		98
4) Chloromethane	1.27	50	1607	0.658	ppb		96
5) Vinyl chloride	1.36	62	1011	0.406	ppb	#	1
6) Bromomethane	1.61	94	898	0.574	ppb		85
7) Chloroethane	1.69	64	2862	0.767	ppb	#	79
8) Dichlorofluoromethane	1.87	67	2353	0.545	ppb		86
9) Trichlorofluoromethane	1.91	101	1339	0.426	ppb		79
10) Acrolein	2.30	56	1455	20.784	ppb		95
11) Acetone	2.45	43	1189	-0.303	ppb		89
12) Freon-113	2.39	101	804	0.446	ppb	#	86
13) 1,1-DCE	2.37	61	1498	0.480	ppb		97
14) Acetonitrile	2.71	41	6123	26.498	ppb	#	83
15) t-Butanol	3.03	59	3404	24.991	ppb	#	75
16) Methyl Acetate	2.77	43	412	0.549	ppb	#	53
17) Iodomethane	2.50	142	127	1.552	ppb	#	45
18) Acrylonitrile	3.08	53	98	0.143	ppb	#	81
19) Methylene chloride	2.84	84	1233	0.507	ppb		94
20) Carbon disulfide	2.55	76	2978	0.508	ppb		97
21) Methyl t-butyl ether (MtBE	3.14	73	1185	0.418	ppb		91
22) Trans-1,2-DCE	3.10	96	1012	0.459	ppb		77
23) Diisopropyl Ether	3.63	45	4009	0.480	ppb		94
24) 1,1-DCA	3.51	63	2097	0.484	ppb		92
25) Vinyl Acetate	3.62	43	1160	0.528	ppb		100
26) Ethyl tert Butyl Ether	4.00	59	3104	0.436	ppb	#	86
27) MEK (2-Butanone)	4.14	43	656	-0.729	ppb	#	46
28) Cis-1,2-DCE	4.10	96	1411	0.530	ppb		87
29) 2,2-Dichloropropane	4.09	77	1804	0.501	ppb		93
30) Chloroform	4.44	83	2155	0.504	ppb		85
31) Bromochloromethane	4.34	128	628	0.508	ppb	#	66
33) 1,1,1-TCA	4.62	97	1839	0.509	ppb	#	89
34) Cyclohexane	4.67	41	1358	0.602	ppb		85
35) 1,1-Dichloropropene	4.79	75	1398	0.470	ppb	#	86
36) 2,2,4-Trimethylpentane	5.12	57	3182	0.508	ppb	#	72
38) Carbon Tetrachloride	4.78	117	1137	0.472	ppb		81
39) Tert Amyl Methyl Ether	5.17	73	2866	0.466	ppb	#	91
40) 1,2-DCA	5.03	62	1734	0.535	ppb	#	73
41) Benzene	5.00	78	5042	0.511	ppb		94
42) TCE	5.72	95	1200	0.472	ppb		93

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M06.D
Acq On : 24 Mar 19 13:25
Sample : 0.5ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 4
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
43)	2-Pentanone	5.97	43	33358	25.360 ppb		95
44)	1,2-Dichloropropane	5.96	63	1161	0.472 ppb	#	89
45)	Bromodichloromethane	6.29	83	1311	0.460 ppb		98
46)	Methyl Cyclohexane	5.94	83	1872	0.528 ppb		85
47)	Dibromomethane	6.09	93	575	0.455 ppb	#	69
48)	MIBK (methyl isobutyl ket	7.06	43	1115	0.611 ppb	#	47
49)	1-Bromo-2-chloroethane	6.63	63	866	0.545 ppb		93
51)	Cis-1,3-Dichloropropene	6.82	75	1825	0.479 ppb		88
52)	Toluene	7.21	91	5456	0.493 ppb		97
53)	Trans-1,3-Dichloropropene	7.50	75	1560	0.489 ppb		97
54)	1,1,2-TCA	7.71	83	724	0.463 ppb		73
55)	2-Hexanone	8.09	43	717	0.603 ppb	#	32
58)	1,2-EDB	8.30	107	875	0.472 ppb		87
59)	Tetrachloroethene	7.88	164	1243	0.554 ppb	#	79
60)	1-Chlorohexane	8.99	91	1494	0.481 ppb		85
61)	1,1,1,2-Tetrachloroethane	9.08	131	1043	0.472 ppb		89
62)	m&p-Xylene	9.30	106	4612	1.004 ppb		88
63)	o-Xylene	9.82	106	2298	0.491 ppb		66
64)	Styrene	9.85	104	3713	0.484 ppb		90
66)	1,3-Dichloropropane	7.91	76	1697	0.500 ppb		100
67)	Dibromochloromethane	8.19	129	857	0.487 ppb	#	71
68)	Chlorobenzene	8.97	112	3724	0.523 ppb		99
69)	Ethylbenzene	9.14	91	5526	0.477 ppb		88
70)	Bromoform	10.05	173	401	1.925 ppb		89
72)	Isopropylbenzene	10.34	105	5759	0.505 ppb		98
73)	1,1,2,2-Tetrachloroethane	6.29	83	1311	0.471 ppb	#	98
74)	1,2,3-Trichloropropane	10.79	110	301	0.451 ppb		86
75)	t-1,4-Dichloro-2-Butene	10.84	53	170	0.661 ppb	#	31
76)	Bromobenzene	10.69	156	1524	0.492 ppb		89
77)	n-Propylbenzene	10.90	91	6514	0.510 ppb		88
78)	4-Ethyltoluene	11.07	105	5419	0.481 ppb		94
79)	2-Chlorotoluene	10.98	91	3749	0.476 ppb		93
80)	1,3,5-Trimethylbenzene	11.16	105	4749	0.495 ppb		92
81)	4-Chlorotoluene	11.14	91	4601	0.501 ppb		100
82)	Tert-Butylbenzene	11.61	119	3906	0.457 ppb	#	90
83)	1,2,4-Trimethylbenzene	11.68	105	4891	0.506 ppb		88
84)	Sec-Butylbenzene	11.92	105	5324	0.471 ppb		91
85)	p-Isopropyltoluene	12.15	119	2432	0.466 ppb	#	87
86)	Benzyl Chloride	12.36	91	1061	0.449 ppb	#	85
87)	1,3-DCB	12.02	146	2847	0.506 ppb		90
88)	1,4-DCB	12.16	146	1505	0.526 ppb		92
89)	n-Butylbenzene	12.72	91	2044	0.481 ppb		98
90)	1,2-DCB	12.66	146	2337	0.450 ppb		95
91)	Hexachloroethane	13.03	117	233	2.512 ppb		92
92)	1,2-Dibromo-3-chloropropan	13.77	157	85	0.225 ppb	#	9
93)	1,2,4-Trichlorobenzene	14.98	180	1495	0.458 ppb		92
94)	Hexachlorobutadiene	15.27	225	801	0.475 ppb	#	72
95)	Naphthalene	15.31	128	2549	0.468 ppb		97
96)	1,2,3-Trichlorobenzene	15.67	180	1357	0.481 ppb	#	59

(#) = qualifier out of range (m) = manual integration

Quantitation Report

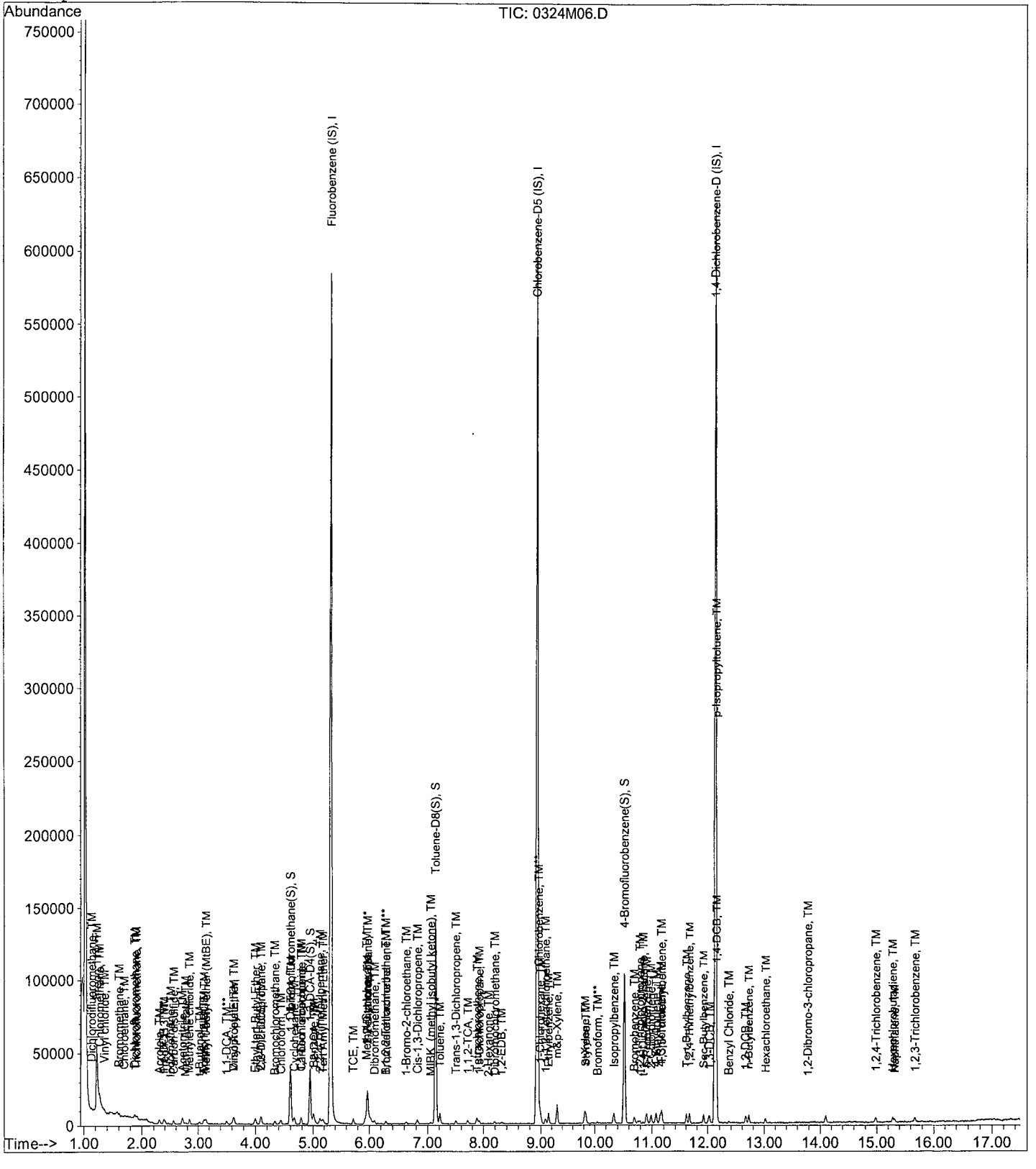
Data File : M:\MAX\DATA\M190324\0324M06.D
Acq On : 24 Mar 19 13:25
Sample : 0.5ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 4
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019

Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M07.D Vial: 5
Acq On : 24 Mar 19 13:54 Operator: PM,DG,SV,CMM,KV
Sample : 1.0ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.32	96	562637	25.000	ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	415204	25.000	ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	206662	25.000	ppb		0.00
System Monitoring Compounds							
32) Dibromofluoromethane(S)	4.60	111	37879	8.801	ppb		0.00
Spiked Amount 25.000			Recovery =	35.204%			
37) 1,2-DCA-D4(S)	4.95	65	44603	8.995	ppb		0.00
Spiked Amount 25.000			Recovery =	35.980%			
57) Toluene-D8(S)	7.14	98	169003	9.167	ppb		0.00
Spiked Amount 25.000			Recovery =	36.668%			
65) 4-Bromofluorobenzene(S)	10.52	95	59950	8.862	ppb		0.00
Spiked Amount 25.000			Recovery =	35.448%			
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.14	85	1559	1.006	ppb		95
3) Freon 114	1.24	85	2112	0.991	ppb		93
4) Chloromethane	1.27	50	2436	0.994	ppb		96
5) Vinyl chloride	1.36	62	2825	1.106	ppb		96
6) Bromomethane	1.61	94	1922	1.197	ppb		82
7) Chloroethane	1.70	64	2876	0.732	ppb		99
8) Dichlorofluoromethane	1.88	67	4274	0.965	ppb		94
9) Trichlorofluoromethane	1.92	101	2948	0.915	ppb		77
10) Acrolein	2.30	56	3055	42.554	ppb		98
11) Acetone	2.46	43	1639	0.605	ppb		87
12) Freon-113	2.40	101	1789	0.968	ppb		95
13) 1,1-DCE	2.38	61	3081	0.963	ppb		90
14) Acetonitrile	2.71	41	12157	51.302	ppb		88
15) t-Butanol	3.03	59	3092	22.136	ppb	#	53
16) Methyl Acetate	2.78	43	773	1.004	ppb		91
17) Iodomethane	2.51	142	856	1.808	ppb	#	86
18) Acrylonitrile	3.10	53	536	0.765	ppb		94
19) Methylene chloride	2.84	84	2542	1.020	ppb		97
20) Carbon disulfide	2.56	76	6265	1.043	ppb		97
21) Methyl t-butyl ether (MtBE	3.14	73	2848	0.980	ppb		99
22) Trans-1,2-DCE	3.10	96	2052	0.907	ppb		96
23) Diisopropyl Ether	3.64	45	8074	0.943	ppb		95
24) 1,1-DCA	3.51	63	4470	1.006	ppb		97
25) Vinyl Acetate	3.63	43	2288	1.016	ppb		100
26) Ethyl tert Butyl Ether	4.00	59	6716	0.919	ppb		94
27) MEK (2-Butanone)	4.16	43	940	-0.339	ppb	#	46
28) Cis-1,2-DCE	4.10	96	2479	0.908	ppb		98
29) 2,2-Dichloropropane	4.09	77	3757	1.017	ppb		95
30) Chloroform	4.44	83	4390	1.001	ppb		99
31) Bromochloromethane	4.34	128	1106	0.873	ppb		96
33) 1,1,1-TCA	4.62	97	3827	1.033	ppb	#	79
34) Cyclohexane	4.67	41	2373	1.026	ppb		91
35) 1,1-Dichloropropene	4.79	75	2757	0.903	ppb	#	88
36) 2,2,4-Trimethylpentane	5.13	57	6435	1.002	ppb	#	70
38) Carbon Tetrachloride	4.79	117	1972	0.798	ppb		82
39) Tert Amyl Methyl Ether	5.18	73	5893	0.935	ppb		94
40) 1,2-DCA	5.03	62	3129	0.941	ppb		99
41) Benzene	5.00	78	10097	0.998	ppb		96
42) TCE	5.72	95	2798	1.074	ppb		87

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M07.D
Acq On : 24 Mar 19 13:54
Sample : 1.0ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 5
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
43)	2-Pentanone	5.97	43	62762	46.528	ppb		98
44)	1,2-Dichloropropane	5.96	63	2533	1.005	ppb	#	89
45)	Bromodichloromethane	6.29	83	2735	0.935	ppb		92
46)	Methyl Cyclohexane	5.93	83	3627	0.997	ppb		86
47)	Dibromomethane	6.09	93	1178	0.908	ppb		95
48)	MIBK (methyl isobutyl ket	7.04	43	2183	1.166	ppb		97
49)	1-Bromo-2-chloroethane	6.64	63	1508	0.926	ppb		97
51)	Cis-1,3-Dichloropropene	6.82	75	3638	0.930	ppb		94
52)	Toluene	7.21	91	11501	1.014	ppb		94
53)	Trans-1,3-Dichloropropene	7.51	75	2933	0.897	ppb		99
54)	1,1,2-TCA	7.72	83	1653	1.030	ppb		81
55)	2-Hexanone	8.08	43	1236	1.013	ppb	#	65
58)	1,2-EDB	8.31	107	1645	0.872	ppb		89
59)	Tetrachloroethene	7.88	164	2311	1.012	ppb		88
60)	1-Chlorohexane	8.99	91	3236	1.023	ppb		88
61)	1,1,1,2-Tetrachloroethane	9.09	131	2020	0.898	ppb		95
62)	m&p-Xylene	9.30	106	8914	1.907	ppb		92
63)	o-Xylene	9.82	106	4756	0.999	ppb		88
64)	Styrene	9.85	104	7463	0.955	ppb		86
66)	1,3-Dichloropropane	7.92	76	3248	0.941	ppb		89
67)	Dibromochloromethane	8.19	129	1642	0.916	ppb	#	67
68)	Chlorobenzene	8.97	112	6900	0.953	ppb		99
69)	Ethylbenzene	9.14	91	11645	0.987	ppb		96
70)	Bromoform	10.04	173	934	2.333	ppb		96
72)	Isopropylbenzene	10.34	105	11343	0.999	ppb		95
73)	1,1,2,2-Tetrachloroethane	6.29	83	2735	0.986	ppb	#	92
74)	1,2,3-Trichloropropane	10.79	110	656	0.987	ppb		92
75)	t-1,4-Dichloro-2-Butene	10.84	53	316	1.234	ppb	#	31
76)	Bromobenzene	10.69	156	3254	1.056	ppb		95
77)	n-Propylbenzene	10.90	91	12720	1.002	ppb		96
78)	4-Ethyltoluene	11.07	105	11130	0.992	ppb		99
79)	2-Chlorotoluene	10.98	91	8319	1.061	ppb		98
80)	1,3,5-Trimethylbenzene	11.16	105	9540	0.999	ppb		92
81)	4-Chlorotoluene	11.14	91	9191	1.006	ppb		86
82)	Tert-Butylbenzene	11.61	119	10009	1.177	ppb		96
83)	1,2,4-Trimethylbenzene	11.68	105	9393	0.976	ppb		99
84)	Sec-Butylbenzene	11.92	105	11374	1.010	ppb		99
85)	p-Isopropyltoluene	12.14	119	5166	0.995	ppb		89
86)	Benzyl Chloride	12.36	91	1980	0.842	ppb	#	82
87)	1,3-DCB	12.02	146	5430	0.970	ppb		92
88)	1,4-DCB	12.16	146	2768	0.972	ppb		94
89)	n-Butylbenzene	12.72	91	4216	0.997	ppb		90
90)	1,2-DCB	12.66	146	4899	0.948	ppb		95
91)	Hexachloroethane	13.02	117	396	2.784	ppb		83
92)	1,2-Dibromo-3-chloropropan	13.78	157	328	0.873	ppb	#	49
93)	1,2,4-Trichlorobenzene	14.98	180	3050	0.939	ppb		82
94)	Hexachlorobutadiene	15.28	225	1710	1.019	ppb		81
95)	Naphthalene	15.31	128	4439	0.819	ppb	#	90
96)	1,2,3-Trichlorobenzene	15.67	180	2442	0.869	ppb		84

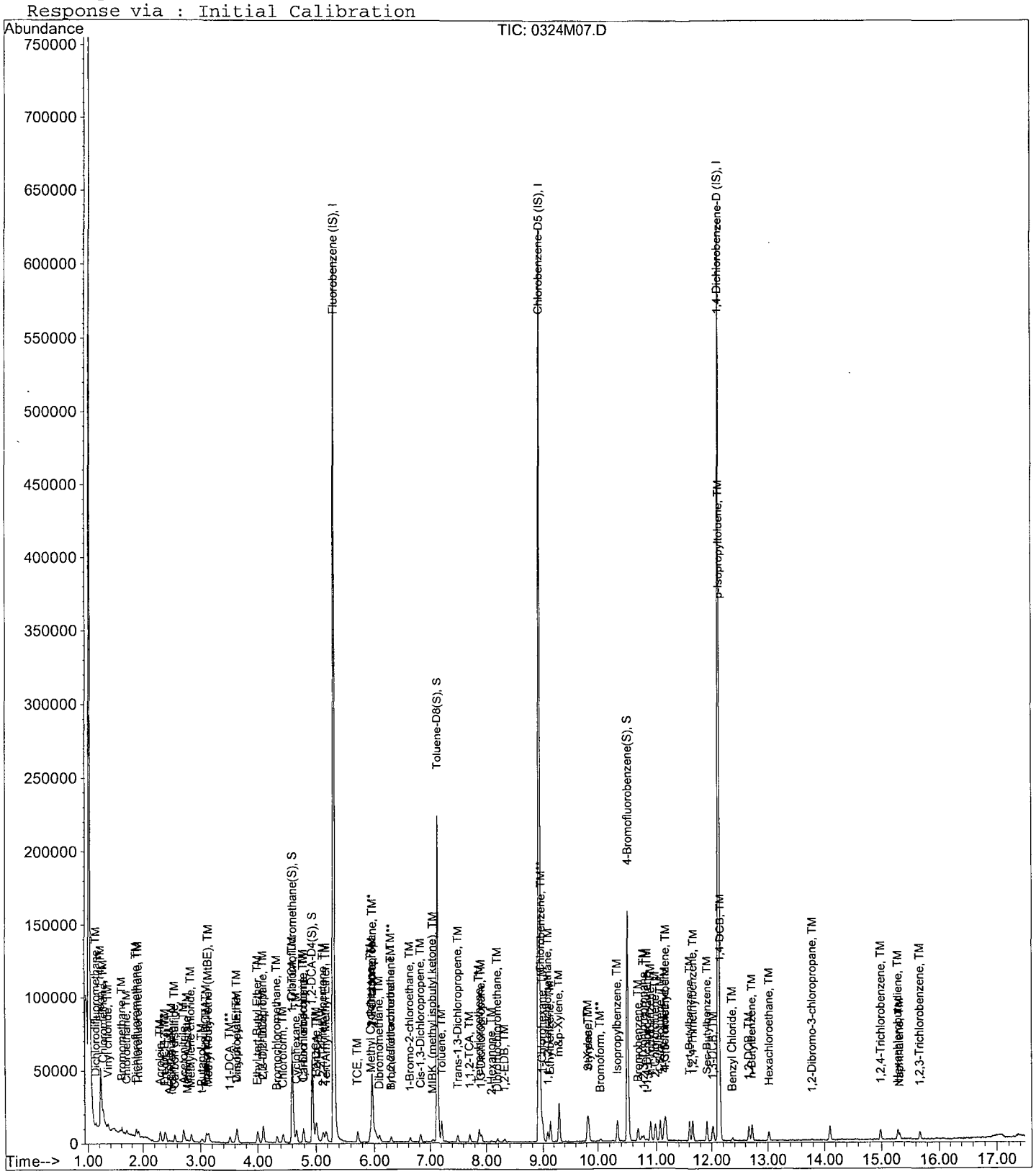
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M07.D Vial: 5
Acq On : 24 Mar 19 13:54 Operator: PM,DG,SV,CMM,KV
Sample : 1.0ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M08.D Vial: 6
Acq On : 24 Mar 19 14:22 Operator: PM,DG,SV,CMM,KV
Sample : 2.0ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.32	96	588239	25.000 ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	428656	25.000 ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	210603	25.000 ppb		0.00
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.60	111	42136	9.364 ppb		0.00
Spiked Amount 25.000			Recovery =	37.456%		
37) 1,2-DCA-D4(S)	4.95	65	48794	9.412 ppb		0.00
Spiked Amount 25.000			Recovery =	37.648%		
57) Toluene-D8(S)	7.14	98	182083	9.567 ppb		0.00
Spiked Amount 25.000			Recovery =	38.268%		
65) 4-Bromofluorobenzene(S)	10.52	95	64942	9.298 ppb		0.00
Spiked Amount 25.000			Recovery =	37.192%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.14	85	3178	1.962 ppb		89
3) Freon 114	1.24	85	4711	2.114 ppb		100
4) Chloromethane	1.27	50	4290	1.705 ppb		95
5) Vinyl chloride	1.36	62	5368	2.010 ppb		91
6) Bromomethane	1.61	94	3440	2.049 ppb		93
7) Chloroethane	1.70	64	5687	2.261 ppb		95
8) Dichlorofluoromethane	1.87	67	8877	1.918 ppb		100
9) Trichlorofluoromethane	1.92	101	7224	2.143 ppb		97
10) Acrolein	2.30	56	5228	69.654 ppb		99
11) Acetone	2.46	43	2055	1.313 ppb	#	81
12) Freon-113	2.40	101	4128	2.137 ppb		95
13) 1,1-DCE	2.38	61	6569	1.965 ppb		94
14) Acetonitrile	2.71	41	18140	73.218 ppb		96
15) t-Butanol	3.02	59	10710	73.337 ppb	#	81
16) Methyl Acetate	2.77	43	1594	1.981 ppb		89
17) Iodomethane	2.50	142	2131	2.224 ppb		91
18) Acrylonitrile	3.09	53	1267	1.730 ppb	#	84
19) Methylene chloride	2.84	84	5054	1.940 ppb		93
20) Carbon disulfide	2.55	76	12237	1.948 ppb		99
21) Methyl t-butyl ether (MtBE	3.14	73	5803	1.909 ppb		98
22) Trans-1,2-DCE	3.10	96	4767	2.016 ppb		95
23) Diisopropyl Ether	3.63	45	17540	1.958 ppb		93
24) 1,1-DCA	3.51	63	8879	1.911 ppb		97
25) Vinyl Acetate	3.63	43	4691	1.993 ppb	#	100
26) Ethyl tert Butyl Ether	4.00	59	14488	1.897 ppb		96
27) MEK (2-Butanone)	4.15	43	2047	1.147 ppb		88
28) Cis-1,2-DCE	4.10	96	5346	1.873 ppb		82
29) 2,2-Dichloropropane	4.09	77	7550	1.954 ppb		98
30) Chloroform	4.44	83	9332	2.036 ppb		96
31) Bromochloromethane	4.34	128	2781	2.098 ppb		82
33) 1,1,1-TCA	4.61	97	7435	1.920 ppb	#	85
34) Cyclohexane	4.67	41	5222	2.160 ppb		87
35) 1,1-Dichloropropene	4.79	75	6674	2.091 ppb		98
36) 2,2,4-Trimethylpentane	5.12	57	13336	1.985 ppb	#	86
38) Carbon Tetrachloride	4.78	117	4451	1.723 ppb		96
39) Tert Amyl Methyl Ether	5.18	73	12240	1.857 ppb		98
40) 1,2-DCA	5.03	62	6987	2.010 ppb		98
41) Benzene	5.00	78	20785	1.965 ppb		98
42) TCE	5.72	95	5193	1.907 ppb		95

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M08.D Vial: 6
Acq On : 24 Mar 19 14:22 Operator: PM,DG,SV,CMM,KV
Sample : 2.0ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
43)	2-Pentanone	5.97	43	102655	72.789	ppb		99
44)	1,2-Dichloropropane	5.97	63	5402	2.050	ppb		97
45)	Bromodichloromethane	6.29	83	5572	1.822	ppb		90
46)	Methyl Cyclohexane	5.93	83	7740	2.034	ppb		87
47)	Dibromomethane	6.09	93	2579	1.902	ppb		99
48)	MIBK (methyl isobutyl ket	7.04	43	3419	1.747	ppb		95
49)	1-Bromo-2-chloroethane	6.64	63	3180	1.868	ppb		97
51)	Cis-1,3-Dichloropropene	6.82	75	7469	1.827	ppb		96
52)	Toluene	7.22	91	23646	1.993	ppb		96
53)	Trans-1,3-Dichloropropene	7.50	75	5820	1.702	ppb		95
54)	1,1,2-TCA	7.71	83	3165	1.886	ppb		96
55)	2-Hexanone	8.08	43	2780	2.179	ppb		90
58)	1,2-EDB	8.31	107	3946	2.026	ppb		96
59)	Tetrachloroethene	7.88	164	4696	1.992	ppb		97
60)	1-Chlorohexane	8.99	91	6496	1.989	ppb		96
61)	1,1,1,2-Tetrachloroethane	9.08	131	4204	1.810	ppb		97
62)	m&p-Xylene	9.30	106	18048	3.740	ppb		95
63)	o-Xylene	9.82	106	9578	1.948	ppb		89
64)	Styrene	9.84	104	14735	1.826	ppb		98
66)	1,3-Dichloropropane	7.92	76	6905	1.937	ppb		95
67)	Dibromochloromethane	8.19	129	3016	1.630	ppb		89
68)	Chlorobenzene	8.97	112	13877	1.856	ppb		88
69)	Ethylbenzene	9.14	91	23281	1.911	ppb		93
70)	Bromoform	10.05	173	1698	2.885	ppb		91
72)	Isopropylbenzene	10.34	105	23339	2.018	ppb		99
73)	1,1,2,2-Tetrachloroethane	6.29	83	5572	1.972	ppb	#	90
74)	1,2,3-Trichloropropane	10.79	110	1288	1.901	ppb	#	79
75)	t-1,4-Dichloro-2-Butene	10.84	53	465	1.782	ppb		84
76)	Bromobenzene	10.69	156	6011	1.914	ppb		91
77)	n-Propylbenzene	10.90	91	26618	2.057	ppb		99
78)	4-Ethyltoluene	11.07	105	23000	2.012	ppb		97
79)	2-Chlorotoluene	10.98	91	16881	2.112	ppb		92
80)	1,3,5-Trimethylbenzene	11.17	105	20103	2.066	ppb		95
81)	4-Chlorotoluene	11.14	91	19132	2.055	ppb		100
82)	Tert-Butylbenzene	11.60	119	16970	1.958	ppb		97
83)	1,2,4-Trimethylbenzene	11.67	105	19402	1.979	ppb		99
84)	Sec-Butylbenzene	11.92	105	23552	2.052	ppb		98
85)	p-Isopropyltoluene	12.14	119	10335	1.952	ppb		97
86)	Benzyl Chloride	12.36	91	4177	1.744	ppb	#	87
87)	1,3-DCB	12.02	146	11167	1.957	ppb		99
88)	1,4-DCB	12.15	146	5405	1.862	ppb		95
89)	n-Butylbenzene	12.72	91	8348	1.938	ppb		92
90)	1,2-DCB	12.67	146	10459	1.986	ppb		100
91)	Hexachloroethane	13.03	117	936	3.650	ppb	#	71
92)	1,2-Dibromo-3-chloropropan	13.78	157	599	1.565	ppb	#	81
93)	1,2,4-Trichlorobenzene	14.98	180	5799	1.753	ppb		100
94)	Hexachlorobutadiene	15.28	225	3382	1.977	ppb		93
95)	Naphthalene	15.32	128	9664	1.749	ppb		95
96)	1,2,3-Trichlorobenzene	15.67	180	5175	1.808	ppb		92

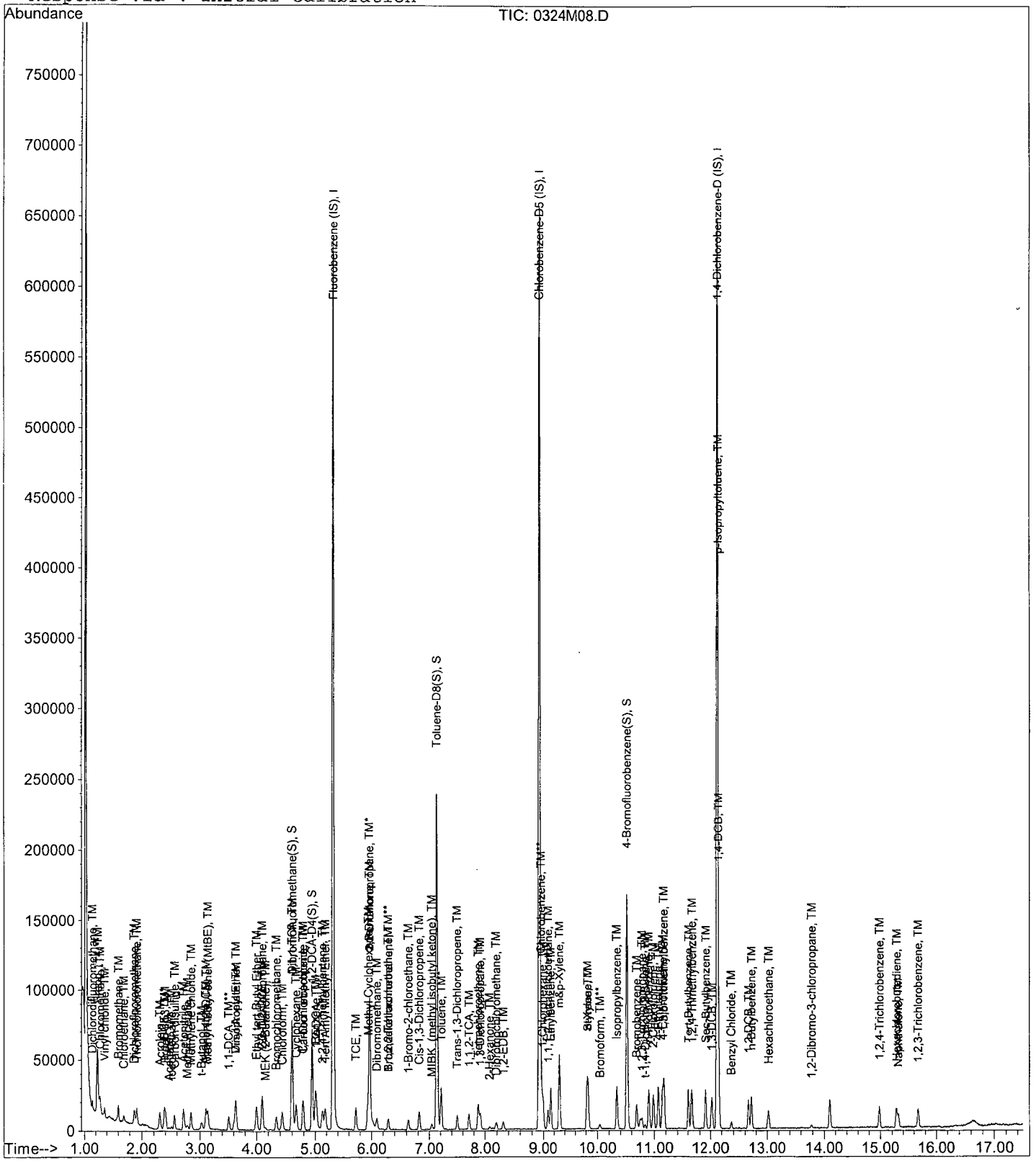
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M08.D Vial: 6
Acq On : 24 Mar 19 14:22 Operator: PM,DG,SV,CMM,KV
Sample : 2.0ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M09.D Vial: 7
Acq On : 24 Mar 19 14:51 Operator: PM,DG,SV,CMM,KV
Sample : 5.0ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.32	96	551421	25.000	ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	414802	25.000	ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	211221	25.000	ppb		0.00
System Monitoring Compounds							
32) Dibromofluoromethane(S)	4.60	111	105862	25.096	ppb		0.00
Spiked Amount 25.000			Recovery = 100.384%				
37) 1,2-DCA-D4(S)	4.95	65	123145	25.340	ppb		0.00
Spiked Amount 25.000			Recovery = 101.360%				
57) Toluene-D8(S)	7.13	98	452516	24.569	ppb		0.00
Spiked Amount 25.000			Recovery = 98.276%				
65) 4-Bromofluorobenzene(S)	10.52	95	164122	24.284	ppb		0.00
Spiked Amount 25.000			Recovery = 97.136%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.14	85	8400	5.533	ppb		99
3) Freon 114	1.24	85	10470	5.012	ppb		98
4) Chloromethane	1.27	50	12414	5.356	ppb		98
5) Vinyl chloride	1.36	62	13216	5.280	ppb		99
6) Bromomethane	1.60	94	8082	5.137	ppb		90
7) Chloroethane	1.70	64	9504	4.801	ppb		88
8) Dichlorofluoromethane	1.88	67	22787	5.252	ppb		100
9) Trichlorofluoromethane	1.92	101	16814	5.322	ppb		96
10) Acrolein	2.30	56	7202	102.360	ppb		99
11) Acetone	2.46	43	3766	5.377	ppb		85
12) Freon-113	2.40	101	9986	5.514	ppb		96
13) 1,1-DCE	2.38	61	16225	5.176	ppb		98
14) Acetonitrile	2.71	41	23981	103.257	ppb		96
15) t-Butanol	3.03	59	14849	108.468	ppb	#	79
16) Methyl Acetate	2.78	43	3679	4.877	ppb		94
17) Iodomethane	2.50	142	9077	4.766	ppb		95
18) Acrylonitrile	3.09	53	3732	5.435	ppb		96
19) Methylene chloride	2.84	84	12241	5.012	ppb		93
20) Carbon disulfide	2.55	76	30123	5.116	ppb		99
21) Methyl t-butyl ether (MtBE	3.14	73	14677	5.150	ppb		98
22) Trans-1,2-DCE	3.10	96	11896	5.367	ppb		86
23) Diisopropyl Ether	3.63	45	43194	5.145	ppb		93
24) 1,1-DCA	3.51	63	21912	5.031	ppb		97
25) Vinyl Acetate	3.63	43	11403	5.167	ppb	#	100
26) Ethyl tert Butyl Ether	4.00	59	38262	5.344	ppb		97
27) MEK (2-Butanone)	4.15	43	3760	3.889	ppb	#	83
28) Cis-1,2-DCE	4.10	96	13750	5.139	ppb		99
29) 2,2-Dichloropropane	4.09	77	19384	5.352	ppb		97
30) Chloroform	4.44	83	21669	5.044	ppb		95
31) Bromochloromethane	4.33	128	6273	5.049	ppb		93
33) 1,1,1-TCA	4.61	97	18258	5.029	ppb		98
34) Cyclohexane	4.67	41	11019	4.862	ppb		83
35) 1,1-Dichloropropene	4.79	75	15895	5.312	ppb		93
36) 2,2,4-Trimethylpentane	5.13	57	32360	5.139	ppb		94
38) Carbon Tetrachloride	4.78	117	12850	5.307	ppb		99
39) Tert Amyl Methyl Ether	5.18	73	32453	5.253	ppb		98
40) 1,2-DCA	5.03	62	17247	5.293	ppb		96
41) Benzene	5.01	78	50937	5.138	ppb		96
42) TCE	5.72	95	13379	5.241	ppb		91

(#) = qualifier out of range (m) = manual integration

Data File : M:\MAX\DATA\M190324\0324M09.D
Acq On : 24 Mar 19 14:51
Sample : 5.0ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 7
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
43)	2-Pentanone	5.96	43	137846	104.268	ppb		97
44)	1,2-Dichloropropane	5.97	63	12592	5.097	ppb	#	94
45)	Bromodichloromethane	6.29	83	14651	5.110	ppb		100
46)	Methyl Cyclohexane	5.93	83	17775	4.984	ppb		98
47)	Dibromomethane	6.09	93	6749	5.311	ppb		93
48)	MIBK (methyl isobutyl ket	7.04	43	9566	5.214	ppb	#	88
49)	1-Bromo-2-chloroethane	6.63	63	8435	5.285	ppb		91
51)	Cis-1,3-Dichloropropene	6.82	75	19537	5.098	ppb		96
52)	Toluene	7.21	91	56304	5.063	ppb		95
53)	Trans-1,3-Dichloropropene	7.50	75	16165	5.042	ppb		94
54)	1,1,2-TCA	7.72	83	8189	5.205	ppb		95
55)	2-Hexanone	8.08	43	6221	5.202	ppb	#	87
58)	1,2-EDB	8.31	107	10143	5.382	ppb		96
59)	Tetrachloroethene	7.88	164	11596	5.082	ppb		97
60)	1-Chlorohexane	8.99	91	15925	5.040	ppb		92
61)	1,1,1,2-Tetrachloroethane	9.08	131	11268	5.012	ppb		97
62)	m&p-Xylene	9.30	106	48891	10.470	ppb		99
63)	o-Xylene	9.82	106	24051	5.056	ppb		95
64)	Styrene	9.84	104	40762	5.221	ppb		91
66)	1,3-Dichloropropane	7.92	76	18240	5.288	ppb		97
67)	Dibromochloromethane	8.19	129	8513	4.754	ppb		84
68)	Chlorobenzene	8.96	112	37706	5.211	ppb		96
69)	Ethylbenzene	9.14	91	61936	5.254	ppb		96
70)	Bromoform	10.04	173	4526	5.124	ppb		97
72)	Isopropylbenzene	10.34	105	60050	5.176	ppb		99
73)	1,1,2,2-Tetrachloroethane	6.29	83	14651	5.170	ppb	#	100
74)	1,2,3-Trichloropropane	10.79	110	3755	5.526	ppb		96
75)	t-1,4-Dichloro-2-Butene	10.84	53	1271	4.856	ppb		98
76)	Bromobenzene	10.69	156	16277	5.167	ppb		98
77)	n-Propylbenzene	10.90	91	65854	5.073	ppb		98
78)	4-Ethyltoluene	11.07	105	58921	5.138	ppb		98
79)	2-Chlorotoluene	10.98	91	40561	5.061	ppb		100
80)	1,3,5-Trimethylbenzene	11.17	105	50570	5.183	ppb		99
81)	4-Chlorotoluene	11.14	91	47268	5.063	ppb		96
82)	Tert-Butylbenzene	11.61	119	46125	5.307	ppb		96
83)	1,2,4-Trimethylbenzene	11.68	105	50665	5.152	ppb		97
84)	Sec-Butylbenzene	11.92	105	60389	5.247	ppb		99
85)	p-Isopropyltoluene	12.14	119	28280	5.327	ppb		98
86)	Benzyl Chloride	12.36	91	12136	5.051	ppb		97
87)	1,3-DCB	12.02	146	29019	5.071	ppb		96
88)	1,4-DCB	12.15	146	14822	5.091	ppb		99
89)	n-Butylbenzene	12.72	91	22760	5.268	ppb		96
90)	1,2-DCB	12.66	146	27296	5.167	ppb		96
91)	Hexachloroethane	13.02	117	1955	5.298	ppb		91
92)	1,2-Dibromo-3-chloropropan	13.79	157	1986	5.175	ppb	#	84
93)	1,2,4-Trichlorobenzene	14.98	180	17529	5.282	ppb		97
94)	Hexachlorobutadiene	15.28	225	9148	5.332	ppb		92
95)	Naphthalene	15.31	128	27823	5.022	ppb		99
96)	1,2,3-Trichlorobenzene	15.67	180	14585	5.080	ppb		93

(#) = qualifier out of range (m) = manual integration

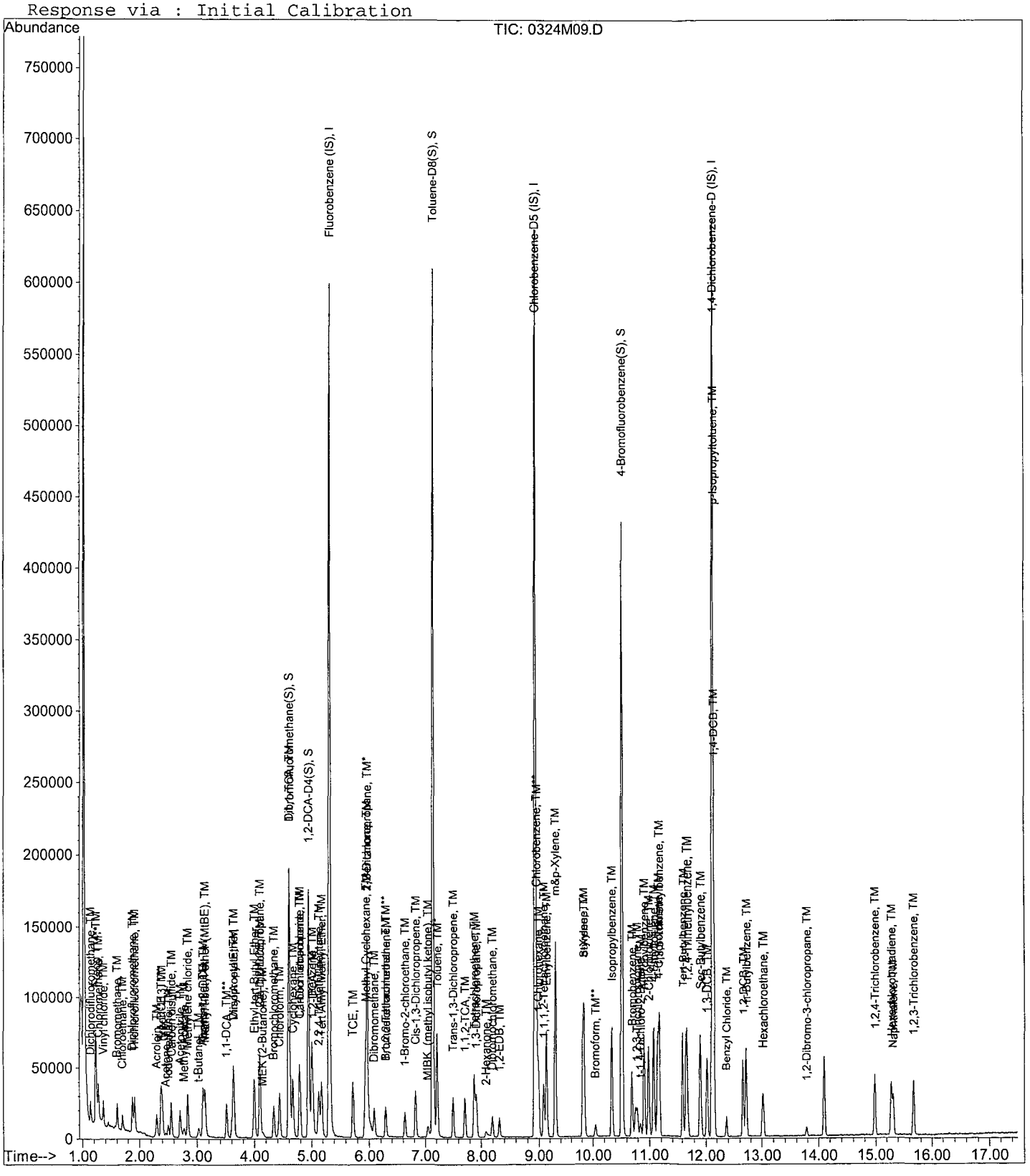
Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M09.D
Acq On : 24 Mar 19 14:51
Sample : 5.0ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 7
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M10.D
Acq On : 24 Mar 19 15:19
Sample : 10ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 8
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019

Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.32	96	563465	25.000	ppb	0.00
56) Chlorobenzene-D5 (IS)	8.93	117	422362	25.000	ppb	0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	217007	25.000	ppb	0.00
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.60	111	105764	24.536	ppb	0.00
Spiked Amount 25.000			Recovery =	98.144%		
37) 1,2-DCA-D4(S)	4.95	65	121024	24.371	ppb	0.00
Spiked Amount 25.000			Recovery =	97.484%		
57) Toluene-D8(S)	7.14	98	452289	24.118	ppb	0.00
Spiked Amount 25.000			Recovery =	96.472%		
65) 4-Bromofluorobenzene(S)	10.52	95	167493	24.339	ppb	0.00
Spiked Amount 25.000			Recovery =	97.356%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.14	85	15800	10.185	ppb	100
3) Freon 114	1.24	85	21216	9.939	ppb	100
4) Chloromethane	1.27	50	21888	9.274	ppb	100
5) Vinyl chloride	1.36	62	25361	9.915	ppb	100
6) Bromomethane	1.60	94	14483	9.008	ppb	100
7) Chloroethane	1.69	64	18171	9.839	ppb	100
8) Dichlorofluoromethane	1.87	67	43755	9.869	ppb	100
9) Trichlorofluoromethane	1.92	101	33228	10.293	ppb	100
10) Acrolein	2.30	56	9328	129.743	ppb	100
11) Acetone	2.46	43	6298	10.673	ppb	100
12) Freon-113	2.40	101	18841	10.181	ppb	100
13) 1,1-DCE	2.38	61	32398	10.115	ppb	100
14) Acetonitrile	2.71	41	29850	125.781	ppb	100
15) t-Butanol	3.03	59	18506	132.292	ppb	100
16) Methyl Acetate	2.77	43	7593	9.850	ppb	100
17) Iodomethane	2.50	142	22167	9.296	ppb	100
18) Acrylonitrile	3.08	53	7626	10.868	ppb	100
19) Methylene chloride	2.84	84	24902	9.977	ppb	100
20) Carbon disulfide	2.55	76	57963	9.635	ppb	100
21) Methyl t-butyl ether (MtBE	3.14	73	30824	10.586	ppb	100
22) Trans-1,2-DCE	3.10	96	22303	9.848	ppb	100
23) Diisopropyl Ether	3.63	45	87895	10.246	ppb	100
24) 1,1-DCA	3.51	63	44441	9.986	ppb	100
25) Vinyl Acetate	3.63	43	22384	9.927	ppb	100
26) Ethyl tert Butyl Ether	4.00	59	75361	10.301	ppb	100
27) MEK (2-Butanone)	4.15	43	8407	10.542	ppb	100
28) Cis-1,2-DCE	4.10	96	27525	10.068	ppb	100
29) 2,2-Dichloropropane	4.09	77	36458	9.852	ppb	100
30) Chloroform	4.44	83	42720	9.731	ppb	100
31) Bromochloromethane	4.34	128	12804	10.086	ppb	100
33) 1,1,1-TCA	4.61	97	36404	9.813	ppb	100
34) Cyclohexane	4.67	41	22400	9.672	ppb	100
35) 1,1-Dichloropropene	4.79	75	31180	10.197	ppb	100
36) 2,2,4-Trimethylpentane	5.12	57	65443	10.171	ppb	100
38) Carbon Tetrachloride	4.79	117	24974	10.093	ppb	100
39) Tert Amyl Methyl Ether	5.18	73	66393	10.516	ppb	100
40) 1,2-DCA	5.03	62	33023	9.919	ppb	100
41) Benzene	5.01	78	101103	9.981	ppb	100
42) TCE	5.72	95	26233	10.056	ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M10.D
Acq On : 24 Mar 19 15:19
Sample : 10ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 8
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019

Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
43)	2-Pentanone	5.96	43	168816	124.965 ppb	100
44)	1,2-Dichloropropane	5.96	63	25058	9.927 ppb	100
45)	Bromodichloromethane	6.29	83	30017	10.245 ppb	100
46)	Methyl Cyclohexane	5.93	83	35970	9.870 ppb	100
47)	Dibromomethane	6.09	93	14086	10.847 ppb	100
48)	MIBK (methyl isobutyl ket	7.04	43	18152	9.683 ppb	100
49)	1-Bromo-2-chloroethane	6.63	63	16331	10.013 ppb	100
51)	Cis-1,3-Dichloropropene	6.82	75	40326	10.297 ppb	100
52)	Toluene	7.21	91	113034	9.948 ppb	100
53)	Trans-1,3-Dichloropropene	7.50	75	33629	10.264 ppb	100
54)	1,1,2-TCA	7.71	83	16256	10.112 ppb	100
55)	2-Hexanone	8.08	43	11554	9.454 ppb	100
58)	1,2-EDB	8.31	107	19743	10.289 ppb	100
59)	Tetrachloroethene	7.88	164	22799	9.813 ppb	100
60)	1-Chlorohexane	8.99	91	33041	10.269 ppb	100
61)	1,1,1,2-Tetrachloroethane	9.08	131	23168	10.121 ppb	100
62)	m&p-Xylene	9.30	106	95832	20.155 ppb	100
63)	o-Xylene	9.82	106	48979	10.112 ppb	100
64)	Styrene	9.84	104	80042	10.069 ppb	100
66)	1,3-Dichloropropane	7.92	76	36664	10.440 ppb	100
67)	Dibromochloromethane	8.19	129	18059	9.904 ppb	100
68)	Chlorobenzene	8.96	112	74610	10.127 ppb	100
69)	Ethylbenzene	9.14	91	124010	10.332 ppb	100
70)	Bromoform	10.04	173	9803	9.087 ppb	100
72)	Isopropylbenzene	10.34	105	118164	9.913 ppb	100
73)	1,1,2,2-Tetrachloroethane	6.29	83	30017	10.309 ppb	100
74)	1,2,3-Trichloropropane	10.79	110	7302	10.460 ppb	100
75)	t-1,4-Dichloro-2-Butene	10.84	53	2461	9.152 ppb	100
76)	Bromobenzene	10.69	156	32214	9.954 ppb	100
77)	n-Propylbenzene	10.90	91	132686	9.950 ppb	100
78)	4-Ethyltoluene	11.07	105	119764	10.165 ppb	100
79)	2-Chlorotoluene	10.98	91	82647	10.037 ppb	100
80)	1,3,5-Trimethylbenzene	11.16	105	101151	10.090 ppb	100
81)	4-Chlorotoluene	11.14	91	96860	10.099 ppb	100
82)	Tert-Butylbenzene	11.61	119	88438	9.904 ppb	100
83)	1,2,4-Trimethylbenzene	11.67	105	103147	10.208 ppb	100
84)	Sec-Butylbenzene	11.92	105	119618	10.115 ppb	100
85)	p-Isopropyltoluene	12.14	119	56208	10.305 ppb	100
86)	Benzyl Chloride	12.36	91	24375	9.875 ppb	100
87)	1,3-DCB	12.02	146	59227	10.074 ppb	100
88)	1,4-DCB	12.15	146	30160	10.083 ppb	100
89)	n-Butylbenzene	12.72	91	43608	9.824 ppb	100
90)	1,2-DCB	12.66	146	56886	10.481 ppb	100
91)	Hexachloroethane	13.02	117	3883	8.257 ppb	100
92)	1,2-Dibromo-3-chloropropan	13.78	157	4000	10.144 ppb	100
93)	1,2,4-Trichlorobenzene	14.98	180	34480	10.113 ppb	100
94)	Hexachlorobutadiene	15.28	225	17104	9.703 ppb	100
95)	Naphthalene	15.32	128	60622	10.650 ppb	100
96)	1,2,3-Trichlorobenzene	15.67	180	30594	10.371 ppb	100

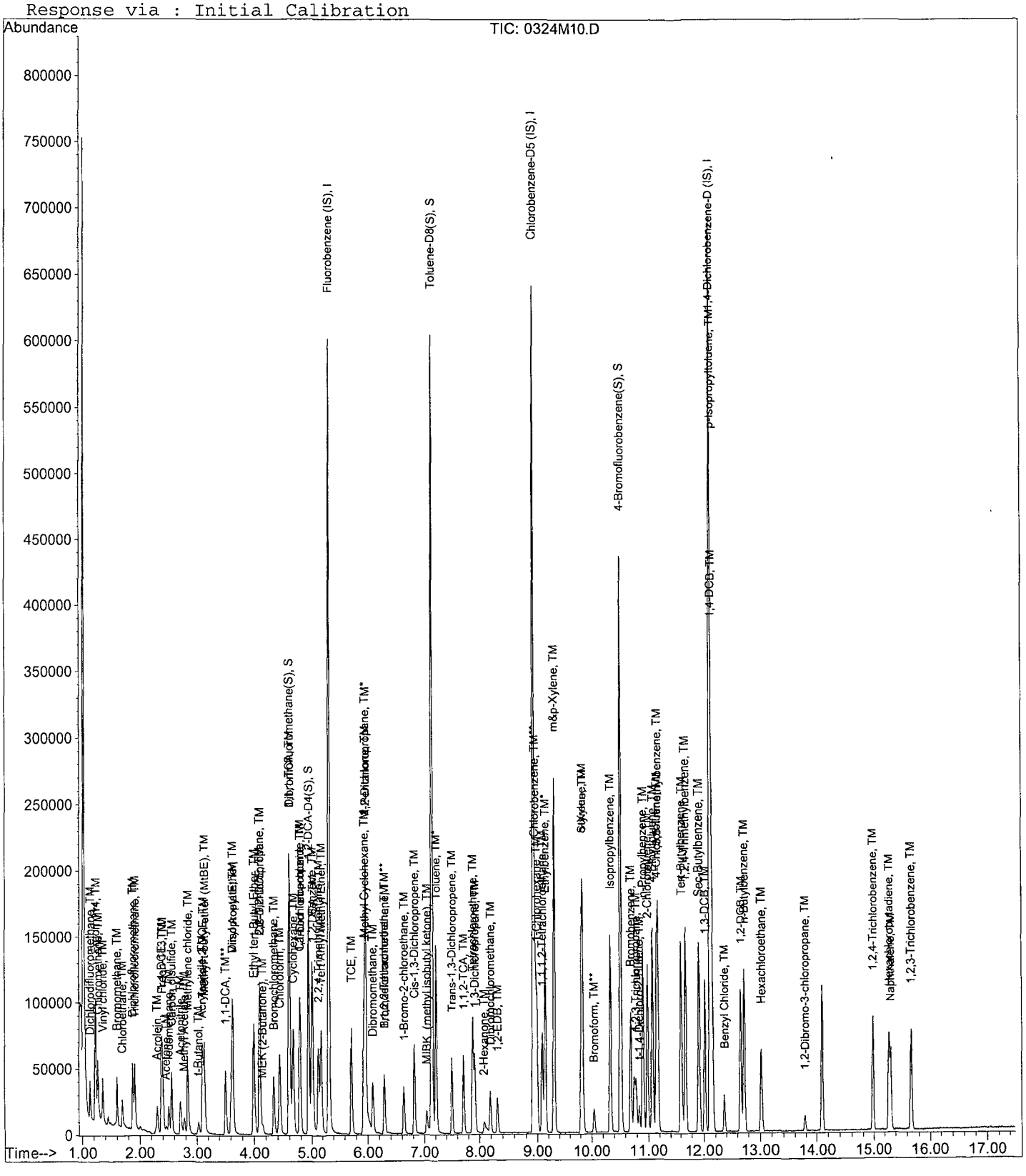
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M10.D Vial: 8
Acq On : 24 Mar 19 15:19 Operator: PM,DG,SV,CMM,KV
Sample : 10ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M11.D
Acq On : 24 Mar 19 15:48
Sample : 20ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 9
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.31	96	554172	25.000 ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	421724	25.000 ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	222616	25.000 ppb		0.00
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.60	111	210921	49.753 ppb		0.00
Spiked Amount 25.000			Recovery = 199.012%			
37) 1,2-DCA-D4(S)	4.94	65	237117	48.550 ppb		0.00
Spiked Amount 25.000			Recovery = 194.200%			
57) Toluene-D8(S)	7.14	98	910661	48.633 ppb		0.00
Spiked Amount 25.000			Recovery = 194.532%			
65) 4-Bromofluorobenzene(S)	10.52	95	338144	49.211 ppb		0.00
Spiked Amount 25.000			Recovery = 196.844%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.14	85	32456	21.273 ppb		97
3) Freon 114	1.23	85	43098	20.528 ppb		96
4) Chloromethane	1.27	50	47984	20.726 ppb		98
5) Vinyl chloride	1.36	62	52982	21.062 ppb		93
6) Bromomethane	1.60	94	29675	18.766 ppb		94
7) Chloroethane	1.69	64	34768	20.072 ppb		96
8) Dichlorofluoromethane	1.87	67	87633	20.098 ppb		100
9) Trichlorofluoromethane	1.91	101	69322	21.833 ppb		99
10) Acrolein	2.30	56	10928	154.546 ppb		91
11) Acetone	2.46	43	10315	19.732 ppb		98
12) Freon-113	2.39	101	38430	21.114 ppb		98
13) 1,1-DCE	2.37	61	66156	21.001 ppb		97
14) Acetonitrile	2.71	41	33503	143.541 ppb		96
15) t-Butanol	3.03	59	23389	170.002 ppb	#	89
16) Methyl Acetate	2.77	43	14827	19.556 ppb		96
17) Iodomethane	2.50	142	52162	20.144 ppb		97
18) Acrylonitrile	3.08	53	15159	21.967 ppb		97
19) Methylene chloride	2.84	84	50150	20.430 ppb		96
20) Carbon disulfide	2.55	76	119461	20.190 ppb		100
21) Methyl t-butyl ether (MtBE	3.13	73	61256	21.389 ppb		98
22) Trans-1,2-DCE	3.10	96	47491	21.321 ppb		98
23) Diisopropyl Ether	3.63	45	176365	20.903 ppb		98
24) 1,1-DCA	3.51	63	91543	20.915 ppb		98
25) Vinyl Acetate	3.63	43	45272	20.414 ppb	#	100
26) Ethyl tert Butyl Ether	4.00	59	153977	21.400 ppb		99
27) MEK (2-Butanone)	4.14	43	16260	22.386 ppb		90
28) Cis-1,2-DCE	4.10	96	56873	21.152 ppb		96
29) 2,2-Dichloropropane	4.09	77	73546	20.207 ppb		98
30) Chloroform	4.43	83	87196	20.194 ppb		97
31) Bromochloromethane	4.33	128	25339	20.295 ppb		99
33) 1,1,1-TCA	4.61	97	75383	20.660 ppb		95
34) Cyclohexane	4.67	41	44609	19.584 ppb		99
35) 1,1-Dichloropropene	4.79	75	63411	21.085 ppb		97
36) 2,2,4-Trimethylpentane	5.12	57	131033	20.707 ppb		99
38) Carbon Tetrachloride	4.78	117	52560	21.598 ppb		95
39) Tert Amyl Methyl Ether	5.18	73	131590	21.193 ppb		99
40) 1,2-DCA	5.03	62	66760	20.388 ppb		98
41) Benzene	5.00	78	201862	20.261 ppb		99
42) TCE	5.72	95	51727	20.162 ppb		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M11.D
Acq On : 24 Mar 19 15:48
Sample : 20ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 9
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

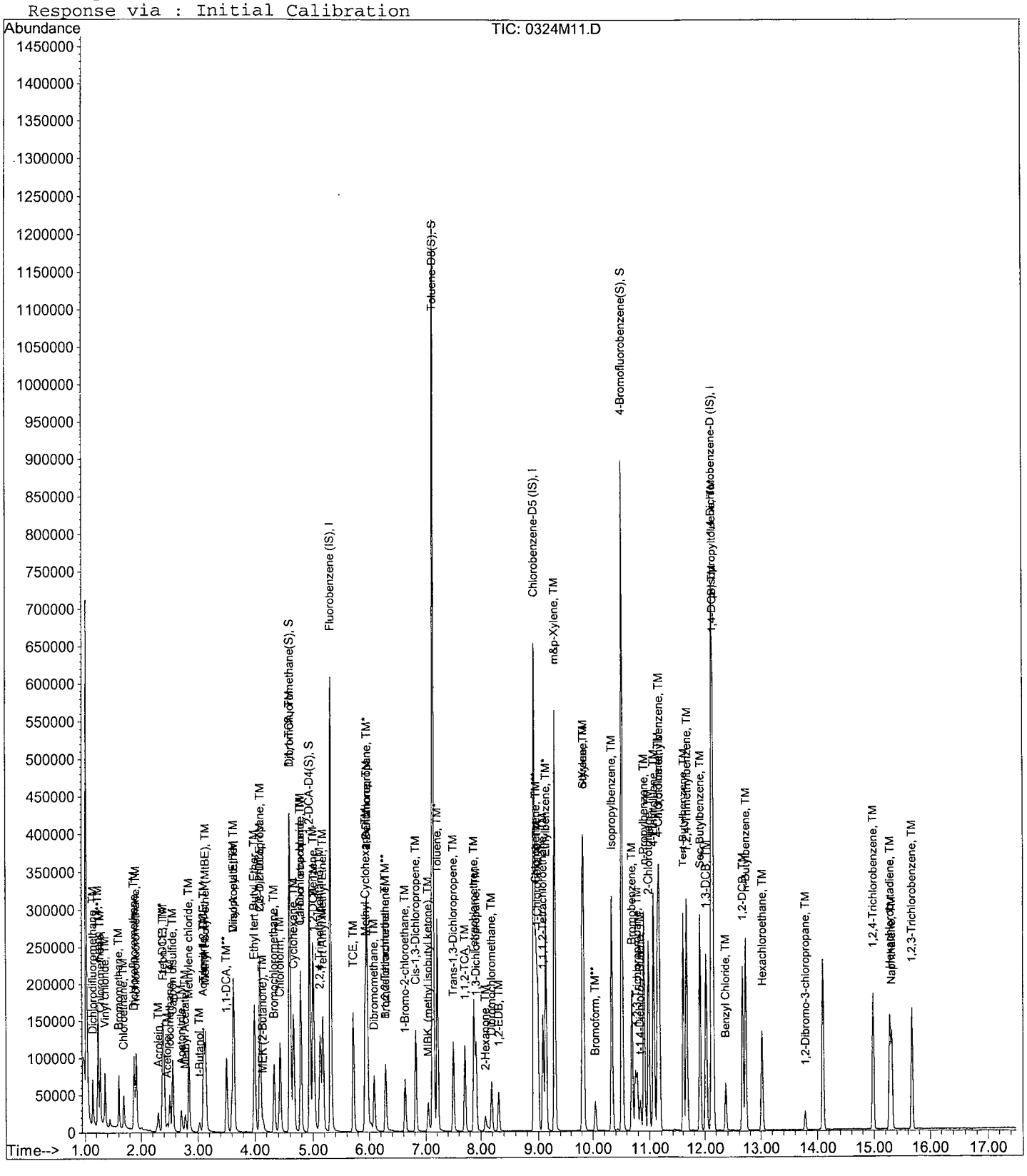
	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
43)	2-Pentanone	5.96	43	204142	153.649 ppb	100
44)	1,2-Dichloropropane	5.96	63	50739	20.437 ppb	98
45)	Bromodichloromethane	6.29	83	59679	20.711 ppb	96
46)	Methyl Cyclohexane	5.93	83	74014	20.650 ppb	100
47)	Dibromomethane	6.09	93	27008	21.147 ppb	98
48)	MIBK (methyl isobutyl ket	7.04	43	34524	18.725 ppb	92
49)	1-Bromo-2-chloroethane	6.63	63	32240	20.100 ppb	99
51)	Cis-1,3-Dichloropropene	6.82	75	81196	21.081 ppb	99
52)	Toluene	7.21	91	228223	20.422 ppb	100
53)	Trans-1,3-Dichloropropene	7.50	75	69565	21.589 ppb	97
54)	1,1,2-TCA	7.71	83	32831	20.765 ppb	96
55)	2-Hexanone	8.08	43	22187	18.459 ppb	98
58)	1,2-EDB	8.31	107	39973	20.864 ppb	96
59)	Tetrachloroethene	7.88	164	46918	20.225 ppb	97
60)	1-Chlorohexane	8.99	91	66913	20.828 ppb	96
61)	1,1,1,2-Tetrachloroethane	9.08	131	48015	21.008 ppb	89
62)	m&p-Xylene	9.30	106	198547	41.822 ppb	98
63)	o-Xylene	9.82	106	99251	20.521 ppb	99
64)	Styrene	9.84	104	167349	21.084 ppb	96
66)	1,3-Dichloropropane	7.92	76	73028	20.826 ppb	99
67)	Dibromochloromethane	8.19	129	39222	21.543 ppb	92
68)	Chlorobenzene	8.97	112	151717	20.623 ppb	98
69)	Ethylbenzene	9.14	91	251207	20.961 ppb	97
70)	Bromoform	10.04	173	21577	18.095 ppb	100
72)	Isopropylbenzene	10.34	105	247238	20.219 ppb	98
73)	1,1,2,2-Tetrachloroethane	6.29	83	59679	19.980 ppb	96
74)	1,2,3-Trichloropropane	10.79	110	14930	20.848 ppb	95
75)	t-1,4-Dichloro-2-Butene	10.84	53	5394	19.553 ppb	99
76)	Bromobenzene	10.69	156	67184	20.236 ppb	99
77)	n-Propylbenzene	10.90	91	275598	20.145 ppb	97
78)	4-Ethyltoluene	11.07	105	247637	20.489 ppb	99
79)	2-Chlorotoluene	10.98	91	169070	20.015 ppb	100
80)	1,3,5-Trimethylbenzene	11.17	105	207449	20.173 ppb	96
81)	4-Chlorotoluene	11.14	91	200132	20.341 ppb	100
82)	Tert-Butylbenzene	11.61	119	181301	19.793 ppb	96
83)	1,2,4-Trimethylbenzene	11.68	105	209675	20.229 ppb	100
84)	Sec-Butylbenzene	11.92	105	245529	20.240 ppb	96
85)	p-Isopropyltoluene	12.14	119	115616	20.662 ppb	98
86)	Benzyl Chloride	12.36	91	55766	22.023 ppb	97
87)	1,3-DCB	12.02	146	123627	20.499 ppb	98
88)	1,4-DCB	12.15	146	61768	20.129 ppb	99
89)	n-Butylbenzene	12.72	91	93272	20.483 ppb	98
90)	1,2-DCB	12.66	146	115898	20.816 ppb	98
91)	Hexachloroethane	13.02	117	10369	18.082 ppb	85
92)	1,2-Dibromo-3-chloropropan	13.78	157	8622	21.315 ppb	89
93)	1,2,4-Trichlorobenzene	14.98	180	74515	21.305 ppb	99
94)	Hexachlorobutadiene	15.28	225	38038	21.035 ppb	90
95)	Naphthalene	15.32	128	128095	21.937 ppb	97
96)	1,2,3-Trichlorobenzene	15.67	180	65395	21.610 ppb	94

(#) = qualifier out of range (m) = manual integration

Data File : M:\MAX\DATA\M190324\0324M11.D Vial: 9
Acq On : 24 Mar 19 15:48 Operator: PM,DG,SV,CMM,KV
Sample : 20ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M12.D Vial: 10
Acq On : 24 Mar 19 16:17 Operator: PM,DG,SV,CMM,KV
Sample : 40ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.31	96	561800	25.000 ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	434917	25.000 ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	228943	25.000 ppb		0.00
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.60	111	212017	49.332 ppb		0.00
Spiked Amount 25.000			Recovery	= 197.328%		
37) 1,2-DCA-D4(S)	4.94	65	237213	47.910 ppb		0.00
Spiked Amount 25.000			Recovery	= 191.640%		
57) Toluene-D8(S)	7.14	98	916073	47.438 ppb		0.00
Spiked Amount 25.000			Recovery	= 189.752%		
65) 4-Bromofluorobenzene(S)	10.52	95	339596	47.923 ppb		0.00
Spiked Amount 25.000			Recovery	= 191.692%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.14	85	61040	39.465 ppb		98
3) Freon 114	1.23	85	82667	38.841 ppb		98
4) Chloromethane	1.27	50	93284	39.787 ppb		99
5) Vinyl chloride	1.36	62	103251	40.488 ppb		92
6) Bromomethane	1.60	94	57092	35.615 ppb		92
7) Chloroethane	1.68	64	68637	40.018 ppb		92
8) Dichlorofluoromethane	1.87	67	175602	39.726 ppb		100
9) Trichlorofluoromethane	1.91	101	131043	40.712 ppb		100
10) Acrolein	2.30	56	13694	191.034 ppb		99
11) Acetone	2.46	43	20045	40.524 ppb		95
12) Freon-113	2.39	101	72554	39.321 ppb		99
13) 1,1-DCE	2.37	61	129990	40.704 ppb		99
14) Acetonitrile	2.71	41	39413	166.569 ppb		96
15) t-Butanol	3.03	59	31806	228.042 ppb	#	85
16) Methyl Acetate	2.77	43	30692	39.932 ppb		100
17) Iodomethane	2.50	142	107903	39.536 ppb		100
18) Acrylonitrile	3.08	53	29354	41.959 ppb		93
19) Methylene chloride	2.83	84	99605	40.027 ppb		94
20) Carbon disulfide	2.55	76	239958	40.004 ppb		99
21) Methyl t-butyl ether (MtBE	3.13	73	122736	42.275 ppb		99
22) Trans-1,2-DCE	3.10	96	94398	41.805 ppb		96
23) Diisopropyl Ether	3.63	45	350532	40.982 ppb		97
24) 1,1-DCA	3.51	63	181585	40.923 ppb		99
25) Vinyl Acetate	3.63	43	86048	38.273 ppb		100
26) Ethyl tert Butyl Ether	4.00	59	310789	42.608 ppb		100
27) MEK (2-Butanone)	4.14	43	29468	41.368 ppb		97
28) Cis-1,2-DCE	4.09	96	110995	40.721 ppb		96
29) 2,2-Dichloropropane	4.09	77	145822	39.521 ppb		97
30) Chloroform	4.43	83	174599	39.888 ppb		95
31) Bromochloromethane	4.33	128	51826	40.946 ppb		96
33) 1,1,1-TCA	4.61	97	148474	40.140 ppb		96
34) Cyclohexane	4.67	41	85551	37.049 ppb		94
35) 1,1-Dichloropropene	4.79	75	122662	40.233 ppb		97
36) 2,2,4-Trimethylpentane	5.12	57	254047	39.601 ppb		99
38) Carbon Tetrachloride	4.78	117	110536	44.804 ppb		99
39) Tert Amyl Methyl Ether	5.17	73	261189	41.494 ppb		99
40) 1,2-DCA	5.03	62	129253	38.937 ppb		98
41) Benzene	5.00	78	400821	39.685 ppb		99
42) TCE	5.72	95	103735	39.885 ppb		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M12.D Vial: 10
Acq On : 24 Mar 19 16:17 Operator: PM,DG,SV,CMM,KV
Sample : 40ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
43)	2-Pentanone	5.96	43	243540	180.813 ppb		98
44)	1,2-Dichloropropane	5.96	63	101915	40.493 ppb		98
45)	Bromodichloromethane	6.29	83	123459	42.263 ppb		98
46)	Methyl Cyclohexane	5.93	83	145054	39.920 ppb		99
47)	Dibromomethane	6.09	93	53361	41.213 ppb		96
48)	MIBK (methyl isobutyl ket	7.04	43	68710	36.762 ppb		95
49)	1-Bromo-2-chloroethane	6.63	63	65064	40.013 ppb		98
51)	Cis-1,3-Dichloropropene	6.82	75	163972	41.995 ppb		98
52)	Toluene	7.21	91	452511	39.943 ppb		98
53)	Trans-1,3-Dichloropropene	7.50	75	140709	43.075 ppb		99
54)	1,1,2-TCA	7.71	83	65831	41.071 ppb		97
55)	2-Hexanone	8.08	43	45355	37.222 ppb		96
58)	1,2-EDB	8.31	107	82030	41.516 ppb		97
59)	Tetrachloroethene	7.88	164	91886	38.408 ppb		99
60)	1-Chlorohexane	8.99	91	132369	39.953 ppb		96
61)	1,1,1,2-Tetrachloroethane	9.09	131	102425	43.454 ppb		93
62)	m&p-Xylene	9.30	106	398084	81.308 ppb		98
63)	o-Xylene	9.82	106	199887	40.075 ppb		98
64)	Styrene	9.84	104	338288	41.327 ppb		96
66)	1,3-Dichloropropane	7.92	76	144730	40.021 ppb		98
67)	Dibromochloromethane	8.19	129	82867	44.135 ppb		89
68)	Chlorobenzene	8.97	112	302994	39.937 ppb		99
69)	Ethylbenzene	9.14	91	492702	39.865 ppb		96
70)	Bromoform	10.04	173	48718	37.705 ppb		99
72)	Isopropylbenzene	10.34	105	495168	39.375 ppb		99
73)	1,1,2,2-Tetrachloroethane	6.29	83	123459	40.190 ppb		98
74)	1,2,3-Trichloropropane	10.79	110	30003	40.739 ppb		97
75)	t-1,4-Dichloro-2-Butene	10.84	53	11730	41.346 ppb		91
76)	Bromobenzene	10.69	156	134922	39.517 ppb		96
77)	n-Propylbenzene	10.90	91	552100	39.241 ppb		97
78)	4-Ethyltoluene	11.07	105	496226	39.922 ppb		100
79)	2-Chlorotoluene	10.98	91	336270	38.708 ppb		100
80)	1,3,5-Trimethylbenzene	11.17	105	413065	39.057 ppb		100
81)	4-Chlorotoluene	11.14	91	392528	38.793 ppb		100
82)	Tert-Butylbenzene	11.61	119	361635	38.389 ppb		96
83)	1,2,4-Trimethylbenzene	11.68	105	422646	39.648 ppb		99
84)	Sec-Butylbenzene	11.92	105	495078	39.683 ppb		97
85)	p-Isopropyltoluene	12.14	119	228032	39.627 ppb		97
86)	Benzyl Chloride	12.36	91	117274	45.034 ppb		94
87)	1,3-DCB	12.02	146	247268	39.866 ppb		99
88)	1,4-DCB	12.15	146	128376	40.679 ppb		98
89)	n-Butylbenzene	12.72	91	190720	40.725 ppb		99
90)	1,2-DCB	12.66	146	236081	41.229 ppb		98
91)	Hexachloroethane	13.02	117	22456	35.726 ppb		91
92)	1,2-Dibromo-3-chloropropan	13.78	157	19089	45.888 ppb	#	86
93)	1,2,4-Trichlorobenzene	14.98	180	156495	43.508 ppb		99
94)	Hexachlorobutadiene	15.28	225	75416	40.552 ppb		94
95)	Naphthalene	15.31	128	275870	45.939 ppb		98
96)	1,2,3-Trichlorobenzene	15.67	180	136454	43.846 ppb		93

(#) = qualifier out of range (m) = manual integration

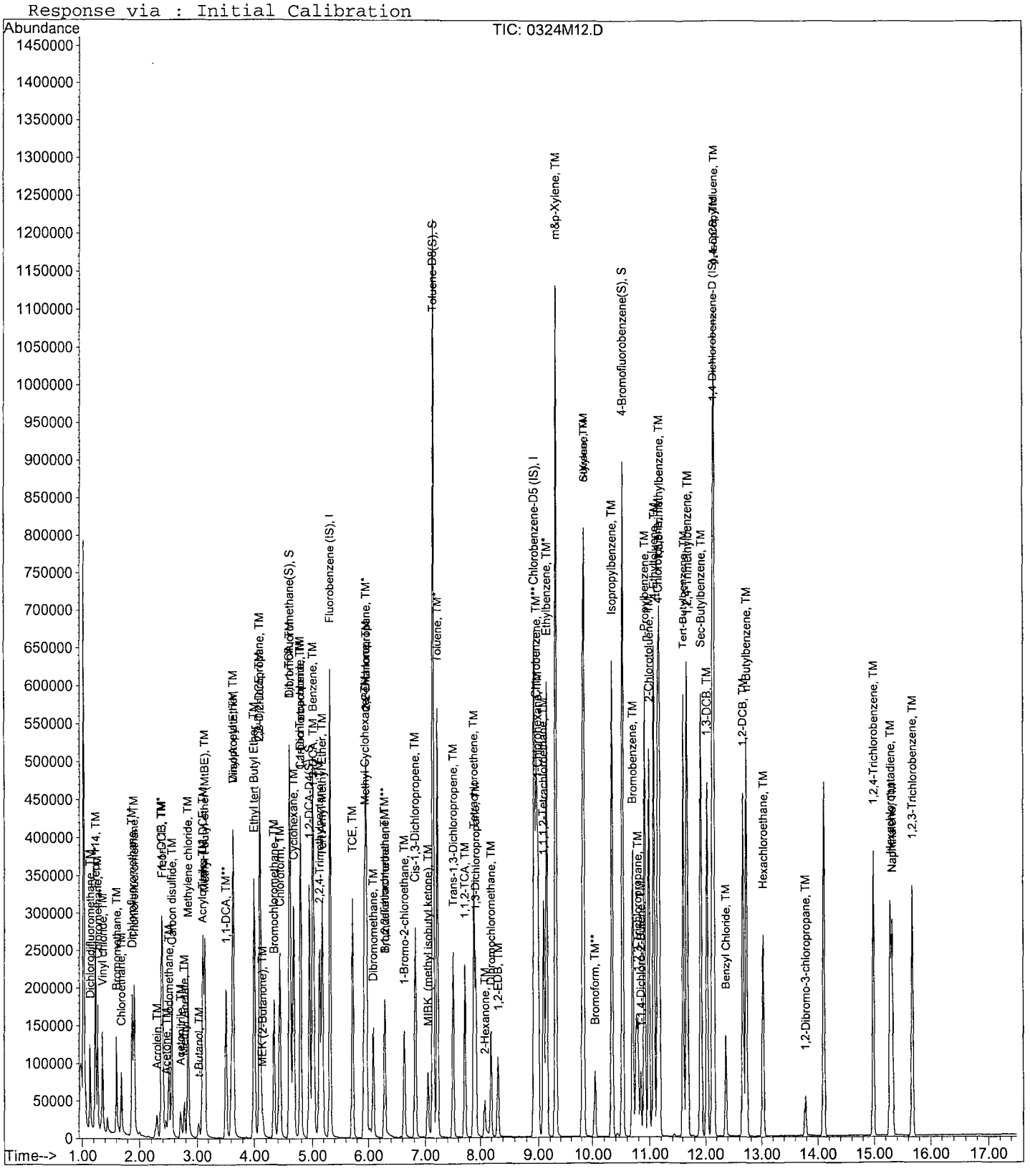
Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M12.D
Acq On : 24 Mar 19 16:17
Sample : 40ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 10
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M13.D Vial: 11
Acq On : 24 Mar 19 16:45 Operator: PM,DG,SV,CMM,KV
Sample : 100ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.31	96	562288	25.000 ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	441644	25.000 ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	234726	25.000 ppb		0.00
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.60	111	385089	89.525 ppb		0.00
Spiked Amount 25.000			Recovery	= 358.100%		
37) 1,2-DCA-D4(S)	4.94	65	422708	85.300 ppb		0.00
Spiked Amount 25.000			Recovery	= 341.200%		
57) Toluene-D8(S)	7.14	98	1654770	84.385 ppb		0.00
Spiked Amount 25.000			Recovery	= 337.540%		
65) 4-Bromofluorobenzene(S)	10.52	95	621203	86.328 ppb		0.00
Spiked Amount 25.000			Recovery	= 345.312%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.14	85	141504	91.408 ppb		98
3) Freon 114	1.23	85	189686	89.046 ppb		96
4) Chloromethane	1.27	50	217005	92.534 ppb		100
5) Vinyl chloride	1.36	62	246040	96.396 ppb		93
6) Bromomethane	1.60	94	140237	87.406 ppb		95
7) Chloroethane	1.68	64	142292	83.944 ppb		95
8) Dichlorofluoromethane	1.87	67	420339	95.009 ppb		99
9) Trichlorofluoromethane	1.90	101	308827	95.863 ppb		99
10) Acrolein	2.30	56	17296	241.073 ppb		98
11) Acetone	2.46	43	47410	99.775 ppb		100
12) Freon-113	2.39	101	168362	91.165 ppb		98
13) 1,1-DCE	2.37	61	313029	97.935 ppb		99
14) Acetonitrile	2.71	41	46901	198.044 ppb		95
15) t-Butanol	3.04	59	24312	174.160 ppb	#	82
16) Methyl Acetate	2.77	43	82240	106.905 ppb		100
17) Iodomethane	2.50	142	280343	100.226 ppb		98
18) Acrylonitrile	3.08	53	73450	104.899 ppb		96
19) Methylene chloride	2.83	84	242384	97.318 ppb		98
20) Carbon disulfide	2.55	76	582222	96.980 ppb		100
21) Methyl t-butyl ether (MtBE	3.14	73	294976	101.513 ppb		98
22) Trans-1,2-DCE	3.10	96	225377	99.723 ppb		99
23) Diisopropyl Ether	3.63	45	851835	99.504 ppb		98
24) 1,1-DCA	3.51	63	442785	99.703 ppb		99
25) Vinyl Acetate	3.63	43	208640	92.720 ppb		100
26) Ethyl tert Butyl Ether	4.00	59	749297	102.638 ppb		100
27) MEK (2-Butanone)	4.15	43	68956	99.007 ppb		97
28) Cis-1,2-DCE	4.09	96	268688	98.488 ppb		98
29) 2,2-Dichloropropane	4.09	77	351154	95.088 ppb		98
30) Chloroform	4.43	83	430922	98.360 ppb		95
31) Bromochloromethane	4.33	128	127342	100.522 ppb		99
33) 1,1,1-TCA	4.61	97	357387	96.535 ppb		96
34) Cyclohexane	4.67	41	195213	84.465 ppb		94
35) 1,1-Dichloropropene	4.79	75	296173	97.060 ppb		97
36) 2,2,4-Trimethylpentane	5.12	57	590419	91.955 ppb		99
38) Carbon Tetrachloride	4.78	117	278015	112.591 ppb		98
39) Tert Amyl Methyl Ether	5.18	73	633172	100.502 ppb		99
40) 1,2-DCA	5.03	62	312479	94.052 ppb		99
41) Benzene	5.00	78	976315	96.581 ppb		100
42) TCE	5.72	95	252098	96.844 ppb		98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M13.D
Acq On : 24 Mar 19 16:45
Sample : 100ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 11
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
43)	2-Pentanone	5.97	43	265459	196.916 ppb	100
44)	1,2-Dichloropropane	5.96	63	246652	97.915 ppb	98
45)	Bromodichloromethane	6.29	83	320630	109.664 ppb	99
46)	Methyl Cyclohexane	5.93	83	333414	91.679 ppb	99
47)	Dibromomethane	6.09	93	129115	99.635 ppb	98
48)	MIBK (methyl isobutyl ket	7.04	43	163137	87.207 ppb	94
49)	1-Bromo-2-chloroethane	6.63	63	160448	98.585 ppb	99
51)	Cis-1,3-Dichloropropene	6.82	75	408670	104.574 ppb	99
52)	Toluene	7.21	91	1106799	97.612 ppb	98
53)	Trans-1,3-Dichloropropene	7.50	75	354248	108.352 ppb	97
54)	1,1,2-TCA	7.71	83	158016	98.499 ppb	98
55)	2-Hexanone	8.08	43	104066	85.332 ppb	98
58)	1,2-EDB	8.31	107	197465	98.417 ppb	98
59)	Tetrachloroethene	7.88	164	222398	91.546 ppb	99
60)	1-Chlorohexane	8.99	91	318198	94.579 ppb	97
61)	1,1,1,2-Tetrachloroethane	9.09	131	263958	110.280 ppb	95
62)	m&p-Xylene	9.30	106	984994	198.120 ppb	99
63)	o-Xylene	9.82	106	503762	99.460 ppb	97
64)	Styrene	9.84	104	853008	102.621 ppb	94
66)	1,3-Dichloropropane	7.92	76	347648	94.668 ppb	98
67)	Dibromochloromethane	8.19	129	223894	117.429 ppb	93
68)	Chlorobenzene	8.97	112	761539	98.849 ppb	99
69)	Ethylbenzene	9.14	91	1224261	97.548 ppb	97
70)	Bromoform	10.05	173	136695	101.346 ppb	100
72)	Isopropylbenzene	10.34	105	1238296	96.042 ppb	99
73)	1,1,2,2-Tetrachloroethane	6.29	83	320630	101.805 ppb	99
74)	1,2,3-Trichloropropane	10.79	110	71676	94.925 ppb	94
75)	t-1,4-Dichloro-2-Butene	10.84	53	28432	97.749 ppb	87
76)	Bromobenzene	10.69	156	341099	97.442 ppb	97
77)	n-Propylbenzene	10.91	91	1372090	95.121 ppb	98
78)	4-Ethyltoluene	11.07	105	1241665	97.432 ppb	98
79)	2-Chlorotoluene	10.98	91	843554	94.709 ppb	99
80)	1,3,5-Trimethylbenzene	11.17	105	1026534	94.671 ppb	98
81)	4-Chlorotoluene	11.14	91	989465	95.379 ppb	99
82)	Tert-Butylbenzene	11.61	119	896498	92.822 ppb	95
83)	1,2,4-Trimethylbenzene	11.68	105	1058993	96.896 ppb	100
84)	Sec-Butylbenzene	11.92	105	1225293	95.794 ppb	97
85)	p-Isopropyltoluene	12.15	119	576832	97.771 ppb	98
86)	Benzyl Chloride	12.36	91	310395	116.258 ppb	96
87)	1,3-DCB	12.02	146	633430	99.610 ppb	100
88)	1,4-DCB	12.15	146	322240	99.594 ppb	99
89)	n-Butylbenzene	12.72	91	476800	99.305 ppb	99
90)	1,2-DCB	12.66	146	590836	100.641 ppb	99
91)	Hexachloroethane	13.02	117	68568	102.192 ppb	90
92)	1,2-Dibromo-3-chloropropan	13.78	157	46126	108.150 ppb	89
93)	1,2,4-Trichlorobenzene	14.99	180	386125	104.705 ppb	99
94)	Hexachlorobutadiene	15.28	225	179423	94.101 ppb	93
95)	Naphthalene	15.32	128	649926	105.562 ppb	97
96)	1,2,3-Trichlorobenzene	15.67	180	330464	103.569 ppb	95

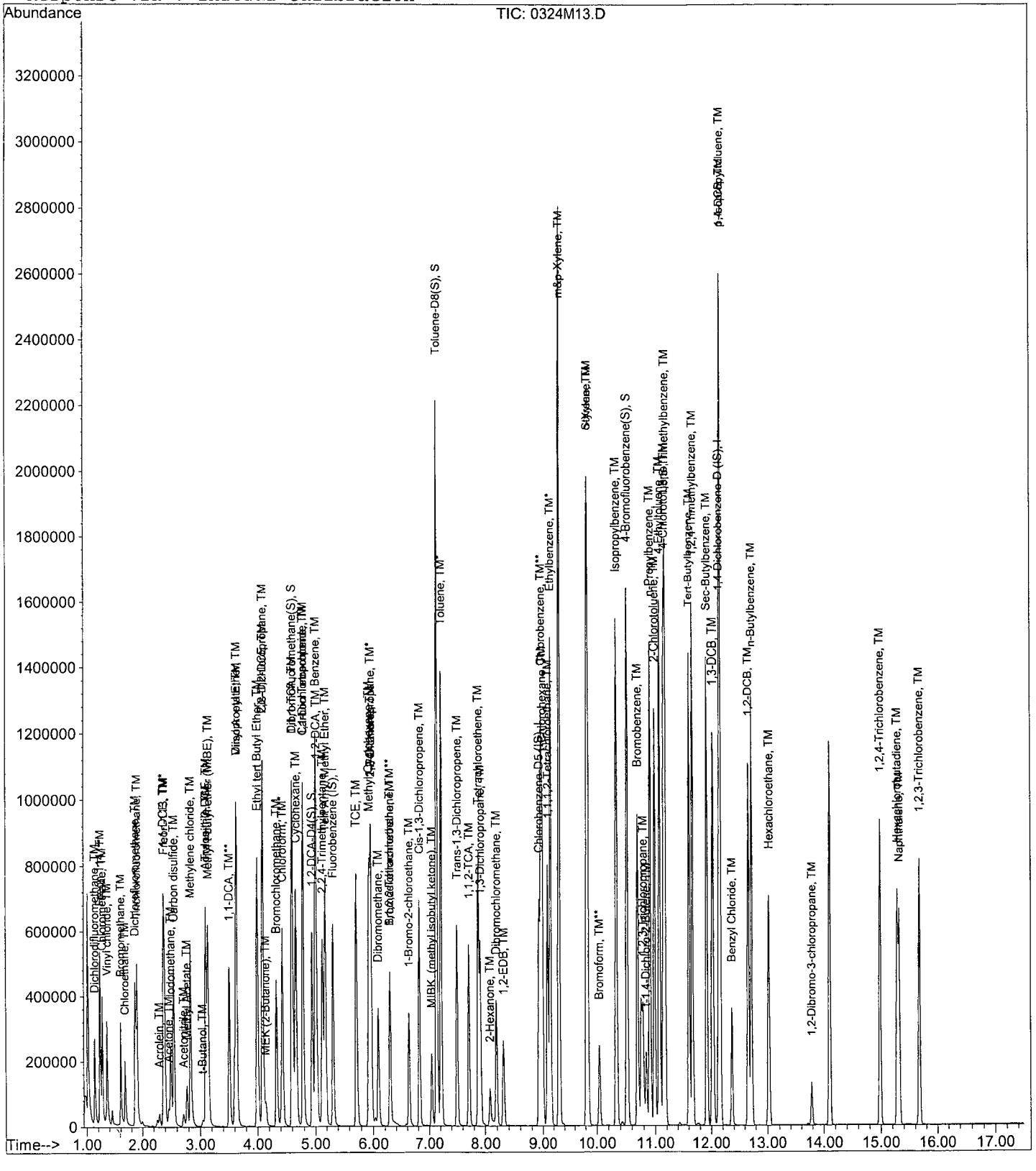
(#) = qualifier out of range (m) = manual integration

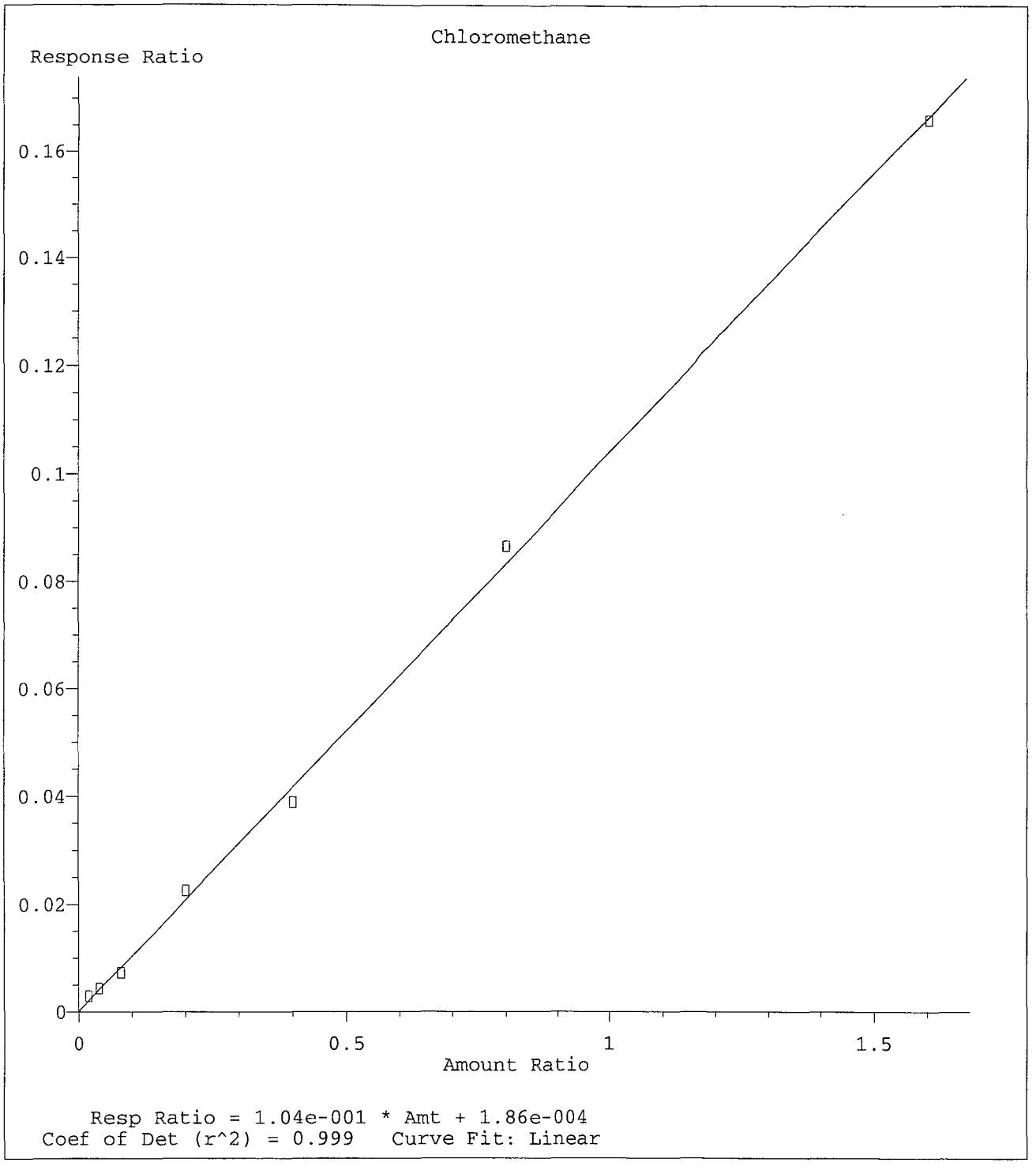
Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M13.D Vial: 11
Acq On : 24 Mar 19 16:45 Operator: PM,DG,SV,CMM,KV
Sample : 100ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

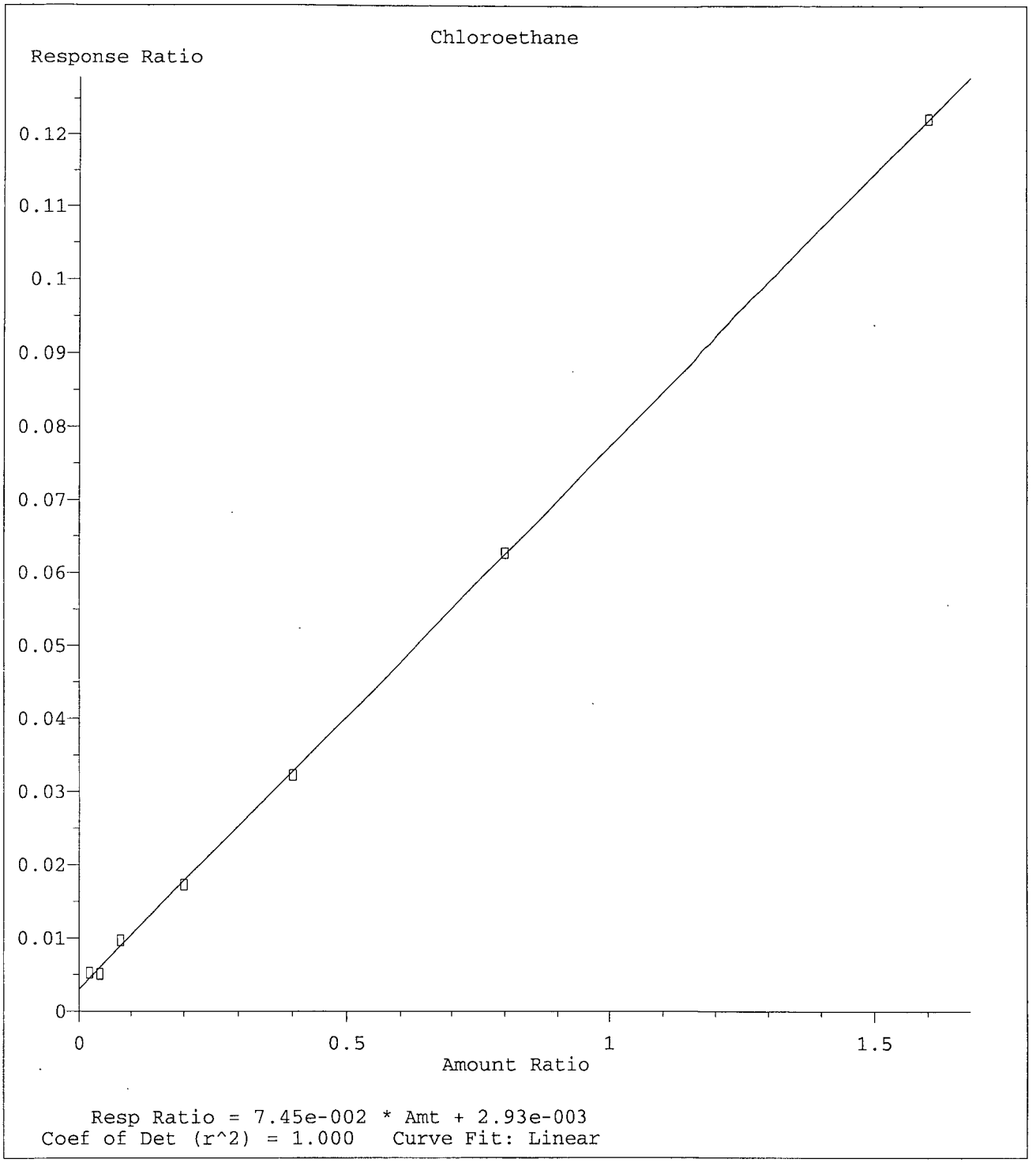
Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration

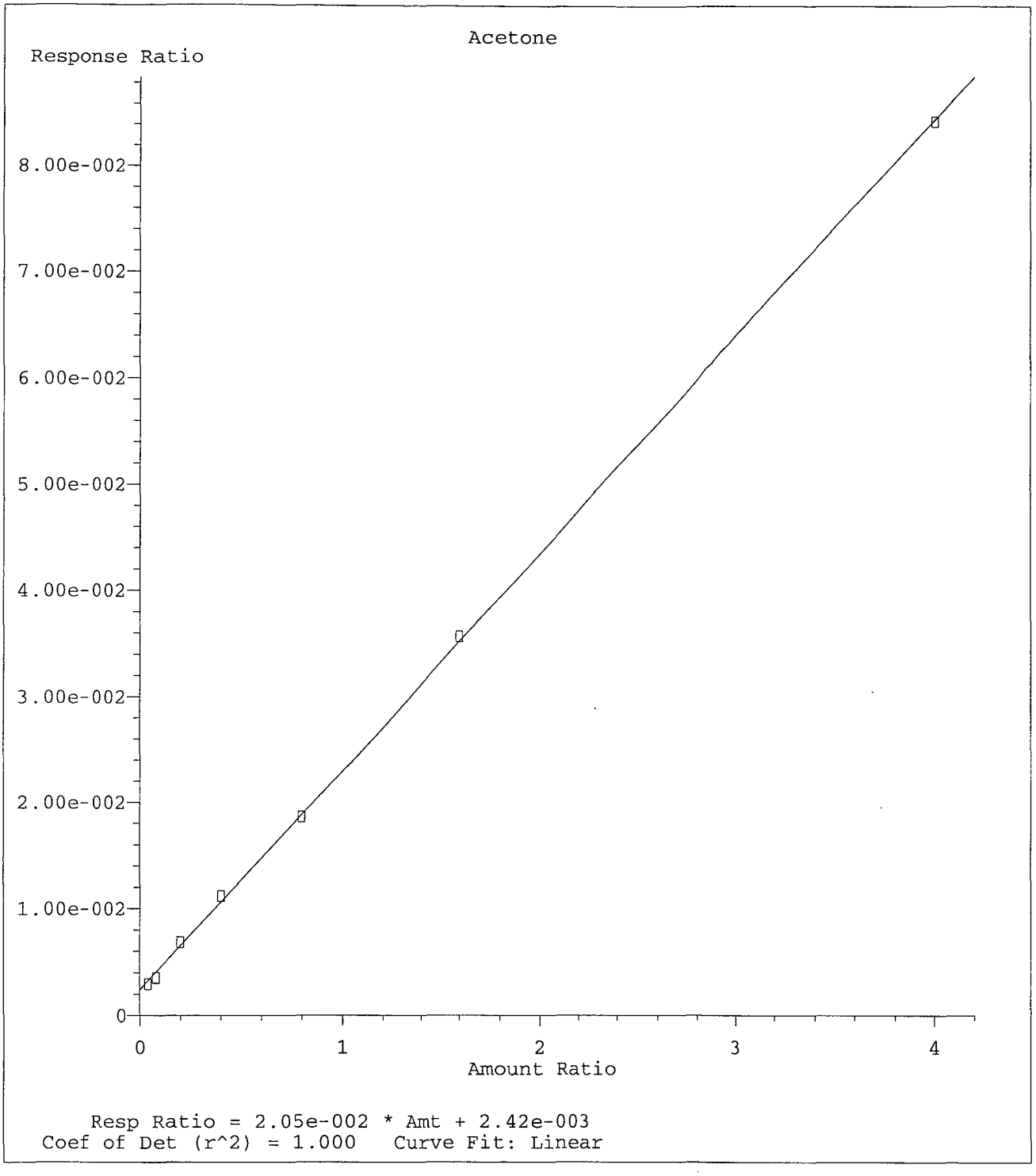




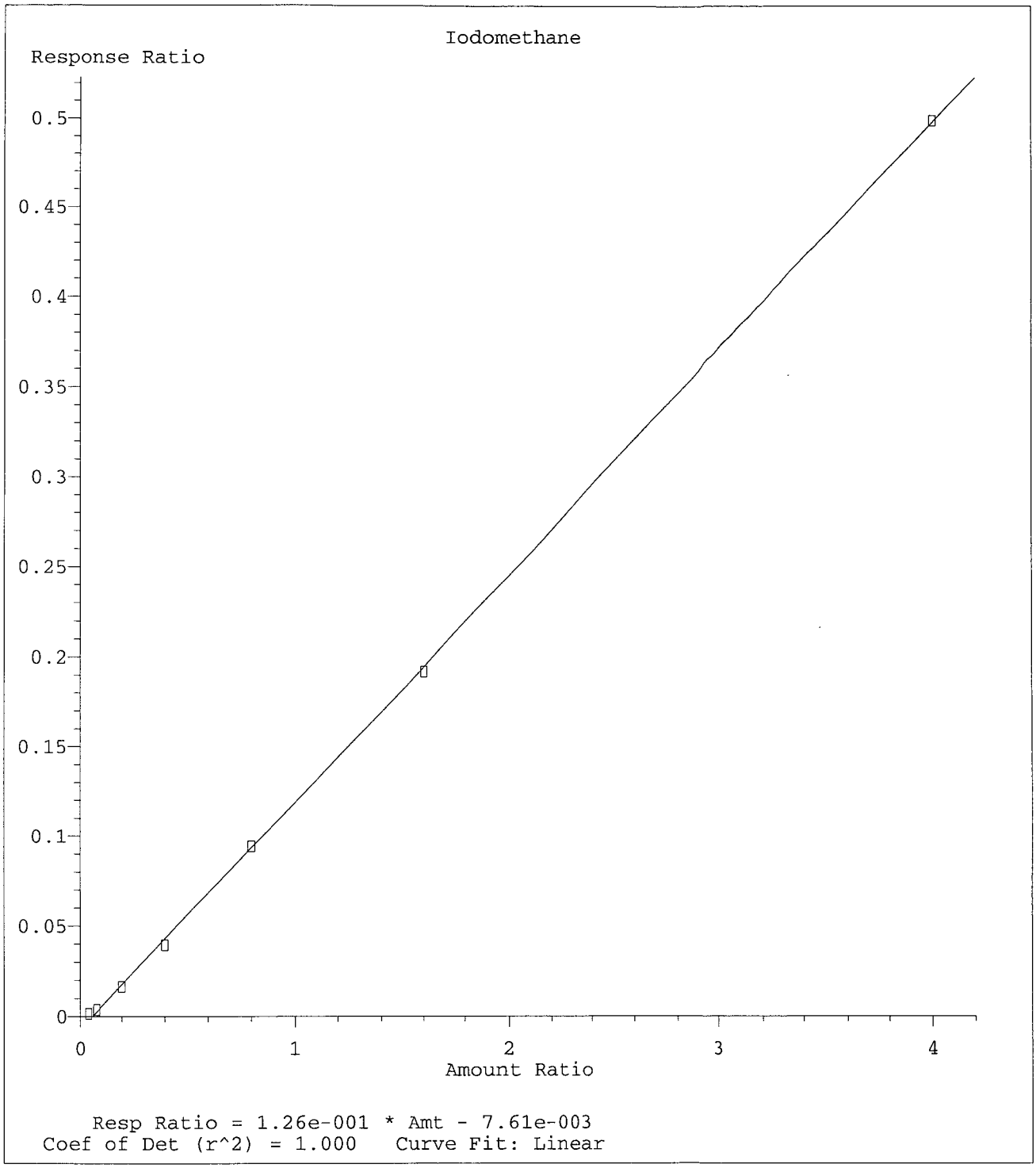
Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019



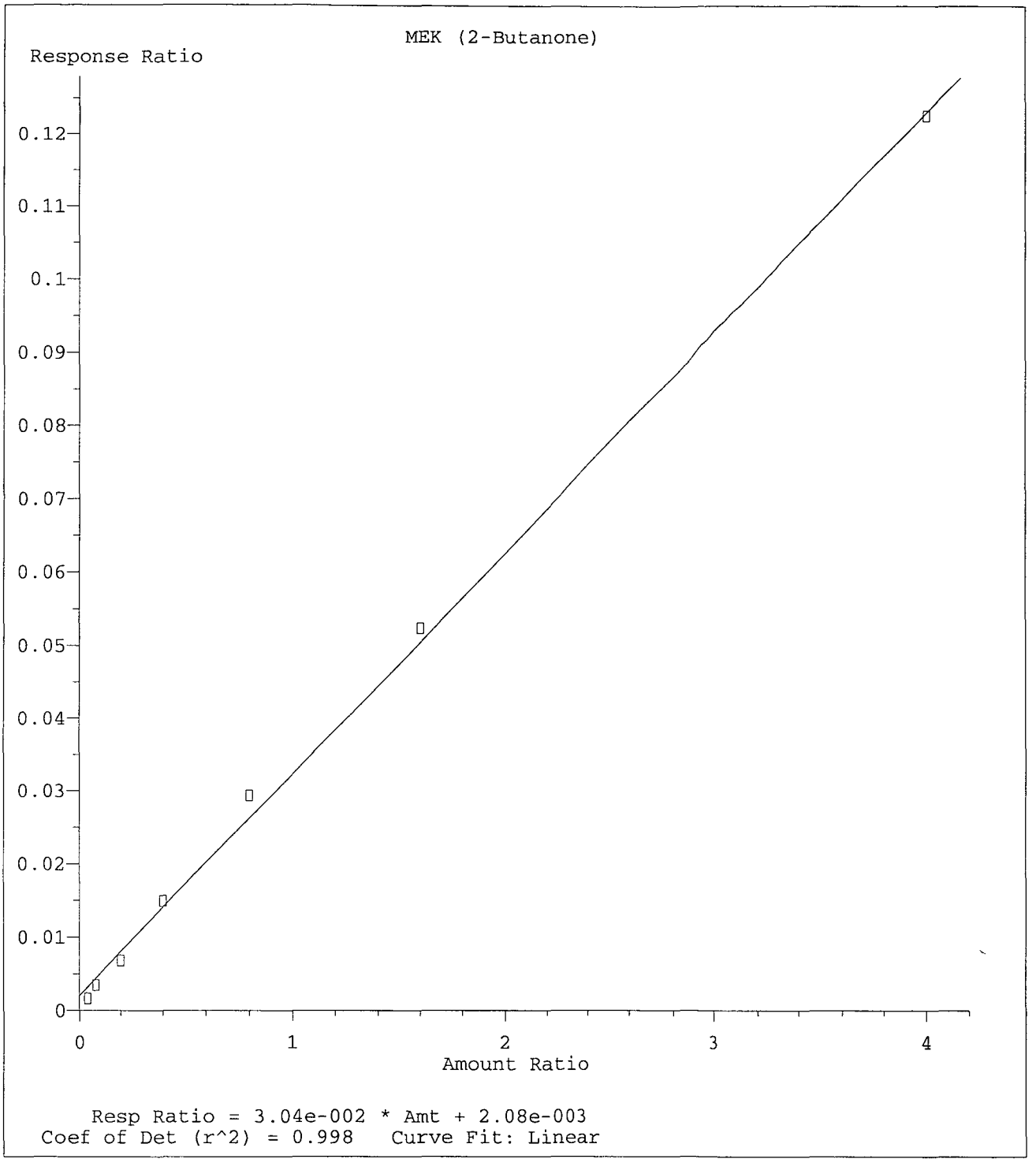
Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019



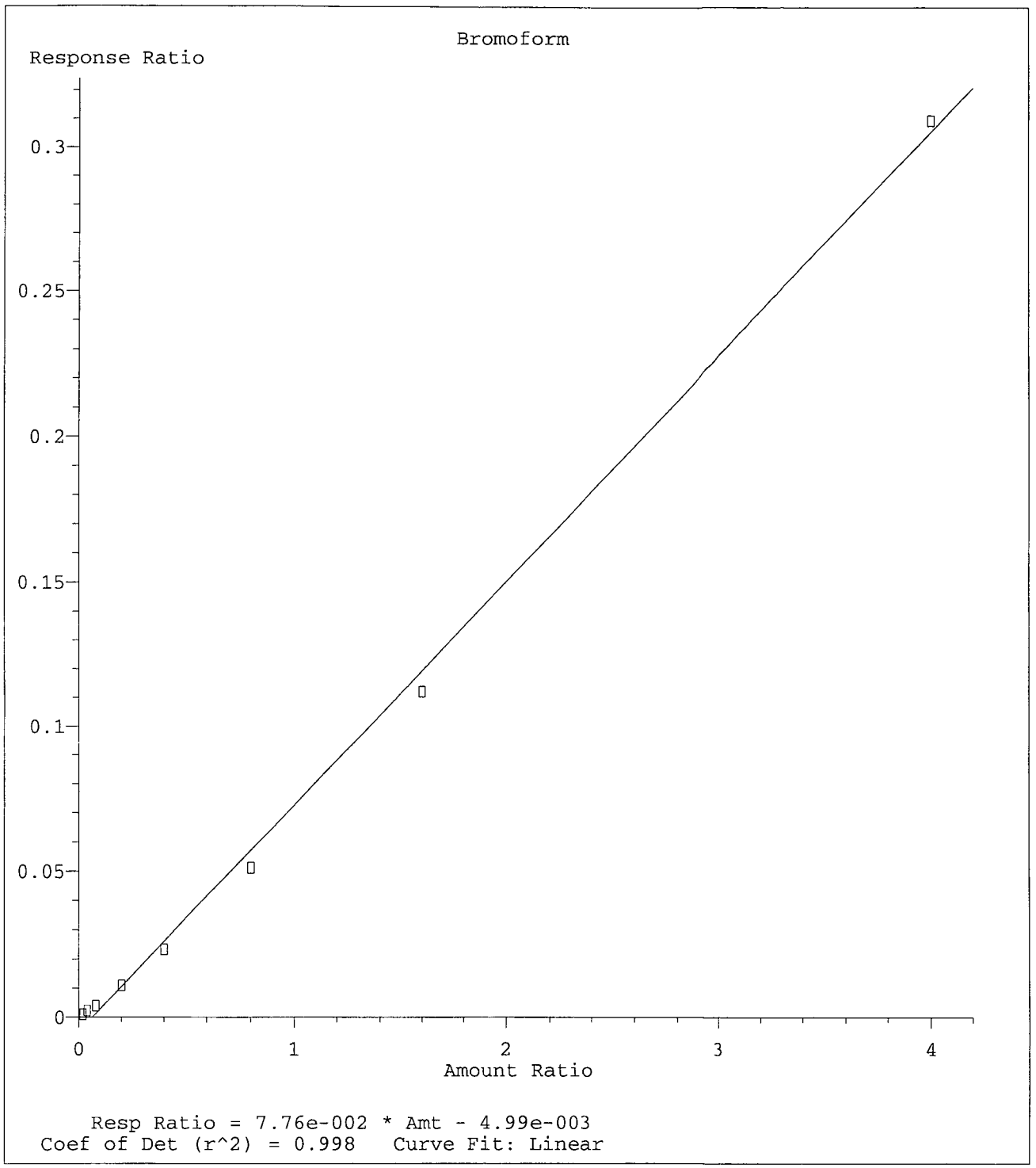
Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019



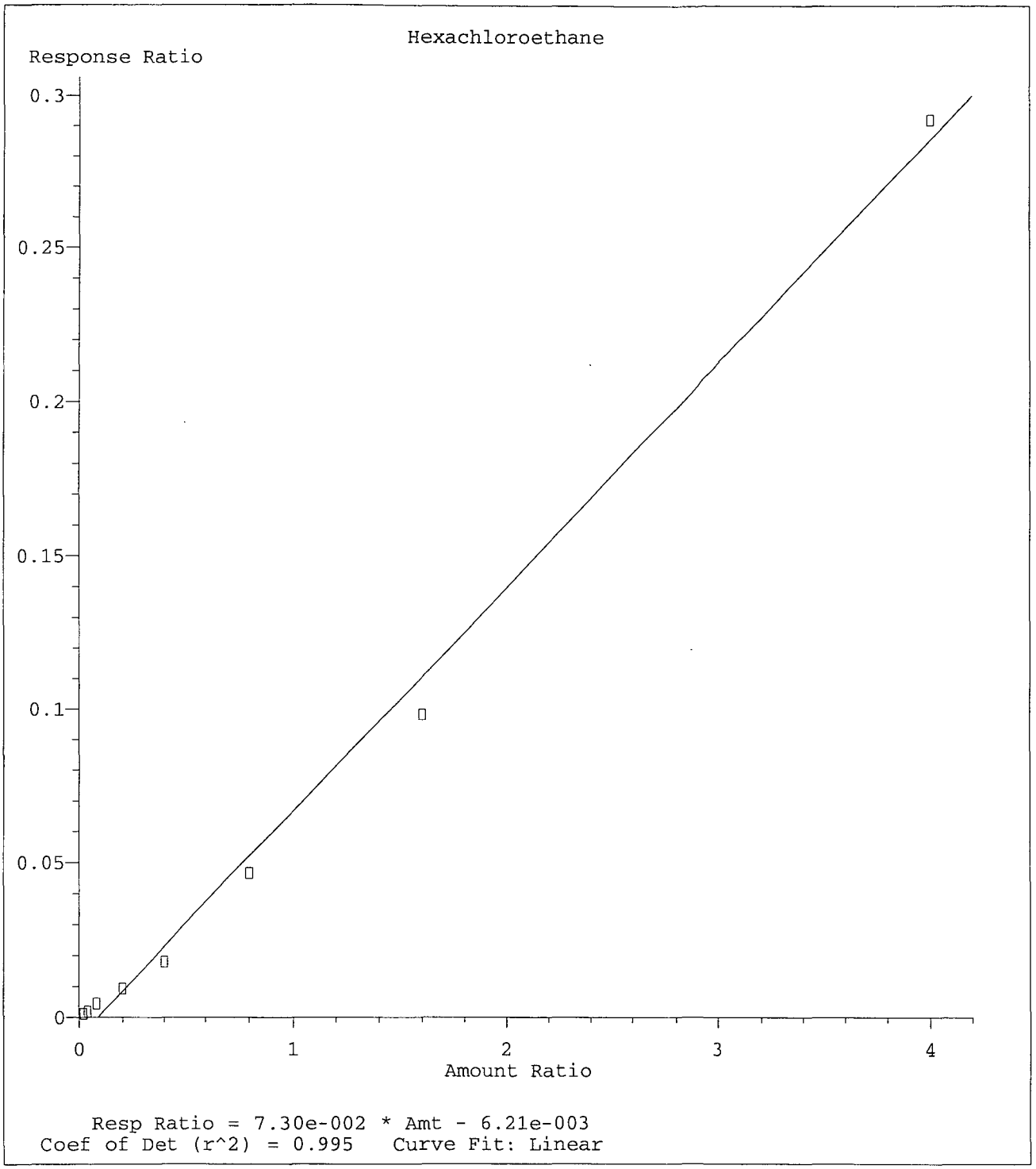
Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019



Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019



Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019



Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: water

SDG No:
Date Analyzed: 03/24/19
Instrument: Max
Initial Cal. Date: 03/24/19
Data File: 0324M16.D

		Compound	MEAN	CCRF	%D	%Drift		
1	TM	Dichlorodifluoromethane	0.0688	0.0632	8.2	TM		
2	TM	Freon 114	0.0947	0.0851	10	TM		
3	TM**L	Chloromethane	0.1096	0.0838	24	TM**L	20	
4	TM*	Vinyl chloride	0.1135	0.1122	1.1	TM*		
5	TM	Bromomethane	0.0713	0.0802	12	TM		
6	TML	Chloroethane	0.1187	0.0822	31	TML	0.49	
7	TM	Dichlorofluoromethane	0.1967	0.1749	11	TM		
8	TM	Trichlorofluoromethane	0.1432	0.1484	3.6	TM		
9	TM	Acrolein	0.0032	0.0026	17	TM		
10	TML	Acetone	0.0350	0.0292	17	TML	13	
11	TM	Freon-113	0.0821	0.0785	4.4	TM		
12	TM*	1,1-DCE	0.1421	0.1449	1.9	TM*		
13	TM	Acetonitrile	0.0105	0.0109	3.3	TM		
14	TM	t-Butanol	0.0062	0.0070	12	TM		
15	TM	Methyl Acetate	0.0342	0.0326	4.8	TM		
16	TML	Iodomethane	0.0895	0.0495	45	TML	46	*NT
17	TM	Acrylonitrile	0.0311	0.0313	0.47	TM		
18	TM	Methylene chloride	0.1107	0.1106	0.17	TM		
19	TM	Carbon disulfide	0.2669	0.2543	4.7	TM		
20	TM	Methyl t-butyl ether (MtBE)	0.1292	0.1199	7.2	TM		
21	TM	Trans-1,2-DCE	0.1005	0.1049	4.4	TM		
22	TM	Diisopropyl Ether	0.3806	0.3636	4.5	TM		
23	TM**	1,1-DCA	0.1975	0.1948	1.4	TM**		
24	TM	Vinyl Acetate	0.1000	0.0921	8.0	TM		
25	TM	Ethyl tert Butyl Ether	0.3246	0.2397	26	TM		*NT
26	TML	MEK (2-Butanone)	0.0367	0.0325	12	TML	10	
27	TM	Cis-1,2-DCE	0.1213	0.1200	1.1	TM		
28	TM	2,2-Dichloropropane	0.1642	0.1398	15	TM		
29	TM*	Chloroform	0.1948	0.1876	3.7	TM*		
30	TM	Bromochloromethane	0.0563	0.0564	0.09	TM		
31	TM	1,1,1-TCA	0.1646	0.1562	5.1	TM		
32	TM	Cyclohexane	0.1028	0.0880	14	TM		
33	TM	1,1-Dichloropropene	0.1357	0.1368	0.87	TM		
34	TM	2,2,4-Trimethylpentane	0.2855	0.2538	11	TM		
35	TM	Carbon Tetrachloride	0.1098	0.1132	3.1	TM		
36	TM	Tert Amyl Methyl Ether	0.2801	0.1964	30	TM		*NT
37	TM	1,2-DCA	0.1477	0.1455	1.5	TM		
38	TM	Benzene	0.4494	0.4446	1.1	TM		
39	TM	TCE	0.1157	0.1144	1.1	TM		
40	TM	2-Pentanone	0.0599	0.0589	1.8	TM		
		Average			9.1			

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: water

SDG No:
Date Analyzed: 03/24/19
Instrument: Max
Cal. Date: 03/24/19
Data File: 0324M16.D

		Compound	MEAN	CCRF	%D		%Drift
41	TM*	1,2-Dichloropropane	0.1120	0.1087	3.0	TM*	
42	TM	Bromodichloromethane	0.1300	0.1284	1.2	TM	
43	TM	Methyl Cyclohexane	0.1617	0.1470	9.1	TM	
44	TM	Dibromomethane	0.0576	0.0585	1.5	TM	
45	TM	MIBK (methyl isobutyl ketone)	0.0832	0.0771	7.4	TM	
46	TM	1-Bromo-2-chloroethane	0.0724	0.0719	0.62	TM	
47	TM	Cis-1,3-Dichloropropene	0.1738	0.1672	3.8	TM	
48	TM*	Toluene	0.5041	0.4832	4.2	TM*	
49	TM	Trans-1,3-Dichloropropene	0.1454	0.1436	1.2	TM	
50	TM	1,1,2-TCA	0.0713	0.0708	0.75	TM	
51	TM	2-Hexanone	0.0542	0.0529	2.5	TM	
52	TM	1,2-EDB	0.1136	0.1155	1.7	TM	
53	TM	Tetrachloroethene	0.1375	0.1435	4.3	TM	
54	TM	1-Chlorohexane	0.1904	0.1803	5.3	TM	
55	TM	1,1,1,2-Tetrachloroethane	0.1355	0.1364	0.65	TM	
56	TM	m&p-Xylene	0.2814	0.2781	1.2	TM	
57	TM	o-Xylene	0.2867	0.2848	0.66	TM	
58	TM	Styrene	0.4705	0.4642	1.3	TM	
59	TM	1,3-Dichloropropane	0.2079	0.2127	2.3	TM	
60	TM	Dibromochloromethane	0.1079	0.1171	8.5	TM	
61	TM**	Chlorobenzene	0.4361	0.4280	1.9	TM**	
62	TM*	Ethylbenzene	0.7104	0.6953	2.1	TM*	
63	TM**L	Bromoform	0.0599	0.0610	1.9	TM**L	5.3
64	TM	Isopropylbenzene	1.373	1.350	1.7	TM	
65	TM**	1,1,2,2-Tetrachloroethane	0.3354	0.3546	5.7	TM**	
66	TM	1,2,3-Trichloropropane	0.0804	0.0853	6.1	TM	
67	TM	t-1,4-Dichloro-2-Butene	0.0310	0.0255	18	TM	
68	TM	Bromobenzene	0.3728	0.3790	1.6	TM	
69	TM	n-Propylbenzene	1.536	1.507	1.9	TM	
70	TM	4-Ethyltoluene	1.357	1.309	3.6	TM	
71	TM	2-Chlorotoluene	0.9486	0.9365	1.3	TM	
72	TM	1,3,5-Trimethylbenzene	1.155	1.132	2.0	TM	
73	TM	4-Chlorotoluene	1.105	1.111	0.53	TM	
74	TM	Tert-Butylbenzene	1.029	0.9621	6.5	TM	
75	TM	1,2,4-Trimethylbenzene	1.164	1.154	0.87	TM	
76	TM	Sec-Butylbenzene	1.362	1.316	3.4	TM	
77	TM	p-Isopropyltoluene	0.6284	0.6035	4.0	TM	
78	TM	Benzyl Chloride	0.2844	0.2339	18	TM	
79	TM	1,3-DCB	0.6773	0.6759	0.20	TM	
80	TM	1,4-DCB	0.3446	0.3402	1.3	TM	
		Average			3.6		

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: water

SDG No:
Date Analyzed: 03/24/19
Instrument: Max
Cal. Date: 03/24/19
Data File: 0324M16.D

		Compound	MEAN	CCRF	%D		%Drift
81	TM	n-Butylbenzene	0.5114	0.5051	1.2	TM	
82	TM	1,2-DCB	0.6253	0.6438	3.0	TM	
83	TML	Hexachloroethane	0.0554	0.0491	11	TML	12
84	TM	1,2-Dibromo-3-chloropropane	0.0454	0.0499	9.8	TM	
85	TM	1,2,4-Trichlorobenzene	0.3928	0.4060	3.4	TM	
86	TM	Hexachlorobutadiene	0.2031	0.2008	1.1	TM	
87	TM	Naphthalene	0.6557	0.7529	15	TM	
88	TM	1,2,3-Trichlorobenzene	0.3398	0.3644	7.2	TM	
89							
90							
91							
92							
93							
94							
95							
96							
97							
98							
99							
100							
101							
102							
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107							
108							
109							
110							
111							
112							
113							
114							
115							
116							
117							
118							
119							
120							
		Average			6.5		

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M16.D
Acq On : 24 Mar 19 18:11
Sample : (SS)10ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 14
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.31	96	636618	25.000	ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	461911	25.000	ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	230470	25.000	ppb		0.00
System Monitoring Compounds							
32) Dibromofluoromethane(S)	4.60	111	117539	24.135	ppb		0.00
Spiked Amount 25.000			Recovery =	96.540%			
37) 1,2-DCA-D4(S)	4.95	65	135697	24.186	ppb		0.00
Spiked Amount 25.000			Recovery =	96.744%			
57) Toluene-D8(S)	7.13	98	501525	24.453	ppb		0.00
Spiked Amount 25.000			Recovery =	97.812%			
65) 4-Bromofluorobenzene(S)	10.52	95	179120	23.800	ppb		0.00
Spiked Amount 25.000			Recovery =	95.200%			
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.14	85	16084	9.177	ppb		97
3) Freon 114	1.24	85	21659	8.980	ppb		99
4) Chloromethane	1.28	50	21328	7.992	ppb		98
5) Vinyl chloride	1.36	62	28568	9.886	ppb		96
6) Bromomethane	1.60	94	20431	11.247	ppb		93
7) Chloroethane	1.69	64	20929	10.049	ppb		94
8) Dichlorofluoromethane	1.87	67	44537	8.891	ppb		99
9) Trichlorofluoromethane	1.92	101	37802	10.364	ppb		99
10) Acrolein	2.30	56	8386	103.237	ppb		94
11) Acetone	2.46	43	7441	11.296	ppb		97
12) Freon-113	2.39	101	19990	9.560	ppb		98
13) 1,1-DCE	2.37	61	36891	10.194	ppb		98
14) Acetonitrile	2.71	41	34637	129.181	ppb		93
15) t-Butanol	3.03	59	22188	140.387	ppb	#	80
16) Methyl Acetate	2.78	43	8294	9.523	ppb		99
17) Iodomethane	2.50	142	12595	5.424	ppb		98
18) Acrylonitrile	3.09	53	7965	10.047	ppb		96
19) Methylene chloride	2.84	84	28152	9.983	ppb		99
20) Carbon disulfide	2.55	76	64768	9.529	ppb		99
21) Methyl t-butyl ether (MtBE	3.14	73	30536	9.282	ppb		100
22) Trans-1,2-DCE	3.10	96	26725	10.444	ppb		93
23) Diisopropyl Ether	3.63	45	92593	9.553	ppb		99
24) 1,1-DCA	3.51	63	49597	9.864	ppb		99
25) Vinyl Acetate	3.63	43	23448	9.204	ppb	#	100
26) Ethyl tert Butyl Ether	4.00	59	61028	7.384	ppb		99
27) MEK (2-Butanone)	4.15	43	8266	8.952	ppb		91
28) Cis-1,2-DCE	4.10	96	30548	9.890	ppb		98
29) 2,2-Dichloropropane	4.09	77	35610	8.517	ppb		97
30) Chloroform	4.44	83	47761	9.629	ppb		96
31) Bromochloromethane	4.34	128	14356	10.009	ppb		97
33) 1,1,1-TCA	4.61	97	39788	9.492	ppb		97
34) Cyclohexane	4.67	41	22404	8.562	ppb		96
35) 1,1-Dichloropropene	4.79	75	34848	10.087	ppb		97
36) 2,2,4-Trimethylpentane	5.12	57	64625	8.890	ppb		99
38) Carbon Tetrachloride	4.78	117	28832	10.313	ppb		99
39) Tert Amyl Methyl Ether	5.18	73	50015	7.012	ppb		98
40) 1,2-DCA	5.03	62	37055	9.851	ppb		98
41) Benzene	5.00	78	113225	9.893	ppb		99
42) TCE	5.72	95	29142	9.888	ppb		98

(#) = qualifier out of range (m) = manual integration

Data File : M:\MAX\DATA\M190324\0324M16.D
Acq On : 24 Mar 19 18:11
Sample : (SS)10ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 14
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
43) 2-Pentanone	5.97	43	187364	122.758 ppb	99
44) 1,2-Dichloropropane	5.96	63	27668	9.701 ppb	100
45) Bromodichloromethane	6.29	83	32690	9.875 ppb	96
46) Methyl Cyclohexane	5.93	83	37429	9.090 ppb	99
47) Dibromomethane	6.09	93	14892	10.150 ppb	99
48) MIBK (methyl isobutyl ket	7.04	43	19621	9.264 ppb	93
49) 1-Bromo-2-chloroethane	6.63	63	18312	9.938 ppb	96
51) Cis-1,3-Dichloropropene	6.82	75	42580	9.624 ppb	100
52) Toluene	7.21	91	123036	9.584 ppb	100
53) Trans-1,3-Dichloropropene	7.50	75	36570	9.879 ppb	98
54) 1,1,2-TCA	7.72	83	18027	9.925 ppb	94
55) 2-Hexanone	8.08	43	13468	9.754 ppb	89
58) 1,2-EDB	8.31	107	21337	10.168 ppb	97
59) Tetrachloroethene	7.88	164	26511	10.434 ppb	93
60) 1-Chlorohexane	8.99	91	33310	9.466 ppb	98
61) 1,1,1,2-Tetrachloroethane	9.08	131	25196	10.065 ppb	91
62) m&p-Xylene	9.30	106	102776	19.765 ppb	97
63) o-Xylene	9.82	106	52622	9.934 ppb	99
64) Styrene	9.84	104	85774	9.866 ppb	99
66) 1,3-Dichloropropane	7.92	76	39295	10.231 ppb	99
67) Dibromochloromethane	8.19	129	21631	10.847 ppb	88
68) Chlorobenzene	8.96	112	79083	9.815 ppb	98
69) Ethylbenzene	9.14	91	128459	9.786 ppb	95
70) Bromoform	10.04	173	11268	9.469 ppb	97
72) Isopropylbenzene	10.34	105	124478	9.833 ppb	98
73) 1,1,2,2-Tetrachloroethane	6.29	83	32690	10.571 ppb	96
74) 1,2,3-Trichloropropane	10.79	110	7863	10.606 ppb	86
75) t-1,4-Dichloro-2-Butene	10.84	53	2350	8.228 ppb	100
76) Bromobenzene	10.69	156	34936	10.164 ppb	93
77) n-Propylbenzene	10.90	91	138882	9.806 ppb	99
78) 4-Ethyltoluene	11.07	105	120672	9.644 ppb	98
79) 2-Chlorotoluene	10.98	91	86335	9.872 ppb	97
80) 1,3,5-Trimethylbenzene	11.16	105	104342	9.801 ppb	99
81) 4-Chlorotoluene	11.14	91	102394	10.053 ppb	99
82) Tert-Butylbenzene	11.61	119	88695	9.353 ppb	97
83) 1,2,4-Trimethylbenzene	11.67	105	106379	9.913 ppb	98
84) Sec-Butylbenzene	11.92	105	121287	9.657 ppb	95
85) p-Isopropyltoluene	12.14	119	55632	9.604 ppb	98
86) Benzyl Chloride	12.36	91	21564	8.226 ppb	97
87) 1,3-DCB	12.02	146	62314	9.980 ppb	97
88) 1,4-DCB	12.15	146	31360	9.871 ppb	99
89) n-Butylbenzene	12.72	91	46560	9.876 ppb	97
90) 1,2-DCB	12.66	146	59351	10.296 ppb	99
91) Hexachloroethane	13.02	117	4522	8.848 ppb	95
92) 1,2-Dibromo-3-chloropropan	13.78	157	4599	10.982 ppb	90
93) 1,2,4-Trichlorobenzene	14.98	180	37424	10.336 ppb	99
94) Hexachlorobutadiene	15.28	225	18511	9.888 ppb	92
95) Naphthalene	15.31	128	69409	11.482 ppb	97
96) 1,2,3-Trichlorobenzene	15.67	180	33589	10.721 ppb	97

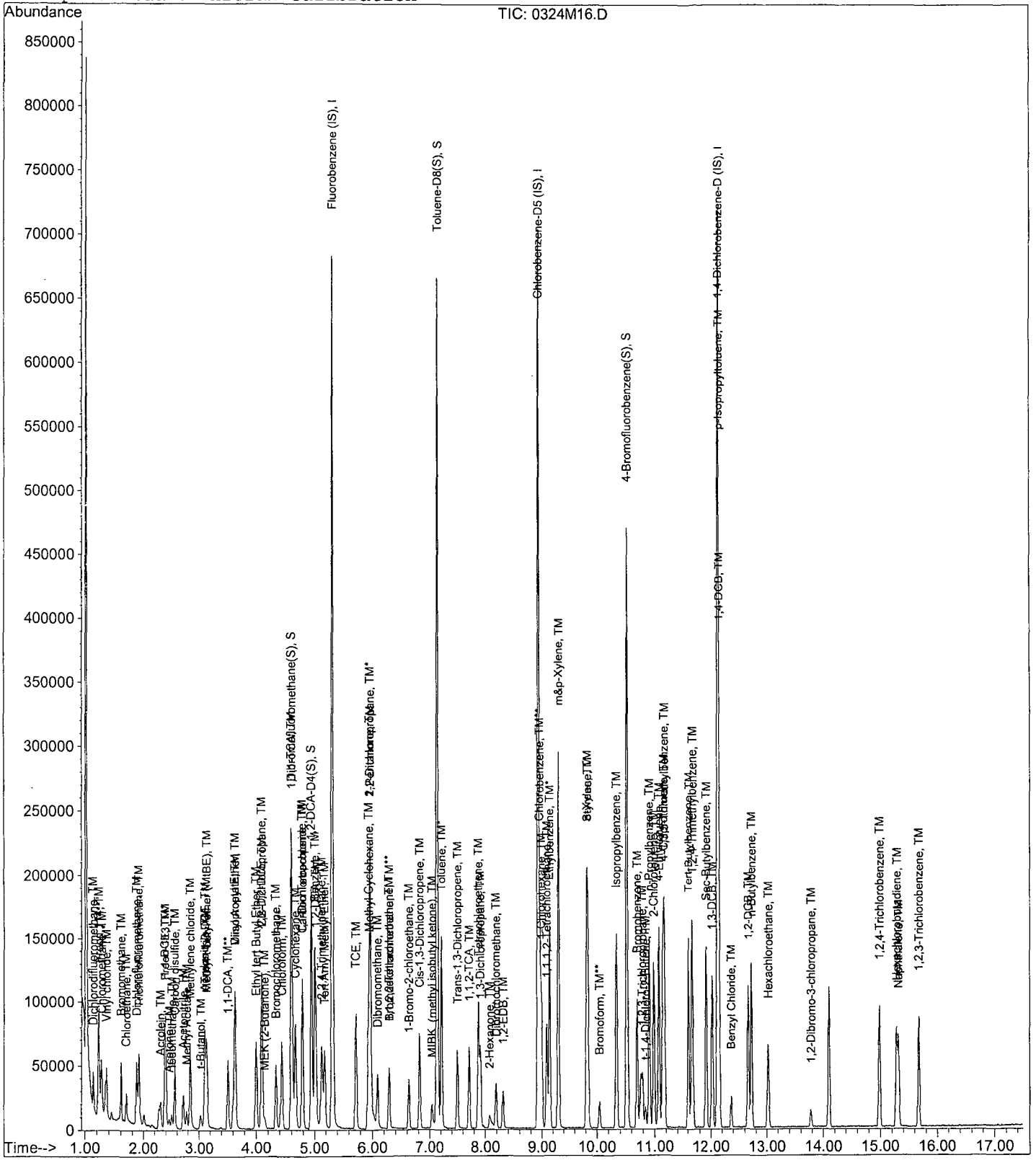
(#) = qualifier out of range (m) = manual integration

Data File : M:\MAX\DATA\M190324\0324M16.D
Acq On : 24 Mar 19 18:11
Sample : (SS)10ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 14
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 04/26/19
Instrument: Max
Initial Cal. Date: 03/24/19
Data File: 0426M03.D

		Compound	MEAN	CCRF	%D	%Drift		
1	I	Fluorobenzene (IS)	ISTD			I		
2	TM	Dichlorodifluoromethane	0.0688	0.0854	24	TM		* NT
3	TM	Freon 114	0.0947	0.1009	6.5	TM		
4	TM**L	Chloromethane	0.1096	0.1211	10	TM**L	16	
5	TM*	Vinyl chloride	0.1135	0.1408	24	TM*		* NT
6	TM	Bromomethane	0.0713	0.1035	45	TM		* NT
7	TML	Chloroethane	0.1187	0.0781	34	TML	5.0	
8	TM	Dichlorofluoromethane	0.1967	0.1989	1.1	TM		
9	TM	Trichlorofluoromethane	0.1432	0.1666	16	TM		
10	TM	Acrolein	0.0032	0.0073	129	TM		* NT
11	TML	Acetone	0.0350	0.0261	26	TML	2.3	
12	TM*	1,1-DCE	0.1421	0.1359	4.4	TM*		
13	TM	Acetonitrile	0.0105	0.0108	2.8	TM		
14	TM	t-Butanol	0.0062	0.0065	5.5	TM		
15	TM	Methyl Acetate	0.0342	0.0308	10	TM		
16	TML	Iodomethane	0.0895	0.0695	22	TML	30	* NT
17	TM	Acrylonitrile	0.0311	0.0357	15	TM		
18	TM	Methylene chloride	0.1107	0.1132	2.2	TM		
19	TM	Carbon disulfide	0.2669	0.2739	2.6	TM		
20	TM	Methyl t-butyl ether (MtBE)	0.1292	0.1335	3.3	TM		
21	TM	Trans-1,2-DCE	0.1005	0.1033	2.8	TM		
22	TM	Diisopropyl Ether	0.3806	0.3924	3.1	TM		
23	TM**	1,1-DCA	0.1975	0.1998	1.2	TM**		
24	TM	Vinyl Acetate	0.1000	0.1016	1.6	TM		
25	TM	Ethyl tert Butyl Ether	0.3246	0.3621	12	TM		
26	TML	MEK (2-Butanone)	0.0367	0.0389	6.0	TML	11	
27	TM	Cis-1,2-DCE	0.1213	0.1283	5.7	TM		
28	TM	2,2-Dichloropropane	0.1642	0.1752	6.7	TM		
29	TM*	Chloroform	0.1948	0.1940	0.39	TM*		
30	TM	Bromochloromethane	0.0563	0.0611	8.5	TM		
31	S	Dibromofluoromethane(S)	0.1912	0.1962	2.6	S		
32	TM	1,1,1-TCA	0.1646	0.1653	0.40	TM		
33	TM	Cyclohexane	0.1028	0.0928	9.7	TM		
34	TM	1,1-Dichloropropene	0.1357	0.1355	0.16	TM		
35	TM	2,2,4-Trimethylpentane	0.2855	0.2965	3.8	TM		
36	S	1,2-DCA-D4(S)	0.2203	0.2103	4.6	S		
37	TM	Carbon Tetrachloride	0.1098	0.1240	13	TM		
38	TM	Tert Amyl Methyl Ether	0.2801	0.3286	17	TM		
39	TM	1,2-DCA	0.1477	0.1422	3.8	TM		
40	TM	Benzene	0.4494	0.4589	2.1	TM		
		Average			12.5			

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Continuing Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Date Analyzed: 04/26/19
Matrix: 0 Instrument: Max
Cal. Date: 03/24/19
Data File: 0426M03.D

		Compound	MEAN	CCRF	%D		%Drift
41	TM	TCE	0.1157	0.1153	0.34	TM	
42	TM	2-Pentanone	0.0599	0.0601	0.24	TM	
43	TM*	1,2-Dichloropropane	0.1120	0.1141	1.9	TM*	
44	TM	Bromodichloromethane	0.1300	0.1406	8.1	TM	
45	TM	Methyl Cyclohexane	0.1617	0.1611	0.37	TM	
46	TM	Dibromomethane	0.0576	0.0600	4.1	TM	
47	TM	MIBK (methyl isobutyl ketone)	0.0832	0.0817	1.8	TM	
48	TM	1-Bromo-2-chloroethane	0.0724	0.0766	5.9	TM	
49	TM	Cis-1,3-Dichloropropene	0.1738	0.1814	4.4	TM	
50	TM*	Toluene	0.5041	0.5170	2.6	TM*	
51	TM	Trans-1,3-Dichloropropene	0.1454	0.1517	4.3	TM	
52	TM	1,1,2-TCA	0.0713	0.0733	2.8	TM	
53	TM	2-Hexanone	0.0542	0.0549	1.2	TM	
54	I	Chlorobenzene-D5 (IS)	ISTD			I	
55	S	Toluene-D8(S)	1.110	1.103	0.67	S	
56	TM	1,2-EDB	0.1136	0.1209	6.4	TM	
57	TM	Tetrachloroethene	0.1375	0.1470	6.9	TM	
58	TM	1-Chlorohexane	0.1904	0.2002	5.1	TM	
59	TM	1,1,1,2-Tetrachloroethane	0.1355	0.1451	7.1	TM	
60	TM	m&p-Xylene	0.2814	0.2951	4.8	TM	
61	TM	o-Xylene	0.2867	0.2932	2.3	TM	
62	TM	Styrene	0.4705	0.5004	6.3	TM	
63	S	4-Bromofluorobenzene(S)	0.4073	0.4229	3.8	S	
64	TM	1,3-Dichloropropane	0.2079	0.2123	2.2	TM	
65	TM	Dibromochloromethane	0.1079	0.1279	19	TM	
66	TM**	Chlorobenzene	0.4361	0.4504	3.3	TM**	
67	TM*	Ethylbenzene	0.7104	0.7443	4.8	TM*	
68	TM**L	Bromoform	0.0599	0.0773	29	TM**L	16
69	I	1,4-Dichlorobenzene-D (IS)	ISTD			I	
70	TM	Isopropylbenzene	1.373	1.352	1.6	TM	
71	TM**	1,1,2,2-Tetrachloroethane	0.3354	0.3398	1.3	TM**	
72	TM	1,2,3-Trichloropropane	0.0804	0.0864	7.4	TM	
73	TM	t-1,4-Dichloro-2-Butene	0.0310	0.0325	5.1	TM	
74	TM	Bromobenzene	0.3728	0.3810	2.2	TM	
75	TM	n-Propylbenzene	1.536	1.512	1.6	TM	
76	TM	4-Ethyltoluene	1.357	1.396	2.9	TM	
77	TM	2-Chlorotoluene	0.9486	0.9121	3.8	TM	
78	TM	1,3,5-Trimethylbenzene	1.155	1.140	1.3	TM	
79	TM	4-Chlorotoluene	1.105	1.084	1.9	TM	
80	TM	Tert-Butylbenzene	1.029	0.9864	4.1	TM	
		Average			4.6		

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 04/26/19
Instrument: Max
Cal. Date: 03/24/19
Data File: 0426M03.D

		Compound	MEAN	CCRF	%D		%Drift	
81	TM	1,2,4-Trimethylbenzene	1.164	1.147	1.5	TM		
82	TM	Sec-Butylbenzene	1.362	1.357	0.39	TM		
83	TM	p-Isopropyltoluene	0.6284	0.6304	0.32	TM		
84	TM	Benzyl Chloride	0.2844	0.0808	72	TM		* NT
85	TM	1,3-DCB	0.6773	0.7010	3.5	TM		
86	TM	1,4-DCB	0.3446	0.3584	4.0	TM		
87	TM	n-Butylbenzene	0.5114	0.5204	1.8	TM		
88	TM	1,2-DCB	0.6253	0.6518	4.2	TM		
89	TML	Hexachloroethane	0.0554	0.0638	15	TML	8.7	
90	TM	1,2-Dibromo-3-chloropropane	0.0454	0.0511	13	TM		
91	TM	1,2,4-Trichlorobenzene	0.3928	0.4062	3.4	TM		
92	TM	Hexachlorobutadiene	0.2031	0.2071	2.0	TM		
93	TM	Naphthalene	0.6557	0.6074	7.4	TM		
94	TM	1,2,3-Trichlorobenzene	0.3398	0.3305	2.7	TM		
95								
96								
97								
98								
99								
100								
101								
102								
103								
104								
105								
106								
107								
108								
109								
110								
111								
112								
113								
114								
115								
116								
117								
118								
119								
120								
		Average			9.4			

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M03.D Vial: 2
Acq On : 26 Apr 19 10:04 Operator: PM,DG,SV,CMM,KV
Sample : 190426A CCV 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 26 10:24 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.20	96	751361	25.0000 ppb		-0.12
56) Chlorobenzene-D5 (IS)	8.80	117	578928	25.0000 ppb		-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	310805	25.0000 ppb		-0.13
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.49	111	147385	25.6416 ppb		-0.11
Spiked Amount 25.000			Recovery = 102.568%			
37) 1,2-DCA-D4(S)	4.83	65	157985	23.8581 ppb		-0.12
Spiked Amount 25.000			Recovery = 95.432%			
57) Toluene-D8(S)	7.01	98	638320	24.8323 ppb		-0.12
Spiked Amount 25.000			Recovery = 99.328%			
65) 4-Bromofluorobenzene(S)	10.39	95	244815	25.9538 ppb		-0.13
Spiked Amount 25.000			Recovery = 103.816%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.10	85	25672	12.4104 ppb		100
3) Freon 114	1.19	85	30321	10.6520 ppb		92
4) Chloromethane	1.23	50	36400	11.5767 ppb		98
5) Vinyl chloride	1.31	62	42304	12.4036 ppb	#	87
6) Bromomethane	1.56	94	31094	14.5032 ppb		97
7) Chloroethane	1.64	64	23480	9.5039 ppb		93
8) Dichlorofluoromethane	1.81	67	59781	10.1120 ppb		98
9) Trichlorofluoromethane	1.84	101	50085	11.6346 ppb		99
10) Acrolein	2.22	56	27464	286.4683 ppb		100
11) Acetone	2.39	43	7844	9.7748 ppb		95
13) 1,1-DCE	2.29	61	40845	9.5632 ppb		94
14) Acetonitrile	2.64	41	40665	128.5019 ppb		93
15) t-Butanol	2.99	59	24607	131.9159 ppb	#	90
16) Methyl Acetate	2.69	43	9251	8.9994 ppb		100
17) Iodomethane	2.42	142	20876	7.0079 ppb		99
18) Acrylonitrile	2.99	53	10743	11.4820 ppb		94
19) Methylene chloride	2.75	84	34017	10.2211 ppb		95
20) Carbon disulfide	2.46	76	82324	10.2620 ppb		98
21) Methyl t-butyl ether (MtBE	3.04	73	40128	10.3346 ppb		98
22) Trans-1,2-DCE	3.00	96	31045	10.2799 ppb		97
23) Diisopropyl Ether	3.53	45	117932	10.3093 ppb		95
24) 1,1-DCA	3.41	63	60045	10.1182 ppb		98
25) Vinyl Acetate	3.50	43	30540	10.1567 ppb	#	100
26) Ethyl tert Butyl Ether	3.90	59	108834	11.1565 ppb		99
27) MEK (2-Butanone)	4.05	43	11685	11.0612 ppb		93
28) Cis-1,2-DCE	3.99	96	38551	10.5750 ppb		91
29) 2,2-Dichloropropane	3.98	77	52659	10.6711 ppb		99
30) Chloroform	4.33	83	58314	9.9610 ppb		100
31) Bromochloromethane	4.23	128	18363	10.8479 ppb		91
33) 1,1,1-TCA	4.50	97	49666	10.0396 ppb		94
34) Cyclohexane	4.56	41	27899	9.0338 ppb		88
35) 1,1-Dichloropropene	4.68	75	40709	9.9837 ppb		96
36) 2,2,4-Trimethylpentane	5.01	57	89097	10.3846 ppb		97
38) Carbon Tetrachloride	4.67	117	37267	11.2946 ppb		99
39) Tert Amyl Methyl Ether	5.06	73	98773	11.7328 ppb		98
40) 1,2-DCA	4.91	62	42723	9.6232 ppb		97
41) Benzene	4.89	78	137907	10.2094 ppb		99
42) TCE	5.60	95	34667	9.9662 ppb		96
43) 2-Pentanone	5.86	43	225724	125.3057 ppb		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M03.D Vial: 2
Acq On : 26 Apr 19 10:04 Operator: PM,DG,SV,CMM,KV
Sample : 190426A CCV 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 26 10:24 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
44)	1,2-Dichloropropane	5.85	63	34288	10.1863	ppb	#	95
45)	Bromodichloromethane	6.17	83	42244	10.8127	ppb		95
46)	Methyl Cyclohexane	5.81	83	48415	9.9626	ppb		99
47)	Dibromomethane	5.97	93	18025	10.4093	ppb		92
48)	MIBK (methyl isobutyl ket	6.93	43	24549	9.8207	ppb		96
49)	1-Bromo-2-chloroethane	6.51	63	23024	10.5869	ppb		100
51)	Cis-1,3-Dichloropropene	6.70	75	54526	10.4415	ppb		97
52)	Toluene	7.09	91	155387	10.2556	ppb		96
53)	Trans-1,3-Dichloropropene	7.38	75	45580	10.4331	ppb		99
54)	1,1,2-TCA	7.59	83	22038	10.2805	ppb		95
55)	2-Hexanone	7.97	43	16490	10.1189	ppb		96
58)	1,2-EDB	8.19	107	27993	10.6433	ppb		97
59)	Tetrachloroethene	7.76	164	34038	10.6886	ppb		97
60)	1-Chlorohexane	8.87	91	46353	10.5105	ppb		96
61)	1,1,1,2-Tetrachloroethane	8.96	131	33593	10.7067	ppb		93
62)	m&p-Xylene	9.17	106	136651	20.9679	ppb		97
63)	o-Xylene	9.69	106	67890	10.2253	ppb		96
64)	Styrene	9.71	104	115878	10.6349	ppb		96
66)	1,3-Dichloropropane	7.79	76	49174	10.2152	ppb		97
67)	Dibromochloromethane	8.06	129	29623	11.8525	ppb		88
68)	Chlorobenzene	8.84	112	104308	10.3287	ppb		99
69)	Ethylbenzene	9.01	91	172367	10.4772	ppb		93
70)	Bromoform	9.92	173	17896	11.5694	ppb		97
72)	Isopropylbenzene	10.21	105	168035	9.8426	ppb		99
73)	1,1,2,2-Tetrachloroethane	6.17	83	42244	10.1299	ppb		96
74)	1,2,3-Trichloropropane	10.66	110	10741	10.7430	ppb		97
75)	t-1,4-Dichloro-2-Butene	10.71	53	4046	10.5052	ppb		97
76)	Bromobenzene	10.56	156	47364	10.2185	ppb		97
77)	n-Propylbenzene	10.78	91	188030	9.8445	ppb		99
78)	4-Ethyltoluene	10.94	105	173567	10.2858	ppb		97
79)	2-Chlorotoluene	10.85	91	113400	9.6154	ppb		98
80)	1,3,5-Trimethylbenzene	11.04	105	141764	9.8738	ppb		97
81)	4-Chlorotoluene	11.01	91	134711	9.8069	ppb		98
82)	Tert-Butylbenzene	11.48	119	122637	9.5895	ppb		96
83)	1,2,4-Trimethylbenzene	11.55	105	142552	9.8506	ppb		99
84)	Sec-Butylbenzene	11.79	105	168714	9.9615	ppb		97
85)	p-Isopropyltoluene	12.01	119	78368	10.0316	ppb		97
86)	Benzyl Chloride	12.23	91	10051	2.8431	ppb		97
87)	1,3-DCB	11.89	146	87151	10.3503	ppb		99
88)	1,4-DCB	12.02	146	44560	10.4009	ppb		99
89)	n-Butylbenzene	12.59	91	64696	10.1762	ppb		98
90)	1,2-DCB	12.53	146	81035	10.4245	ppb		98
91)	Hexachloroethane	12.89	117	7929	10.8661	ppb		90
92)	1,2-Dibromo-3-chloropropan	13.64	157	6354	11.2513	ppb	#	85
93)	1,2,4-Trichlorobenzene	14.84	180	50498	10.3415	ppb		97
94)	Hexachlorobutadiene	15.14	225	25747	10.1980	ppb		91
95)	Naphthalene	15.18	128	75513	9.2627	ppb		99
96)	1,2,3-Trichlorobenzene	15.53	180	41094	9.7265	ppb		97

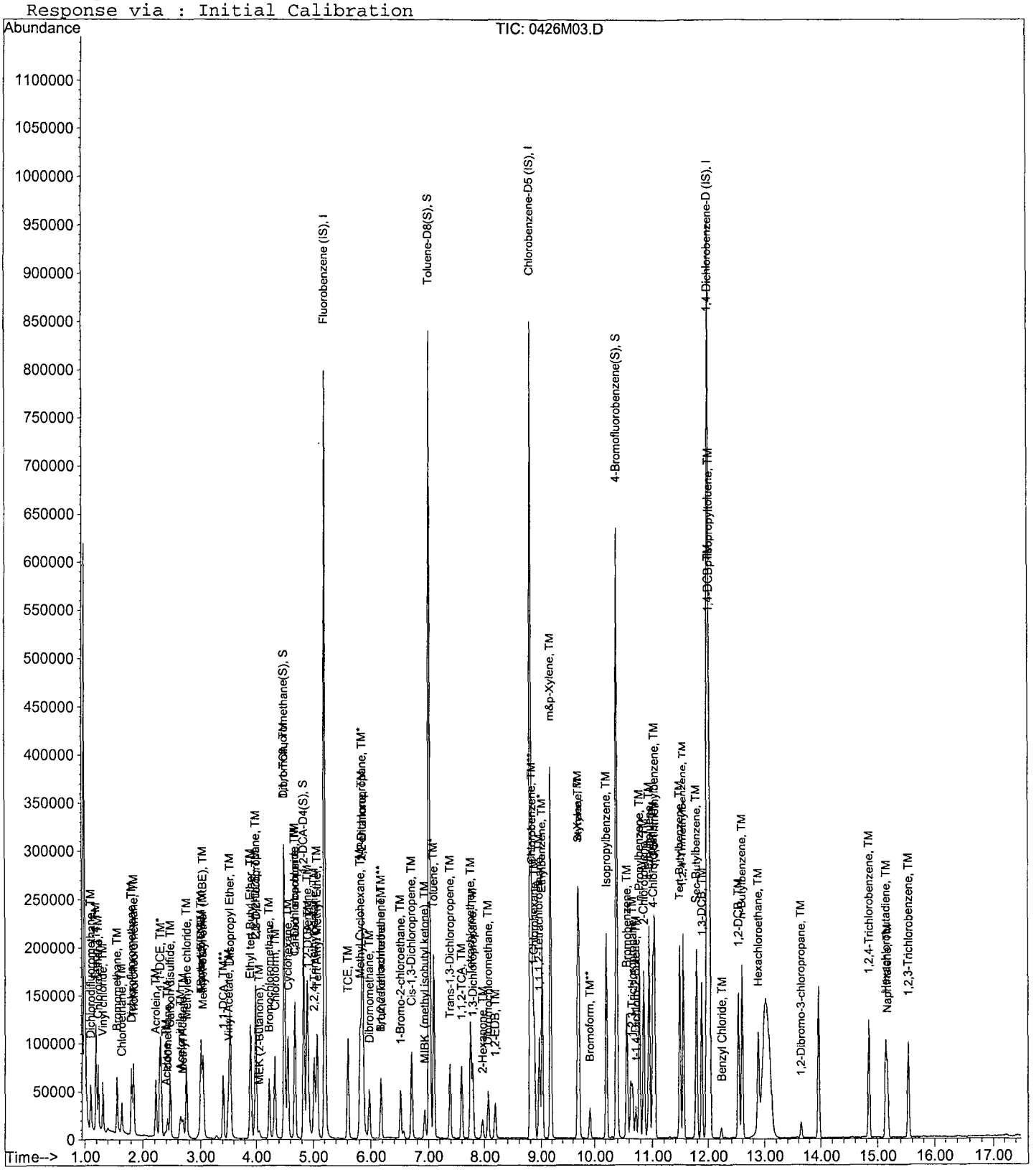
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M03.D Vial: 2
Acq On : 26 Apr 19 10:04 Operator: PM,DG,SV,CMM,KV
Sample : 190426A CCV 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 26 10:24 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Date Analyzed: 04/26/19
Matrix: Instrument: Max
Initial Cal. Date: 03/24/19
Data File: 0426m23.D

		Compound	MEAN	CCRF	%D	%Drift	
1	I	Fluorobenzene (IS)	ISTD			I	
2	TM	Dichlorodifluoromethane	0.0688	0.0767	11	TM	
3	TM	Freon 114	0.0947	0.0957	1.1	TM	
4	TM**L	Chloromethane	0.1096	0.0885	19	TM**L	16
5	TM*	Vinyl chloride	0.1135	0.1395	23	TM*	
6	TM	Bromomethane	0.0713	0.0821	15	TM	
7	TML	Chloroethane	0.1187	0.0877	26	TML	7.8
8	TM	Dichlorofluoromethane	0.1967	0.1896	3.6	TM	
9	TM	Trichlorofluoromethane	0.1432	0.1707	19	TM	
10	TM	Acrolein	0.0032	0.0074	133	TM	* NT
11	TML	Acetone	0.0350	0.0267	24	TML	0.79
12	TM	Freon-113	0.0821	0.0738	10	TM	
13	TM*	1,1-DCE	0.1421	0.1338	5.8	TM*	
14	TM	Acetonitrile	0.0105	0.0106	0.95	TM	
15	TM	t-Butanol	0.0062	0.0069	11	TM	
16	TM	Methyl Acetate	0.0342	0.0347	1.5	TM	
17	TML	Iodomethane	0.0895	0.0696	22	TML	30
18	TM	Acrylonitrile	0.0311	0.0331	6.2	TM	
19	TM	Methylene chloride	0.1107	0.1086	2.0	TM	
20	TM	Carbon disulfide	0.2669	0.2750	3.0	TM	
21	TM	Methyl t-butyl ether (MtBE)	0.1292	0.1433	11	TM	
22	TM	Trans-1,2-DCE	0.1005	0.1035	3.0	TM	
23	TM	Diisopropyl Ether	0.3806	0.3910	2.7	TM	
24	TM**	1,1-DCA	0.1975	0.2049	3.8	TM**	
25	TM	Vinyl Acetate	0.1000	0.1001	0.01	TM	
26	TM	Ethyl tert Butyl Ether	0.3246	0.3550	9.4	TM	
27	TML	MEK (2-Butanone)	0.0367	0.0373	1.6	TML	5.3
28	TM	Cis-1,2-DCE	0.1213	0.1250	3.1	TM	
29	TM	2,2-Dichloropropane	0.1642	0.1505	8.3	TM	
30	TM*	Chloroform	0.1948	0.1954	0.29	TM*	
31	TM	Bromochloromethane	0.0563	0.0584	3.6	TM	
32	S	Dibromofluoromethane(S)	0.1912	0.1901	0.60	S	
33	TM	1,1,1-TCA	0.1646	0.1648	0.11	TM	
34	TM	Cyclohexane	0.1028	0.0928	9.7	TM	
35	TM	1,1-Dichloropropene	0.1357	0.1400	3.2	TM	
36	TM	2,2,4-Trimethylpentane	0.2855	0.2663	6.7	TM	
37	S	1,2-DCA-D4(S)	0.2203	0.1994	9.5	S	
38	TM	Carbon Tetrachloride	0.1098	0.1242	13	TM	
39	TM	Tert Amyl Methyl Ether	0.2801	0.3165	13	TM	
40	TM	1,2-DCA	0.1477	0.1409	4.6	TM	
		Average			11.4		

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Date Analyzed: 04/26/19
Matrix: 0 Instrument: Max
Cal. Date: 03/24/19
Data File: 0426m23.D

		Compound	MEAN	CCRF	%D		%Drift
41	TM	Benzene	0.4494	0.4562	1.5	TM	
42	TM	TCE	0.1157	0.1172	1.3	TM	
43	TM	2-Pentanone	0.0599	0.0573	4.4	TM	
44	TM*	1,2-Dichloropropane	0.1120	0.1138	1.6	TM*	
45	TM	Bromodichloromethane	0.1300	0.1354	4.2	TM	
46	TM	Methyl Cyclohexane	0.1617	0.1612	0.28	TM	
47	TM	Dibromomethane	0.0576	0.0601	4.3	TM	
48	TM	MIBK (methyl isobutyl ketone)	0.0832	0.0785	5.6	TM	
49	TM	1-Bromo-2-chloroethane	0.0724	0.0737	1.9	TM	
50	TM	Cis-1,3-Dichloropropene	0.1738	0.1758	1.2	TM	
51	TM*	Toluene	0.5041	0.5198	3.1	TM*	
52	TM	Trans-1,3-Dichloropropene	0.1454	0.1431	1.6	TM	
53	TM	1,1,2-TCA	0.0713	0.0731	2.5	TM	
54	TM	2-Hexanone	0.0542	0.0517	4.6	TM	
55	I	Chlorobenzene-D5 (IS)	ISTD			I	
56	S	Toluene-D8(S)	1.110	1.073	3.3	S	
57	TM	1,2-EDB	0.1136	0.1167	2.7	TM	
58	TM	Tetrachloroethene	0.1375	0.1411	2.6	TM	
59	TM	1-Chlorohexane	0.1904	0.1918	0.73	TM	
60	TM	1,1,1,2-Tetrachloroethane	0.1355	0.1499	11	TM	
61	TM	m&p-Xylene	0.2814	0.2948	4.7	TM	
62	TM	o-Xylene	0.2867	0.2990	4.3	TM	
63	TM	Styrene	0.4705	0.4835	2.8	TM	
64	S	4-Bromofluorobenzene(S)	0.4073	0.3957	2.9	S	
65	TM	1,3-Dichloropropane	0.2079	0.2176	4.7	TM	
66	TM	Dibromochloromethane	0.1079	0.1231	14	TM	
67	TM**	Chlorobenzene	0.4361	0.4384	0.52	TM**	
68	TM*	Ethylbenzene	0.7104	0.7305	2.8	TM*	
69	TM**L	Bromoform	0.0599	0.0747	25	TM**L	12
70	I	1,4-Dichlorobenzene-D (IS)	ISTD			I	
71	TM	Isopropylbenzene	1.373	1.398	1.8	TM	
72	TM**	1,1,2,2-Tetrachloroethane	0.3354	0.3454	3.0	TM**	
73	TM	1,2,3-Trichloropropane	0.0804	0.0832	3.5	TM	
74	TM	t-1,4-Dichloro-2-Butene	0.0310	0.0269	13	TM	
75	TM	Bromobenzene	0.3728	0.3843	3.1	TM	
76	TM	n-Propylbenzene	1.536	1.519	1.1	TM	
77	TM	4-Ethyltoluene	1.357	1.432	5.5	TM	
78	TM	2-Chlorotoluene	0.9486	0.9164	3.4	TM	
79	TM	1,3,5-Trimethylbenzene	1.155	1.141	1.2	TM	
80	TM	4-Chlorotoluene	1.105	1.089	1.4	TM	
		Average			4.1		

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Date Analyzed: 04/26/19
Matrix: 0 Instrument: Max
Cal. Date: 03/24/19
Data File: 0426m23.D

		Compound	MEAN	CCRF	%D		%Drift	
81	TM	Tert-Butylbenzene	1.029	1.005	2.3	TM		
82	TM	1,2,4-Trimethylbenzene	1.164	1.177	1.1	TM		
83	TM	Sec-Butylbenzene	1.362	1.320	3.1	TM		
84	TM	p-Isopropyltoluene	0.6284	0.6159	2.0	TM		
85	TM	Benzyl Chloride	0.2844	0.0529	81	TM		* NT
86	TM	1,3-DCB	0.6773	0.6954	2.7	TM		
87	TM	1,4-DCB	0.3446	0.3511	1.9	TM		
88	TM	n-Butylbenzene	0.5114	0.4655	9.0	TM		
89	TM	1,2-DCB	0.6253	0.6361	1.7	TM		
90	TML	Hexachloroethane	0.0554	0.0667	20	TML	13	
91	TM	1,2-Dibromo-3-chloropropane	0.0454	0.0466	2.7	TM		
92	TM	1,2,4-Trichlorobenzene	0.3928	0.3266	17	TM		
93	TM	Hexachlorobutadiene	0.2031	0.1821	10	TM		
94	TM	Naphthalene	0.6557	0.4308	34	TM		
95	TM	1,2,3-Trichlorobenzene	0.3398	0.2380	30	TM		
96								
97								
98								
99								
100								
101								
102								
103								
104								
105								
106								
107								
108								
109								
110								
111								
112								
113								
114								
115								
116								
117								
118								
119								
120								
		Average			14.6			

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426m23.D Vial: 22
Acq On : 26 Apr 19 19:33 Operator: PM,DG,SV,CMM,KV
Sample : Ending CCV 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:24 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.21	96	790712	25.0000	ppb		-0.11
56) Chlorobenzene-D5 (IS)	8.80	117	601605	25.0000	ppb		-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	310024	25.0000	ppb		-0.13
System Monitoring Compounds							
32) Dibromofluoromethane(S)	4.49	111	150316	24.8500	ppb		-0.11
Spiked Amount 25.000			Recovery = 99.400%				
37) 1,2-DCA-D4(S)	4.83	65	157682	22.6273	ppb		-0.11
Spiked Amount 25.000			Recovery = 90.508%				
57) Toluene-D8(S)	7.01	98	645444	24.1629	ppb		-0.12
Spiked Amount 25.000			Recovery = 96.652%				
65) 4-Bromofluorobenzene(S)	10.39	95	238056	24.2860	ppb		-0.13
Spiked Amount 25.000			Recovery = 97.144%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.10	85	24248	11.1387	ppb		96
3) Freon 114	1.19	85	30271	10.1052	ppb		92
4) Chloromethane	1.24	50	27984	8.4452	ppb		100
5) Vinyl chloride	1.31	62	44122	12.2928	ppb		90
6) Bromomethane	1.55	94	25977	11.5135	ppb		95
7) Chloroethane	1.64	64	27726	10.7841	ppb		91
8) Dichlorofluoromethane	1.81	67	59960	9.6375	ppb		98
9) Trichlorofluoromethane	1.85	101	53982	11.9158	ppb		96
10) Acrolein	2.22	56	29376	291.1628	ppb		95
11) Acetone	2.37	43	8452	10.0787	ppb		94
12) Freon-113	2.31	101	23353	8.9923	ppb		95
13) 1,1-DCE	2.29	61	42323	9.4161	ppb		96
14) Acetonitrile	2.62	41	42022	126.1815	ppb		95
15) t-Butanol	2.93	59	27324	139.1916	ppb	#	86
16) Methyl Acetate	2.69	43	10984	10.1535	ppb		99
17) Iodomethane	2.42	142	22023	7.0213	ppb		98
18) Acrylonitrile	2.99	53	10456	10.6191	ppb		88
19) Methylene chloride	2.75	84	34333	9.8026	ppb		96
20) Carbon disulfide	2.47	76	86975	10.3022	ppb		99
21) Methyl t-butyl ether (MtBE	3.04	73	45328	11.0928	ppb		97
22) Trans-1,2-DCE	3.01	96	32734	10.2997	ppb		94
23) Diisopropyl Ether	3.54	45	123658	10.2719	ppb		98
24) 1,1-DCA	3.41	63	64801	10.3762	ppb		99
25) Vinyl Acetate	3.53	43	31648	10.0014	ppb		100
26) Ethyl tert Butyl Ether	3.90	59	112281	10.9370	ppb		98
27) MEK (2-Butanone)	4.04	43	11787	10.5315	ppb		93
28) Cis-1,2-DCE	4.00	96	39544	10.3075	ppb		91
29) 2,2-Dichloropropane	3.99	77	47607	9.1672	ppb		94
30) Chloroform	4.33	83	61789	10.0293	ppb		95
31) Bromochloromethane	4.23	128	18460	10.3624	ppb		95
33) 1,1,1-TCA	4.50	97	52117	10.0107	ppb		93
34) Cyclohexane	4.56	41	29344	9.0288	ppb		93
35) 1,1-Dichloropropene	4.68	75	44271	10.3170	ppb		98
36) 2,2,4-Trimethylpentane	5.02	57	84220	9.3277	ppb		99
38) Carbon Tetrachloride	4.68	117	39285	11.3137	ppb		99
39) Tert Amyl Methyl Ether	5.07	73	100108	11.2996	ppb		98
40) 1,2-DCA	4.92	62	44577	9.5411	ppb		99
41) Benzene	4.89	78	144304	10.1513	ppb		99
42) TCE	5.61	95	37067	10.1259	ppb		98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426m23.D
Acq On : 26 Apr 19 19:33
Sample : Ending CCV 10ug/L
Misc : IS,Surr 03/24/19

Vial: 22
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:24 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
43)	2-Pentanone	5.85	43	226524	119.4917	ppb		99
44)	1,2-Dichloropropane	5.85	63	35979	10.1568	ppb	#	95
45)	Bromodichloromethane	6.17	83	42833	10.4178	ppb		98
46)	Methyl Cyclohexane	5.82	83	50997	9.9717	ppb		96
47)	Dibromomethane	5.97	93	19006	10.4296	ppb		97
48)	MIBK (methyl isobutyl ket	6.92	43	24827	9.4376	ppb	#	91
49)	1-Bromo-2-chloroethane	6.51	63	23312	10.1859	ppb		97
51)	Cis-1,3-Dichloropropene	6.70	75	55589	10.1153	ppb		99
52)	Toluene	7.10	91	164404	10.3107	ppb		96
53)	Trans-1,3-Dichloropropene	7.38	75	45255	9.8432	ppb		97
54)	1,1,2-TCA	7.60	83	23125	10.2507	ppb		97
55)	2-Hexanone	7.96	43	16365	9.5424	ppb		99
58)	1,2-EDB	8.19	107	28076	10.2725	ppb		97
59)	Tetrachloroethene	7.76	164	33961	10.2624	ppb		95
60)	1-Chlorohexane	8.87	91	46162	10.0726	ppb		98
61)	1,1,1,2-Tetrachloroethane	8.96	131	36077	11.0650	ppb		91
62)	m&p-Xylene	9.17	106	141874	20.9487	ppb		100
63)	o-Xylene	9.69	106	71946	10.4277	ppb		92
64)	Styrene	9.71	104	116348	10.2755	ppb		94
66)	1,3-Dichloropropane	7.79	76	52353	10.4657	ppb		100
67)	Dibromochloromethane	8.06	129	29625	11.4065	ppb		93
68)	Chlorobenzene	8.84	112	105493	10.0523	ppb		97
69)	Ethylbenzene	9.01	91	175792	10.2826	ppb		95
70)	Bromoform	9.92	173	17983	11.2405	ppb		100
72)	Isopropylbenzene	10.21	105	173412	10.1831	ppb		98
73)	1,1,2,2-Tetrachloroethane	6.17	83	42833	10.2970	ppb		98
74)	1,2,3-Trichloropropane	10.66	110	10318	10.3459	ppb		87
75)	t-1,4-Dichloro-2-Butene	10.71	53	3334	8.6783	ppb		80
76)	Bromobenzene	10.56	156	47661	10.3084	ppb		94
77)	n-Propylbenzene	10.78	91	188330	9.8850	ppb		97
78)	4-Ethyltoluene	10.94	105	177573	10.5497	ppb		98
79)	2-Chlorotoluene	10.85	91	113646	9.6605	ppb		100
80)	1,3,5-Trimethylbenzene	11.04	105	141441	9.8761	ppb		96
81)	4-Chlorotoluene	11.01	91	135102	9.8601	ppb		99
82)	Tert-Butylbenzene	11.48	119	124611	9.7684	ppb		93
83)	1,2,4-Trimethylbenzene	11.55	105	145943	10.1103	ppb		99
84)	Sec-Butylbenzene	11.79	105	163746	9.6925	ppb		93
85)	p-Isopropyltoluene	12.01	119	76376	9.8013	ppb		97
86)	Benzyl Chloride	12.23	91	6559	1.8600	ppb		97
87)	1,3-DCB	11.89	146	86233	10.2670	ppb		97
88)	1,4-DCB	12.02	146	43536	10.1875	ppb		98
89)	n-Butylbenzene	12.59	91	57728	9.1031	ppb		99
90)	1,2-DCB	12.53	146	78880	10.1728	ppb		98
91)	Hexachloroethane	12.88	117	8270	11.2649	ppb		87
92)	1,2-Dibromo-3-chloropropan	13.65	157	5784	10.2677	ppb		91
93)	1,2,4-Trichlorobenzene	14.84	180	40507	8.3164	ppb		99
94)	Hexachlorobutadiene	15.15	225	22582	8.9669	ppb		96
95)	Naphthalene	15.18	128	53420	6.5692	ppb		96
96)	1,2,3-Trichlorobenzene	15.53	180	29515	7.0035	ppb		92

(#) = qualifier out of range (m) = manual integration

Quantitation Report

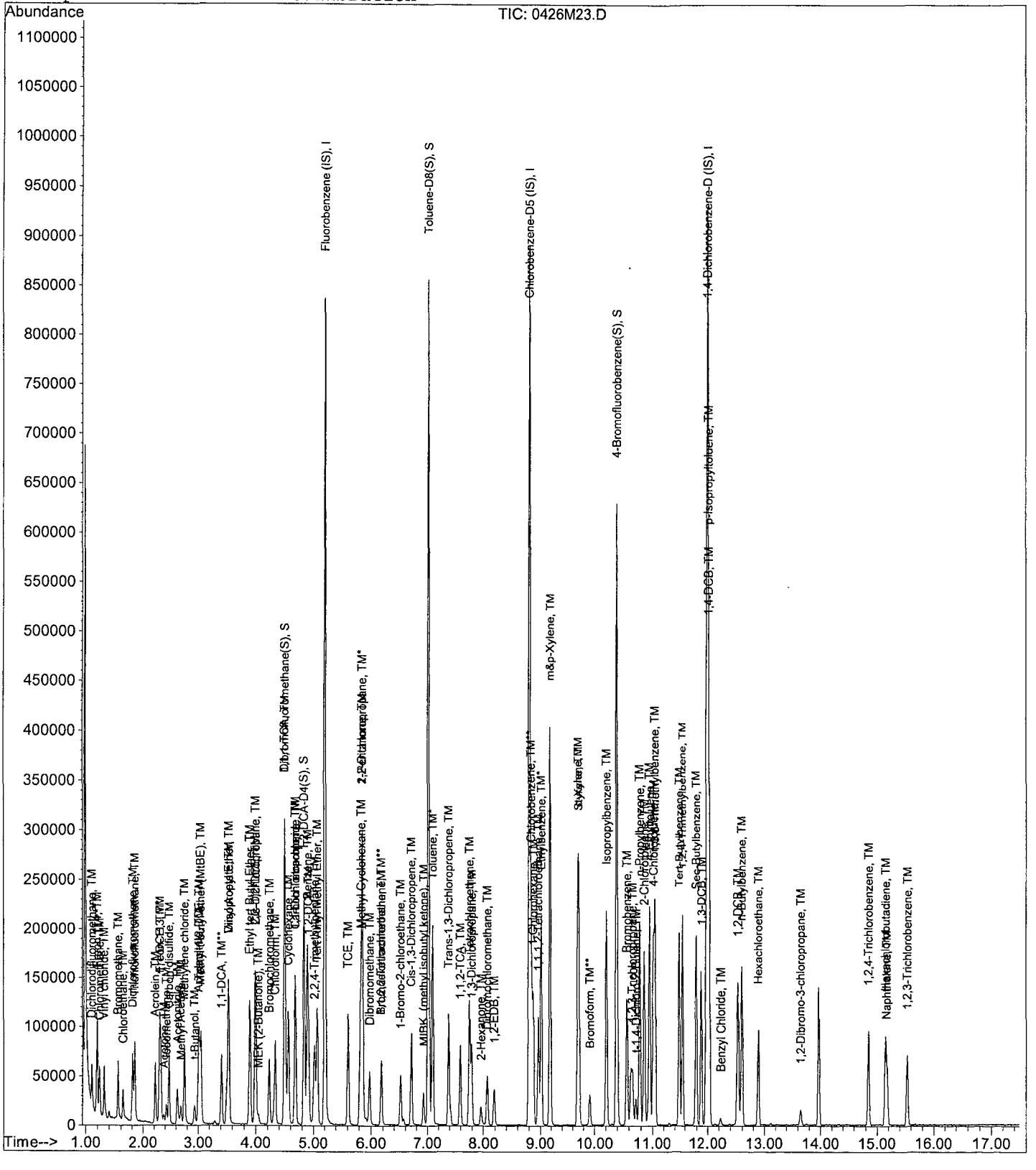
Data File : M:\MAX\DATA\M190401\0426m23.D
Acq On : 26 Apr 19 19:33
Sample : Ending CCV 10ug/L
Misc : IS,Surr 03/24/19

Vial: 22
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:24 2019

Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



ORGANICS
Raw Data

Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426M11.D Vial: 10
Acq On : 26 Apr 19 13:51 Operator: PM,DG,SV,CMM,KV
Sample : AZ90099W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:28 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	772742	25.0000 ppb	-0.11
56) Chlorobenzene-D5 (IS)	8.80	117	577606	25.0000 ppb	-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	291681	25.0000 ppb	-0.13
System Monitoring Compounds					
32) Dibromofluoromethane(S)	4.49	111	151770	25.6739 ppb	-0.11
Spiked Amount 25.000			Recovery = 102.696%		
37) 1,2-DCA-D4(S)	4.83	65	158831	23.3222 ppb	-0.11
Spiked Amount 25.000			Recovery = 93.288%		
57) Toluene-D8(S)	7.01	98	631302	24.6155 ppb	-0.12
Spiked Amount 25.000			Recovery = 98.460%		
65) 4-Bromofluorobenzene(S)	10.39	95	230416	24.4832 ppb	-0.13
Spiked Amount 25.000			Recovery = 97.932%		

Target Compounds Qvalue

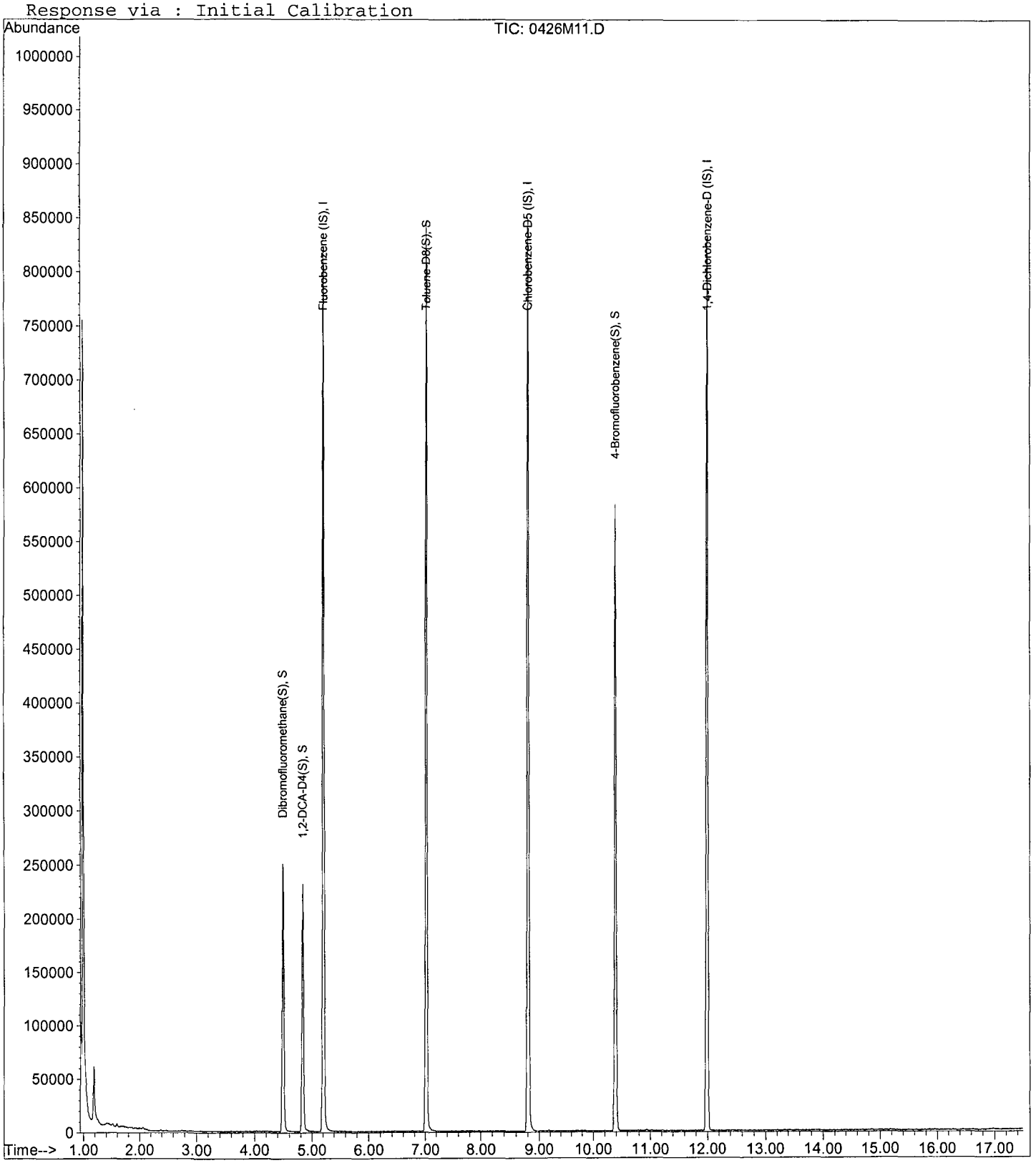
(#) = qualifier out of range (m) = manual integration

Data File : M:\MAX\DATA\M190401\0426M11.D
Acq On : 26 Apr 19 13:51
Sample : AZ90099W01
Misc : IS,Surr 03/24/19

Vial: 10
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:28 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426M16.D
Acq On : 26 Apr 19 16:13
Sample : AZ90100W01
Misc : IS,Surr 03/24/19

Vial: 15
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:33 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	752112	25.0000 ppb	-0.11
56) Chlorobenzene-D5 (IS)	8.80	117	568075	25.0000 ppb	-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	290083	25.0000 ppb	-0.13
System Monitoring Compounds					
32) Dibromofluoromethane(S)	4.49	111	147172	25.5789 ppb	-0.11
Spiked Amount 25.000			Recovery = 102.316%		
37) 1,2-DCA-D4(S)	4.84	65	156086	23.5478 ppb	-0.11
Spiked Amount 25.000			Recovery = 94.192%		
57) Toluene-D8(S)	7.01	98	617627	24.4863 ppb	-0.12
Spiked Amount 25.000			Recovery = 97.944%		
65) 4-Bromofluorobenzene(S)	10.39	95	227664	24.5967 ppb	-0.13
Spiked Amount 25.000			Recovery = 98.388%		

Target Compounds Qvalue

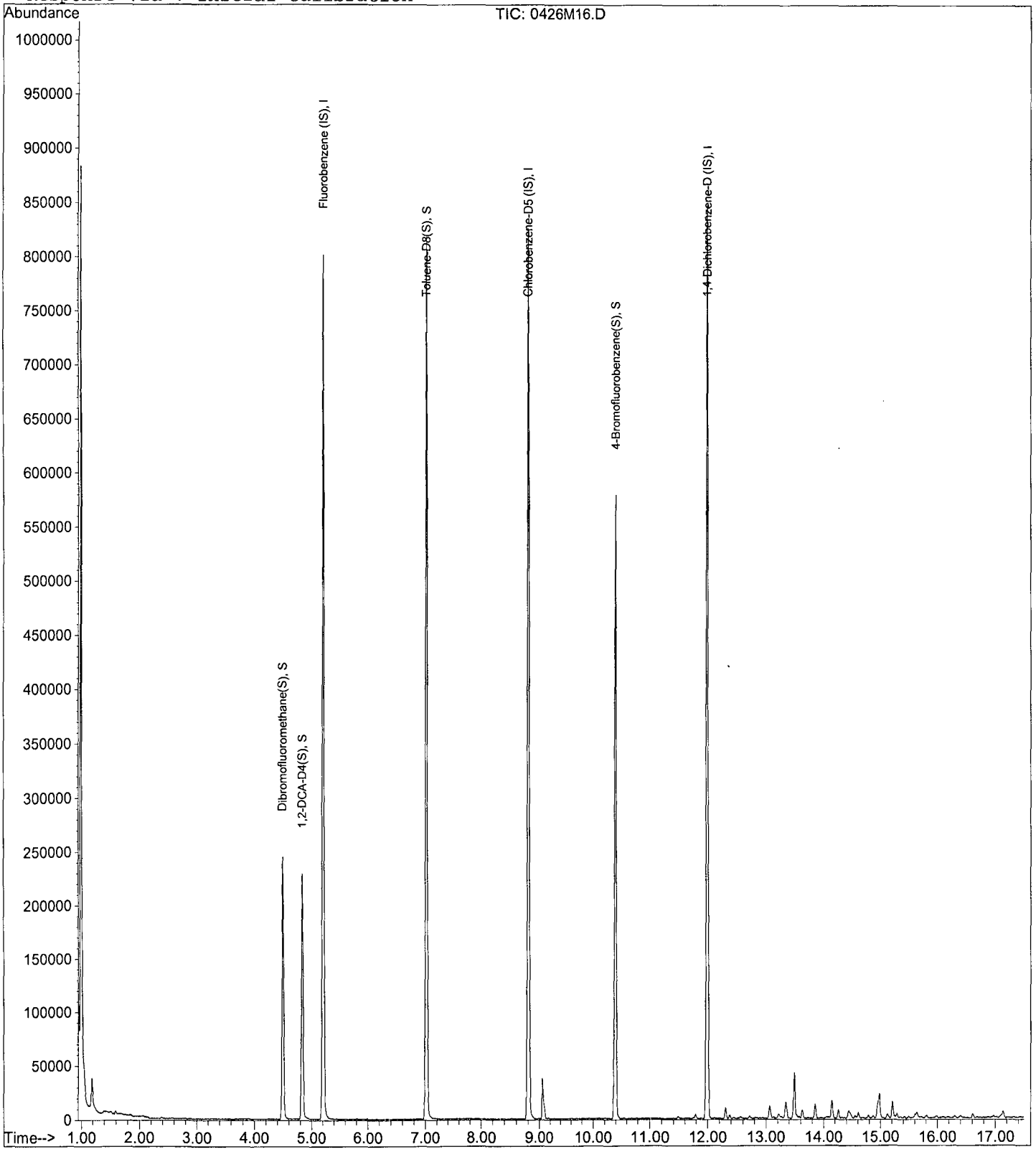
(#) = qualifier out of range (m) = manual integration

Data File : M:\MAX\DATA\M190401\0426M16.D
Acq On : 26 Apr 19 16:13
Sample : AZ90100W01
Misc : IS,Surr 03/24/19

Vial: 15
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:33 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426M12.D Vial: 11
Acq On : 26 Apr 19 14:19 Operator: PM,DG,SV,CMM,KV
Sample : AZ90101W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:31 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	752707	25.0000 ppb	-0.11
56) Chlorobenzene-D5 (IS)	8.80	117	568527	25.0000 ppb	-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	293966	25.0000 ppb	-0.13
System Monitoring Compounds					
32) Dibromofluoromethane(S)	4.49	111	145241	25.2234 ppb	-0.11
Spiked Amount 25.000			Recovery = 100.892%		
37) 1,2-DCA-D4(S)	4.83	65	156182	23.5436 ppb	-0.11
Spiked Amount 25.000			Recovery = 94.176%		
57) Toluene-D8(S)	7.02	98	612775	24.2746 ppb	-0.12
Spiked Amount 25.000			Recovery = 97.100%		
65) 4-Bromofluorobenzene(S)	10.39	95	223378	24.1145 ppb	-0.13
Spiked Amount 25.000			Recovery = 96.456%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

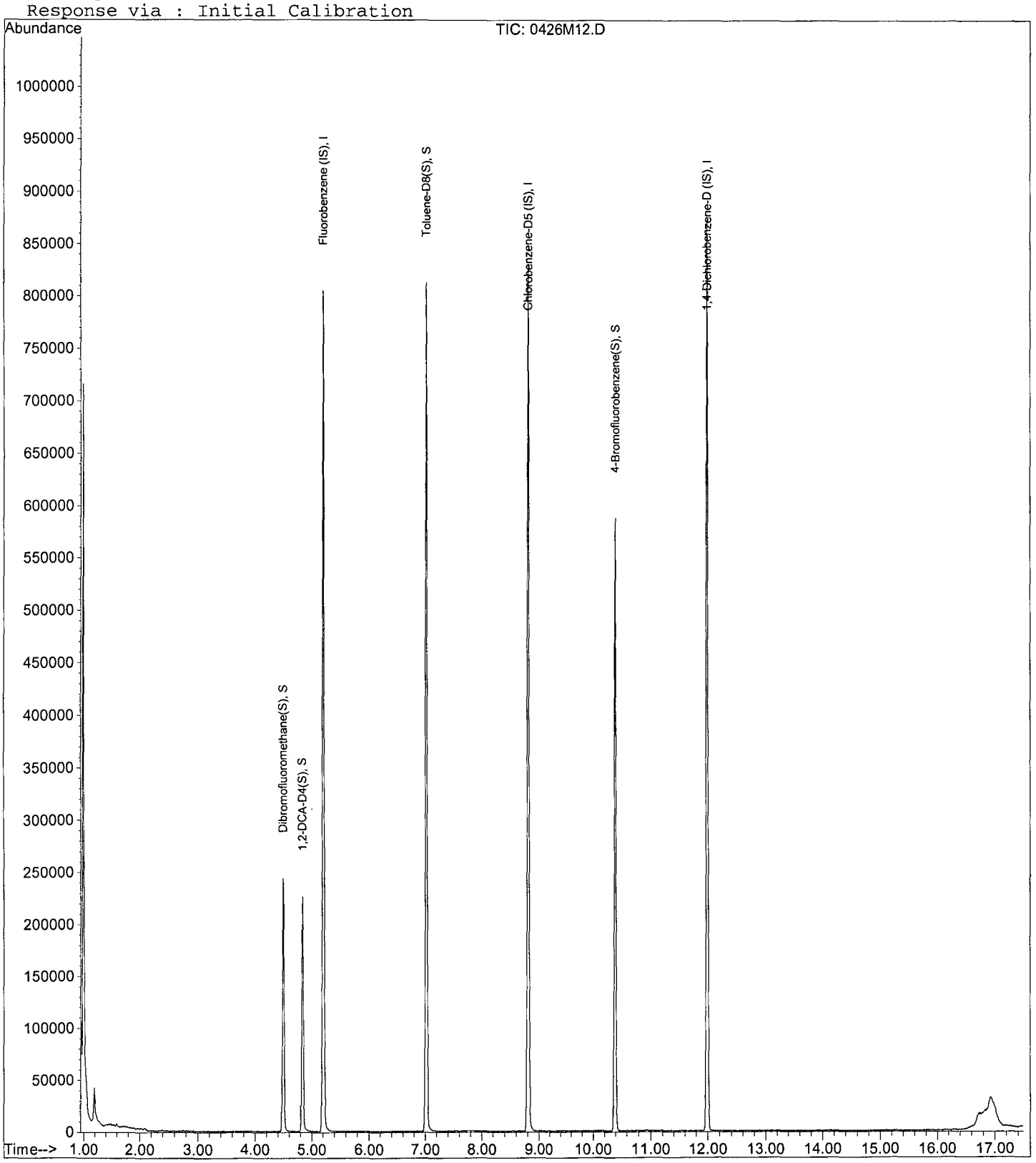
Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M12.D
Acq On : 26 Apr 19 14:19
Sample : AZ90101W01
Misc : IS,Surr 03/24/19

Vial: 11
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:31 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426M17.D Vial: 16
Acq On : 26 Apr 19 16:42 Operator: PM,DG,SV,CMM,KV
Sample : AZ90102W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:34 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	751383	25.0000 ppb	-0.11
56) Chlorobenzene-D5 (IS)	8.80	117	565484	25.0000 ppb	-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	304669	25.0000 ppb	-0.13
System Monitoring Compounds					
32) Dibromofluoromethane(S)	4.49	111	139210	24.2186 ppb	-0.11
Spiked Amount 25.000			Recovery =	96.876%	
37) 1,2-DCA-D4(S)	4.84	65	149246	22.5377 ppb	-0.11
Spiked Amount 25.000			Recovery =	90.152%	
57) Toluene-D8(S)	7.01	98	604192	24.0634 ppb	-0.12
Spiked Amount 25.000			Recovery =	96.252%	
65) 4-Bromofluorobenzene(S)	10.39	95	229875	24.9494 ppb	-0.13
Spiked Amount 25.000			Recovery =	99.796%	

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

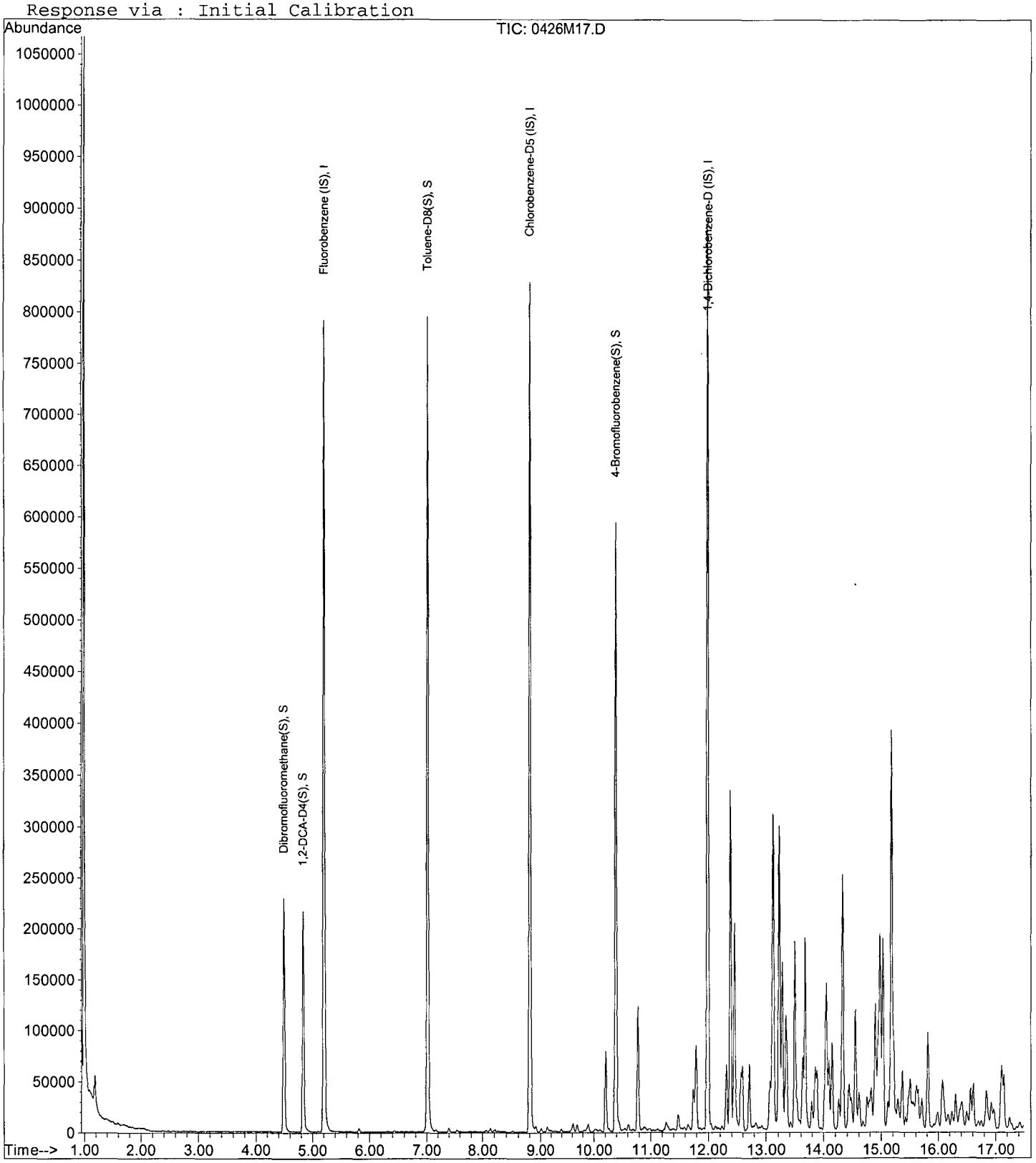
Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M17.D
Acq On : 26 Apr 19 16:42
Sample : AZ90102W01
Misc : IS,Surr 03/24/19

Vial: 16
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:34 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426M18.D Vial: 17
Acq On : 26 Apr 19 17:10 Operator: PM,DG,SV,CMM,KV
Sample : AZ90103W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:37 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	796671	25.0000 ppb	-0.11
56) Chlorobenzene-D5 (IS)	8.80	117	600842	25.0000 ppb	-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	302482	25.0000 ppb	-0.13
System Monitoring Compounds					
32) Dibromofluoromethane(S)	4.49	111	154620	25.3704 ppb	-0.11
Spiked Amount 25.000			Recovery = 101.480%		
37) 1,2-DCA-D4(S)	4.84	65	163874	23.3399 ppb	-0.11
Spiked Amount 25.000			Recovery = 93.360%		
57) Toluene-D8(S)	7.01	98	661490	24.7951 ppb	-0.12
Spiked Amount 25.000			Recovery = 99.180%		
65) 4-Bromofluorobenzene(S)	10.39	95	240978	24.6153 ppb	-0.13
Spiked Amount 25.000			Recovery = 98.460%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

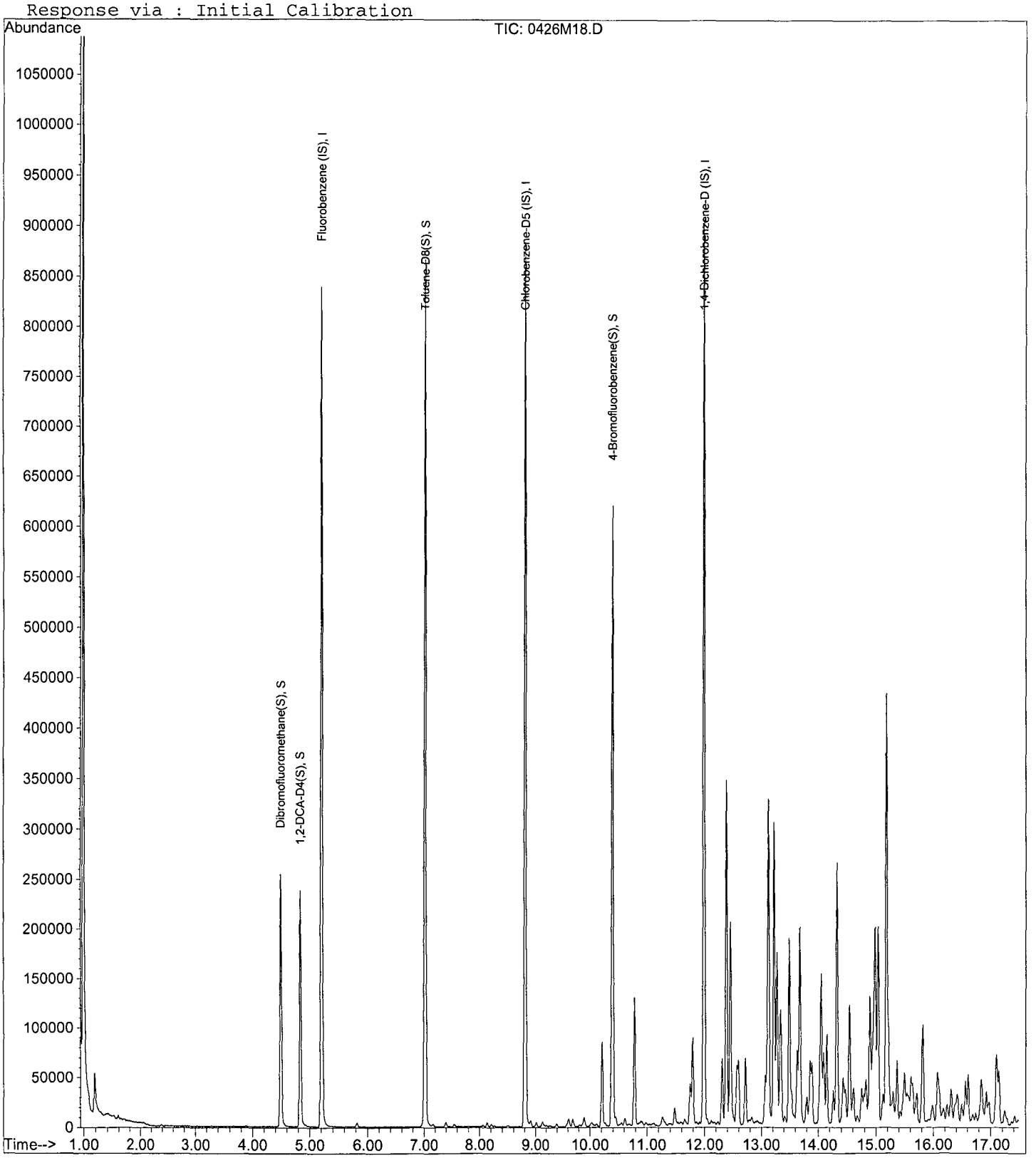
Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M18.D
Acq On : 26 Apr 19 17:10
Sample : AZ90103W01
Misc : IS,Surr 03/24/19

Vial: 17
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:37 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426M13.D Vial: 12
Acq On : 26 Apr 19 14:48 Operator: PM,DG,SV,CMM,KV
Sample : AZ90104W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:32 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	773615	25.0000	ppb	-0.11
56) Chlorobenzene-D5 (IS)	8.80	117	585975	25.0000	ppb	-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	290918	25.0000	ppb	-0.13
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.49	111	150931	25.5031	ppb	-0.11
Spiked Amount 25.000			Recovery = 102.012%			
37) 1,2-DCA-D4(S)	4.83	65	162629	23.8529	ppb	-0.11
Spiked Amount 25.000			Recovery = 95.412%			
57) Toluene-D8(S)	7.01	98	639931	24.5956	ppb	-0.12
Spiked Amount 25.000			Recovery = 98.384%			
65) 4-Bromofluorobenzene(S)	10.39	95	232421	24.3436	ppb	-0.13
Spiked Amount 25.000			Recovery = 97.376%			

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
0426M13.D M0324.M Mon Apr 29 14:11:37 2019 Page 1

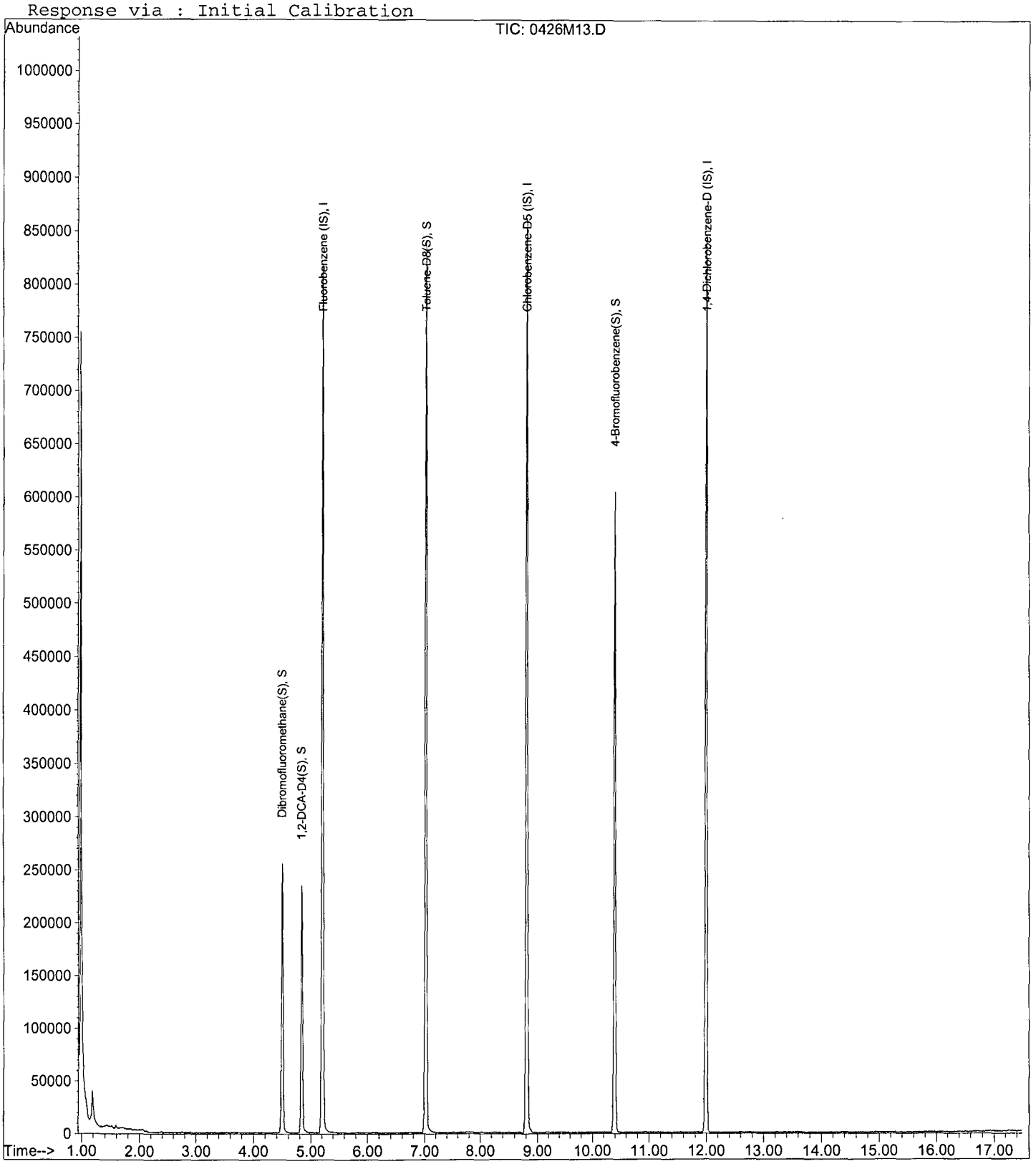
Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M13.D
Acq On : 26 Apr 19 14:48
Sample : AZ90104W01
Misc : IS,Surr 03/24/19

Vial: 12
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:32 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426M19.D Vial: 18
Acq On : 26 Apr 19 17:39 Operator: PM,DG,SV,CMM,KV
Sample : AZ90105W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:39 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	734280	25.0000	ppb	-0.11
56) Chlorobenzene-D5 (IS)	8.80	117	558644	25.0000	ppb	-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	295225	25.0000	ppb	-0.13
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.49	111	137628	24.5011	ppb	-0.11
Spiked Amount 25.000			Recovery =	98.004%		
37) 1,2-DCA-D4(S)	4.84	65	147807	22.8403	ppb	-0.11
Spiked Amount 25.000			Recovery =	91.360%		
57) Toluene-D8(S)	7.02	98	594676	23.9744	ppb	-0.12
Spiked Amount 25.000			Recovery =	95.896%		
65) 4-Bromofluorobenzene(S)	10.39	95	221993	24.3889	ppb	-0.13
Spiked Amount 25.000			Recovery =	97.556%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

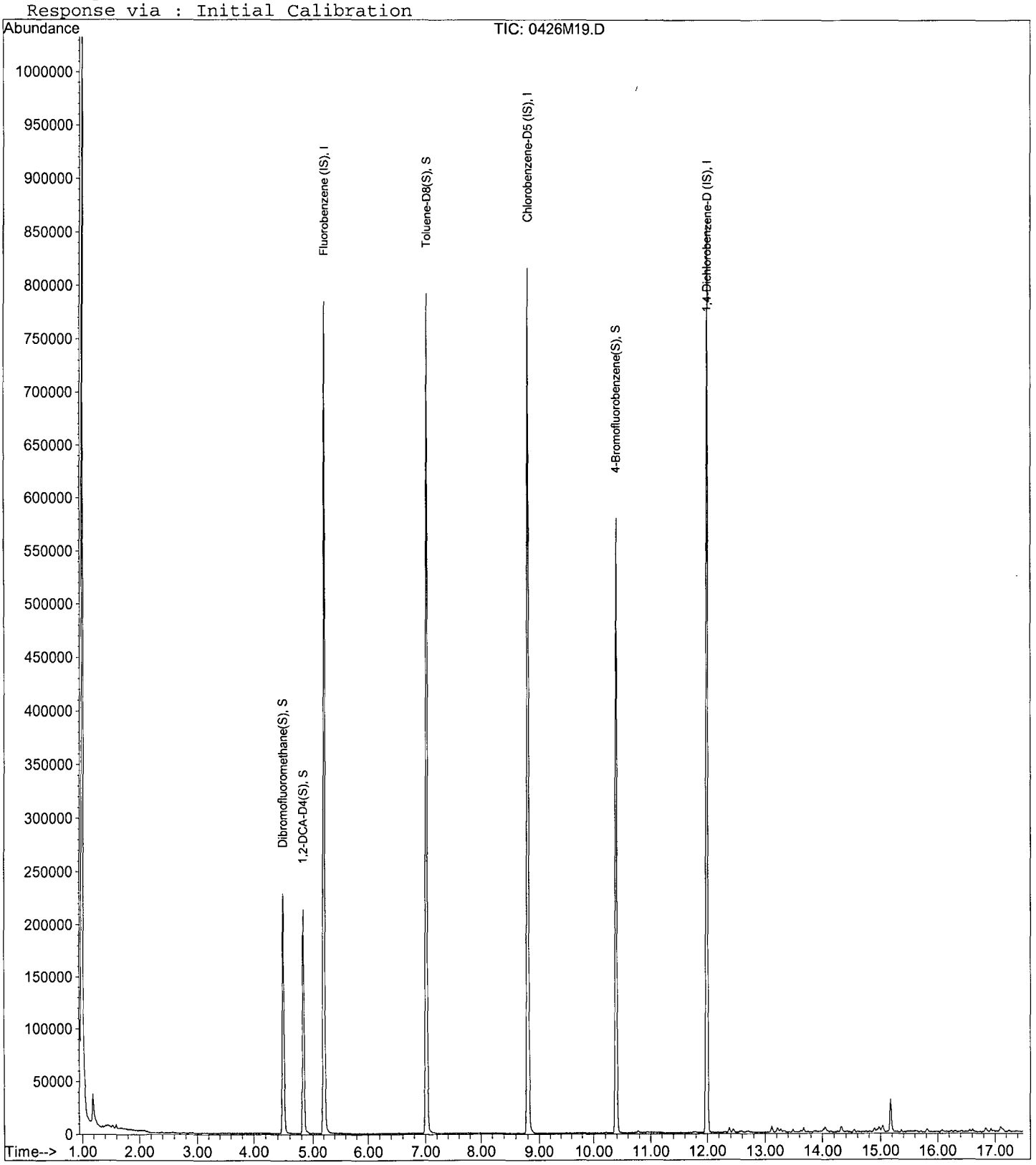
Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M19.D
Acq On : 26 Apr 19 17:39
Sample : AZ90105W01
Misc : IS,Surr 03/24/19

Vial: 18
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:39 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426M14.D Vial: 13
Acq On : 26 Apr 19 15:16 Operator: PM,DG,SV,CMM,KV
Sample : AZ90106W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:32 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	733032	25.0000 ppb	-0.11
56) Chlorobenzene-D5 (IS)	8.80	117	550923	25.0000 ppb	-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	287034	25.0000 ppb	-0.13
System Monitoring Compounds					
32) Dibromofluoromethane(S)	4.49	111	142873	25.4781 ppb	-0.11
Spiked Amount 25.000			Recovery = 101.912%		
37) 1,2-DCA-D4(S)	4.83	65	151328	23.4242 ppb	-0.11
Spiked Amount 25.000			Recovery = 93.696%		
57) Toluene-D8(S)	7.01	98	597605	24.4301 ppb	-0.12
Spiked Amount 25.000			Recovery = 97.720%		
65) 4-Bromofluorobenzene(S)	10.39	95	223941	24.9477 ppb	-0.13
Spiked Amount 25.000			Recovery = 99.792%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

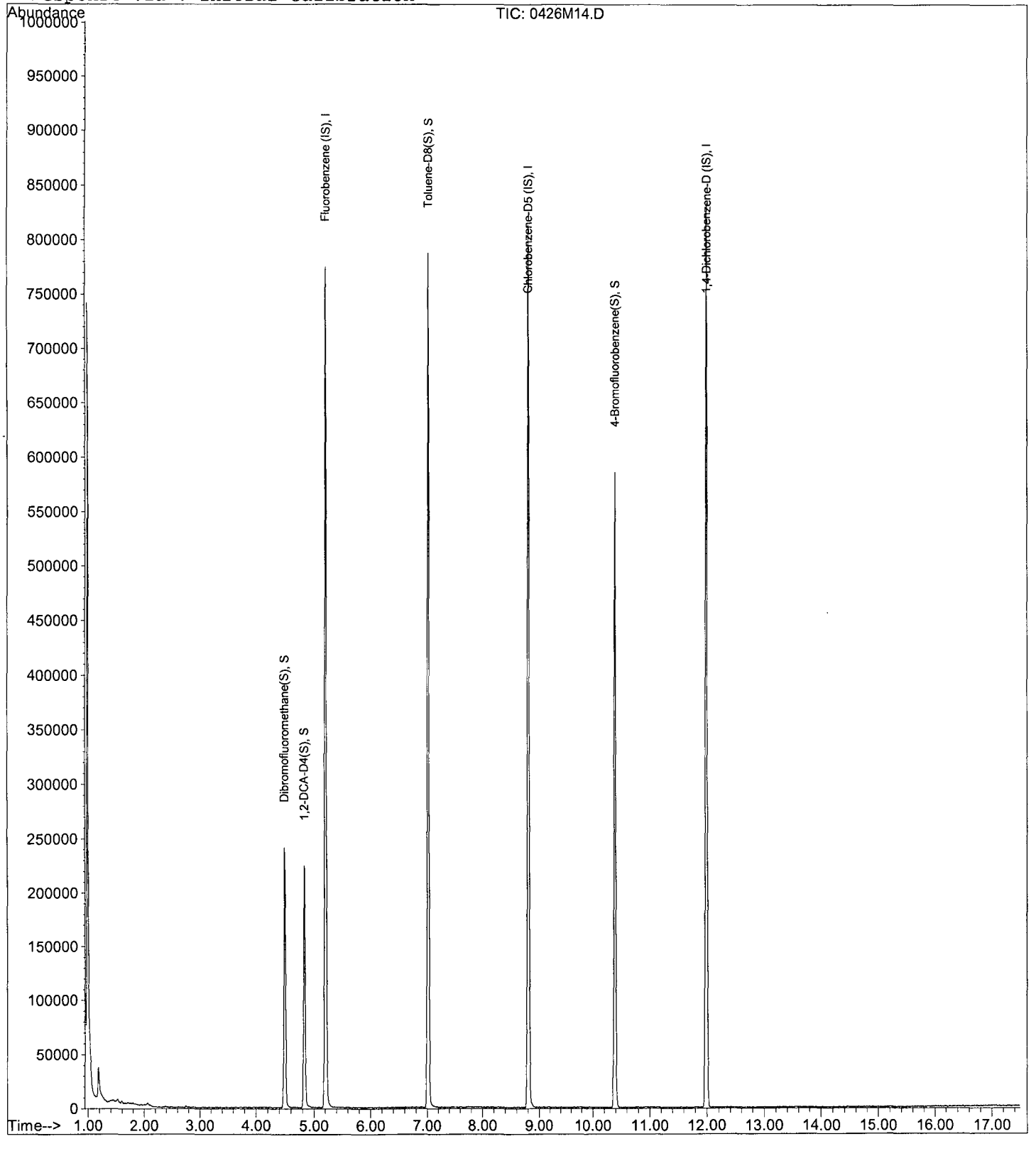
Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M14.D
Acq On : 26 Apr 19 15:16
Sample : AZ90106W01
Misc : IS,Surr 03/24/19

Vial: 13
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:32 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426M20.D Vial: 19
Acq On : 26 Apr 19 18:08 Operator: PM,DG,SV,CMM,KV
Sample : AZ90107W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:39 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	734488	25.0000	ppb	-0.11
56) Chlorobenzene-D5 (IS)	8.80	117	559504	25.0000	ppb	-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	287703	25.0000	ppb	-0.13
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.49	111	142211	25.3098	ppb	-0.11
Spiked Amount 25.000			Recovery = 101.240%			
37) 1,2-DCA-D4(S)	4.83	65	147817	22.8354	ppb	-0.11
Spiked Amount 25.000			Recovery = 91.340%			
57) Toluene-D8(S)	7.02	98	601043	24.1938	ppb	-0.12
Spiked Amount 25.000			Recovery = 96.776%			
65) 4-Bromofluorobenzene(S)	10.39	95	221908	24.3421	ppb	-0.13
Spiked Amount 25.000			Recovery = 97.368%			

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

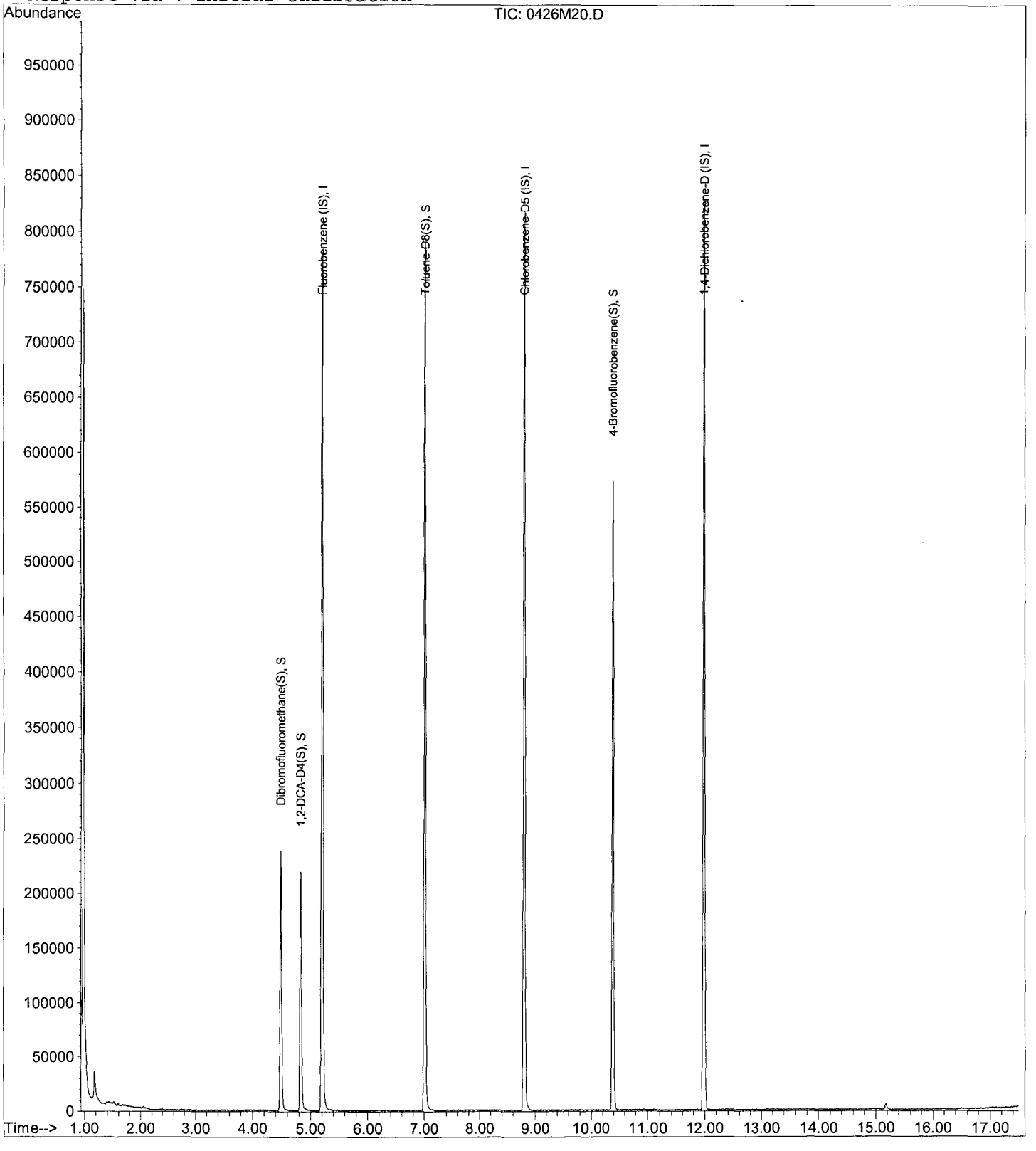
Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M20.D
Acq On : 26 Apr 19 18:08
Sample : AZ90107W01
Misc : IS,Surr 03/24/19

Vial: 19
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:39 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426M15.D Vial: 14
Acq On : 26 Apr 19 15:45 Operator: PM,DG,SV,CMM,KV
Sample : AZ90108W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:32 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	733023	25.0000 ppb	-0.11
56) Chlorobenzene-D5 (IS)	8.80	117	561505	25.0000 ppb	-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	287112	25.0000 ppb	-0.13
System Monitoring Compounds					
32) Dibromofluoromethane(S)	4.49	111	142504	25.4126 ppb	-0.11
Spiked Amount 25.000			Recovery = 101.652%		
37) 1,2-DCA-D4(S)	4.84	65	152766	23.6471 ppb	-0.11
Spiked Amount 25.000			Recovery = 94.588%		
57) Toluene-D8(S)	7.01	98	603641	24.2118 ppb	-0.12
Spiked Amount 25.000			Recovery = 96.848%		
65) 4-Bromofluorobenzene(S)	10.39	95	219617	24.0049 ppb	-0.13
Spiked Amount 25.000			Recovery = 96.020%		

Target Compounds Qvalue

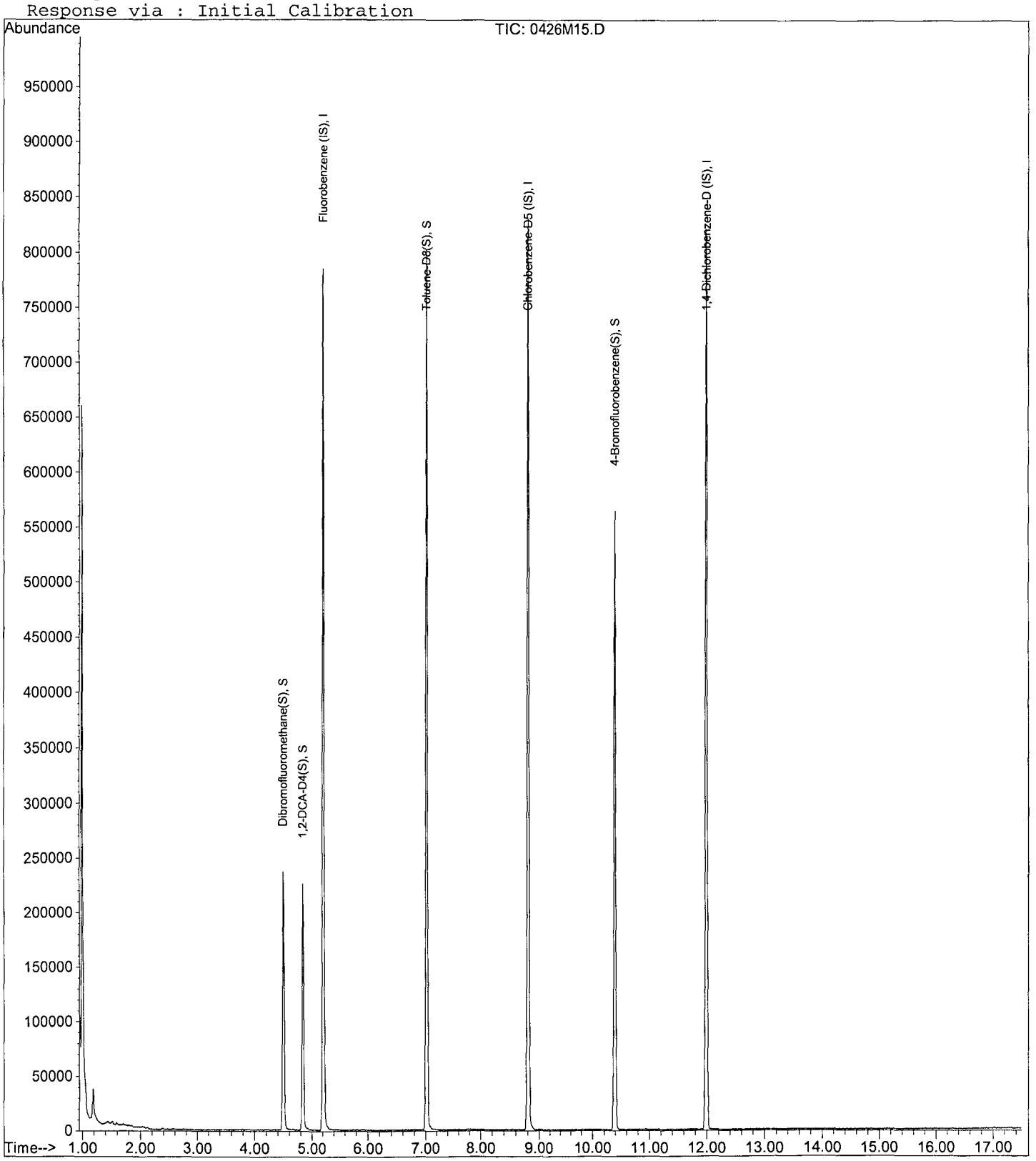
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M15.D Vial: 14
Acq On : 26 Apr 19 15:45 Operator: PM,DG,SV,CMM,KV
Sample : AZ90108W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:32 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426M21.D Vial: 20
Acq On : 26 Apr 19 18:36 Operator: PM,DG,SV,CMM,KV
Sample : AZ90109W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:40 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	771608	25.0000 ppb	-0.11
56) Chlorobenzene-D5 (IS)	8.80	117	583042	25.0000 ppb	-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	298723	25.0000 ppb	-0.13
System Monitoring Compounds					
32) Dibromofluoromethane(S)	4.49	111	148802	25.2088 ppb	-0.11
Spiked Amount 25.000			Recovery = 100.836%		
37) 1,2-DCA-D4(S)	4.83	65	155717	22.8985 ppb	-0.11
Spiked Amount 25.000			Recovery = 91.596%		
57) Toluene-D8(S)	7.02	98	627983	24.2578 ppb	-0.12
Spiked Amount 25.000			Recovery = 97.032%		
65) 4-Bromofluorobenzene(S)	10.39	95	229813	24.1915 ppb	-0.13
Spiked Amount 25.000			Recovery = 96.768%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

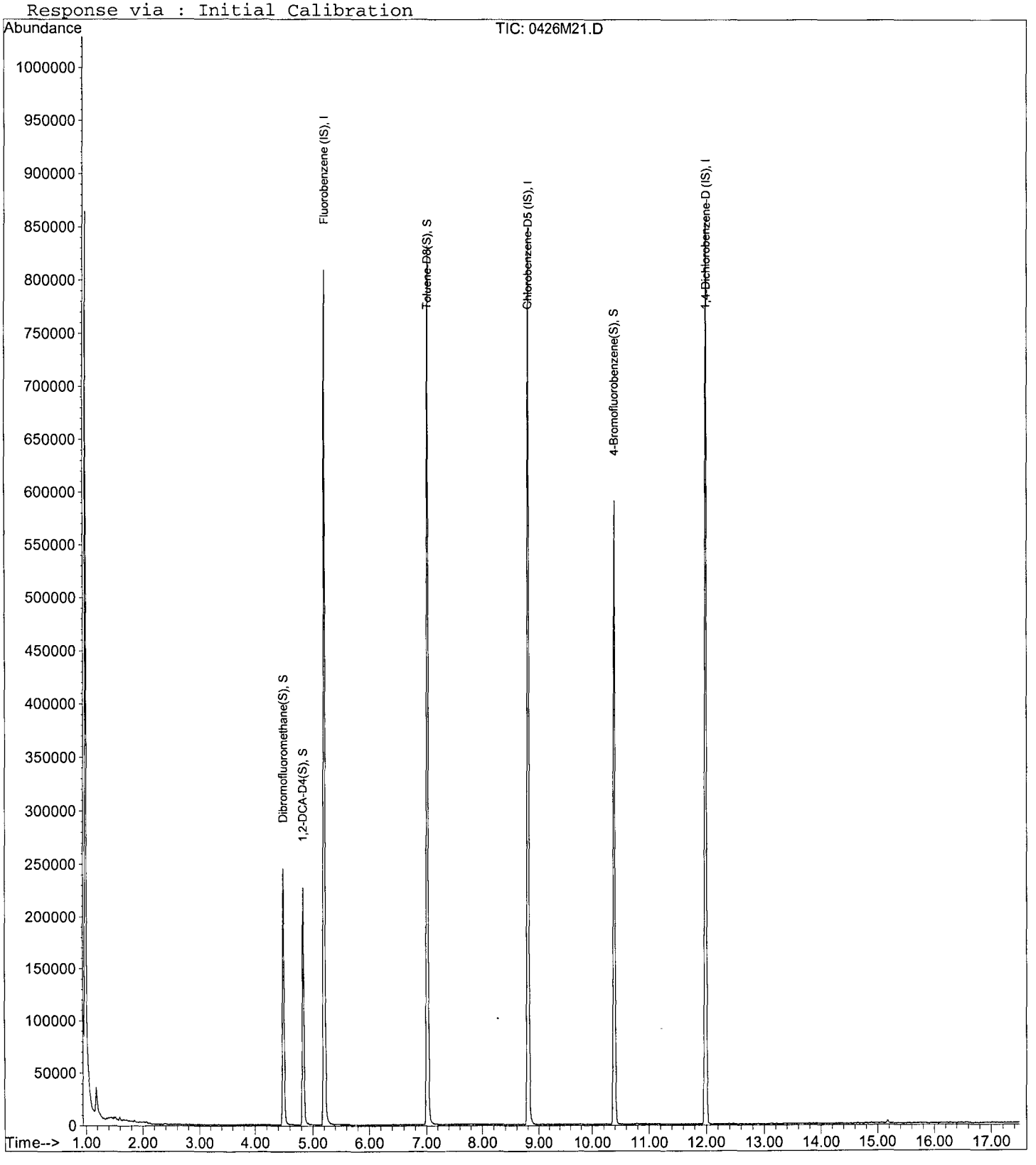
Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M21.D
Acq On : 26 Apr 19 18:36
Sample : AZ90109W01
Misc : IS,Surr 03/24/19

Vial: 20
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:40 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426M10.D Vial: 9
Acq On : 26 Apr 19 13:23 Operator: PM,DG,SV,CMM,KV
Sample : 190426A blk Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:28 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	720853	25.0000 ppb	-0.11
56) Chlorobenzene-D5 (IS)	8.80	117	544351	25.0000 ppb	-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	282492	25.0000 ppb	-0.13
System Monitoring Compounds					
32) Dibromofluoromethane(S)	4.49	111	140559	25.4890 ppb	-0.11
Spiked Amount 25.000			Recovery = 101.956%		
37) 1,2-DCA-D4(S)	4.84	65	150374	23.6698 ppb	-0.11
Spiked Amount 25.000			Recovery = 94.680%		
57) Toluene-D8(S)	7.01	98	593978	24.5750 ppb	-0.12
Spiked Amount 25.000			Recovery = 98.300%		
65) 4-Bromofluorobenzene(S)	10.39	95	221062	24.9243 ppb	-0.13
Spiked Amount 25.000			Recovery = 99.696%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

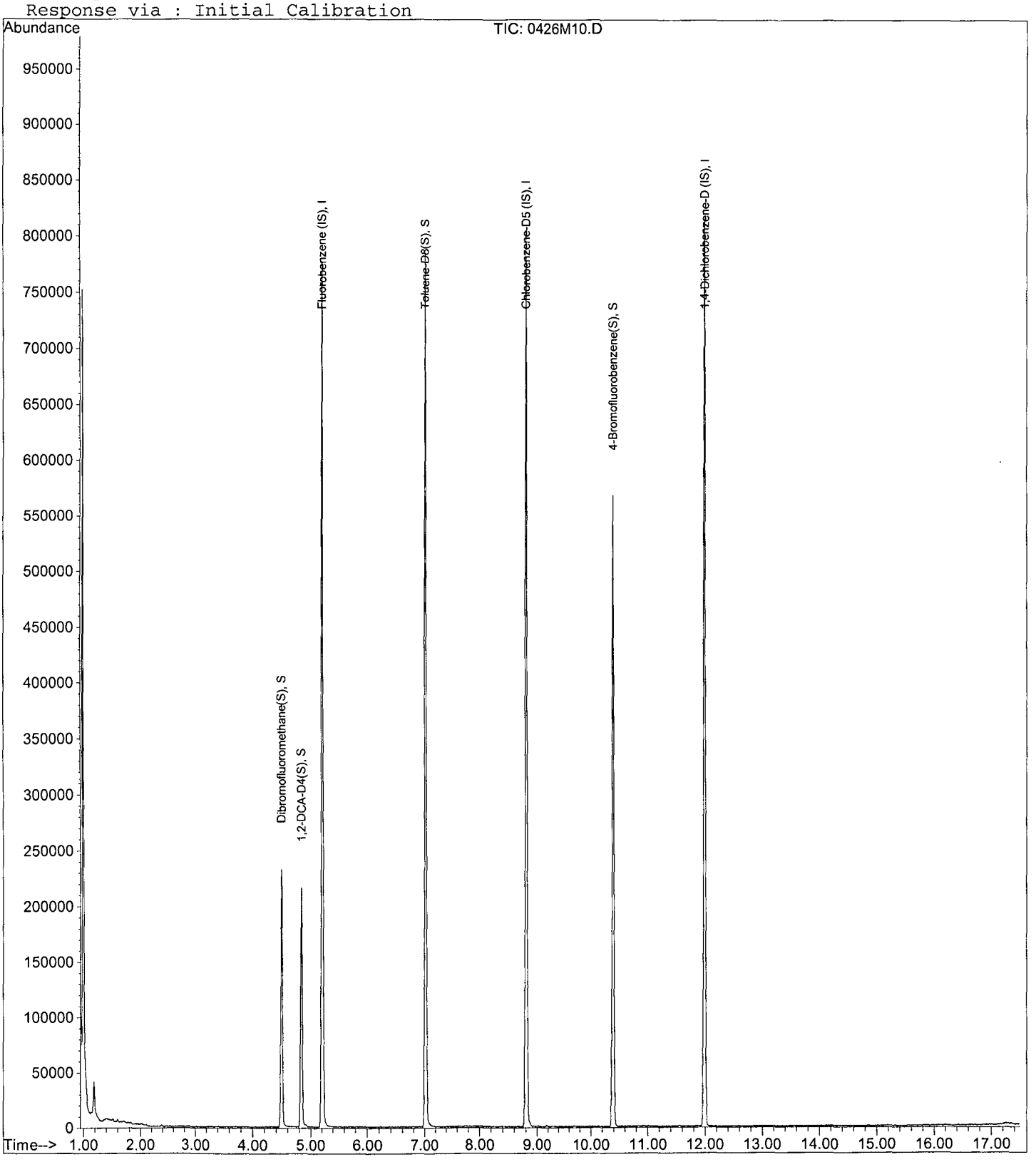
Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M10.D
Acq On : 26 Apr 19 13:23
Sample : 190426A blk
Misc : IS,Surr 03/24/19

Vial: 9
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:28 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M04.D Vial: 3
Acq On : 26 Apr 19 10:32 Operator: PM,DG,SV,CMM,KV
Sample : 190426A LCS 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:23 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.20	96	739998	25.000	ppb		-0.12
56) Chlorobenzene-D5 (IS)	8.80	117	568894	25.000	ppb		-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	310777	25.000	ppb		-0.13
System Monitoring Compounds							
32) Dibromofluoromethane(S)	4.49	111	145066	25.626	ppb		-0.11
Spiked Amount 25.000			Recovery = 102.504%				
37) 1,2-DCA-D4(S)	4.83	65	156514	23.999	ppb		-0.11
Spiked Amount 25.000			Recovery = 95.996%				
57) Toluene-D8(S)	7.02	98	613797	24.299	ppb		-0.12
Spiked Amount 25.000			Recovery = 97.196%				
65) 4-Bromofluorobenzene(S)	10.39	95	233551	25.196	ppb		-0.13
Spiked Amount 25.000			Recovery = 100.784%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.10	85	23224	11.399	ppb		98
3) Freon 114	1.19	85	28557	10.186	ppb		96
4) Chloromethane	1.23	50	29896	9.647	ppb		99
5) Vinyl chloride	1.31	62	39290	11.697	ppb		92
6) Bromomethane	1.56	94	25386	12.023	ppb		95
7) Chloroethane	1.64	64	23574	9.708	ppb		98
8) Dichlorofluoromethane	1.81	67	54464	9.354	ppb		98
9) Trichlorofluoromethane	1.85	101	48136	11.354	ppb		97
10) Acrolein	2.22	56	26664	282.395	ppb		98
11) Acetone	2.38	43	7462	9.341	ppb		96
13) 1,1-DCE	2.29	61	40204	9.558	ppb		96
14) Acetonitrile	2.64	41	40474	129.862	ppb		96
15) t-Butanol	2.98	59	24514	133.435	ppb	#	85
16) Methyl Acetate	2.69	43	9481	9.365	ppb		96
17) Iodomethane	2.42	142	25093	8.221	ppb		97
18) Acrylonitrile	2.99	53	10288	11.165	ppb		97
19) Methylene chloride	2.75	84	32430	9.894	ppb		92
20) Carbon disulfide	2.47	76	79168	10.020	ppb		100
21) Methyl t-butyl ether (MtBE	3.04	73	38576	10.087	ppb		97
22) Trans-1,2-DCE	3.01	96	29566	9.940	ppb		97
23) Diisopropyl Ether	3.54	45	115086	10.215	ppb		98
24) 1,1-DCA	3.41	63	58155	9.950	ppb		95
25) Vinyl Acetate	3.50	43	28775	9.717	ppb	#	100
26) Ethyl tert Butyl Ether	3.90	59	105385	10.969	ppb		99
27) MEK (2-Butanone)	4.05	43	11813	11.399	ppb		95
28) Cis-1,2-DCE	4.00	96	36719	10.227	ppb		91
29) 2,2-Dichloropropane	3.99	77	51003	10.494	ppb		98
30) Chloroform	4.33	83	58063	10.070	ppb		94
31) Bromochloromethane	4.23	128	17365	10.416	ppb		98
33) 1,1,1-TCA	4.50	97	46783	9.602	ppb		95
34) Cyclohexane	4.56	41	27380	9.002	ppb		90
35) 1,1-Dichloropropene	4.68	75	40335	10.044	ppb		96
36) 2,2,4-Trimethylpentane	5.02	57	82883	9.809	ppb		100
38) Carbon Tetrachloride	4.68	117	36814	11.329	ppb		95
39) Tert Amyl Methyl Ether	5.07	73	97249	11.729	ppb		98
40) 1,2-DCA	4.91	62	41711	9.540	ppb		98
41) Benzene	4.89	78	130762	9.829	ppb		98
42) TCE	5.61	95	32557	9.503	ppb		99
43) 2-Pentanone	5.86	43	227747	128.370	ppb		98

(#) = qualifier out of range (m) = manual integration
0426M04.D M0324.M Mon Jun 03 08:10:04 2019 Page 1

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M04.D Vial: 3
Acq On : 26 Apr 19 10:32 Operator: PM,DG,SV,CMM,KV
Sample : 190426A LCS 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:23 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
44)	1,2-Dichloropropane	5.85	63	33439	10.087	ppb		97
45)	Bromodichloromethane	6.17	83	39980	10.390	ppb		94
46)	Methyl Cyclohexane	5.81	83	47015	9.823	ppb		96
47)	Dibromomethane	5.97	93	18181	10.661	ppb		97
48)	MIBK (methyl isobutyl ket	6.93	43	23903	9.709	ppb		92
49)	1-Bromo-2-chloroethane	6.51	63	22328	10.425	ppb		100
51)	Cis-1,3-Dichloropropene	6.70	75	53910	10.482	ppb		93
52)	Toluene	7.09	91	147002	9.851	ppb		96
53)	Trans-1,3-Dichloropropene	7.38	75	45059	10.472	ppb		100
54)	1,1,2-TCA	7.59	83	22385	10.603	ppb		98
55)	2-Hexanone	7.96	43	16820	10.480	ppb		98
58)	1,2-EDB	8.19	107	28036	10.848	ppb		97
59)	Tetrachloroethene	7.76	164	32512	10.389	ppb		96
60)	1-Chlorohexane	8.87	91	43307	9.993	ppb		99
61)	1,1,1,2-Tetrachloroethane	8.96	131	33173	10.759	ppb		90
62)	m&p-Xylene	9.17	106	130237	20.336	ppb		99
63)	o-Xylene	9.69	106	66160	10.140	ppb		96
64)	Styrene	9.71	104	108124	10.098	ppb		95
66)	1,3-Dichloropropane	7.79	76	48361	10.224	ppb		97
67)	Dibromochloromethane	8.06	129	28467	11.591	ppb		90
68)	Chlorobenzene	8.84	112	99738	10.050	ppb		98
69)	Ethylbenzene	9.01	91	161959	10.018	ppb		97
70)	Bromoform	9.92	173	17952	11.777	ppb		97
72)	Isopropylbenzene	10.21	105	160366	9.394	ppb		99
73)	1,1,2,2-Tetrachloroethane	6.17	83	39980	9.588	ppb		95
74)	1,2,3-Trichloropropane	10.66	110	10373	10.376	ppb		92
75)	t-1,4-Dichloro-2-Butene	10.71	53	4224	10.968	ppb		96
76)	Bromobenzene	10.56	156	44549	9.612	ppb		99
77)	n-Propylbenzene	10.78	91	182239	9.542	ppb		96
78)	4-Ethyltoluene	10.94	105	167365	9.919	ppb		99
79)	2-Chlorotoluene	10.85	91	110801	9.396	ppb		99
80)	1,3,5-Trimethylbenzene	11.04	105	134302	9.355	ppb		96
81)	4-Chlorotoluene	11.01	91	128011	9.320	ppb		98
82)	Tert-Butylbenzene	11.48	119	119655	9.357	ppb		94
83)	1,2,4-Trimethylbenzene	11.55	105	136790	9.453	ppb		97
84)	Sec-Butylbenzene	11.79	105	160556	9.481	ppb		95
85)	p-Isopropyltoluene	12.01	119	77688	9.945	ppb		98
86)	Benzyl Chloride	12.23	91	10070	2.849	ppb		98
87)	1,3-DCB	11.89	146	83965	9.973	ppb		98
88)	1,4-DCB	12.02	146	43584	10.174	ppb		98
89)	n-Butylbenzene	12.59	91	61200	9.627	ppb		98
90)	1,2-DCB	12.53	146	79391	10.214	ppb		96
91)	Hexachloroethane	12.89	117	7668	10.579	ppb		93
92)	1,2-Dibromo-3-chloropropan	13.64	157	6415	11.360	ppb	#	86
93)	1,2,4-Trichlorobenzene	14.84	180	50050	10.251	ppb		96
94)	Hexachlorobutadiene	15.15	225	26326	10.428	ppb		92
95)	Naphthalene	15.18	128	70371	8.633	ppb		94
96)	1,2,3-Trichlorobenzene	15.53	180	39318	9.307	ppb		93

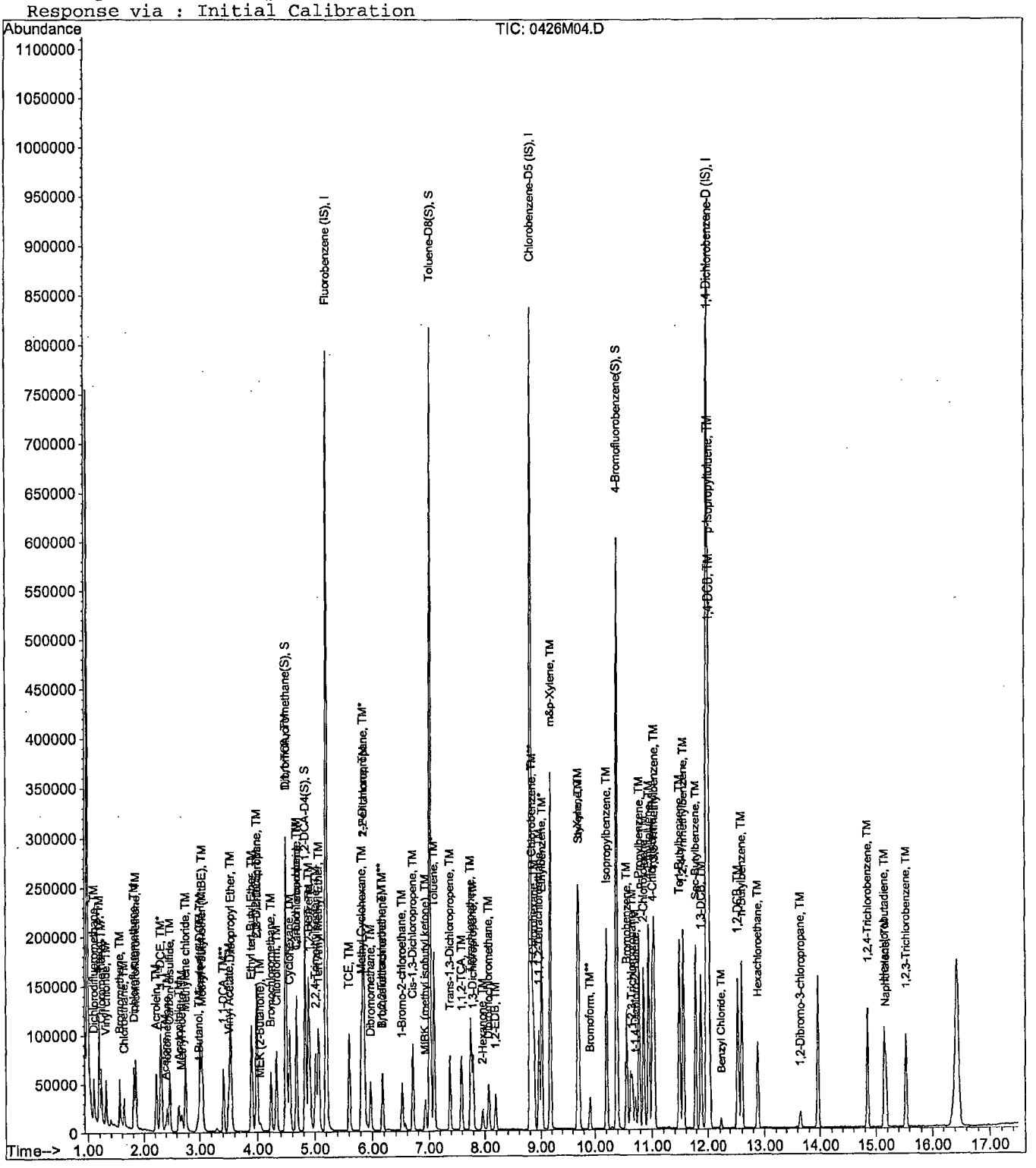
(#) = qualifier out of range (m) = manual integration
0426M04.D M0324.M Mon Jun 03 08:10:04 2019 Page 2

Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M04.D Vial: 3
Acq On : 26 Apr 19 10:32 Operator: PM,DG,SV,CMM,KV
Sample : 190426A LCS 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:23 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 01 09:43:56 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M05.D Vial: 4
Acq On : 26 Apr 19 11:01 Operator: PM,DG,SV,CMM,KV
Sample : 190426A LCSD 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:23 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.20	96	713522	25.000	ppb		-0.12
56) Chlorobenzene-D5 (IS)	8.80	117	557548	25.000	ppb		-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	296241	25.000	ppb		-0.13
System Monitoring Compounds							
32) Dibromofluoromethane(S)	4.49	111	141934	26.003	ppb		-0.11
Spiked Amount 25.000			Recovery = 104.012%				
37) 1,2-DCA-D4(S)	4.83	65	148829	23.667	ppb		-0.11
Spiked Amount 25.000			Recovery = 94.668%				
57) Toluene-D8(S)	7.01	98	604292	24.410	ppb		-0.12
Spiked Amount 25.000			Recovery = 97.640%				
65) 4-Bromofluorobenzene(S)	10.39	95	224989	24.767	ppb		-0.13
Spiked Amount 25.000			Recovery = 99.068%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.10	85	25408	12.934	ppb		98
3) Freon 114	1.19	85	28838	10.668	ppb		90
4) Chloromethane	1.23	50	33360	11.171	ppb		98
5) Vinyl chloride	1.31	62	40590	12.532	ppb		90
6) Bromomethane	1.56	94	25541	12.545	ppb		95
7) Chloroethane	1.64	64	24279	10.436	ppb		88
8) Dichlorofluoromethane	1.81	67	55859	9.950	ppb		99
9) Trichlorofluoromethane	1.85	101	48786	11.934	ppb		100
10) Acrolein	2.22	56	25648	281.713	ppb		99
11) Acetone	2.38	43	8182	11.026	ppb		91
13) 1,1-DCE	2.29	61	39429	9.721	ppb		91
14) Acetonitrile	2.63	41	36990	123.088	ppb		99
15) t-Butanol	2.97	59	22620	127.695	ppb	#	89
16) Methyl Acetate	2.69	43	9078	9.299	ppb		94
17) Iodomethane	2.42	142	28161	9.321	ppb		98
18) Acrylonitrile	2.99	53	9590	10.793	ppb		88
19) Methylene chloride	2.75	84	32314	10.224	ppb		94
20) Carbon disulfide	2.47	76	80282	10.538	ppb		99
21) Methyl t-butyl ether (MtBE	3.04	73	37088	10.058	ppb		98
22) Trans-1,2-DCE	3.01	96	29386	10.247	ppb		94
23) Diisopropyl Ether	3.54	45	115684	10.649	ppb		98
24) 1,1-DCA	3.41	63	56343	9.998	ppb		99
25) Vinyl Acetate	3.50	43	28597	10.015	ppb	#	100
26) Ethyl tert Butyl Ether	3.90	59	104329	11.262	ppb		98
27) MEK (2-Butanone)	4.05	43	11042	10.998	ppb		98
28) Cis-1,2-DCE	3.99	96	36980	10.682	ppb		90
29) 2,2-Dichloropropane	3.99	77	49472	10.557	ppb		99
30) Chloroform	4.33	83	56453	10.155	ppb		94
31) Bromochloromethane	4.23	128	17319	10.774	ppb		90
33) 1,1,1-TCA	4.50	97	47572	10.126	ppb		94
34) Cyclohexane	4.56	41	27687	9.441	ppb		85
35) 1,1-Dichloropropene	4.68	75	40955	10.577	ppb		96
36) 2,2,4-Trimethylpentane	5.02	57	85505	10.494	ppb		98
38) Carbon Tetrachloride	4.68	117	37278	11.897	ppb		99
39) Tert Amyl Methyl Ether	5.07	73	96129	12.024	ppb		98
40) 1,2-DCA	4.91	62	40846	9.688	ppb		98
41) Benzene	4.89	78	131245	10.231	ppb		97
42) TCE	5.60	95	33134	10.031	ppb		93
43) 2-Pentanone	5.85	43	212398	124.161	ppb		98

(#) = qualifier out of range (m) = manual integration
0426M05.D M0324.M Mon Jun 03 08:10:07 2019 Page 1

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M05.D Vial: 4
Acq On : 26 Apr 19 11:01 Operator: PM,DG,SV,CMM,KV
Sample : 190426A LCSD 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:23 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
44) 1,2-Dichloropropane	5.84	63	33450	10.464 ppb	97
45) Bromodichloromethane	6.17	83	40250	10.849 ppb	99
46) Methyl Cyclohexane	5.81	83	48324	10.471 ppb	97
47) Dibromomethane	5.97	93	17302	10.522 ppb	98
48) MIBK (methyl isobutyl ket	6.93	43	24153	10.175 ppb	94
49) 1-Bromo-2-chloroethane	6.51	63	21456	10.389 ppb	98
51) Cis-1,3-Dichloropropene	6.70	75	52750	10.637 ppb	95
52) Toluene	7.10	91	149625	10.399 ppb	98
53) Trans-1,3-Dichloropropene	7.38	75	43200	10.413 ppb	99
54) 1,1,2-TCA	7.60	83	21679	10.649 ppb	95
55) 2-Hexanone	7.96	43	16555	10.697 ppb	95
58) 1,2-EDB	8.19	107	26114	10.310 ppb	99
59) Tetrachloroethene	7.76	164	32143	10.481 ppb	99
60) 1-Chlorohexane	8.87	91	44288	10.427 ppb	97
61) 1,1,1,2-Tetrachloroethane	8.96	131	32722	10.829 ppb	99
62) m&p-Xylene	9.17	106	133605	21.287 ppb	97
63) o-Xylene	9.69	106	66324	10.372 ppb	97
64) Styrene	9.71	104	108950	10.382 ppb	95
66) 1,3-Dichloropropane	7.79	76	47336	10.210 ppb	94
67) Dibromochloromethane	8.06	129	28466	11.826 ppb	92
68) Chlorobenzene	8.84	112	100383	10.321 ppb	98
69) Ethylbenzene	9.01	91	162662	10.266 ppb	98
70) Bromoform	9.91	173	17168	11.531 ppb	97
72) Isopropylbenzene	10.21	105	161651	9.934 ppb	100
73) 1,1,2,2-Tetrachloroethane	6.17	83	40250	10.126 ppb	99
74) 1,2,3-Trichloropropane	10.66	110	10209	10.713 ppb	95
75) t-1,4-Dichloro-2-Butene	10.71	53	4333	11.803 ppb	92
76) Bromobenzene	10.56	156	45447	10.287 ppb	99
77) n-Propylbenzene	10.78	91	182826	10.043 ppb	95
78) 4-Ethyltoluene	10.94	105	169682	10.550 ppb	99
79) 2-Chlorotoluene	10.85	91	109590	9.749 ppb	98
80) 1,3,5-Trimethylbenzene	11.04	105	135311	9.888 ppb	95
81) 4-Chlorotoluene	11.01	91	129518	9.892 ppb	99
82) Tert-Butylbenzene	11.48	119	120525	9.888 ppb	92
83) 1,2,4-Trimethylbenzene	11.55	105	139656	10.125 ppb	98
84) Sec-Butylbenzene	11.79	105	163253	10.113 ppb	93
85) p-Isopropyltoluene	12.01	119	79248	10.643 ppb	99
86) Benzyl Chloride	12.23	91	9204	2.732 ppb	98
87) 1,3-DCB	11.89	146	85361	10.636 ppb	99
88) 1,4-DCB	12.02	146	44384	10.869 ppb	99
89) n-Butylbenzene	12.59	91	63728	10.517 ppb	98
90) 1,2-DCB	12.53	146	80915	10.921 ppb	98
91) Hexachloroethane	12.88	117	7779	11.122 ppb	91
92) 1,2-Dibromo-3-chloropropan	13.65	157	6233	11.580 ppb	87
93) 1,2,4-Trichlorobenzene	14.84	180	50557	10.863 ppb	99
94) Hexachlorobutadiene	15.14	225	25948	10.783 ppb	94
95) Naphthalene	15.18	128	67420	8.677 ppb	100
96) 1,2,3-Trichlorobenzene	15.53	180	38825	9.641 ppb	96

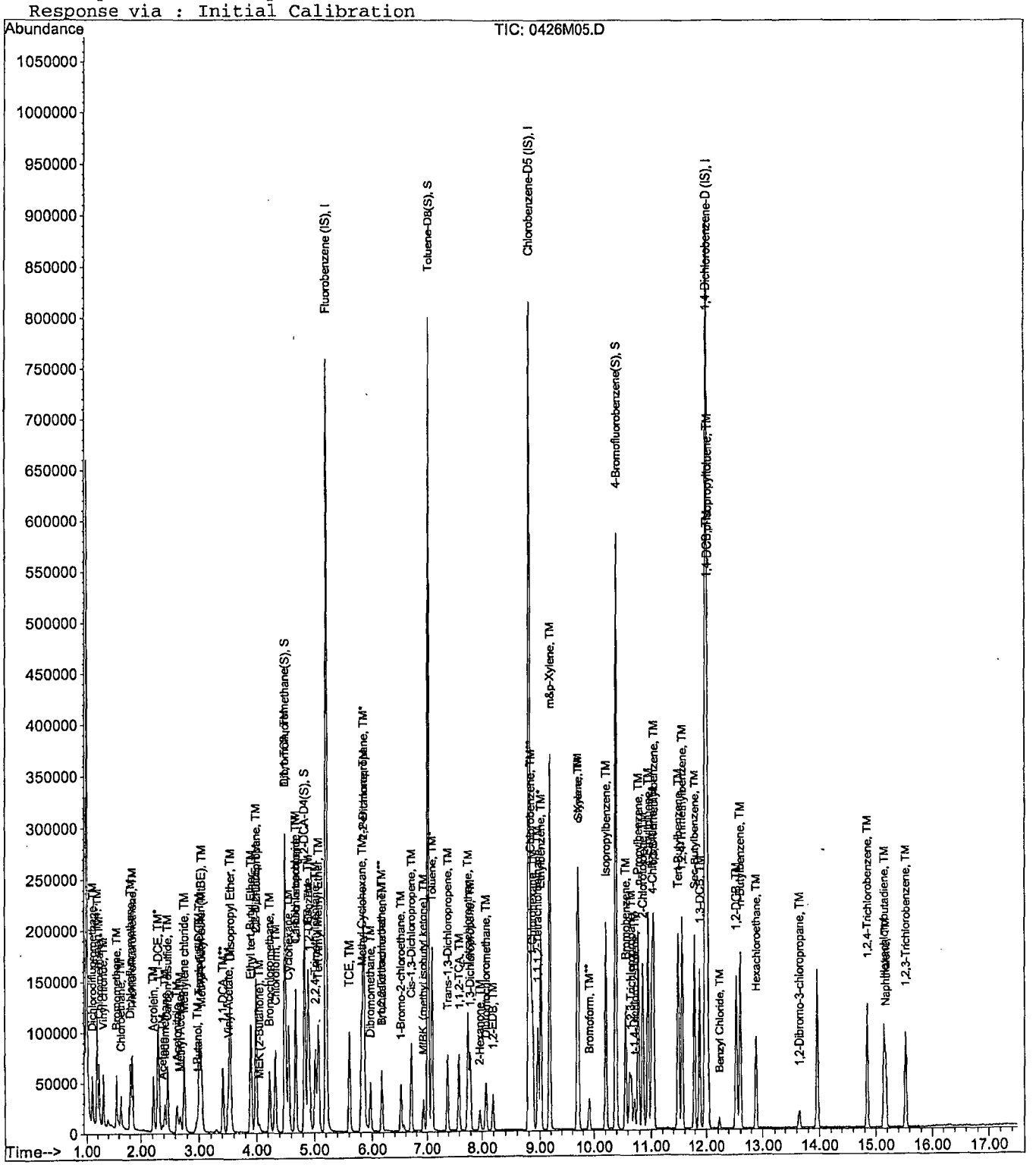
(#) = qualifier out of range (m) = manual integration
0426M05.D M0324.M Mon Jun 03 08:10:07 2019 Page 2

Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M05.D Vial: 4
Acq On : 26 Apr 19 11:01 Operator: PM,DG,SV,CMM,KV
Sample : 190426A LCSD 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:23 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 01 09:43:56 2019
Response via : Initial Calibration

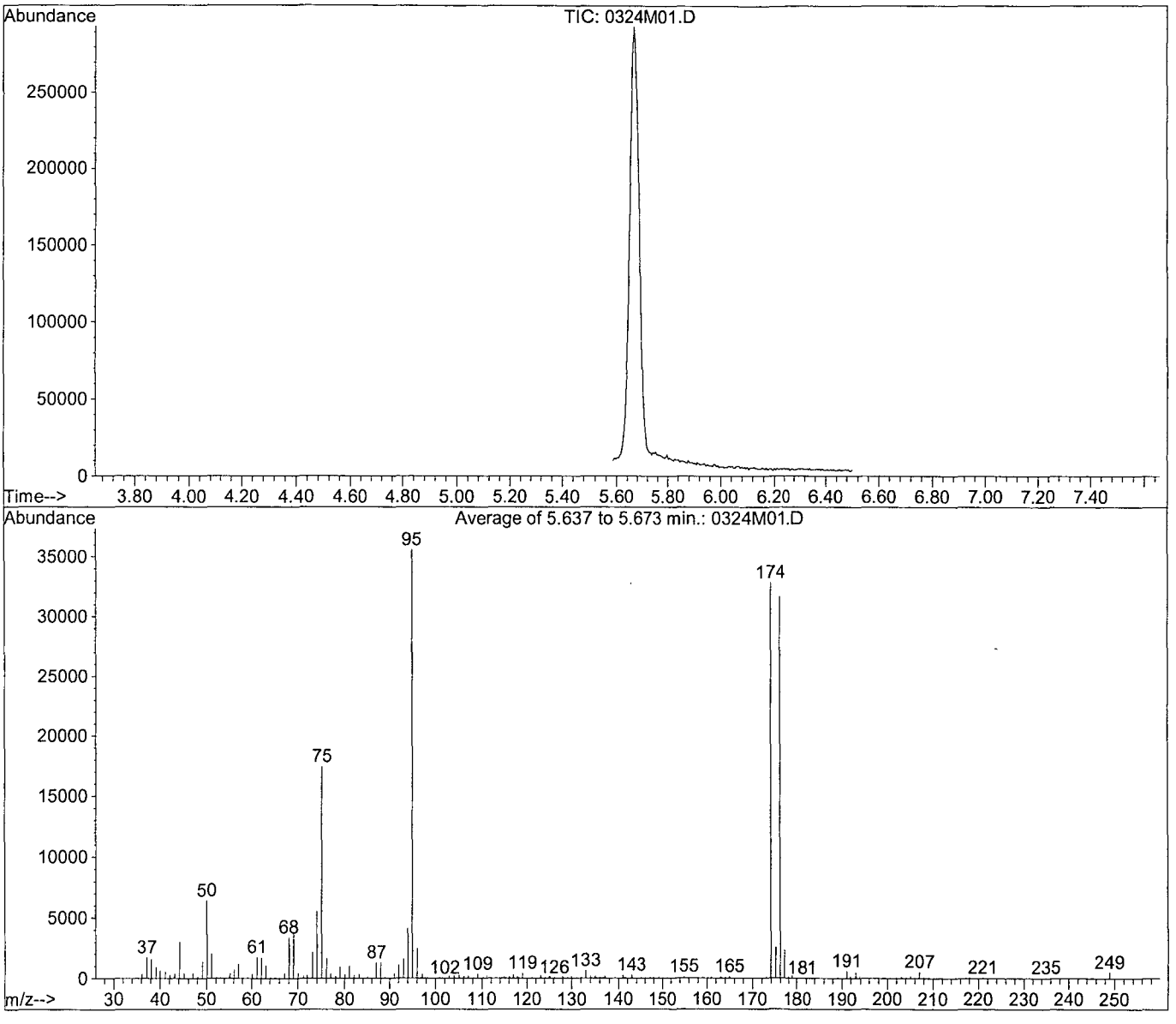


0426M05.D M0324.M Mon Jun 03 08:10:09 2019 Page 3

Data File : M:\MAX\DATA\M190324\0324M01.D
Acq On : 24 Mar 19 10:39
Sample : 25ug/L BFB 3/11/19
Misc : 2ul

Vial: 1
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B



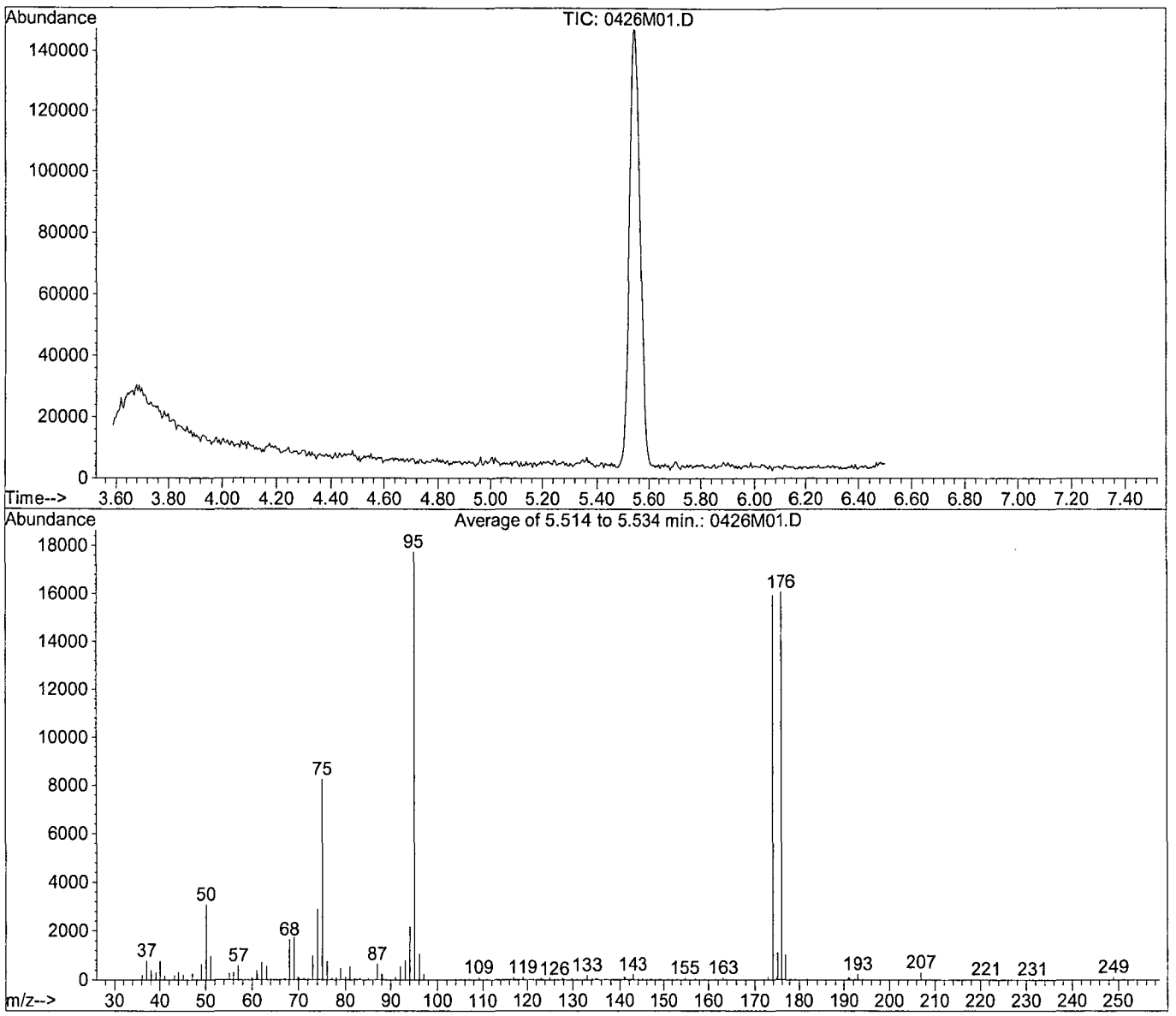
Spectrum Information: Average of 5.637 to 5.673 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	18.1	6437	PASS
75	95	30	60	49.1	17449	PASS
95	95	100	100	100.0	35572	PASS
96	95	5	9	6.9	2445	PASS
173	174	0.00	2	0.4	130	PASS
174	95	50	100	92.4	32863	PASS
175	174	5	9	7.8	2572	PASS
176	174	95	101	96.4	31664	PASS
177	176	5	9	7.4	2328	PASS

Data File : M:\MAX\DATA\M190401\0426m01.D
Acq On : 26 Apr 19 9:11
Sample : 25ug/L BFB 3/11/19
Misc : 2ul

Vial: 1
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B



Spectrum Information: Average of 5.514 to 5.534 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	17.4	3091	PASS
75	95	30	60	46.5	8256	PASS
95	95	100	100	100.0	17742	PASS
96	95	5	9	5.9	1054	PASS
173	174	0.00	2	0.8	130	PASS
174	95	50	100	89.9	15958	PASS
175	174	5	9	7.0	1117	PASS
176	174	95	101	100.8	16078	PASS
177	176	5	9	6.5	1042	PASS

0426m01.D M0324.M Mon Apr 29 12:22:25 2019

Max 8260 Standard Prep

Max 8260 Water Calibration Curve

0.3ug/L

Prepared By (Initials): DG

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	0.3ug/L	5	Prepared 03/21/19	05/20/19	N/A	3uL	50mL	P&T Water	0.3
VOA STD. 10	O2SI		5	Prepared 03/21/19	05/20/19	N/A	3uL			0.3
VOA STD. 12	O2SI		5	Prepared 03/21/19	05/20/19	N/A	3uL			0.3
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	2uL			10

0.5ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	0.5ug/L	5	Prepared 03/21/19	05/20/19	N/A	5uL	50mL	P&T Water	0.5
VOA STD. 10	O2SI		5	Prepared 03/21/19	05/20/19	N/A	5uL			0.5
VOA STD. 12	O2SI		5	Prepared 03/21/19	05/20/19	N/A	5uL			0.5
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	5uL			25

1.0ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	1.0ug/L	5	Prepared 03/21/19	05/20/19	N/A	10uL	50mL	P&T Water	1
VOA STD. 10	O2SI		5	Prepared 03/21/19	05/20/19	N/A	10uL			1
VOA STD. 12	O2SI		5	Prepared 03/21/19	05/20/19	N/A	10uL			1
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	10uL			50

2.0ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	2.0ug/L	5	Prepared 03/21/19	05/20/19	N/A	20uL	50mL	P&T Water	2
VOA STD. 10	O2SI		5	Prepared 03/21/19	05/20/19	N/A	20uL			2
VOA STD. 12	O2SI		5	Prepared 03/21/19	05/20/19	N/A	20uL			2
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	15uL			75

5ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	5ug/L	50	Prepared 03/21/19	05/20/19	N/A	5uL	50mL	P&T Water	5
VOA STD. 8	Phenova		50	Prepared 03/21/19	03/27/19	N/A	5uL			5
VOA STD. 1	O2SI		50	Prepared 03/21/19	05/20/19	N/A	5uL			5
VOA STD. 2	O2SI		50	Prepared 03/21/19	05/20/19	N/A	5uL			5
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	20uL			100

10ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	10ug/L	50	Prepared 03/21/19	05/20/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 8	Phenova		50	Prepared 03/21/19	03/27/19	N/A	10uL			10
VOA STD. 1	O2SI		50	Prepared 03/21/19	05/20/19	N/A	10uL			10
VOA STD. 2	O2SI		50	Prepared 03/21/19	05/20/19	N/A	10uL			10
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	25uL			125

20ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	20ug/L	50	Prepared 03/21/19	05/20/19	N/A	20uL	50mL	P&T Water	20
VOA STD. 8	Phenova		50	Prepared 03/21/19	03/27/19	N/A	20uL			20
VOA STD. 1	O2SI		50	Prepared 03/21/19	05/20/19	N/A	20uL			20
VOA STD. 2	O2SI		50	Prepared 03/21/19	05/20/19	N/A	20uL			20
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	30uL			150

40ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	40ug/L	50	Prepared 03/21/19	05/20/19	N/A	40uL	50mL	P&T Water	40
VOA STD. 8	Phenova		50	Prepared 03/21/19	03/27/19	N/A	40uL			40
VOA STD. 1	O2SI		50	Prepared 03/21/19	05/20/19	N/A	40uL			40
VOA STD. 2	O2SI		50	Prepared 03/21/19	05/20/19	N/A	40uL			40
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	35uL			175

100ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	100ug/L	50	Prepared 03/21/19	05/20/19	N/A	100uL	50mL	P&T Water	100
VOA STD. 8	Phenova		50	Prepared 03/21/19	03/27/19	N/A	100uL			100
VOA STD. 1	O2SI		50	Prepared 03/21/19	05/20/19	N/A	100uL			100
VOA STD. 2	O2SI		50	Prepared 03/21/19	05/20/19	N/A	100uL			100
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	40uL			200

Max 8260 Water Second Source (SS)

Prepared: 03/24/19

Prepared By (Initials): DG

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 4	Phenova	8260 Water SS	50	Prepared 03/21/19	05/20/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 5	O2SI	8260 Water SS	50	Prepared 03/21/19	05/20/19	N/A	10uL			10
VOA STD. 6	Various	8260 Water SS	50	Prepared 03/21/19	03/13/19	N/A	10uL			10
Voa STD. TBA	Various	8260 Water SS	250	Prepared 03/21/19	03/13/19	N/A	25uL			250

8260 Water Continuing Calibrations (CCV)/ Lab Control Spikes (LCS)

Prepared: 03/24/19

Prepared By (Initials): DG

Expires: 03/25/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	CCV/ LCS	50	Prepared 03/21/19	05/20/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 8	Phenova	CCV/ LCS	50	Prepared 03/21/19	03/27/19	N/A	10uL			10
VOA STD. 1	O2SI	CCV/ LCS	50	Prepared 03/21/19	05/20/19	N/A	10uL			10
VOA STD. 2	O2SI	CCV/ LCS	50	Prepared 03/21/19	05/20/19	N/A	10uL			10
VOA STD. TBA	Various	CCV/ LCS	250	Prepared 03/21/19	03/27/19	N/A	25uL			125

LCS (X4 Ketones)

Prepared: 03/24/19

Prepared By (Initials): DG

Expires: 03/25/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	LCS X4 Ketones	50	Prepared 03/21/19	05/20/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 8	Phenova	LCS X4 Ketones	50	Prepared 03/21/19	03/27/19	N/A	10uL			10
VOA STD. 1	O2SI	LCS X4 Ketones	50	Prepared 03/21/19	05/20/19	N/A	10uL			10
VOA STD. 2	O2SI	LCS X4 Ketones	50	Prepared 03/21/19	05/20/19	N/A	40uL			40
VOA STD. TBA	Various	LCS X4 Ketones	250	Prepared 03/21/19	03/27/19	N/A	25uL			125

Max 8260 Water Surrogate

Prepared: 03/24/19
Expires: 03/23/20
Methanol Lot No: 58019

Prepared By (Initials): DG

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
8260 Surrogate Solution	O2SI	120002-01	2,000	**348756-39342**	**03/24/20**	**02/10/22**	375uL	15mL	Methanol	50

Max 8260 Water Internal Standard

Prepared: 03/24/19
Expires: 03/23/20
Methanol Lot No: 58019

Prepared By (Initials): DG

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Internal Standard Solution	O2SI	120004-02	2,000	**326533-38436**	**03/24/20**	**04/27/21**	375uL	15mL	Methanol	50

Injection Log

Directory: M:\MAX\DATA\M190324\

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	0324M01.D	1	25ug/L BFB 3/11/19	2ul	24 Mar 19 10:39
2	3	0324M05.D	1	0.3ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 12:56
3	4	0324M06.D	1	0.5ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 13:25
4	5	0324M07.D	1	1.0ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 13:54
5	6	0324M08.D	1	2.0ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 14:22
6	7	0324M09.D	1	5.0ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 14:51
7	8	0324M10.D	1	10ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 15:19
8	9	0324M11.D	1	20ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 15:48
9	10	0324M12.D	1	40ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 16:17
10	11	0324M13.D	1	100ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 16:45
11	14	0324M16.D	1	(SS)10ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 18:11
12	1	0426M01.D	1	25ug/L BFB 3/11/19	2ul	26 Apr 19 9:11
13	2	0426M03.D	1	190426A CCV 10ug/L	IS,Surr 03/24/19	26 Apr 19 10:04
14	3	0426M04.D	1	190426A LCS 10ug/L	IS,Surr 03/24/19	26 Apr 19 10:32
15	4	0426M05.D	1	190426A LCSD 10ug/L	IS,Surr 03/24/19	26 Apr 19 11:01
16	9	0426M10.D	1	190426A blk	IS,Surr 03/24/19	26 Apr 19 13:23
17	10	0426M11.D	1	AZ90099W01	IS,Surr 03/24/19	26 Apr 19 13:51
18	11	0426M12.D	1	AZ90101W01	IS,Surr 03/24/19	26 Apr 19 14:19
19	12	0426M13.D	1	AZ90104W01	IS,Surr 03/24/19	26 Apr 19 14:48
20	13	0426M14.D	1	AZ90106W01	IS,Surr 03/24/19	26 Apr 19 15:16
21	14	0426M15.D	1	AZ90108W01	IS,Surr 03/24/19	26 Apr 19 15:45
22	15	0426M16.D	1	AZ90100W01	IS,Surr 03/24/19	26 Apr 19 16:13
23	16	0426M17.D	1	AZ90102W01	IS,Surr 03/24/19	26 Apr 19 16:42
24	17	0426M18.D	1	AZ90103W01	IS,Surr 03/24/19	26 Apr 19 17:10
25	18	0426M19.D	1	AZ90105W01	IS,Surr 03/24/19	26 Apr 19 17:39
26	19	0426M20.D	1	AZ90107W01	IS,Surr 03/24/19	26 Apr 19 18:08
27	20	0426M21.D	1	AZ90109W01	IS,Surr 03/24/19	26 Apr 19 18:36
28	22	0426M23.D	1	Ending CCV 10ug/L	IS,Surr 03/24/19	26 Apr 19 19:33

ORGANICS
Calibration Data

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/24/19
Matrix: water Instrument: Max
Initials: DG/LP

		Compound	0324M05 D	0324M06 D	0324M07.D	0324M08.D	0324M09 D	0324M10.D	0324M11.D	0324M12.D	0324M13.D		Avg	%RSD	Type	r^2	Q	MRF
1	I	Fluorobenzene (IS)																
2	TM	Dichlorodifluoromethane		0.0635	0.0693	0.0675	0.0762	0.0701	0.0732	0.0679	0.0629		0.07	6.5	TM			
3	TM	Freon 114		0.1012	0.0938	0.1001	0.0949	0.0941	0.0972	0.0920	0.0843		0.09	5.5	TM			
4	TM**L	Chloromethane		0.1465	0.1082	0.0912	0.1126	0.0971	0.1082	0.1038			0.11	16	TM**L	0.999		
5	TM*	Vinyl chloride		0.0921	0.1255	0.1141	0.1198	0.1125	0.1195	0.1149	0.1094		0.11	8.8	TM*			
6	TM	Bromomethane		0.0818	0.0854	0.0731	0.0733	0.0643	0.0669	0.0635	0.0624		0.07	12	TM			
7	TML	Chloroethane		0.2608	0.1278	0.1208	0.0863	0.0806	0.0784	0.0764			0.12	56	TML	1.000		
8	TM	Dichlorofluoromethane		0.2144	0.1899	0.1886	0.2066	0.1941	0.1977	0.1954	0.1869		0.20	4.8	TM			
9	TM	Trichlorofluoromethane		0.1220	0.1310	0.1535	0.1525	0.1474	0.1564	0.1458	0.1373		0.14	8.4	TM			
10	TM	Acrolein		0.0027	0.0027	0.0030	0.0033	0.0033	0.0033	0.0035	0.0038		0.00	12	TM			
11	TML	Acetone			0.0728	0.0437	0.0341	0.0279	0.0233	0.0223	0.0211		0.04	53	TML	1.000		
12	TM	Freon-113		0.0733	0.0795	0.0877	0.0905	0.0836	0.0867	0.0807	0.0749		0.08	7.5	TM			
13	TM*	1,1-DCE		0.1365	0.1369	0.1396	0.1471	0.1437	0.1492	0.1446	0.1392		0.14	3.3	TM*			
14	TM	Acetonitrile		0.0112	0.0108	0.0103	0.0109	0.0106	0.0101	0.0100	0.0104		0.01	3.8	TM			
15	TM	t-Butanol			0.0027	0.0061	0.0067	0.0066	0.0070	0.0081			0.01	29	TM		*	NT
16	TM	Methyl Acetate			0.0343	0.0339	0.0334	0.0337	0.0334	0.0341	0.0366		0.03	3.2	TM			
17	TML	Iodomethane			0.0380	0.0453	0.0823	0.0984	0.1177	0.1200	0.1246		0.09	40	TML	1.000		
18	TM	Acrylonitrile			0.0238	0.0269	0.0338	0.0338	0.0342	0.0327	0.0327		0.03	13	TM			
19	TM	Methylene chloride		0.1124	0.1130	0.1074	0.1110	0.1105	0.1131	0.1108	0.1078		0.11	2.0	TM			
20	TM	Carbon disulfide		0.2714	0.2784	0.2600	0.2731	0.2572	0.2695	0.2670	0.2589		0.27	2.8	TM			
21	TM	Methyl t-butyl ether (MtBE)		0.1080	0.1265	0.1233	0.1331	0.1368	0.1382	0.1365	0.1312		0.13	7.8	TM			
22	TM	Trans-1,2-DCE		0.0922	0.0912	0.1013	0.1079	0.0990	0.1071	0.1050	0.1002		0.10	6.3	TM			
23	TM	Diisopropyl Ether		0.3654	0.3588	0.3727	0.3917	0.3900	0.3978	0.3900	0.3787		0.38	3.7	TM			
24	TM**	1,1-DCA		0.1911	0.1986	0.1887	0.1987	0.1972	0.2065	0.2020	0.1969		0.20	2.9	TM**			
25	TM	Vinyl Acetate		0.1057	0.1017	0.0997	0.1034	0.0993	0.1021	0.0957	0.0928		0.10	4.2	TM			
26	TM	Ethyl tert Butyl Ether		0.2829	0.2984	0.3079	0.3469	0.3344	0.3473	0.3458	0.3331		0.32	7.7	TM			
27	TML	MEK (2-Butanone)			0.0418	0.0435	0.0341	0.0373	0.0367	0.0328	0.0307		0.04	13	TML	0.998		
28	TM	Cis-1,2-DCE		0.1286	0.1102	0.1136	0.1247	0.1221	0.1283	0.1235	0.1195		0.12	5.4	TM			
29	TM	2,2-Dichloropropane		0.1644	0.1669	0.1604	0.1758	0.1618	0.1659	0.1622	0.1561		0.16	3.5	TM			
30	TM*	Chloroform		0.1964	0.1951	0.1983	0.1965	0.1895	0.1967	0.1942	0.1916		0.19	1.5	TM*			
31	TM	Bromochloromethane		0.0572	0.0491	0.0591	0.0569	0.0568	0.0572	0.0577	0.0566		0.06	5.3	TM			
32	S	Dibromofluoromethane(S)	0.2250	0.2190	0.1683	0.1791	0.1920	0.1877	0.1903	0.1887	0.1712		0.19	10	S			
33	TM	1,1,1-TCA		0.1676	0.1700	0.1580	0.1656	0.1615	0.1700	0.1652	0.1589		0.16	2.9	TM			
34	TM	Cyclohexane		0.1238	0.1054	0.1110	0.0999	0.0994	0.1006	0.0952	0.0868		0.10	11	TM			
35	TM	1,1-Dichloropropene		0.1274	0.1225	0.1418	0.1441	0.1383	0.1430	0.1365	0.1317		0.14	5.8	TM			

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/24/19
Matrix: water Instrument: Max Initials:

		Compound	1	2	3	4	5	6	7	8	9		Avg	%RSD	Type		Q	MRF
36	TM	2,2,4-Trimethylpentane		0.2900	0.2859	0.2834	0.2934	0.2904	0.2956	0.2826	0.2625		0.29	3.6	TM			
37	S	1,2-DCA-D4(S)	0.2745	0.2518	0.1982	0.2074	0.2233	0.2148	0.2139	0.2111	0.1879		0.22	12	S			
38	TM	Carbon Tetrachloride		0.1036	0.0876	0.0946	0.1165	0.1108	0.1186	0.1230	0.1236		0.11	12	TM			
39	TM	Tert Amyl Methyl Ether		0.2612	0.2618	0.2601	0.2943	0.2946	0.2968	0.2906	0.2815		0.28	5.9	TM			
40	TM	1,2-DCA		0.1580	0.1390	0.1485	0.1564	0.1465	0.1506	0.1438	0.1389		0.15	4.9	TM			
41	TM	Benzene		0.4595	0.4486	0.4417	0.4619	0.4486	0.4553	0.4459	0.4341		0.45	2.1	TM			
42	TM	TCE		0.1094	0.1243	0.1104	0.1213	0.1164	0.1167	0.1154	0.1121		0.12	4.5	TM			
43	TM	2-Pentanone		0.0608	0.0558	0.0582	0.0625	0.0599	0.0614	0.0619	0.0590		0.06	3.7	TM			
44	TM*	1,2-Dichloropropane		0.1058	0.1126	0.1148	0.1142	0.1112	0.1144	0.1134	0.1097		0.11	2.7	TM*			
45	TM	Bromodichloromethane		0.1195	0.1215	0.1184	0.1328	0.1332	0.1346	0.1373	0.1426		0.13	6.9	TM			
46	TM	Methyl Cyclohexane		0.1706	0.1612	0.1645	0.1612	0.1596	0.1669	0.1614	0.1482		0.16	4.1	TM			
47	TM	Dibromomethane		0.0524	0.0523	0.0548	0.0612	0.0625	0.0609	0.0594	0.0574		0.06	7.0	TM			
48	TM	MIBK (methyl isobutyl ketone)		0.1016	0.0970	0.0727	0.0867	0.0805	0.0779	0.0764	0.0725		0.08	13	TM			
49	TM	1-Bromo-2-chloroethane		0.0789	0.0670	0.0676	0.0765	0.0725	0.0727	0.0724	0.0713		0.07	5.5	TM			
50	TM	2-Chloroethyl vinyl ether													TM			
51	TM	Cis-1,3-Dichloropropene		0.1663	0.1617	0.1587	0.1772	0.1789	0.1831	0.1824	0.1817		0.17	5.7	TM			
52	TM*	Toluene		0.4972	0.5110	0.5025	0.5105	0.5015	0.5148	0.5034	0.4921		0.50	1.5	TM*			
53	TM	Trans-1,3-Dichloropropene		0.1422	0.1303	0.1237	0.1466	0.1492	0.1569	0.1565	0.1575		0.15	8.7	TM			
54	TM	1,1,2-TCA		0.0660	0.0734	0.0673	0.0743	0.0721	0.0741	0.0732	0.0703		0.07	4.5	TM			
55	TM	2-Hexanone		0.0653	0.0549	0.0591	0.0564	0.0513	0.0500	0.0505	0.0463		0.05	11	TM			
56	I	Chlorobenzene-D5 (IS)																
57	S	Toluene-D8(S)	1.394	1.286	1.018	1.062	1.091	1.071	1.080	1.053	0.9367		1.1	13	S			
58	TM	1,2-EDB		0.1072	0.0990	0.1151	0.1223	0.1169	0.1185	0.1179	0.1118		0.11	6.5	TM			
59	TM	Tetrachloroethene		0.1523	0.1391	0.1369	0.1398	0.1349	0.1391	0.1320	0.1259		0.14	5.5	TM			
60	TM	1-Chlorohexane		0.1831	0.1948	0.1894	0.1920	0.1956	0.1983	0.1902	0.1801		0.19	3.3	TM			
61	TM	1,1,1,2-Tetrachloroethane		0.1278	0.1216	0.1226	0.1358	0.1371	0.1423	0.1472	0.1494		0.14	7.9	TM			
62	TM	m&p-Xylene		0.2826	0.2684	0.2631	0.2947	0.2836	0.2942	0.2860	0.2788		0.28	4.0	TM			
63	TM	o-Xylene		0.2816	0.2864	0.2793	0.2899	0.2899	0.2942	0.2872	0.2852		0.29	1.7	TM			
64	TM	Styrene		0.4550	0.4494	0.4297	0.4913	0.4738	0.4960	0.4861	0.4829		0.47	5.0	TM			
65	S	4-Bromofluorobenzene(S)	0.5102	0.4809	0.3610	0.3788	0.3957	0.3966	0.4009	0.3904	0.3516		0.41	13	S			
66	TM	1,3-Dichloropropane		0.2080	0.1956	0.2014	0.2199	0.2170	0.2165	0.2080	0.1968		0.21	4.5	TM			
67	TM	Dibromochloromethane		0.1050	0.0989	0.0879	0.1026	0.1069	0.1163	0.1191	0.1267		0.11	11	TM			
68	TM**	Chlorobenzene		0.4564	0.4155	0.4047	0.4545	0.4416	0.4497	0.4354	0.4311		0.44	4.2	TM**			
69	TM*	Ethylbenzene		0.6772	0.7012	0.6789	0.7466	0.7340	0.7446	0.7080	0.6930		0.71	4.0	TM*			
70	TM**L	Bromoform		0.0491	0.0562	0.0495	0.0546	0.0580	0.0640	0.0700	0.0774		0.06	17	TM**L	0.998		

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/24/19
Matrix: water Instrument: Max Initials:

		Compound	1	2	3	4	5	6	7	8	9		Avg	%RSD	Type		Q	MRF
71	I	1,4-Dichlorobenzene-D (IS)																
72	TM	Isopropylbenzene		1.387	1.372	1.385	1.421	1.361	1.388	1.352	1.319		1.4	2.2	TM			
73	TM**	1,1,2,2-Tetrachloroethane		0.3157	0.3309	0.3307	0.3468	0.3458	0.3351	0.3370	0.3415		0.34	3.0	TM**			
74	TM	1,2,3-Trichloropropane		0.0725	0.0794	0.0764	0.0889	0.0841	0.0838	0.0819	0.0763		0.08	6.6	TM			
75	TM	t-1,4-Dichloro-2-Butene			0.0382	0.0276	0.0301	0.0284	0.0303	0.0320	0.0303		0.03	11	TM			
76	TM	Bromobenzene		0.3670	0.3936	0.3568	0.3853	0.3711	0.3772	0.3683	0.3633		0.37	3.2	TM			
77	TM	n-Propylbenzene		1.569	1.539	1.580	1.559	1.529	1.547	1.507	1.461		1.5	2.5	TM			
78	TM	4-Ethyltoluene		1.305	1.346	1.365	1.395	1.380	1.390	1.355	1.322		1.4	2.4	TM			
79	TM	2-Chlorotoluene		0.9027	1.006	1.002	0.9602	0.9521	0.9493	0.9180	0.8984		0.95	4.3	TM			
80	TM	1,3,5-Trimethylbenzene		1.144	1.154	1.193	1.197	1.165	1.165	1.128	1.093		1.2	2.9	TM			
81	TM	4-Chlorotoluene		1.108	1.112	1.136	1.119	1.116	1.124	1.072	1.054		1.1	2.5	TM			
82	TM	Tert-Butylbenzene		0.9405	1.211	1.007	1.092	1.019	1.018	0.9872	0.9548		1.0	8.4	TM			
83	TM	1,2,4-Trimethylbenzene		1.178	1.136	1.152	1.199	1.188	1.177	1.154	1.128		1.2	2.2	TM			
84	TM	Sec-Butylbenzene		1.282	1.376	1.398	1.430	1.378	1.379	1.352	1.305		1.4	3.5	TM			
85	TM	p-Isopropyltoluene		0.5856	0.6249	0.6134	0.6694	0.6475	0.6492	0.6225	0.6144		0.63	4.2	TM			
86	TM	Benzyl Chloride		0.2555	0.2395	0.2479	0.2873	0.2808	0.3131	0.3202	0.3306		0.28	12	TM			
87	TM	1,3-DCB		0.6855	0.6569	0.6628	0.6869	0.6823	0.6942	0.6750	0.6746		0.68	1.9	TM			
88	TM	1,4-DCB		0.3624	0.3348	0.3208	0.3509	0.3475	0.3468	0.3505	0.3432		0.34	3.6	TM			
89	TM	n-Butylbenzene		0.4922	0.5100	0.4955	0.5388	0.5024	0.5237	0.5207	0.5078		0.51	3.1	TM			
90	TM	1,2-DCB		0.5627	0.5926	0.6208	0.6461	0.6553	0.6508	0.6445	0.6293		0.63	5.2	TM			
91	TML	Hexachloroethane		0.0561	0.0479	0.0556	0.0463	0.0447	0.0582	0.0613	0.0730		0.06	17	TML	0.995		
92	TM	1,2-Dibromo-3-chloropropane			0.0397	0.0356	0.0470	0.0461	0.0484	0.0521	0.0491		0.05	13	TM			
93	TM	1,2,4-Trichlorobenzene		0.3600	0.3690	0.3442	0.4149	0.3972	0.4184	0.4272	0.4113		0.39	7.9	TM			
94	TM	Hexachlorobutadiene		0.1929	0.2069	0.2007	0.2166	0.1970	0.2136	0.2059	0.1911		0.20	4.6	TM			
95	TM	Naphthalene		0.6138	0.5370	0.5736	0.6586	0.6984	0.7193	0.7531	0.6922		0.66	11	TM			
96	TM	1,2,3-Trichlorobenzene		0.3268	0.2954	0.3072	0.3453	0.3525	0.3672	0.3725	0.3520		0.34	8.1	TM			
97																		
98																		
99																		
100																		
101																		
102																		
103																		
104																		
105																		

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M05.D Vial: 3
Acq On : 24 Mar 19 12:56 Operator: PM,DG,SV,CMM,KV
Sample : 0.3ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.31	96	567297	25.000	ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	414490	25.000	ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	209079	25.000	ppb		0.00
System Monitoring Compounds							
32) Dibromofluoromethane(S)	4.60	111	25529	5.883	ppb		0.00
Spiked Amount 25.000			Recovery =	23.532%			
37) 1,2-DCA-D4(S)	4.95	65	31146	6.230	ppb		0.00
Spiked Amount 25.000			Recovery =	24.920%			
57) Toluene-D8(S)	7.13	98	115538	6.278	ppb		0.00
Spiked Amount 25.000			Recovery =	25.112%			
65) 4-Bromofluorobenzene(S)	10.52	95	42297	6.263	ppb		0.00
Spiked Amount 25.000			Recovery =	25.052%			
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.13	85	521	0.334	ppb		98
3) Freon 114	1.23	85	638	0.297	ppb	#	68
4) Chloromethane	1.27	50	1219	0.471	ppb	#	81
5) Vinyl chloride	1.36	62	684	0.266	ppb	#	1
6) Bromomethane	1.61	94	684	0.423	ppb	#	69
7) Chloroethane	1.70	64	5267	2.132	ppb		93
8) Dichlorofluoromethane	1.87	67	1440	0.323	ppb	#	82
9) Trichlorofluoromethane	1.91	101	999	0.307	ppb		99
10) Acrolein	2.30	56	723	9.988	ppb	#	81
11) Acetone	2.46	43	1016	-0.762	ppb		86
12) Freon-113	2.39	101	454	0.244	ppb	#	91
13) 1,1-DCE	2.37	61	896	0.278	ppb		98
14) Acetonitrile	2.71	41	2892	12.104	ppb	#	74
15) t-Butanol	3.03	59	550	3.905	ppb		94
16) Methyl Acetate	2.79	43	274	0.353	ppb	#	53
18) Acrylonitrile	3.10	53	107	0.151	ppb	#	18
19) Methylene chloride	2.83	84	730	0.291	ppb		87
20) Carbon disulfide	2.55	76	1906	0.315	ppb		96
21) Methyl t-butyl ether (MtBE	3.14	73	822	0.280	ppb	#	89
22) Trans-1,2-DCE	3.11	96	735	0.322	ppb	#	53
23) Diisopropyl Ether	3.64	45	2392	0.277	ppb	#	77
24) 1,1-DCA	3.50	63	1312	0.293	ppb	#	87
25) Vinyl Acetate	3.61	43	774	0.341	ppb		100
26) Ethyl tert Butyl Ether	4.00	59	2080	0.282	ppb		98
27) MEK (2-Butanone)	4.15	43	388	-1.150	ppb	#	46
28) Cis-1,2-DCE	4.10	96	838	0.304	ppb		90
29) 2,2-Dichloropropane	4.09	77	1154	0.310	ppb	#	88
30) Chloroform	4.44	83	1186	0.268	ppb		84
31) Bromochloromethane	4.34	128	248	0.194	ppb	#	67
33) 1,1,1-TCA	4.60	97	967	0.259	ppb	#	83
34) Cyclohexane	4.66	41	926	0.397	ppb	#	61
35) 1,1-Dichloropropene	4.79	75	825	0.268	ppb	#	68
36) 2,2,4-Trimethylpentane	5.12	57	2329	0.360	ppb	#	76
38) Carbon Tetrachloride	4.78	117	622	0.250	ppb	#	68
39) Tert Amyl Methyl Ether	5.18	73	1967	0.309	ppb	#	79
40) 1,2-DCA	5.03	62	894	0.267	ppb	#	65
41) Benzene	5.01	78	3056	0.300	ppb	#	87
42) TCE	5.73	95	1066	0.406	ppb	#	64
43) 2-Pentanone	5.97	43	14419	10.601	ppb		90

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M05.D Vial: 3
Acq On : 24 Mar 19 12:56 Operator: PM,DG,SV,CMM,KV
Sample : 0.3ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
44)	1,2-Dichloropropane	5.97	63	637	0.251	ppb	#	89
45)	Bromodichloromethane	6.28	83	905	0.307	ppb		84
46)	Methyl Cyclohexane	5.94	83	1260	0.343	ppb		99
47)	Dibromomethane	6.09	93	409	0.313	ppb	#	69
48)	MIBK (methyl isobutyl ket	7.06	43	523	0.277	ppb	#	47
49)	1-Bromo-2-chloroethane	6.64	63	494	0.301	ppb		94
51)	Cis-1,3-Dichloropropene	6.82	75	824	0.209	ppb	#	39
52)	Toluene	7.21	91	3481	0.304	ppb		92
53)	Trans-1,3-Dichloropropene	7.51	75	879	0.266	ppb		89
54)	1,1,2-TCA	7.71	83	473	0.292	ppb	#	90
55)	2-Hexanone	8.11	43	650	0.528	ppb	#	32
58)	1,2-EDB	8.32	107	581	0.309	ppb		93
59)	Tetrachloroethene	7.87	164	541	0.237	ppb	#	77
60)	1-Chlorohexane	8.99	91	904	0.286	ppb		84
61)	1,1,1,2-Tetrachloroethane	9.09	131	507	0.226	ppb	#	56
62)	m&p-Xylene	9.30	106	2560	0.549	ppb		91
63)	o-Xylene	9.82	106	1337	0.281	ppb		85
64)	Styrene	9.84	104	2251	0.289	ppb		96
66)	1,3-Dichloropropane	7.92	76	994	0.288	ppb	#	65
67)	Dibromochloromethane	8.19	129	428	0.239	ppb		90
68)	Chlorobenzene	8.97	112	2341	0.324	ppb		92
69)	Ethylbenzene	9.14	91	3488	0.296	ppb	#	80
70)	Bromoform	10.05	173	244	1.798	ppb	#	29
72)	Isopropylbenzene	10.34	105	3178	0.277	ppb		96
73)	1,1,2,2-Tetrachloroethane	6.28	83	905	0.323	ppb	#	84
74)	1,2,3-Trichloropropane	10.78	110	201	0.299	ppb	#	17
76)	Bromobenzene	10.70	156	784	0.251	ppb		75
77)	n-Propylbenzene	10.91	91	3937	0.306	ppb		95
78)	4-Ethyltoluene	11.06	105	3158	0.278	ppb		89
79)	2-Chlorotoluene	10.98	91	2361	0.298	ppb		92
80)	1,3,5-Trimethylbenzene	11.16	105	2869	0.297	ppb		81
81)	4-Chlorotoluene	11.14	91	2795	0.302	ppb		93
82)	Tert-Butylbenzene	11.61	119	2561	0.298	ppb		91
83)	1,2,4-Trimethylbenzene	11.68	105	2952	0.303	ppb		94
84)	Sec-Butylbenzene	11.91	105	3308	0.290	ppb		93
85)	p-Isopropyltoluene	12.14	119	1509	0.287	ppb		93
86)	Benzyl Chloride	12.36	91	632	0.266	ppb	#	62
87)	1,3-DCB	12.02	146	1645	0.290	ppb	#	80
88)	1,4-DCB	12.15	146	931	0.323	ppb	#	85
89)	n-Butylbenzene	12.72	91	1221	0.285	ppb		83
90)	1,2-DCB	12.67	146	1513	0.289	ppb		88
91)	Hexachloroethane	13.01	117	168	2.403	ppb	#	4
93)	1,2,4-Trichlorobenzene	14.99	180	796	0.242	ppb	#	85
94)	Hexachlorobutadiene	15.28	225	528	0.311	ppb	#	74
95)	Naphthalene	15.32	128	1254	0.229	ppb	#	75
96)	1,2,3-Trichlorobenzene	15.67	180	808	0.284	ppb		94

(#) = qualifier out of range (m) = manual integration

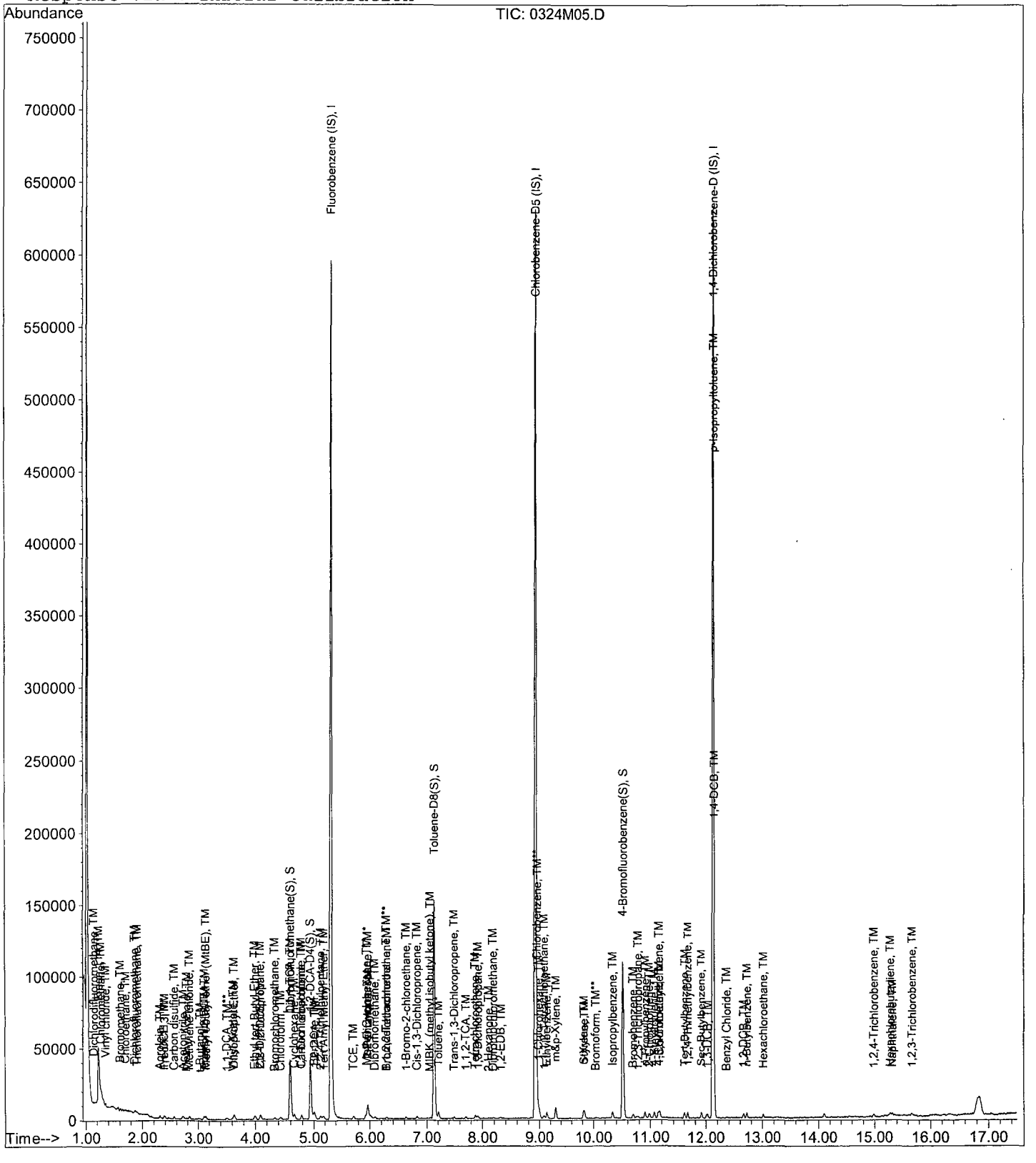
Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M05.D
Acq On : 24 Mar 19 12:56
Sample : 0.3ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 3
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M06.D
Acq On : 24 Mar 19 13:25
Sample : 0.5ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 4
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.31	96	548649	25.000 ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	408005	25.000 ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	207647	25.000 ppb		0.00
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.60	111	24026	5.724 ppb		0.00
Spiked Amount 25.000			Recovery =	22.896%		
37) 1,2-DCA-D4(S)	4.95	65	27628	5.714 ppb		0.00
Spiked Amount 25.000			Recovery =	22.856%		
57) Toluene-D8(S)	7.13	98	104917	5.791 ppb		0.00
Spiked Amount 25.000			Recovery =	23.164%		
65) 4-Bromofluorobenzene(S)	10.52	95	39240	5.903 ppb		0.00
Spiked Amount 25.000			Recovery =	23.612%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.14	85	697	0.461 ppb	#	80
3) Freon 114	1.23	85	1110	0.534 ppb		98
4) Chloromethane	1.27	50	1607	0.658 ppb		96
5) Vinyl chloride	1.36	62	1011	0.406 ppb	#	1
6) Bromomethane	1.61	94	898	0.574 ppb		85
7) Chloroethane	1.69	64	2862	0.767 ppb	#	79
8) Dichlorofluoromethane	1.87	67	2353	0.545 ppb		86
9) Trichlorofluoromethane	1.91	101	1339	0.426 ppb		79
10) Acrolein	2.30	56	1455	20.784 ppb		95
11) Acetone	2.45	43	1189	-0.303 ppb		89
12) Freon-113	2.39	101	804	0.446 ppb	#	86
13) 1,1-DCE	2.37	61	1498	0.480 ppb		97
14) Acetonitrile	2.71	41	6123	26.498 ppb	#	83
15) t-Butanol	3.03	59	3404	24.991 ppb	#	75
16) Methyl Acetate	2.77	43	412	0.549 ppb	#	53
17) Iodomethane	2.50	142	127	1.552 ppb	#	45
18) Acrylonitrile	3.08	53	98	0.143 ppb	#	81
19) Methylene chloride	2.84	84	1233	0.507 ppb		94
20) Carbon disulfide	2.55	76	2978	0.508 ppb		97
21) Methyl t-butyl ether (MtBE	3.14	73	1185	0.418 ppb		91
22) Trans-1,2-DCE	3.10	96	1012	0.459 ppb		77
23) Diisopropyl Ether	3.63	45	4009	0.480 ppb		94
24) 1,1-DCA	3.51	63	2097	0.484 ppb		92
25) Vinyl Acetate	3.62	43	1160	0.528 ppb		100
26) Ethyl tert Butyl Ether	4.00	59	3104	0.436 ppb	#	86
27) MEK (2-Butanone)	4.14	43	656	-0.729 ppb	#	46
28) Cis-1,2-DCE	4.10	96	1411	0.530 ppb		87
29) 2,2-Dichloropropane	4.09	77	1804	0.501 ppb		93
30) Chloroform	4.44	83	2155	0.504 ppb		85
31) Bromochloromethane	4.34	128	628	0.508 ppb	#	66
33) 1,1,1-TCA	4.62	97	1839	0.509 ppb	#	89
34) Cyclohexane	4.67	41	1358	0.602 ppb		85
35) 1,1-Dichloropropene	4.79	75	1398	0.470 ppb	#	86
36) 2,2,4-Trimethylpentane	5.12	57	3182	0.508 ppb	#	72
38) Carbon Tetrachloride	4.78	117	1137	0.472 ppb		81
39) Tert Amyl Methyl Ether	5.17	73	2866	0.466 ppb	#	91
40) 1,2-DCA	5.03	62	1734	0.535 ppb	#	73
41) Benzene	5.00	78	5042	0.511 ppb		94
42) TCE	5.72	95	1200	0.472 ppb		93

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M06.D
Acq On : 24 Mar 19 13:25
Sample : 0.5ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 4
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
43)	2-Pentanone	5.97	43	33358	25.360	ppb		95
44)	1,2-Dichloropropane	5.96	63	1161	0.472	ppb	#	89
45)	Bromodichloromethane	6.29	83	1311	0.460	ppb		98
46)	Methyl Cyclohexane	5.94	83	1872	0.528	ppb		85
47)	Dibromomethane	6.09	93	575	0.455	ppb	#	69
48)	MIBK (methyl isobutyl ket	7.06	43	1115	0.611	ppb	#	47
49)	1-Bromo-2-chloroethane	6.63	63	866	0.545	ppb		93
51)	Cis-1,3-Dichloropropene	6.82	75	1825	0.479	ppb		88
52)	Toluene	7.21	91	5456	0.493	ppb		97
53)	Trans-1,3-Dichloropropene	7.50	75	1560	0.489	ppb		97
54)	1,1,2-TCA	7.71	83	724	0.463	ppb		73
55)	2-Hexanone	8.09	43	717	0.603	ppb	#	32
58)	1,2-EDB	8.30	107	875	0.472	ppb		87
59)	Tetrachloroethene	7.88	164	1243	0.554	ppb	#	79
60)	1-Chlorohexane	8.99	91	1494	0.481	ppb		85
61)	1,1,1,2-Tetrachloroethane	9.08	131	1043	0.472	ppb		89
62)	m&p-Xylene	9.30	106	4612	1.004	ppb		88
63)	o-Xylene	9.82	106	2298	0.491	ppb		66
64)	Styrene	9.85	104	3713	0.484	ppb		90
66)	1,3-Dichloropropane	7.91	76	1697	0.500	ppb		100
67)	Dibromochloromethane	8.19	129	857	0.487	ppb	#	71
68)	Chlorobenzene	8.97	112	3724	0.523	ppb		99
69)	Ethylbenzene	9.14	91	5526	0.477	ppb		88
70)	Bromoform	10.05	173	401	1.925	ppb		89
72)	Isopropylbenzene	10.34	105	5759	0.505	ppb		98
73)	1,1,2,2-Tetrachloroethane	6.29	83	1311	0.471	ppb	#	98
74)	1,2,3-Trichloropropane	10.79	110	301	0.451	ppb		86
75)	t-1,4-Dichloro-2-Butene	10.84	53	170	0.661	ppb	#	31
76)	Bromobenzene	10.69	156	1524	0.492	ppb		89
77)	n-Propylbenzene	10.90	91	6514	0.510	ppb		88
78)	4-Ethyltoluene	11.07	105	5419	0.481	ppb		94
79)	2-Chlorotoluene	10.98	91	3749	0.476	ppb		93
80)	1,3,5-Trimethylbenzene	11.16	105	4749	0.495	ppb		92
81)	4-Chlorotoluene	11.14	91	4601	0.501	ppb		100
82)	Tert-Butylbenzene	11.61	119	3906	0.457	ppb	#	90
83)	1,2,4-Trimethylbenzene	11.68	105	4891	0.506	ppb		88
84)	Sec-Butylbenzene	11.92	105	5324	0.471	ppb		91
85)	p-Isopropyltoluene	12.15	119	2432	0.466	ppb	#	87
86)	Benzyl Chloride	12.36	91	1061	0.449	ppb	#	85
87)	1,3-DCB	12.02	146	2847	0.506	ppb		90
88)	1,4-DCB	12.16	146	1505	0.526	ppb		92
89)	n-Butylbenzene	12.72	91	2044	0.481	ppb		98
90)	1,2-DCB	12.66	146	2337	0.450	ppb		95
91)	Hexachloroethane	13.03	117	233	2.512	ppb		92
92)	1,2-Dibromo-3-chloropropan	13.77	157	85	0.225	ppb	#	9
93)	1,2,4-Trichlorobenzene	14.98	180	1495	0.458	ppb		92
94)	Hexachlorobutadiene	15.27	225	801	0.475	ppb	#	72
95)	Naphthalene	15.31	128	2549	0.468	ppb		97
96)	1,2,3-Trichlorobenzene	15.67	180	1357	0.481	ppb	#	59

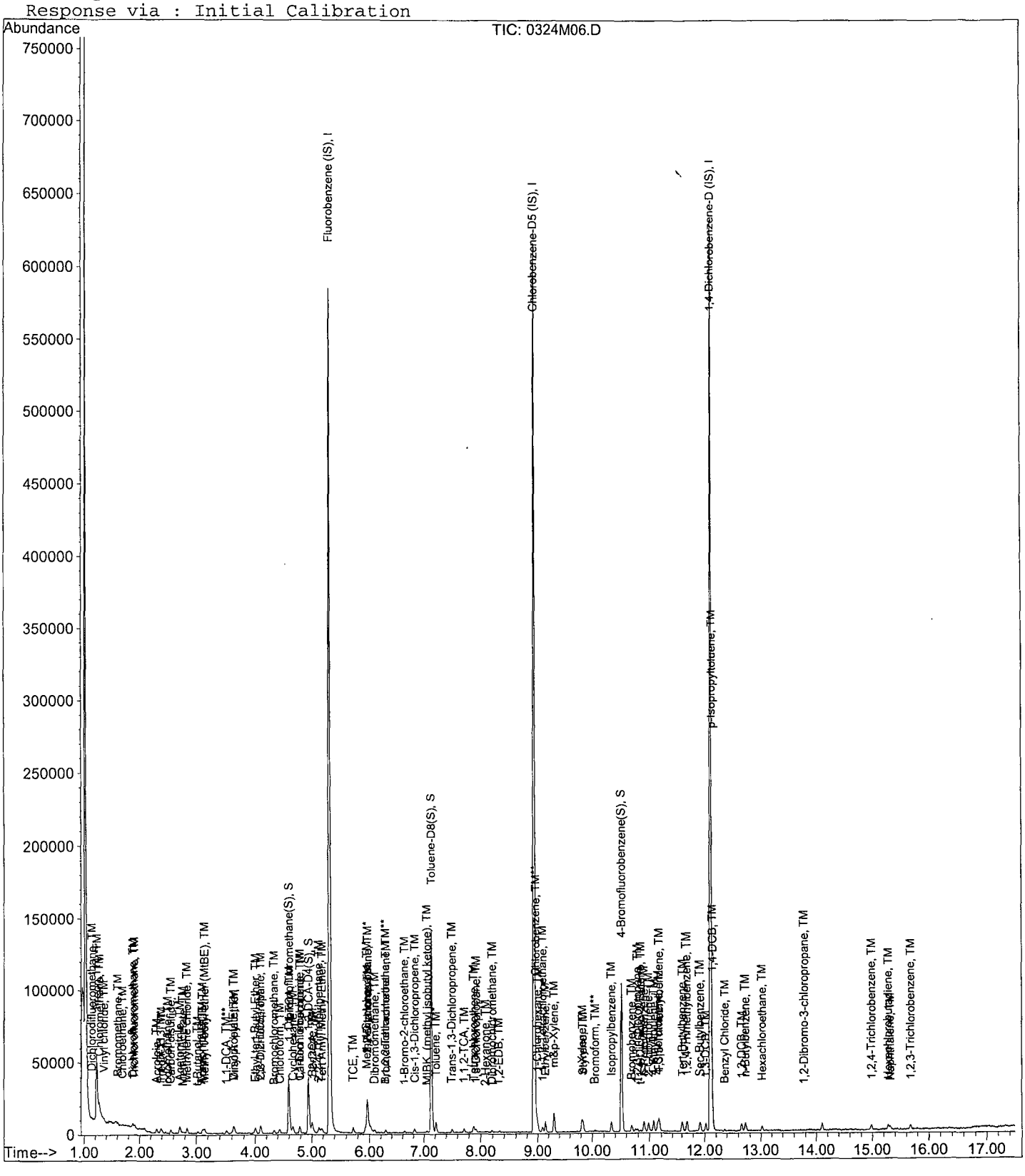
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M06.D Vial: 4
Acq On : 24 Mar 19 13:25 Operator: PM,DG,SV,CMM,KV
Sample : 0.5ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M07.D Vial: 5
Acq On : 24 Mar 19 13:54 Operator: PM,DG,SV,CMM,KV
Sample : 1.0ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.32	96	562637	25.000	ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	415204	25.000	ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	206662	25.000	ppb		0.00
System Monitoring Compounds							
32) Dibromofluoromethane(S)	4.60	111	37879	8.801	ppb		0.00
Spiked Amount 25.000			Recovery =	35.204%			
37) 1,2-DCA-D4(S)	4.95	65	44603	8.995	ppb		0.00
Spiked Amount 25.000			Recovery =	35.980%			
57) Toluene-D8(S)	7.14	98	169003	9.167	ppb		0.00
Spiked Amount 25.000			Recovery =	36.668%			
65) 4-Bromofluorobenzene(S)	10.52	95	59950	8.862	ppb		0.00
Spiked Amount 25.000			Recovery =	35.448%			
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.14	85	1559	1.006	ppb		95
3) Freon 114	1.24	85	2112	0.991	ppb		93
4) Chloromethane	1.27	50	2436	0.994	ppb		96
5) Vinyl chloride	1.36	62	2825	1.106	ppb		96
6) Bromomethane	1.61	94	1922	1.197	ppb		82
7) Chloroethane	1.70	64	2876	0.732	ppb		99
8) Dichlorofluoromethane	1.88	67	4274	0.965	ppb		94
9) Trichlorofluoromethane	1.92	101	2948	0.915	ppb		77
10) Acrolein	2.30	56	3055	42.554	ppb		98
11) Acetone	2.46	43	1639	0.605	ppb		87
12) Freon-113	2.40	101	1789	0.968	ppb		95
13) 1,1-DCE	2.38	61	3081	0.963	ppb		90
14) Acetonitrile	2.71	41	12157	51.302	ppb		88
15) t-Butanol	3.03	59	3092	22.136	ppb	#	53
16) Methyl Acetate	2.78	43	773	1.004	ppb		91
17) Iodomethane	2.51	142	856	1.808	ppb	#	86
18) Acrylonitrile	3.10	53	536	0.765	ppb		94
19) Methylene chloride	2.84	84	2542	1.020	ppb		97
20) Carbon disulfide	2.56	76	6265	1.043	ppb		97
21) Methyl t-butyl ether (MtBE	3.14	73	2848	0.980	ppb		99
22) Trans-1,2-DCE	3.10	96	2052	0.907	ppb		96
23) Diisopropyl Ether	3.64	45	8074	0.943	ppb		95
24) 1,1-DCA	3.51	63	4470	1.006	ppb		97
25) Vinyl Acetate	3.63	43	2288	1.016	ppb		100
26) Ethyl tert Butyl Ether	4.00	59	6716	0.919	ppb		94
27) MEK (2-Butanone)	4.16	43	940	-0.339	ppb	#	46
28) Cis-1,2-DCE	4.10	96	2479	0.908	ppb		98
29) 2,2-Dichloropropane	4.09	77	3757	1.017	ppb		95
30) Chloroform	4.44	83	4390	1.001	ppb		99
31) Bromochloromethane	4.34	128	1106	0.873	ppb		96
33) 1,1,1-TCA	4.62	97	3827	1.033	ppb	#	79
34) Cyclohexane	4.67	41	2373	1.026	ppb		91
35) 1,1-Dichloropropene	4.79	75	2757	0.903	ppb	#	88
36) 2,2,4-Trimethylpentane	5.13	57	6435	1.002	ppb	#	70
38) Carbon Tetrachloride	4.79	117	1972	0.798	ppb		82
39) Tert Amyl Methyl Ether	5.18	73	5893	0.935	ppb		94
40) 1,2-DCA	5.03	62	3129	0.941	ppb		99
41) Benzene	5.00	78	10097	0.998	ppb		96
42) TCE	5.72	95	2798	1.074	ppb		87

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M07.D
Acq On : 24 Mar 19 13:54
Sample : 1.0ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 5
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
43)	2-Pentanone	5.97	43	62762	46.528	ppb		98
44)	1,2-Dichloropropane	5.96	63	2533	1.005	ppb	#	89
45)	Bromodichloromethane	6.29	83	2735	0.935	ppb		92
46)	Methyl Cyclohexane	5.93	83	3627	0.997	ppb		86
47)	Dibromomethane	6.09	93	1178	0.908	ppb		95
48)	MIBK (methyl isobutyl ket	7.04	43	2183	1.166	ppb		97
49)	1-Bromo-2-chloroethane	6.64	63	1508	0.926	ppb		97
51)	Cis-1,3-Dichloropropene	6.82	75	3638	0.930	ppb		94
52)	Toluene	7.21	91	11501	1.014	ppb		94
53)	Trans-1,3-Dichloropropene	7.51	75	2933	0.897	ppb		99
54)	1,1,2-TCA	7.72	83	1653	1.030	ppb		81
55)	2-Hexanone	8.08	43	1236	1.013	ppb	#	65
58)	1,2-EDB	8.31	107	1645	0.872	ppb		89
59)	Tetrachloroethene	7.88	164	2311	1.012	ppb		88
60)	1-Chlorohexane	8.99	91	3236	1.023	ppb		88
61)	1,1,1,2-Tetrachloroethane	9.09	131	2020	0.898	ppb		95
62)	m&p-Xylene	9.30	106	8914	1.907	ppb		92
63)	o-Xylene	9.82	106	4756	0.999	ppb		88
64)	Styrene	9.85	104	7463	0.955	ppb		86
66)	1,3-Dichloropropane	7.92	76	3248	0.941	ppb		89
67)	Dibromochloromethane	8.19	129	1642	0.916	ppb	#	67
68)	Chlorobenzene	8.97	112	6900	0.953	ppb		99
69)	Ethylbenzene	9.14	91	11645	0.987	ppb		96
70)	Bromoform	10.04	173	934	2.333	ppb		96
72)	Isopropylbenzene	10.34	105	11343	0.999	ppb		95
73)	1,1,2,2-Tetrachloroethane	6.29	83	2735	0.986	ppb	#	92
74)	1,2,3-Trichloropropane	10.79	110	656	0.987	ppb		92
75)	t-1,4-Dichloro-2-Butene	10.84	53	316	1.234	ppb	#	31
76)	Bromobenzene	10.69	156	3254	1.056	ppb		95
77)	n-Propylbenzene	10.90	91	12720	1.002	ppb		96
78)	4-Ethyltoluene	11.07	105	11130	0.992	ppb		99
79)	2-Chlorotoluene	10.98	91	8319	1.061	ppb		98
80)	1,3,5-Trimethylbenzene	11.16	105	9540	0.999	ppb		92
81)	4-Chlorotoluene	11.14	91	9191	1.006	ppb		86
82)	Tert-Butylbenzene	11.61	119	10009	1.177	ppb		96
83)	1,2,4-Trimethylbenzene	11.68	105	9393	0.976	ppb		99
84)	Sec-Butylbenzene	11.92	105	11374	1.010	ppb		99
85)	p-Isopropyltoluene	12.14	119	5166	0.995	ppb		89
86)	Benzyl Chloride	12.36	91	1980	0.842	ppb	#	82
87)	1,3-DCB	12.02	146	5430	0.970	ppb		92
88)	1,4-DCB	12.16	146	2768	0.972	ppb		94
89)	n-Butylbenzene	12.72	91	4216	0.997	ppb		90
90)	1,2-DCB	12.66	146	4899	0.948	ppb		95
91)	Hexachloroethane	13.02	117	396	2.784	ppb		83
92)	1,2-Dibromo-3-chloropropan	13.78	157	328	0.873	ppb	#	49
93)	1,2,4-Trichlorobenzene	14.98	180	3050	0.939	ppb		82
94)	Hexachlorobutadiene	15.28	225	1710	1.019	ppb		81
95)	Naphthalene	15.31	128	4439	0.819	ppb	#	90
96)	1,2,3-Trichlorobenzene	15.67	180	2442	0.869	ppb		84

(#) = qualifier out of range (m) = manual integration

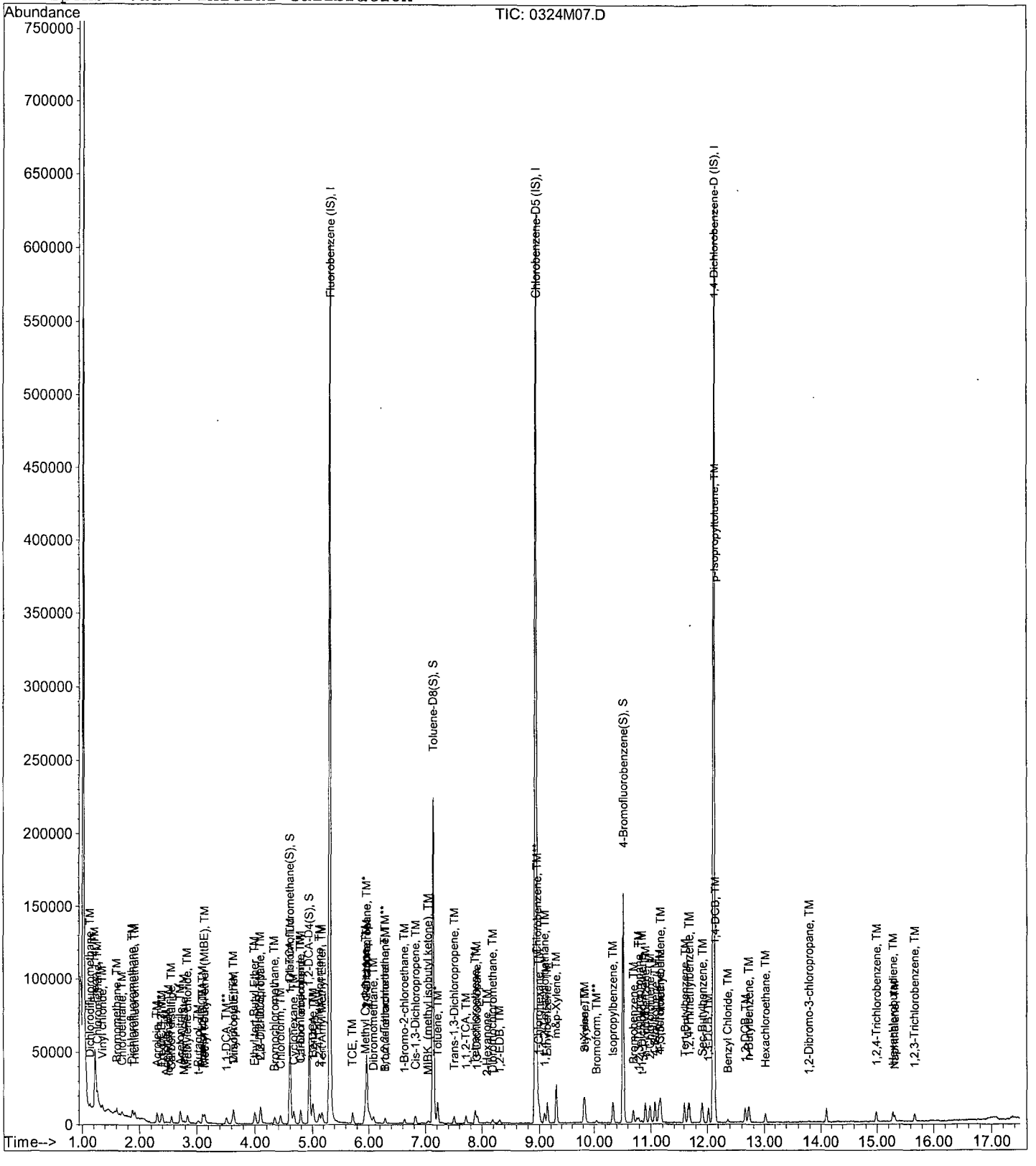
Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M07.D
Acq On : 24 Mar 19 13:54
Sample : 1.0ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 5
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M08.D
Acq On : 24 Mar 19 14:22
Sample : 2.0ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 6
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.32	96	588239	25.000	ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	428656	25.000	ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	210603	25.000	ppb		0.00
System Monitoring Compounds							
32) Dibromofluoromethane(S)	4.60	111	42136	9.364	ppb		0.00
Spiked Amount 25.000			Recovery =	37.456%			
37) 1,2-DCA-D4(S)	4.95	65	48794	9.412	ppb		0.00
Spiked Amount 25.000			Recovery =	37.648%			
57) Toluene-D8(S)	7.14	98	182083	9.567	ppb		0.00
Spiked Amount 25.000			Recovery =	38.268%			
65) 4-Bromofluorobenzene(S)	10.52	95	64942	9.298	ppb		0.00
Spiked Amount 25.000			Recovery =	37.192%			
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.14	85	3178	1.962	ppb		89
3) Freon 114	1.24	85	4711	2.114	ppb		100
4) Chloromethane	1.27	50	4290	1.705	ppb		95
5) Vinyl chloride	1.36	62	5368	2.010	ppb		91
6) Bromomethane	1.61	94	3440	2.049	ppb		93
7) Chloroethane	1.70	64	5687	2.261	ppb		95
8) Dichlorofluoromethane	1.87	67	8877	1.918	ppb		100
9) Trichlorofluoromethane	1.92	101	7224	2.143	ppb		97
10) Acrolein	2.30	56	5228	69.654	ppb		99
11) Acetone	2.46	43	2055	1.313	ppb	#	81
12) Freon-113	2.40	101	4128	2.137	ppb		95
13) 1,1-DCE	2.38	61	6569	1.965	ppb		94
14) Acetonitrile	2.71	41	18140	73.218	ppb		96
15) t-Butanol	3.02	59	10710	73.337	ppb	#	81
16) Methyl Acetate	2.77	43	1594	1.981	ppb		89
17) Iodomethane	2.50	142	2131	2.224	ppb		91
18) Acrylonitrile	3.09	53	1267	1.730	ppb	#	84
19) Methylene chloride	2.84	84	5054	1.940	ppb		93
20) Carbon disulfide	2.55	76	12237	1.948	ppb		99
21) Methyl t-butyl ether (MtBE	3.14	73	5803	1.909	ppb		98
22) Trans-1,2-DCE	3.10	96	4767	2.016	ppb		95
23) Diisopropyl Ether	3.63	45	17540	1.958	ppb		93
24) 1,1-DCA	3.51	63	8879	1.911	ppb		97
25) Vinyl Acetate	3.63	43	4691	1.993	ppb	#	100
26) Ethyl tert Butyl Ether	4.00	59	14488	1.897	ppb		96
27) MEK (2-Butanone)	4.15	43	2047	1.147	ppb		88
28) Cis-1,2-DCE	4.10	96	5346	1.873	ppb		82
29) 2,2-Dichloropropane	4.09	77	7550	1.954	ppb		98
30) Chloroform	4.44	83	9332	2.036	ppb		96
31) Bromochloromethane	4.34	128	2781	2.098	ppb		82
33) 1,1,1-TCA	4.61	97	7435	1.920	ppb	#	85
34) Cyclohexane	4.67	41	5222	2.160	ppb		87
35) 1,1-Dichloropropene	4.79	75	6674	2.091	ppb		98
36) 2,2,4-Trimethylpentane	5.12	57	13336	1.985	ppb	#	86
38) Carbon Tetrachloride	4.78	117	4451	1.723	ppb		96
39) Tert Amyl Methyl Ether	5.18	73	12240	1.857	ppb		98
40) 1,2-DCA	5.03	62	6987	2.010	ppb		98
41) Benzene	5.00	78	20785	1.965	ppb		98
42) TCE	5.72	95	5193	1.907	ppb		95

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M08.D
Acq On : 24 Mar 19 14:22
Sample : 2.0ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 6
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
43)	2-Pentanone	5.97	43	102655	72.789	ppb		99
44)	1,2-Dichloropropane	5.97	63	5402	2.050	ppb		97
45)	Bromodichloromethane	6.29	83	5572	1.822	ppb		90
46)	Methyl Cyclohexane	5.93	83	7740	2.034	ppb		87
47)	Dibromomethane	6.09	93	2579	1.902	ppb		99
48)	MIBK (methyl isobutyl ket	7.04	43	3419	1.747	ppb		95
49)	1-Bromo-2-chloroethane	6.64	63	3180	1.868	ppb		97
51)	Cis-1,3-Dichloropropene	6.82	75	7469	1.827	ppb		96
52)	Toluene	7.22	91	23646	1.993	ppb		96
53)	Trans-1,3-Dichloropropene	7.50	75	5820	1.702	ppb		95
54)	1,1,2-TCA	7.71	83	3165	1.886	ppb		96
55)	2-Hexanone	8.08	43	2780	2.179	ppb		90
58)	1,2-EDB	8.31	107	3946	2.026	ppb		96
59)	Tetrachloroethene	7.88	164	4696	1.992	ppb		97
60)	1-Chlorohexane	8.99	91	6496	1.989	ppb		96
61)	1,1,1,2-Tetrachloroethane	9.08	131	4204	1.810	ppb		97
62)	m&p-Xylene	9.30	106	18048	3.740	ppb		95
63)	o-Xylene	9.82	106	9578	1.948	ppb		89
64)	Styrene	9.84	104	14735	1.826	ppb		98
66)	1,3-Dichloropropane	7.92	76	6905	1.937	ppb		95
67)	Dibromochloromethane	8.19	129	3016	1.630	ppb		89
68)	Chlorobenzene	8.97	112	13877	1.856	ppb		88
69)	Ethylbenzene	9.14	91	23281	1.911	ppb		93
70)	Bromoform	10.05	173	1698	2.885	ppb		91
72)	Isopropylbenzene	10.34	105	23339	2.018	ppb		99
73)	1,1,2,2-Tetrachloroethane	6.29	83	5572	1.972	ppb	#	90
74)	1,2,3-Trichloropropane	10.79	110	1288	1.901	ppb	#	79
75)	t-1,4-Dichloro-2-Butene	10.84	53	465	1.782	ppb		84
76)	Bromobenzene	10.69	156	6011	1.914	ppb		91
77)	n-Propylbenzene	10.90	91	26618	2.057	ppb		99
78)	4-Ethyltoluene	11.07	105	23000	2.012	ppb		97
79)	2-Chlorotoluene	10.98	91	16881	2.112	ppb		92
80)	1,3,5-Trimethylbenzene	11.17	105	20103	2.066	ppb		95
81)	4-Chlorotoluene	11.14	91	19132	2.055	ppb		100
82)	Tert-Butylbenzene	11.60	119	16970	1.958	ppb		97
83)	1,2,4-Trimethylbenzene	11.67	105	19402	1.979	ppb		99
84)	Sec-Butylbenzene	11.92	105	23552	2.052	ppb		98
85)	p-Isopropyltoluene	12.14	119	10335	1.952	ppb		97
86)	Benzyl Chloride	12.36	91	4177	1.744	ppb	#	87
87)	1,3-DCB	12.02	146	11167	1.957	ppb		99
88)	1,4-DCB	12.15	146	5405	1.862	ppb		95
89)	n-Butylbenzene	12.72	91	8348	1.938	ppb		92
90)	1,2-DCB	12.67	146	10459	1.986	ppb		100
91)	Hexachloroethane	13.03	117	936	3.650	ppb	#	71
92)	1,2-Dibromo-3-chloropropan	13.78	157	599	1.565	ppb	#	81
93)	1,2,4-Trichlorobenzene	14.98	180	5799	1.753	ppb		100
94)	Hexachlorobutadiene	15.28	225	3382	1.977	ppb		93
95)	Naphthalene	15.32	128	9664	1.749	ppb		95
96)	1,2,3-Trichlorobenzene	15.67	180	5175	1.808	ppb		92

(#) = qualifier out of range (m) = manual integration

Quantitation Report

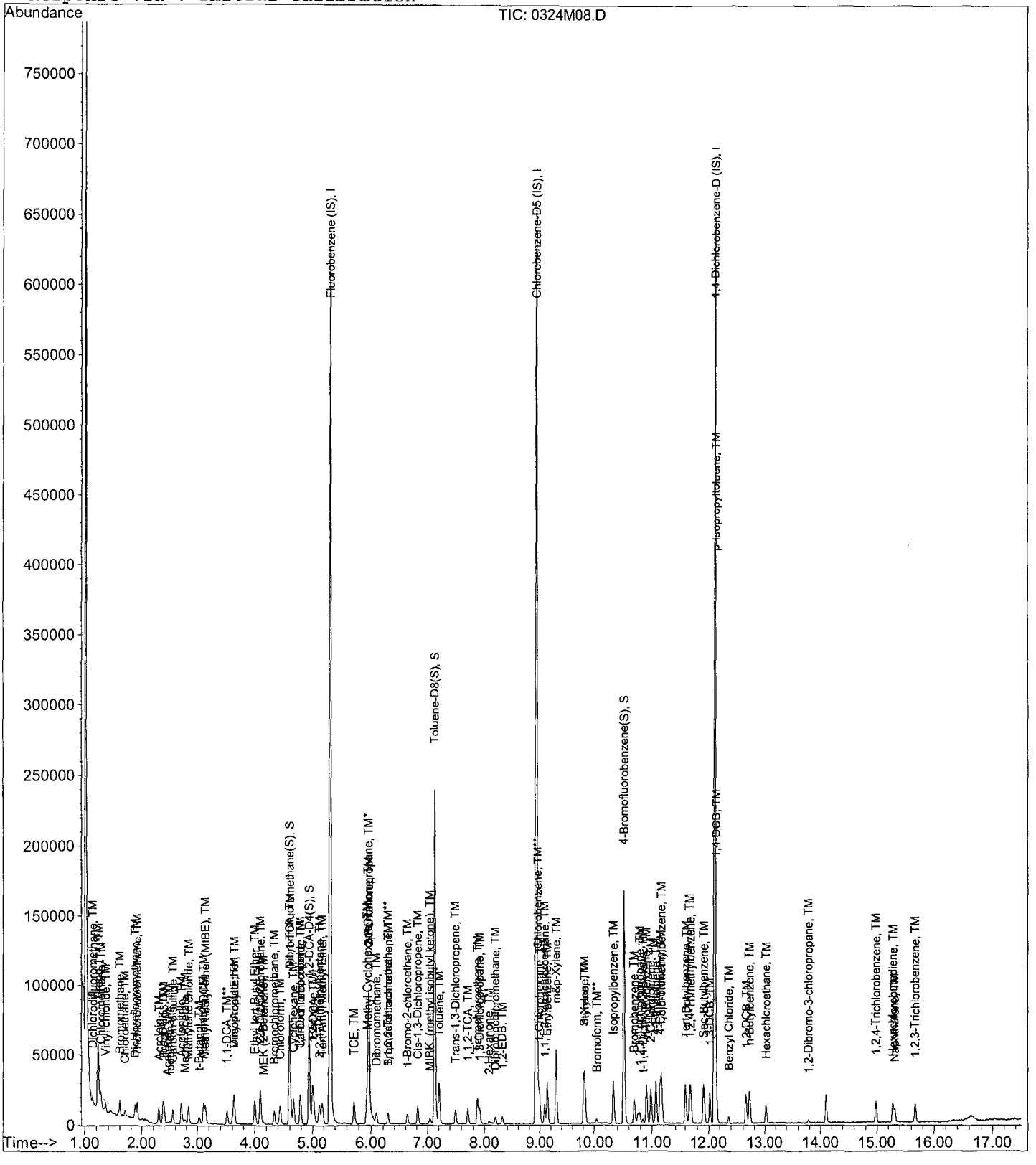
Data File : M:\MAX\DATA\M190324\0324M08.D
Acq On : 24 Mar 19 14:22
Sample : 2.0ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 6
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019

Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M09.D
Acq On : 24 Mar 19 14:51
Sample : 5.0ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 7
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.32	96	551421	25.000	ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	414802	25.000	ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	211221	25.000	ppb		0.00
System Monitoring Compounds							
32) Dibromofluoromethane(S)	4.60	111	105862	25.096	ppb		0.00
Spiked Amount 25.000			Recovery = 100.384%				
37) 1,2-DCA-D4(S)	4.95	65	123145	25.340	ppb		0.00
Spiked Amount 25.000			Recovery = 101.360%				
57) Toluene-D8(S)	7.13	98	452516	24.569	ppb		0.00
Spiked Amount 25.000			Recovery = 98.276%				
65) 4-Bromofluorobenzene(S)	10.52	95	164122	24.284	ppb		0.00
Spiked Amount 25.000			Recovery = 97.136%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.14	85	8400	5.533	ppb		99
3) Freon 114	1.24	85	10470	5.012	ppb		98
4) Chloromethane	1.27	50	12414	5.356	ppb		98
5) Vinyl chloride	1.36	62	13216	5.280	ppb		99
6) Bromomethane	1.60	94	8082	5.137	ppb		90
7) Chloroethane	1.70	64	9504	4.801	ppb		88
8) Dichlorofluoromethane	1.88	67	22787	5.252	ppb		100
9) Trichlorofluoromethane	1.92	101	16814	5.322	ppb		96
10) Acrolein	2.30	56	7202	102.360	ppb		99
11) Acetone	2.46	43	3766	5.377	ppb		85
12) Freon-113	2.40	101	9986	5.514	ppb		96
13) 1,1-DCE	2.38	61	16225	5.176	ppb		98
14) Acetonitrile	2.71	41	23981	103.257	ppb		96
15) t-Butanol	3.03	59	14849	108.468	ppb	#	79
16) Methyl Acetate	2.78	43	3679	4.877	ppb		94
17) Iodomethane	2.50	142	9077	4.766	ppb		95
18) Acrylonitrile	3.09	53	3732	5.435	ppb		96
19) Methylene chloride	2.84	84	12241	5.012	ppb		93
20) Carbon disulfide	2.55	76	30123	5.116	ppb		99
21) Methyl t-butyl ether (MtBE	3.14	73	14677	5.150	ppb		98
22) Trans-1,2-DCE	3.10	96	11896	5.367	ppb		86
23) Diisopropyl Ether	3.63	45	43194	5.145	ppb		93
24) 1,1-DCA	3.51	63	21912	5.031	ppb		97
25) Vinyl Acetate	3.63	43	11403	5.167	ppb	#	100
26) Ethyl tert Butyl Ether	4.00	59	38262	5.344	ppb		97
27) MEK (2-Butanone)	4.15	43	3760	3.889	ppb	#	83
28) Cis-1,2-DCE	4.10	96	13750	5.139	ppb		99
29) 2,2-Dichloropropane	4.09	77	19384	5.352	ppb		97
30) Chloroform	4.44	83	21669	5.044	ppb		95
31) Bromochloromethane	4.33	128	6273	5.049	ppb		93
33) 1,1,1-TCA	4.61	97	18258	5.029	ppb		98
34) Cyclohexane	4.67	41	11019	4.862	ppb		83
35) 1,1-Dichloropropene	4.79	75	15895	5.312	ppb		93
36) 2,2,4-Trimethylpentane	5.13	57	32360	5.139	ppb		94
38) Carbon Tetrachloride	4.78	117	12850	5.307	ppb		99
39) Tert Amyl Methyl Ether	5.18	73	32453	5.253	ppb		98
40) 1,2-DCA	5.03	62	17247	5.293	ppb		96
41) Benzene	5.01	78	50937	5.138	ppb		96
42) TCE	5.72	95	13379	5.241	ppb		91

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M09.D Vial: 7
Acq On : 24 Mar 19 14:51 Operator: PM,DG,SV,CMM,KV
Sample : 5.0ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
43)	2-Pentanone	5.96	43	137846	104.268	ppb		97
44)	1,2-Dichloropropane	5.97	63	12592	5.097	ppb	#	94
45)	Bromodichloromethane	6.29	83	14651	5.110	ppb		100
46)	Methyl Cyclohexane	5.93	83	17775	4.984	ppb		98
47)	Dibromomethane	6.09	93	6749	5.311	ppb		93
48)	MIBK (methyl isobutyl ket	7.04	43	9566	5.214	ppb	#	88
49)	1-Bromo-2-chloroethane	6.63	63	8435	5.285	ppb		91
51)	Cis-1,3-Dichloropropene	6.82	75	19537	5.098	ppb		96
52)	Toluene	7.21	91	56304	5.063	ppb		95
53)	Trans-1,3-Dichloropropene	7.50	75	16165	5.042	ppb		94
54)	1,1,2-TCA	7.72	83	8189	5.205	ppb		95
55)	2-Hexanone	8.08	43	6221	5.202	ppb	#	87
58)	1,2-EDB	8.31	107	10143	5.382	ppb		96
59)	Tetrachloroethene	7.88	164	11596	5.082	ppb		97
60)	1-Chlorohexane	8.99	91	15925	5.040	ppb		92
61)	1,1,1,2-Tetrachloroethane	9.08	131	11268	5.012	ppb		97
62)	m&p-Xylene	9.30	106	48891	10.470	ppb		99
63)	o-Xylene	9.82	106	24051	5.056	ppb		95
64)	Styrene	9.84	104	40762	5.221	ppb		91
66)	1,3-Dichloropropane	7.92	76	18240	5.288	ppb		97
67)	Dibromochloromethane	8.19	129	8513	4.754	ppb		84
68)	Chlorobenzene	8.96	112	37706	5.211	ppb		96
69)	Ethylbenzene	9.14	91	61936	5.254	ppb		96
70)	Bromoform	10.04	173	4526	5.124	ppb		97
72)	Isopropylbenzene	10.34	105	60050	5.176	ppb		99
73)	1,1,2,2-Tetrachloroethane	6.29	83	14651	5.170	ppb	#	100
74)	1,2,3-Trichloropropane	10.79	110	3755	5.526	ppb		96
75)	t-1,4-Dichloro-2-Butene	10.84	53	1271	4.856	ppb		98
76)	Bromobenzene	10.69	156	16277	5.167	ppb		98
77)	n-Propylbenzene	10.90	91	65854	5.073	ppb		98
78)	4-Ethyltoluene	11.07	105	58921	5.138	ppb		98
79)	2-Chlorotoluene	10.98	91	40561	5.061	ppb		100
80)	1,3,5-Trimethylbenzene	11.17	105	50570	5.183	ppb		99
81)	4-Chlorotoluene	11.14	91	47268	5.063	ppb		96
82)	Tert-Butylbenzene	11.61	119	46125	5.307	ppb		96
83)	1,2,4-Trimethylbenzene	11.68	105	50665	5.152	ppb		97
84)	Sec-Butylbenzene	11.92	105	60389	5.247	ppb		99
85)	p-Isopropyltoluene	12.14	119	28280	5.327	ppb		98
86)	Benzyl Chloride	12.36	91	12136	5.051	ppb		97
87)	1,3-DCB	12.02	146	29019	5.071	ppb		96
88)	1,4-DCB	12.15	146	14822	5.091	ppb		99
89)	n-Butylbenzene	12.72	91	22760	5.268	ppb		96
90)	1,2-DCB	12.66	146	27296	5.167	ppb		96
91)	Hexachloroethane	13.02	117	1955	5.298	ppb		91
92)	1,2-Dibromo-3-chloropropan	13.79	157	1986	5.175	ppb	#	84
93)	1,2,4-Trichlorobenzene	14.98	180	17529	5.282	ppb		97
94)	Hexachlorobutadiene	15.28	225	9148	5.332	ppb		92
95)	Naphthalene	15.31	128	27823	5.022	ppb		99
96)	1,2,3-Trichlorobenzene	15.67	180	14585	5.080	ppb		93

(#) = qualifier out of range (m) = manual integration

Quantitation Report

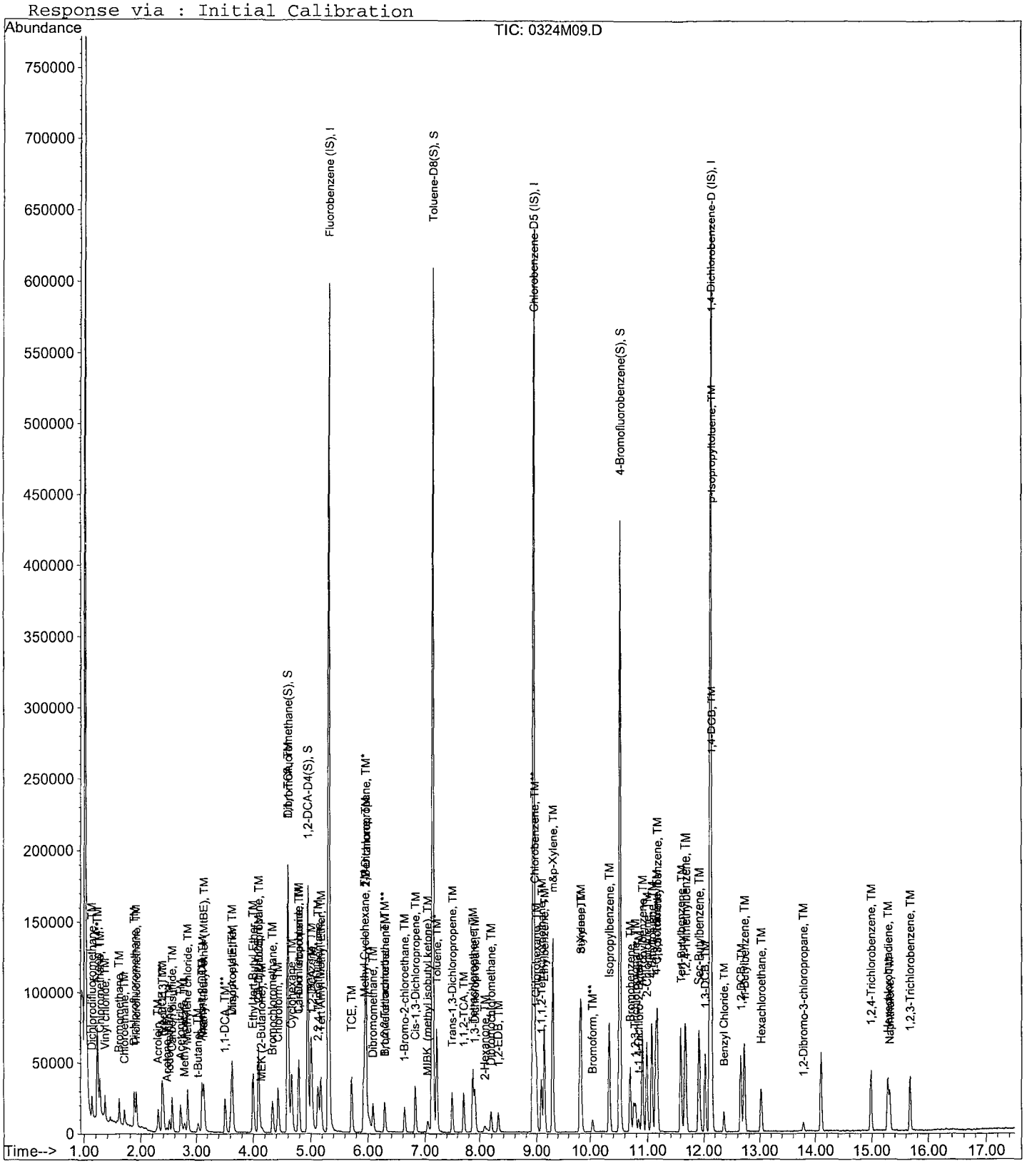
Data File : M:\MAX\DATA\M190324\0324M09.D
Acq On : 24 Mar 19 14:51
Sample : 5.0ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 7
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019

Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M10.D Vial: 8
Acq On : 24 Mar 19 15:19 Operator: PM,DG,SV,CMM,KV
Sample : 10ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.32	96	563465	25.000	ppb	0.00
56) Chlorobenzene-D5 (IS)	8.93	117	422362	25.000	ppb	0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	217007	25.000	ppb	0.00
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.60	111	105764	24.536	ppb	0.00
Spiked Amount 25.000			Recovery =	98.144%		
37) 1,2-DCA-D4(S)	4.95	65	121024	24.371	ppb	0.00
Spiked Amount 25.000			Recovery =	97.484%		
57) Toluene-D8(S)	7.14	98	452289	24.118	ppb	0.00
Spiked Amount 25.000			Recovery =	96.472%		
65) 4-Bromofluorobenzene(S)	10.52	95	167493	24.339	ppb	0.00
Spiked Amount 25.000			Recovery =	97.356%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.14	85	15800	10.185	ppb	100
3) Freon 114	1.24	85	21216	9.939	ppb	100
4) Chloromethane	1.27	50	21888	9.274	ppb	100
5) Vinyl chloride	1.36	62	25361	9.915	ppb	100
6) Bromomethane	1.60	94	14483	9.008	ppb	100
7) Chloroethane	1.69	64	18171	9.839	ppb	100
8) Dichlorofluoromethane	1.87	67	43755	9.869	ppb	100
9) Trichlorofluoromethane	1.92	101	33228	10.293	ppb	100
10) Acrolein	2.30	56	9328	129.743	ppb	100
11) Acetone	2.46	43	6298	10.673	ppb	100
12) Freon-113	2.40	101	18841	10.181	ppb	100
13) 1,1-DCE	2.38	61	32398	10.115	ppb	100
14) Acetonitrile	2.71	41	29850	125.781	ppb	100
15) t-Butanol	3.03	59	18506	132.292	ppb	100
16) Methyl Acetate	2.77	43	7593	9.850	ppb	100
17) Iodomethane	2.50	142	22167	9.296	ppb	100
18) Acrylonitrile	3.08	53	7626	10.868	ppb	100
19) Methylene chloride	2.84	84	24902	9.977	ppb	100
20) Carbon disulfide	2.55	76	57963	9.635	ppb	100
21) Methyl t-butyl ether (MtBE	3.14	73	30824	10.586	ppb	100
22) Trans-1,2-DCE	3.10	96	22303	9.848	ppb	100
23) Diisopropyl Ether	3.63	45	87895	10.246	ppb	100
24) 1,1-DCA	3.51	63	44441	9.986	ppb	100
25) Vinyl Acetate	3.63	43	22384	9.927	ppb	100
26) Ethyl tert Butyl Ether	4.00	59	75361	10.301	ppb	100
27) MEK (2-Butanone)	4.15	43	8407	10.542	ppb	100
28) Cis-1,2-DCE	4.10	96	27525	10.068	ppb	100
29) 2,2-Dichloropropane	4.09	77	36458	9.852	ppb	100
30) Chloroform	4.44	83	42720	9.731	ppb	100
31) Bromochloromethane	4.34	128	12804	10.086	ppb	100
33) 1,1,1-TCA	4.61	97	36404	9.813	ppb	100
34) Cyclohexane	4.67	41	22400	9.672	ppb	100
35) 1,1-Dichloropropene	4.79	75	31180	10.197	ppb	100
36) 2,2,4-Trimethylpentane	5.12	57	65443	10.171	ppb	100
38) Carbon Tetrachloride	4.79	117	24974	10.093	ppb	100
39) Tert Amyl Methyl Ether	5.18	73	66393	10.516	ppb	100
40) 1,2-DCA	5.03	62	33023	9.919	ppb	100
41) Benzene	5.01	78	101103	9.981	ppb	100
42) TCE	5.72	95	26233	10.056	ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M10.D Vial: 8
Acq On : 24 Mar 19 15:19 Operator: PM,DG,SV,CMM,KV
Sample : 10ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
43)	2-Pentanone	5.96	43	168816	124.965 ppb	100
44)	1,2-Dichloropropane	5.96	63	25058	9.927 ppb	100
45)	Bromodichloromethane	6.29	83	30017	10.245 ppb	100
46)	Methyl Cyclohexane	5.93	83	35970	9.870 ppb	100
47)	Dibromomethane	6.09	93	14086	10.847 ppb	100
48)	MIBK (methyl isobutyl ket	7.04	43	18152	9.683 ppb	100
49)	1-Bromo-2-chloroethane	6.63	63	16331	10.013 ppb	100
51)	Cis-1,3-Dichloropropene	6.82	75	40326	10.297 ppb	100
52)	Toluene	7.21	91	113034	9.948 ppb	100
53)	Trans-1,3-Dichloropropene	7.50	75	33629	10.264 ppb	100
54)	1,1,2-TCA	7.71	83	16256	10.112 ppb	100
55)	2-Hexanone	8.08	43	11554	9.454 ppb	100
58)	1,2-EDB	8.31	107	19743	10.289 ppb	100
59)	Tetrachloroethene	7.88	164	22799	9.813 ppb	100
60)	1-Chlorohexane	8.99	91	33041	10.269 ppb	100
61)	1,1,1,2-Tetrachloroethane	9.08	131	23168	10.121 ppb	100
62)	m&p-Xylene	9.30	106	95832	20.155 ppb	100
63)	o-Xylene	9.82	106	48979	10.112 ppb	100
64)	Styrene	9.84	104	80042	10.069 ppb	100
66)	1,3-Dichloropropane	7.92	76	36664	10.440 ppb	100
67)	Dibromochloromethane	8.19	129	18059	9.904 ppb	100
68)	Chlorobenzene	8.96	112	74610	10.127 ppb	100
69)	Ethylbenzene	9.14	91	124010	10.332 ppb	100
70)	Bromoform	10.04	173	9803	9.087 ppb	100
72)	Isopropylbenzene	10.34	105	118164	9.913 ppb	100
73)	1,1,2,2-Tetrachloroethane	6.29	83	30017	10.309 ppb	100
74)	1,2,3-Trichloropropane	10.79	110	7302	10.460 ppb	100
75)	t-1,4-Dichloro-2-Butene	10.84	53	2461	9.152 ppb	100
76)	Bromobenzene	10.69	156	32214	9.954 ppb	100
77)	n-Propylbenzene	10.90	91	132686	9.950 ppb	100
78)	4-Ethyltoluene	11.07	105	119764	10.165 ppb	100
79)	2-Chlorotoluene	10.98	91	82647	10.037 ppb	100
80)	1,3,5-Trimethylbenzene	11.16	105	101151	10.090 ppb	100
81)	4-Chlorotoluene	11.14	91	96860	10.099 ppb	100
82)	Tert-Butylbenzene	11.61	119	88438	9.904 ppb	100
83)	1,2,4-Trimethylbenzene	11.67	105	103147	10.208 ppb	100
84)	Sec-Butylbenzene	11.92	105	119618	10.115 ppb	100
85)	p-Isopropyltoluene	12.14	119	56208	10.305 ppb	100
86)	Benzyl Chloride	12.36	91	24375	9.875 ppb	100
87)	1,3-DCB	12.02	146	59227	10.074 ppb	100
88)	1,4-DCB	12.15	146	30160	10.083 ppb	100
89)	n-Butylbenzene	12.72	91	43608	9.824 ppb	100
90)	1,2-DCB	12.66	146	56886	10.481 ppb	100
91)	Hexachloroethane	13.02	117	3883	8.257 ppb	100
92)	1,2-Dibromo-3-chloropropan	13.78	157	4000	10.144 ppb	100
93)	1,2,4-Trichlorobenzene	14.98	180	34480	10.113 ppb	100
94)	Hexachlorobutadiene	15.28	225	17104	9.703 ppb	100
95)	Naphthalene	15.32	128	60622	10.650 ppb	100
96)	1,2,3-Trichlorobenzene	15.67	180	30594	10.371 ppb	100

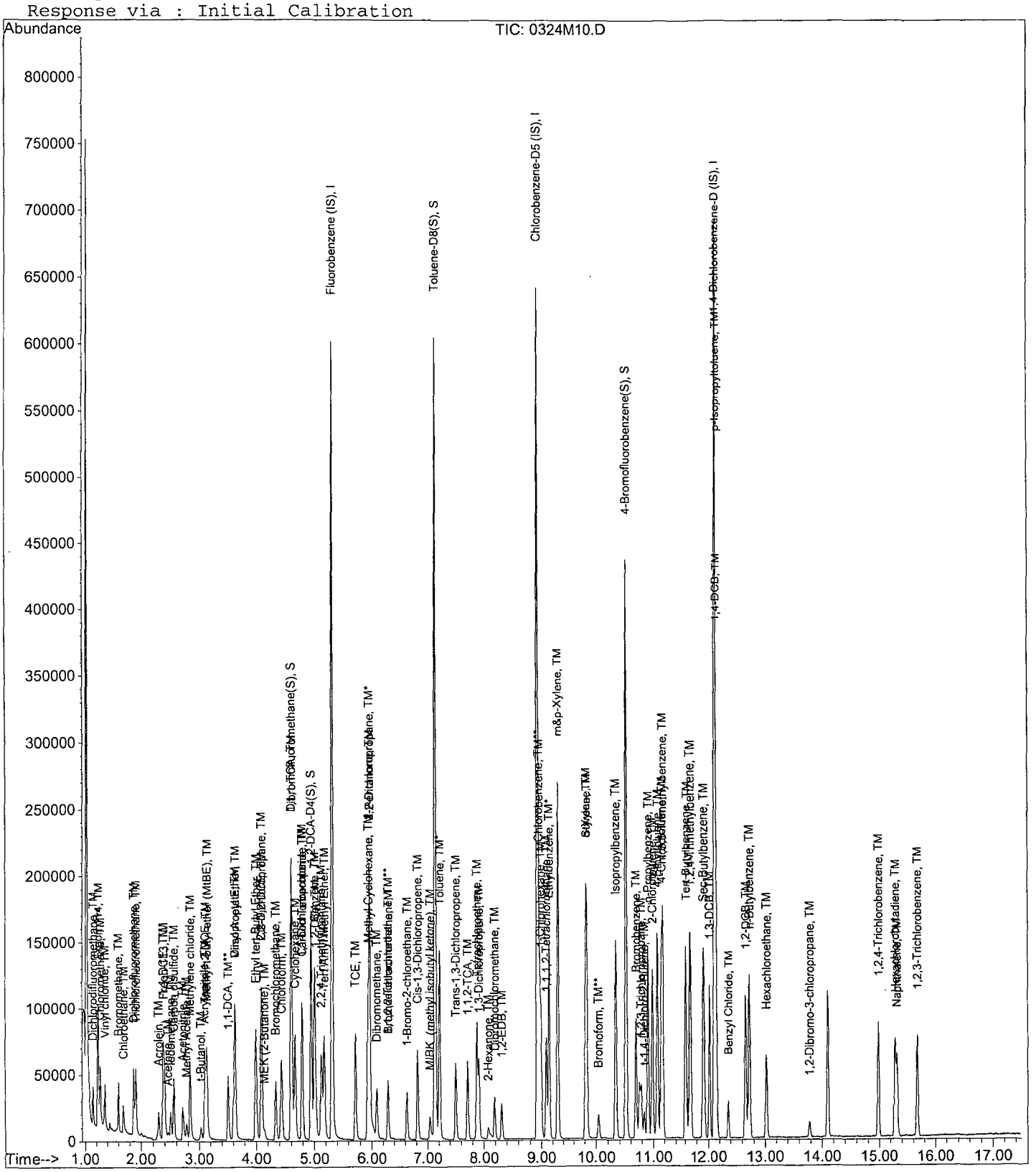
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M10.D Vial: 8
Acq On : 24 Mar 19 15:19 Operator: PM,DG,SV,CMM,KV
Sample : 10ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M11.D Vial: 9
Acq On : 24 Mar 19 15:48 Operator: PM,DG,SV,CMM,KV
Sample : 20ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.31	96	554172	25.000 ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	421724	25.000 ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	222616	25.000 ppb		0.00
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.60	111	210921	49.753 ppb		0.00
Spiked Amount 25.000			Recovery = 199.012%			
37) 1,2-DCA-D4(S)	4.94	65	237117	48.550 ppb		0.00
Spiked Amount 25.000			Recovery = 194.200%			
57) Toluene-D8(S)	7.14	98	910661	48.633 ppb		0.00
Spiked Amount 25.000			Recovery = 194.532%			
65) 4-Bromofluorobenzene(S)	10.52	95	338144	49.211 ppb		0.00
Spiked Amount 25.000			Recovery = 196.844%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.14	85	32456	21.273 ppb		97
3) Freon 114	1.23	85	43098	20.528 ppb		96
4) Chloromethane	1.27	50	47984	20.726 ppb		98
5) Vinyl chloride	1.36	62	52982	21.062 ppb		93
6) Bromomethane	1.60	94	29675	18.766 ppb		94
7) Chloroethane	1.69	64	34768	20.072 ppb		96
8) Dichlorofluoromethane	1.87	67	87633	20.098 ppb		100
9) Trichlorofluoromethane	1.91	101	69322	21.833 ppb		99
10) Acrolein	2.30	56	10928	154.546 ppb		91
11) Acetone	2.46	43	10315	19.732 ppb		98
12) Freon-113	2.39	101	38430	21.114 ppb		98
13) 1,1-DCE	2.37	61	66156	21.001 ppb		97
14) Acetonitrile	2.71	41	33503	143.541 ppb		96
15) t-Butanol	3.03	59	23389	170.002 ppb	#	89
16) Methyl Acetate	2.77	43	14827	19.556 ppb		96
17) Iodomethane	2.50	142	52162	20.144 ppb		97
18) Acrylonitrile	3.08	53	15159	21.967 ppb		97
19) Methylene chloride	2.84	84	50150	20.430 ppb		96
20) Carbon disulfide	2.55	76	119461	20.190 ppb		100
21) Methyl t-butyl ether (MtBE	3.13	73	61256	21.389 ppb		98
22) Trans-1,2-DCE	3.10	96	47491	21.321 ppb		98
23) Diisopropyl Ether	3.63	45	176365	20.903 ppb		98
24) 1,1-DCA	3.51	63	91543	20.915 ppb		98
25) Vinyl Acetate	3.63	43	45272	20.414 ppb	#	100
26) Ethyl tert Butyl Ether	4.00	59	153977	21.400 ppb		99
27) MEK (2-Butanone)	4.14	43	16260	22.386 ppb		90
28) Cis-1,2-DCE	4.10	96	56873	21.152 ppb		96
29) 2,2-Dichloropropane	4.09	77	73546	20.207 ppb		98
30) Chloroform	4.43	83	87196	20.194 ppb		97
31) Bromochloromethane	4.33	128	25339	20.295 ppb		99
33) 1,1,1-TCA	4.61	97	75383	20.660 ppb		95
34) Cyclohexane	4.67	41	44609	19.584 ppb		99
35) 1,1-Dichloropropene	4.79	75	63411	21.085 ppb		97
36) 2,2,4-Trimethylpentane	5.12	57	131033	20.707 ppb		99
38) Carbon Tetrachloride	4.78	117	52560	21.598 ppb		95
39) Tert Amyl Methyl Ether	5.18	73	131590	21.193 ppb		99
40) 1,2-DCA	5.03	62	66760	20.388 ppb		98
41) Benzene	5.00	78	201862	20.261 ppb		99
42) TCE	5.72	95	51727	20.162 ppb		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M11.D
Acq On : 24 Mar 19 15:48
Sample : 20ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 9
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
43) 2-Pentanone	5.96	43	204142	153.649 ppb	100
44) 1,2-Dichloropropane	5.96	63	50739	20.437 ppb	98
45) Bromodichloromethane	6.29	83	59679	20.711 ppb	96
46) Methyl Cyclohexane	5.93	83	74014	20.650 ppb	100
47) Dibromomethane	6.09	93	27008	21.147 ppb	98
48) MIBK (methyl isobutyl ket	7.04	43	34524	18.725 ppb	92
49) 1-Bromo-2-chloroethane	6.63	63	32240	20.100 ppb	99
51) Cis-1,3-Dichloropropene	6.82	75	81196	21.081 ppb	99
52) Toluene	7.21	91	228223	20.422 ppb	100
53) Trans-1,3-Dichloropropene	7.50	75	69565	21.589 ppb	97
54) 1,1,2-TCA	7.71	83	32831	20.765 ppb	96
55) 2-Hexanone	8.08	43	22187	18.459 ppb	98
58) 1,2-EDB	8.31	107	39973	20.864 ppb	96
59) Tetrachloroethene	7.88	164	46918	20.225 ppb	97
60) 1-Chlorohexane	8.99	91	66913	20.828 ppb	96
61) 1,1,1,2-Tetrachloroethane	9.08	131	48015	21.008 ppb	89
62) m&p-Xylene	9.30	106	198547	41.822 ppb	98
63) o-Xylene	9.82	106	99251	20.521 ppb	99
64) Styrene	9.84	104	167349	21.084 ppb	96
66) 1,3-Dichloropropane	7.92	76	73028	20.826 ppb	99
67) Dibromochloromethane	8.19	129	39222	21.543 ppb	92
68) Chlorobenzene	8.97	112	151717	20.623 ppb	98
69) Ethylbenzene	9.14	91	251207	20.961 ppb	97
70) Bromoform	10.04	173	21577	18.095 ppb	100
72) Isopropylbenzene	10.34	105	247238	20.219 ppb	98
73) 1,1,2,2-Tetrachloroethane	6.29	83	59679	19.980 ppb	96
74) 1,2,3-Trichloropropane	10.79	110	14930	20.848 ppb	95
75) t-1,4-Dichloro-2-Butene	10.84	53	5394	19.553 ppb	99
76) Bromobenzene	10.69	156	67184	20.236 ppb	99
77) n-Propylbenzene	10.90	91	275598	20.145 ppb	97
78) 4-Ethyltoluene	11.07	105	247637	20.489 ppb	99
79) 2-Chlorotoluene	10.98	91	169070	20.015 ppb	100
80) 1,3,5-Trimethylbenzene	11.17	105	207449	20.173 ppb	96
81) 4-Chlorotoluene	11.14	91	200132	20.341 ppb	100
82) Tert-Butylbenzene	11.61	119	181301	19.793 ppb	96
83) 1,2,4-Trimethylbenzene	11.68	105	209675	20.229 ppb	100
84) Sec-Butylbenzene	11.92	105	245529	20.240 ppb	96
85) p-Isopropyltoluene	12.14	119	115616	20.662 ppb	98
86) Benzyl Chloride	12.36	91	55766	22.023 ppb	97
87) 1,3-DCB	12.02	146	123627	20.499 ppb	98
88) 1,4-DCB	12.15	146	61768	20.129 ppb	99
89) n-Butylbenzene	12.72	91	93272	20.483 ppb	98
90) 1,2-DCB	12.66	146	115898	20.816 ppb	98
91) Hexachloroethane	13.02	117	10369	18.082 ppb	85
92) 1,2-Dibromo-3-chloropropan	13.78	157	8622	21.315 ppb	89
93) 1,2,4-Trichlorobenzene	14.98	180	74515	21.305 ppb	99
94) Hexachlorobutadiene	15.28	225	38038	21.035 ppb	90
95) Naphthalene	15.32	128	128095	21.937 ppb	97
96) 1,2,3-Trichlorobenzene	15.67	180	65395	21.610 ppb	94

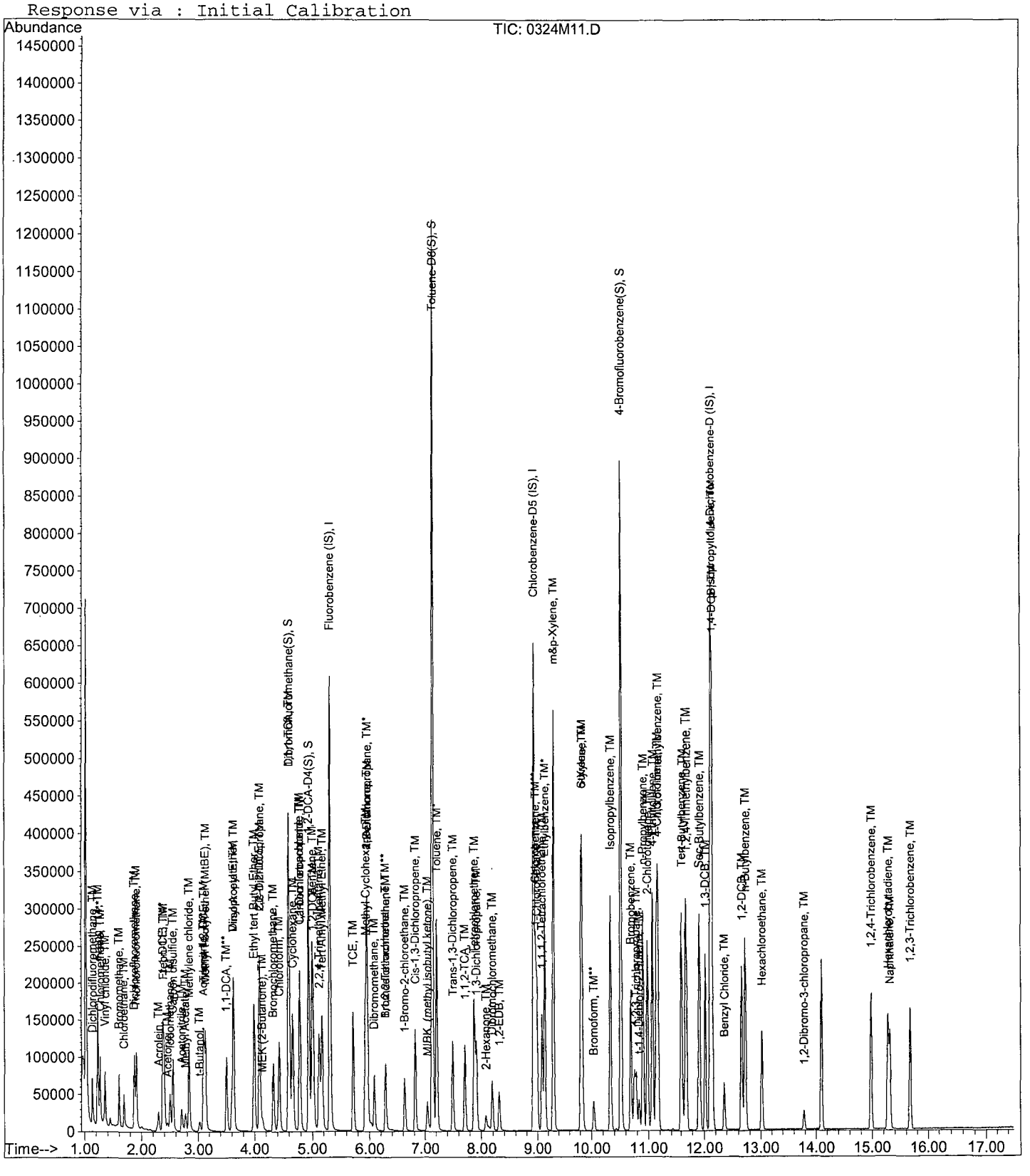
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M11.D Vial: 9
Acq On : 24 Mar 19 15:48 Operator: PM,DG,SV,CMM,KV
Sample : 20ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M12.D Vial: 10
Acq On : 24 Mar 19 16:17 Operator: PM,DG,SV,CMM,KV
Sample : 40ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.31	96	561800	25.000	ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	434917	25.000	ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	228943	25.000	ppb		0.00
System Monitoring Compounds							
32) Dibromofluoromethane(S)	4.60	111	212017	49.332	ppb		0.00
Spiked Amount 25.000			Recovery = 197.328%				
37) 1,2-DCA-D4(S)	4.94	65	237213	47.910	ppb		0.00
Spiked Amount 25.000			Recovery = 191.640%				
57) Toluene-D8(S)	7.14	98	916073	47.438	ppb		0.00
Spiked Amount 25.000			Recovery = 189.752%				
65) 4-Bromofluorobenzene(S)	10.52	95	339596	47.923	ppb		0.00
Spiked Amount 25.000			Recovery = 191.692%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.14	85	61040	39.465	ppb		98
3) Freon 114	1.23	85	82667	38.841	ppb		98
4) Chloromethane	1.27	50	93284	39.787	ppb		99
5) Vinyl chloride	1.36	62	103251	40.488	ppb		92
6) Bromomethane	1.60	94	57092	35.615	ppb		92
7) Chloroethane	1.68	64	68637	40.018	ppb		92
8) Dichlorofluoromethane	1.87	67	175602	39.726	ppb		100
9) Trichlorofluoromethane	1.91	101	131043	40.712	ppb		100
10) Acrolein	2.30	56	13694	191.034	ppb		99
11) Acetone	2.46	43	20045	40.524	ppb		95
12) Freon-113	2.39	101	72554	39.321	ppb		99
13) 1,1-DCE	2.37	61	129990	40.704	ppb		99
14) Acetonitrile	2.71	41	39413	166.569	ppb		96
15) t-Butanol	3.03	59	31806	228.042	ppb	#	85
16) Methyl Acetate	2.77	43	30692	39.932	ppb		100
17) Iodomethane	2.50	142	107903	39.536	ppb		100
18) Acrylonitrile	3.08	53	29354	41.959	ppb		93
19) Methylene chloride	2.83	84	99605	40.027	ppb		94
20) Carbon disulfide	2.55	76	239958	40.004	ppb		99
21) Methyl t-butyl ether (MtBE	3.13	73	122736	42.275	ppb		99
22) Trans-1,2-DCE	3.10	96	94398	41.805	ppb		96
23) Diisopropyl Ether	3.63	45	350532	40.982	ppb		97
24) 1,1-DCA	3.51	63	181585	40.923	ppb		99
25) Vinyl Acetate	3.63	43	86048	38.273	ppb		100
26) Ethyl tert Butyl Ether	4.00	59	310789	42.608	ppb		100
27) MEK (2-Butanone)	4.14	43	29468	41.368	ppb		97
28) Cis-1,2-DCE	4.09	96	110995	40.721	ppb		96
29) 2,2-Dichloropropane	4.09	77	145822	39.521	ppb		97
30) Chloroform	4.43	83	174599	39.888	ppb		95
31) Bromochloromethane	4.33	128	51826	40.946	ppb		96
33) 1,1,1-TCA	4.61	97	148474	40.140	ppb		96
34) Cyclohexane	4.67	41	85551	37.049	ppb		94
35) 1,1-Dichloropropene	4.79	75	122662	40.233	ppb		97
36) 2,2,4-Trimethylpentane	5.12	57	254047	39.601	ppb		99
38) Carbon Tetrachloride	4.78	117	110536	44.804	ppb		99
39) Tert Amyl Methyl Ether	5.17	73	261189	41.494	ppb		99
40) 1,2-DCA	5.03	62	129253	38.937	ppb		98
41) Benzene	5.00	78	400821	39.685	ppb		99
42) TCE	5.72	95	103735	39.885	ppb		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M12.D
Acq On : 24 Mar 19 16:17
Sample : 40ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 10
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
43)	2-Pentanone	5.96	43	243540	180.813 ppb		98
44)	1,2-Dichloropropane	5.96	63	101915	40.493 ppb		98
45)	Bromodichloromethane	6.29	83	123459	42.263 ppb		98
46)	Methyl Cyclohexane	5.93	83	145054	39.920 ppb		99
47)	Dibromomethane	6.09	93	53361	41.213 ppb		96
48)	MIBK (methyl isobutyl ket	7.04	43	68710	36.762 ppb		95
49)	1-Bromo-2-chloroethane	6.63	63	65064	40.013 ppb		98
51)	Cis-1,3-Dichloropropene	6.82	75	163972	41.995 ppb		98
52)	Toluene	7.21	91	452511	39.943 ppb		98
53)	Trans-1,3-Dichloropropene	7.50	75	140709	43.075 ppb		99
54)	1,1,2-TCA	7.71	83	65831	41.071 ppb		97
55)	2-Hexanone	8.08	43	45355	37.222 ppb		96
58)	1,2-EDB	8.31	107	82030	41.516 ppb		97
59)	Tetrachloroethene	7.88	164	91886	38.408 ppb		99
60)	1-Chlorohexane	8.99	91	132369	39.953 ppb		96
61)	1,1,1,2-Tetrachloroethane	9.09	131	102425	43.454 ppb		93
62)	m&p-Xylene	9.30	106	398084	81.308 ppb		98
63)	o-Xylene	9.82	106	199887	40.075 ppb		98
64)	Styrene	9.84	104	338288	41.327 ppb		96
66)	1,3-Dichloropropane	7.92	76	144730	40.021 ppb		98
67)	Dibromochloromethane	8.19	129	82867	44.135 ppb		89
68)	Chlorobenzene	8.97	112	302994	39.937 ppb		99
69)	Ethylbenzene	9.14	91	492702	39.865 ppb		96
70)	Bromoform	10.04	173	48718	37.705 ppb		99
72)	Isopropylbenzene	10.34	105	495168	39.375 ppb		99
73)	1,1,2,2-Tetrachloroethane	6.29	83	123459	40.190 ppb		98
74)	1,2,3-Trichloropropane	10.79	110	30003	40.739 ppb		97
75)	t-1,4-Dichloro-2-Butene	10.84	53	11730	41.346 ppb		91
76)	Bromobenzene	10.69	156	134922	39.517 ppb		96
77)	n-Propylbenzene	10.90	91	552100	39.241 ppb		97
78)	4-Ethyltoluene	11.07	105	496226	39.922 ppb		100
79)	2-Chlorotoluene	10.98	91	336270	38.708 ppb		100
80)	1,3,5-Trimethylbenzene	11.17	105	413065	39.057 ppb		100
81)	4-Chlorotoluene	11.14	91	392528	38.793 ppb		100
82)	Tert-Butylbenzene	11.61	119	361635	38.389 ppb		96
83)	1,2,4-Trimethylbenzene	11.68	105	422646	39.648 ppb		99
84)	Sec-Butylbenzene	11.92	105	495078	39.683 ppb		97
85)	p-Isopropyltoluene	12.14	119	228032	39.627 ppb		97
86)	Benzyl Chloride	12.36	91	117274	45.034 ppb		94
87)	1,3-DCB	12.02	146	247268	39.866 ppb		99
88)	1,4-DCB	12.15	146	128376	40.679 ppb		98
89)	n-Butylbenzene	12.72	91	190720	40.725 ppb		99
90)	1,2-DCB	12.66	146	236081	41.229 ppb		98
91)	Hexachloroethane	13.02	117	22456	35.726 ppb		91
92)	1,2-Dibromo-3-chloropropan	13.78	157	19089	45.888 ppb	#	86
93)	1,2,4-Trichlorobenzene	14.98	180	156495	43.508 ppb		99
94)	Hexachlorobutadiene	15.28	225	75416	40.552 ppb		94
95)	Naphthalene	15.31	128	275870	45.939 ppb		98
96)	1,2,3-Trichlorobenzene	15.67	180	136454	43.846 ppb		93

(#) = qualifier out of range (m) = manual integration

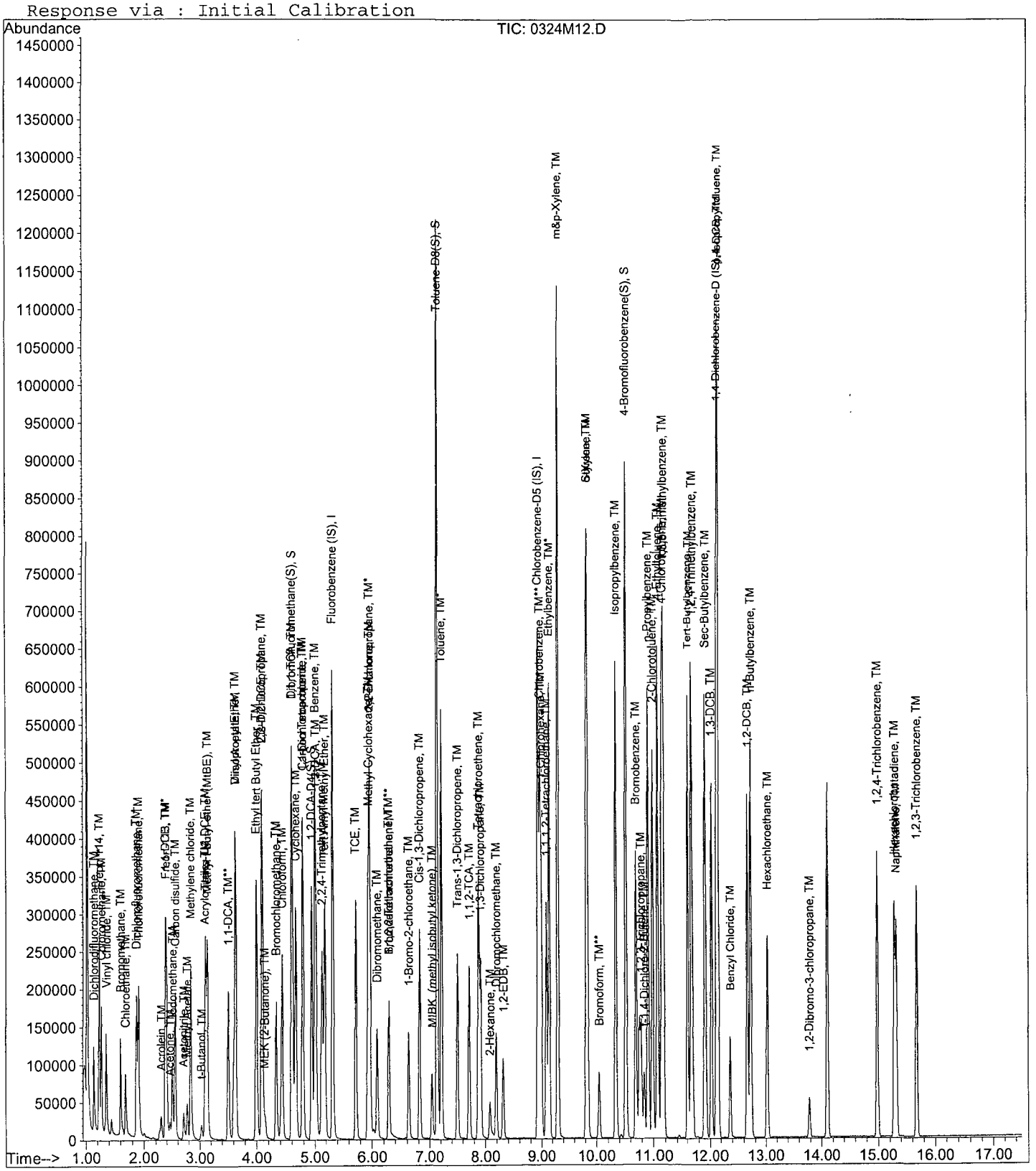
Data File : M:\MAX\DATA\M190324\0324M12.D
Acq On : 24 Mar 19 16:17
Sample : 40ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 10
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019

Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M13.D
Acq On : 24 Mar 19 16:45
Sample : 100ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 11
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.31	96	562288	25.000 ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	441644	25.000 ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	234726	25.000 ppb		0.00
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.60	111	385089	89.525 ppb		0.00
Spiked Amount 25.000			Recovery = 358.100%			
37) 1,2-DCA-D4(S)	4.94	65	422708	85.300 ppb		0.00
Spiked Amount 25.000			Recovery = 341.200%			
57) Toluene-D8(S)	7.14	98	1654770	84.385 ppb		0.00
Spiked Amount 25.000			Recovery = 337.540%			
65) 4-Bromofluorobenzene(S)	10.52	95	621203	86.328 ppb		0.00
Spiked Amount 25.000			Recovery = 345.312%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.14	85	141504	91.408 ppb		98
3) Freon 114	1.23	85	189686	89.046 ppb		96
4) Chloromethane	1.27	50	217005	92.534 ppb		100
5) Vinyl chloride	1.36	62	246040	96.396 ppb		93
6) Bromomethane	1.60	94	140237	87.406 ppb		95
7) Chloroethane	1.68	64	142292	83.944 ppb		95
8) Dichlorofluoromethane	1.87	67	420339	95.009 ppb		99
9) Trichlorofluoromethane	1.90	101	308827	95.863 ppb		99
10) Acrolein	2.30	56	17296	241.073 ppb		98
11) Acetone	2.46	43	47410	99.775 ppb		100
12) Freon-113	2.39	101	168362	91.165 ppb		98
13) 1,1-DCE	2.37	61	313029	97.935 ppb		99
14) Acetonitrile	2.71	41	46901	198.044 ppb		95
15) t-Butanol	3.04	59	24312	174.160 ppb	#	82
16) Methyl Acetate	2.77	43	82240	106.905 ppb		100
17) Iodomethane	2.50	142	280343	100.226 ppb		98
18) Acrylonitrile	3.08	53	73450	104.899 ppb		96
19) Methylene chloride	2.83	84	242384	97.318 ppb		98
20) Carbon disulfide	2.55	76	582222	96.980 ppb		100
21) Methyl t-butyl ether (MtBE	3.14	73	294976	101.513 ppb		98
22) Trans-1,2-DCE	3.10	96	225377	99.723 ppb		99
23) Diisopropyl Ether	3.63	45	851835	99.504 ppb		98
24) 1,1-DCA	3.51	63	442785	99.703 ppb		99
25) Vinyl Acetate	3.63	43	208640	92.720 ppb		100
26) Ethyl tert Butyl Ether	4.00	59	749297	102.638 ppb		100
27) MEK (2-Butanone)	4.15	43	68956	99.007 ppb		97
28) Cis-1,2-DCE	4.09	96	268688	98.488 ppb		98
29) 2,2-Dichloropropane	4.09	77	351154	95.088 ppb		98
30) Chloroform	4.43	83	430922	98.360 ppb		95
31) Bromochloromethane	4.33	128	127342	100.522 ppb		99
33) 1,1,1-TCA	4.61	97	357387	96.535 ppb		96
34) Cyclohexane	4.67	41	195213	84.465 ppb		94
35) 1,1-Dichloropropene	4.79	75	296173	97.060 ppb		97
36) 2,2,4-Trimethylpentane	5.12	57	590419	91.955 ppb		99
38) Carbon Tetrachloride	4.78	117	278015	112.591 ppb		98
39) Tert Amyl Methyl Ether	5.18	73	633172	100.502 ppb		99
40) 1,2-DCA	5.03	62	312479	94.052 ppb		99
41) Benzene	5.00	78	976315	96.581 ppb		100
42) TCE	5.72	95	252098	96.844 ppb		98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M13.D Vial: 11
Acq On : 24 Mar 19 16:45 Operator: PM,DG,SV,CMM,KV
Sample : 100ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
43) 2-Pentanone	5.97	43	265459	196.916 ppb	100
44) 1,2-Dichloropropane	5.96	63	246652	97.915 ppb	98
45) Bromodichloromethane	6.29	83	320630	109.664 ppb	99
46) Methyl Cyclohexane	5.93	83	333414	91.679 ppb	99
47) Dibromomethane	6.09	93	129115	99.635 ppb	98
48) MIBK (methyl isobutyl ket	7.04	43	163137	87.207 ppb	94
49) 1-Bromo-2-chloroethane	6.63	63	160448	98.585 ppb	99
51) Cis-1,3-Dichloropropene	6.82	75	408670	104.574 ppb	99
52) Toluene	7.21	91	1106799	97.612 ppb	98
53) Trans-1,3-Dichloropropene	7.50	75	354248	108.352 ppb	97
54) 1,1,2-TCA	7.71	83	158016	98.499 ppb	98
55) 2-Hexanone	8.08	43	104066	85.332 ppb	98
58) 1,2-EDB	8.31	107	197465	98.417 ppb	98
59) Tetrachloroethene	7.88	164	222398	91.546 ppb	99
60) 1-Chlorohexane	8.99	91	318198	94.579 ppb	97
61) 1,1,1,2-Tetrachloroethane	9.09	131	263958	110.280 ppb	95
62) m&p-Xylene	9.30	106	984994	198.120 ppb	99
63) o-Xylene	9.82	106	503762	99.460 ppb	97
64) Styrene	9.84	104	853008	102.621 ppb	94
66) 1,3-Dichloropropane	7.92	76	347648	94.668 ppb	98
67) Dibromochloromethane	8.19	129	223894	117.429 ppb	93
68) Chlorobenzene	8.97	112	761539	98.849 ppb	99
69) Ethylbenzene	9.14	91	1224261	97.548 ppb	97
70) Bromoform	10.05	173	136695	101.346 ppb	100
72) Isopropylbenzene	10.34	105	1238296	96.042 ppb	99
73) 1,1,2,2-Tetrachloroethane	6.29	83	320630	101.805 ppb	99
74) 1,2,3-Trichloropropane	10.79	110	71676	94.925 ppb	94
75) t-1,4-Dichloro-2-Butene	10.84	53	28432	97.749 ppb	87
76) Bromobenzene	10.69	156	341099	97.442 ppb	97
77) n-Propylbenzene	10.91	91	1372090	95.121 ppb	98
78) 4-Ethyltoluene	11.07	105	1241665	97.432 ppb	98
79) 2-Chlorotoluene	10.98	91	843554	94.709 ppb	99
80) 1,3,5-Trimethylbenzene	11.17	105	1026534	94.671 ppb	98
81) 4-Chlorotoluene	11.14	91	989465	95.379 ppb	99
82) Tert-Butylbenzene	11.61	119	896498	92.822 ppb	95
83) 1,2,4-Trimethylbenzene	11.68	105	1058993	96.896 ppb	100
84) Sec-Butylbenzene	11.92	105	1225293	95.794 ppb	97
85) p-Isopropyltoluene	12.15	119	576832	97.771 ppb	98
86) Benzyl Chloride	12.36	91	310395	116.258 ppb	96
87) 1,3-DCB	12.02	146	633430	99.610 ppb	100
88) 1,4-DCB	12.15	146	322240	99.594 ppb	99
89) n-Butylbenzene	12.72	91	476800	99.305 ppb	99
90) 1,2-DCB	12.66	146	590836	100.641 ppb	99
91) Hexachloroethane	13.02	117	68568	102.192 ppb	90
92) 1,2-Dibromo-3-chloropropan	13.78	157	46126	108.150 ppb	89
93) 1,2,4-Trichlorobenzene	14.99	180	386125	104.705 ppb	99
94) Hexachlorobutadiene	15.28	225	179423	94.101 ppb	93
95) Naphthalene	15.32	128	649926	105.562 ppb	97
96) 1,2,3-Trichlorobenzene	15.67	180	330464	103.569 ppb	95

(#) = qualifier out of range (m) = manual integration

Quantitation Report

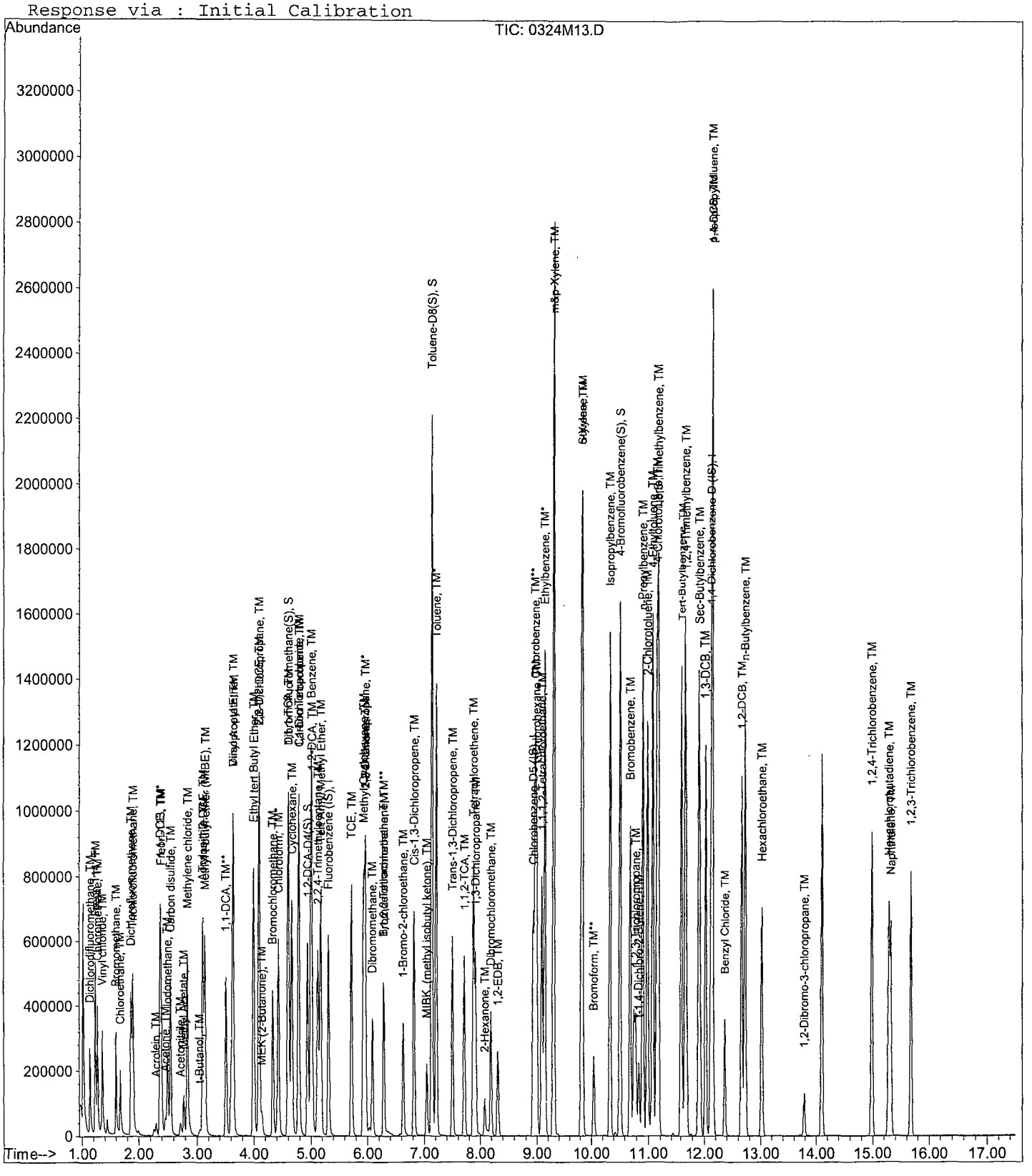
Data File : M:\MAX\DATA\M190324\0324M13.D
Acq On : 24 Mar 19 16:45
Sample : 100ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

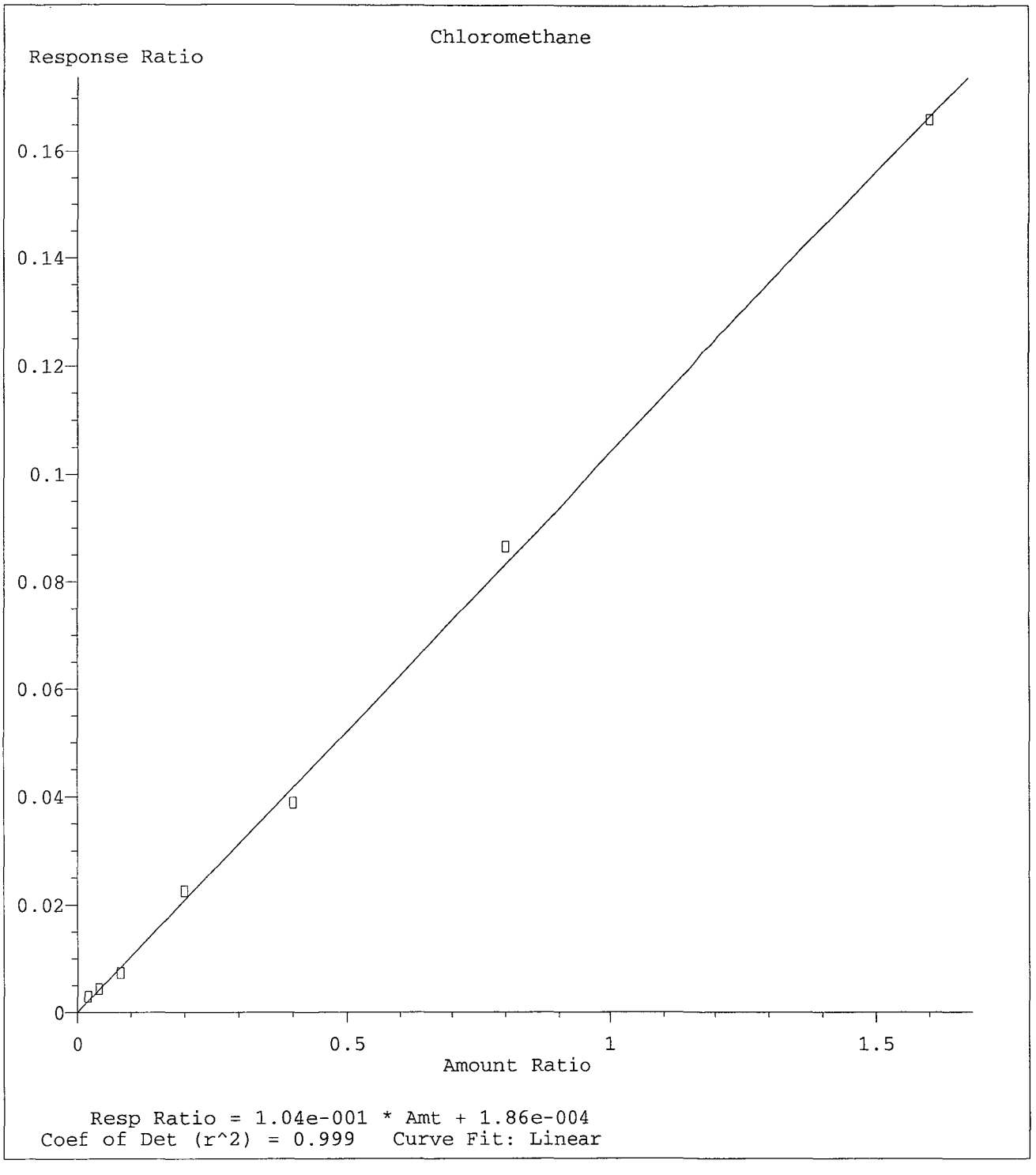
Vial: 11
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019

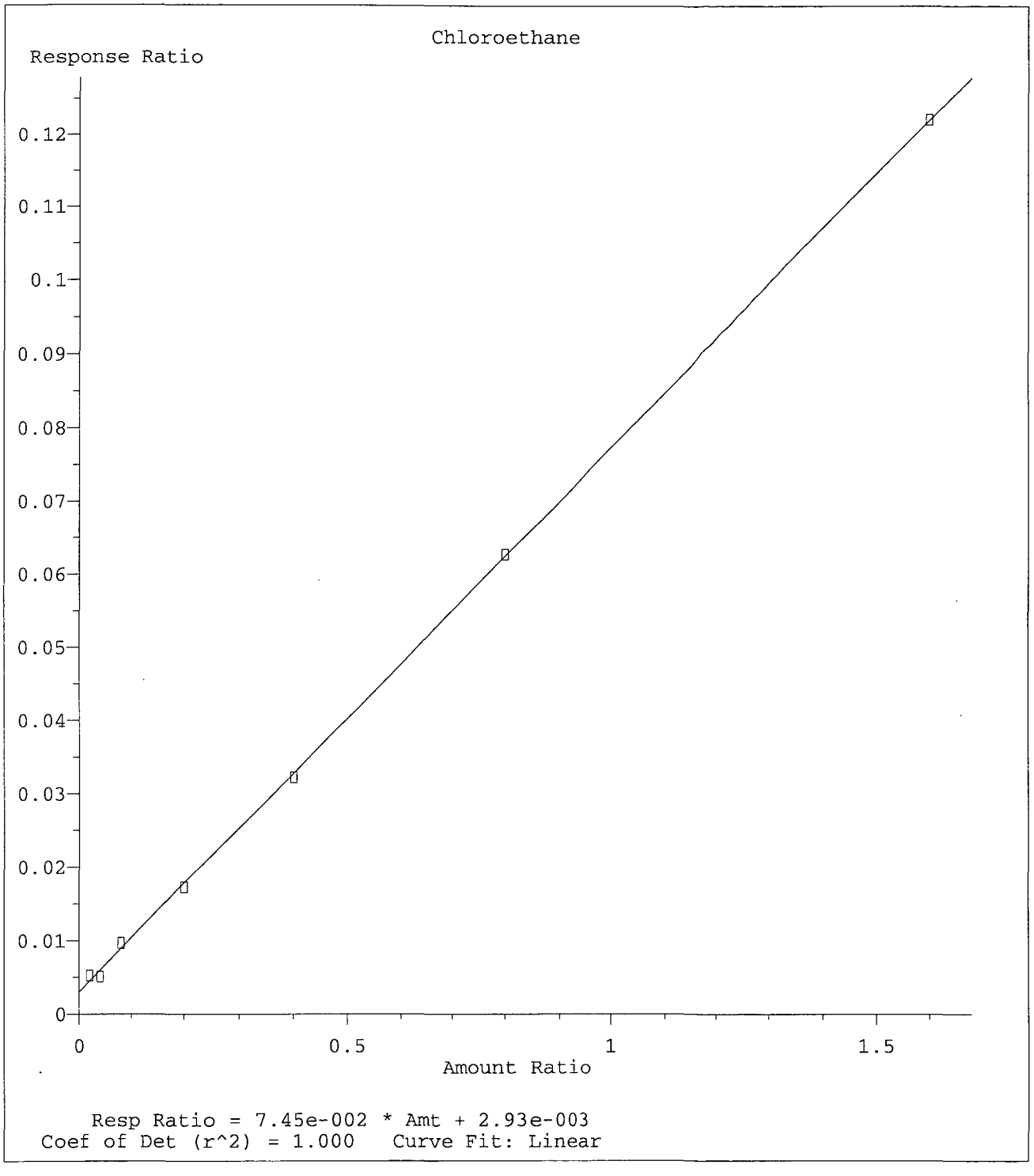
Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration

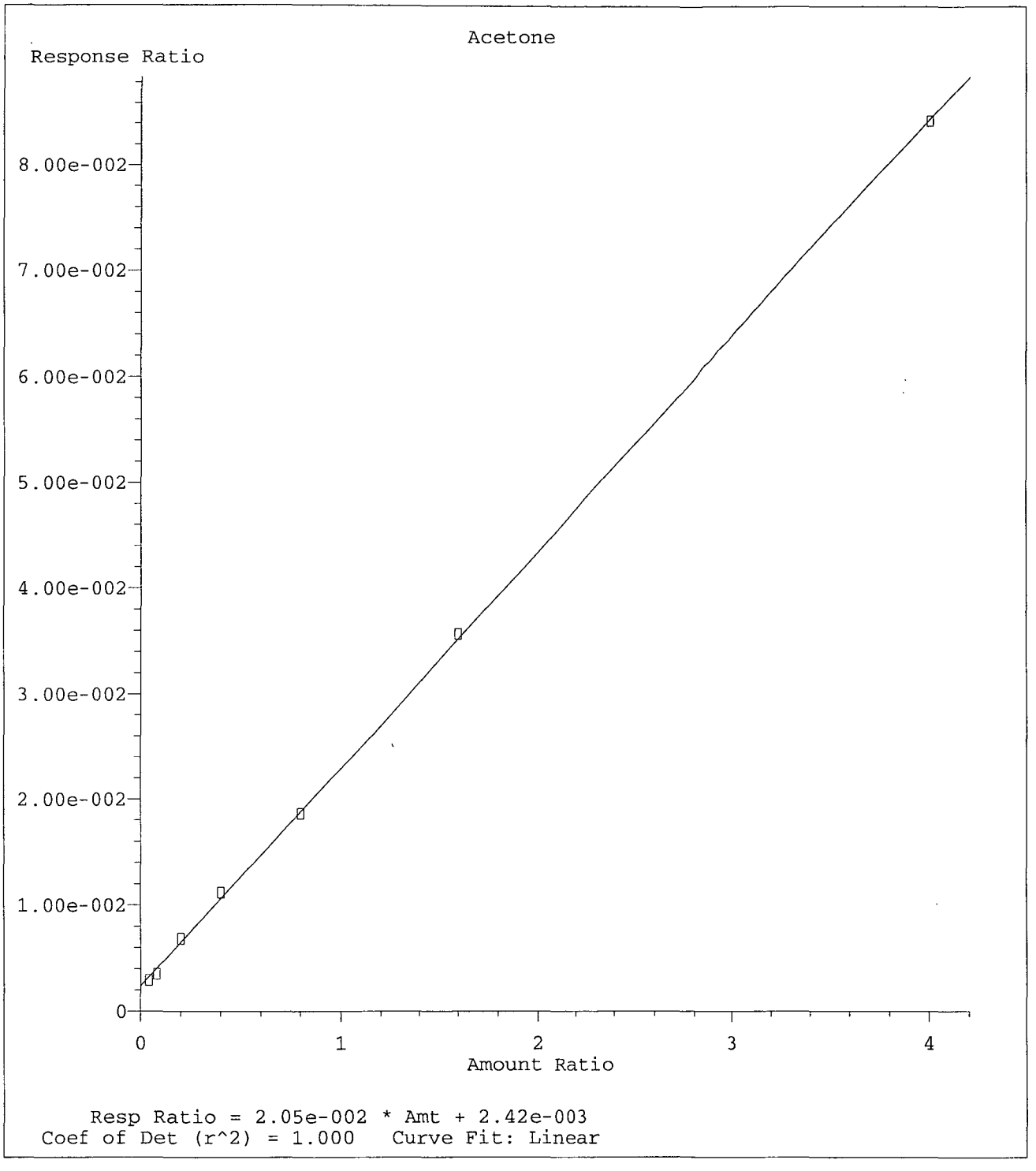




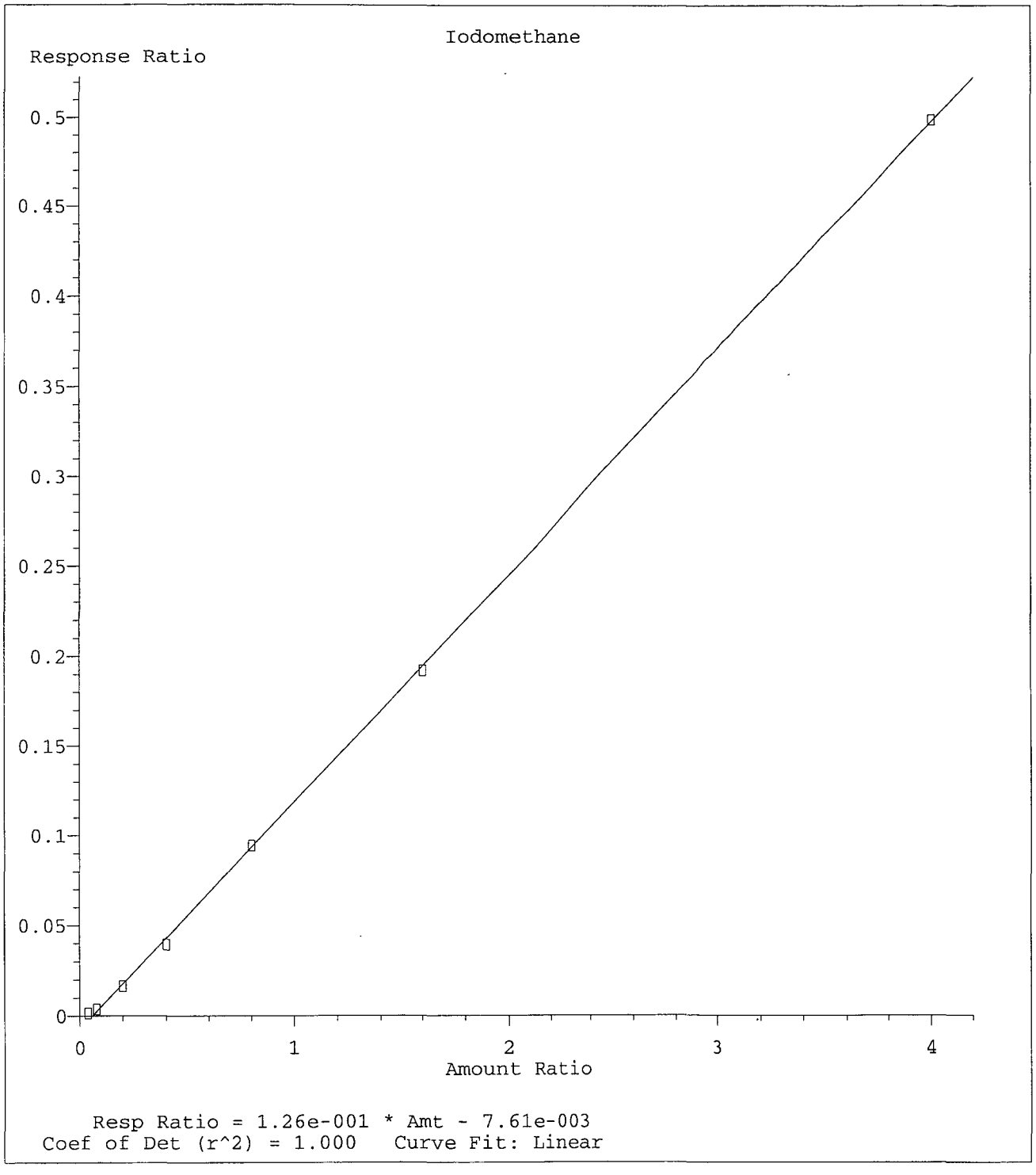
Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019



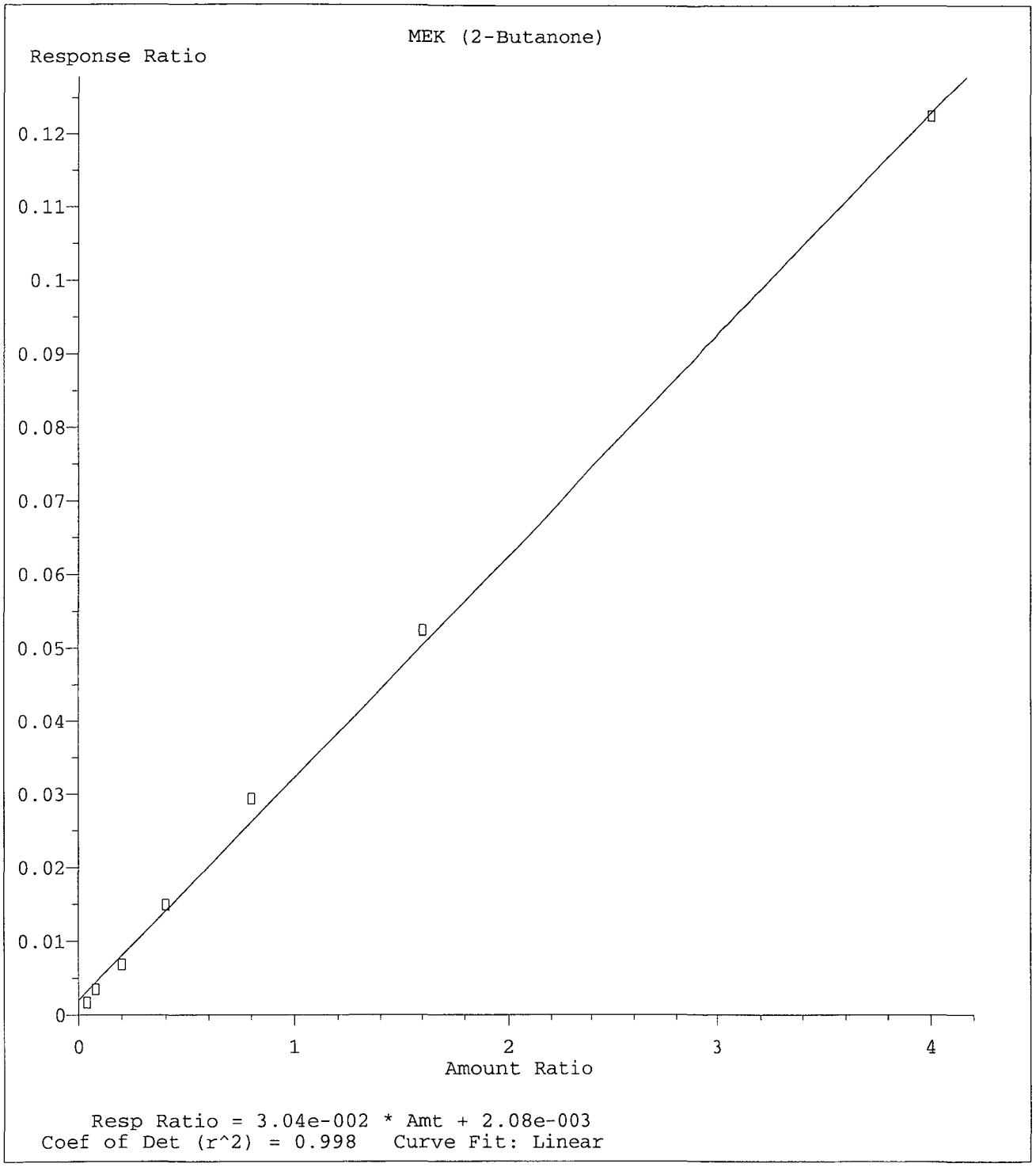
Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019



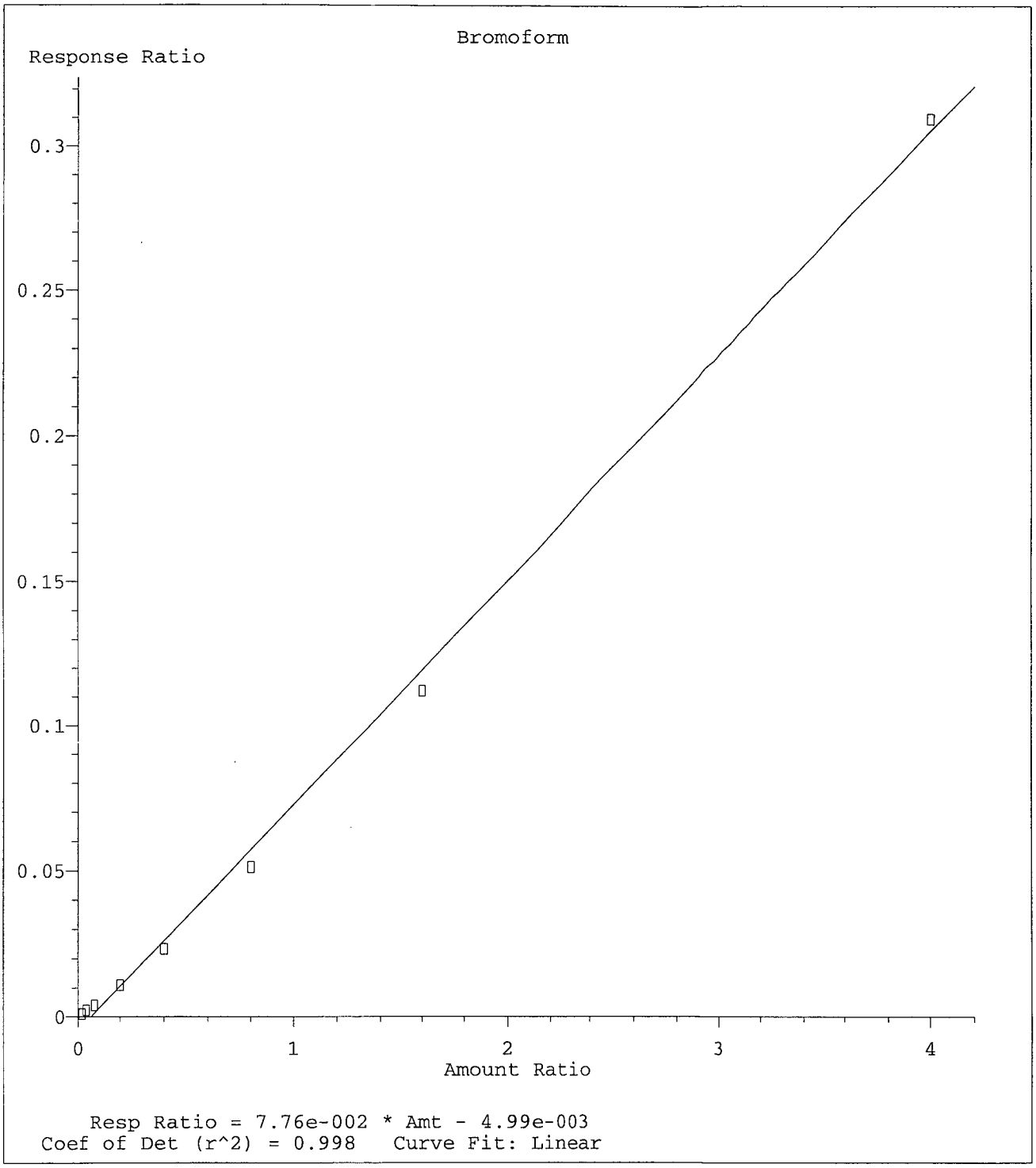
Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019



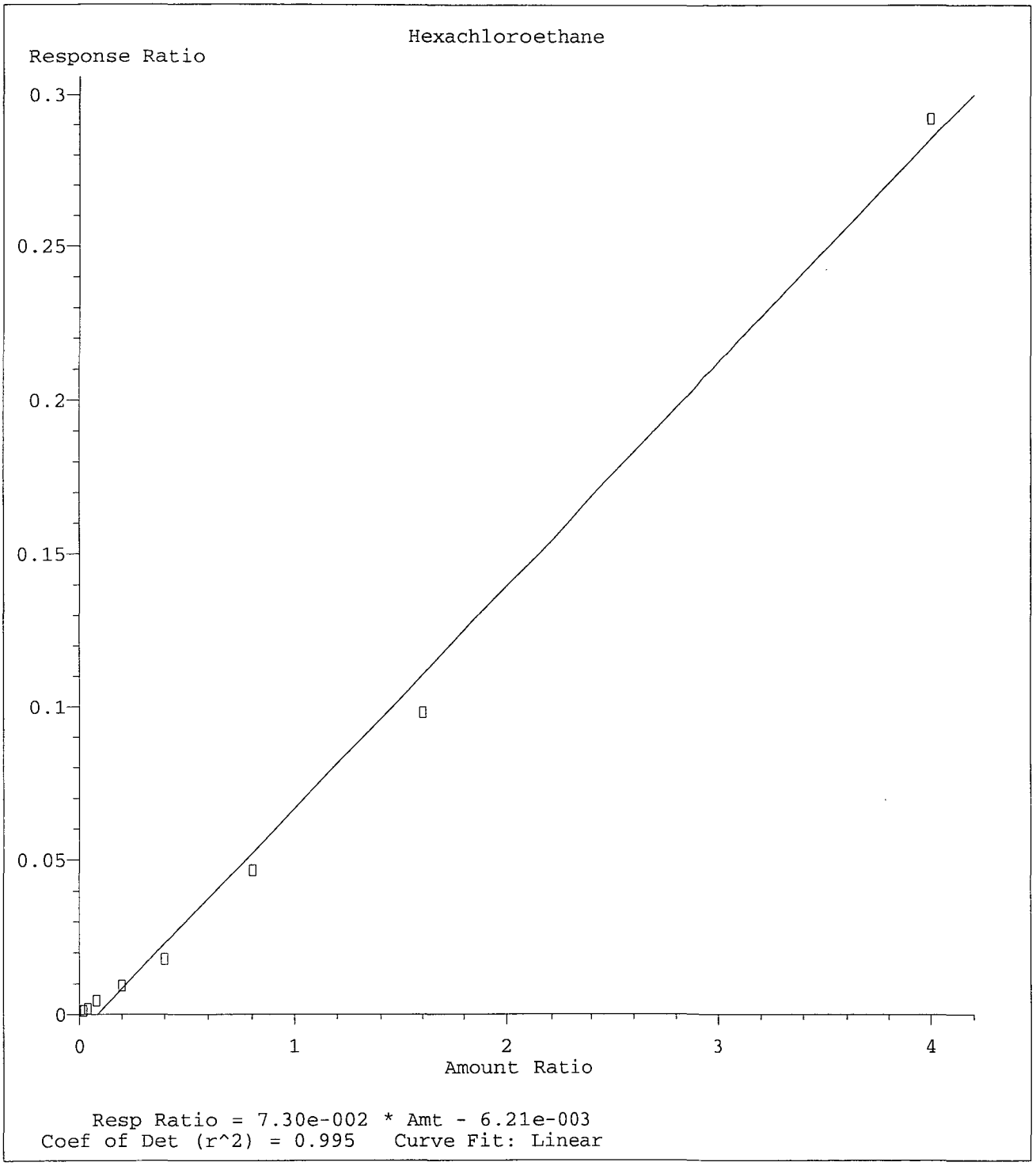
Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019



Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019



Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019



Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019

VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 04/01/19
Matrix: water Instrument: Max

Initials: DG/LP

		Compound	1	2	3	4	5	6	7				Avg	%RSD	Type	r^2	Q	MRF
			0401M04.D	0401M05.D	0401M06.D	0401M07.D	0401M08 D	0401M09.D	0401M10.D									
1	I	Fluorobenzene (IS)																
2	TMHBL	Gasoline C6-C10	11.0	4.649	2.597	1.206	0.8368	0.7215	0.6807				3.1	122	TMHBL	0.999		
3	TMHB	Chlorobenzene-D5 (IS)																
4	TMHB	1,4-Dichlorobenzene (IS)																
5																		
6																		
7																		
8																		
9																		
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Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0401M04.D Vial: 3
Acq On : 1 Apr 19 10:31 Operator: PM,DG,SV,CMM,KV
Sample : 20ug/L GAS STD 4/01/19 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 1 15:17 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:16:42 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	598255	25.000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	117	338283m	25.000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	152	187311m	25.000	ppb	0.00
System Monitoring Compounds						
Target Compounds						Qvalue
2) Gasoline C6-C10	8.80	TIC	5271420m	26.591	ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

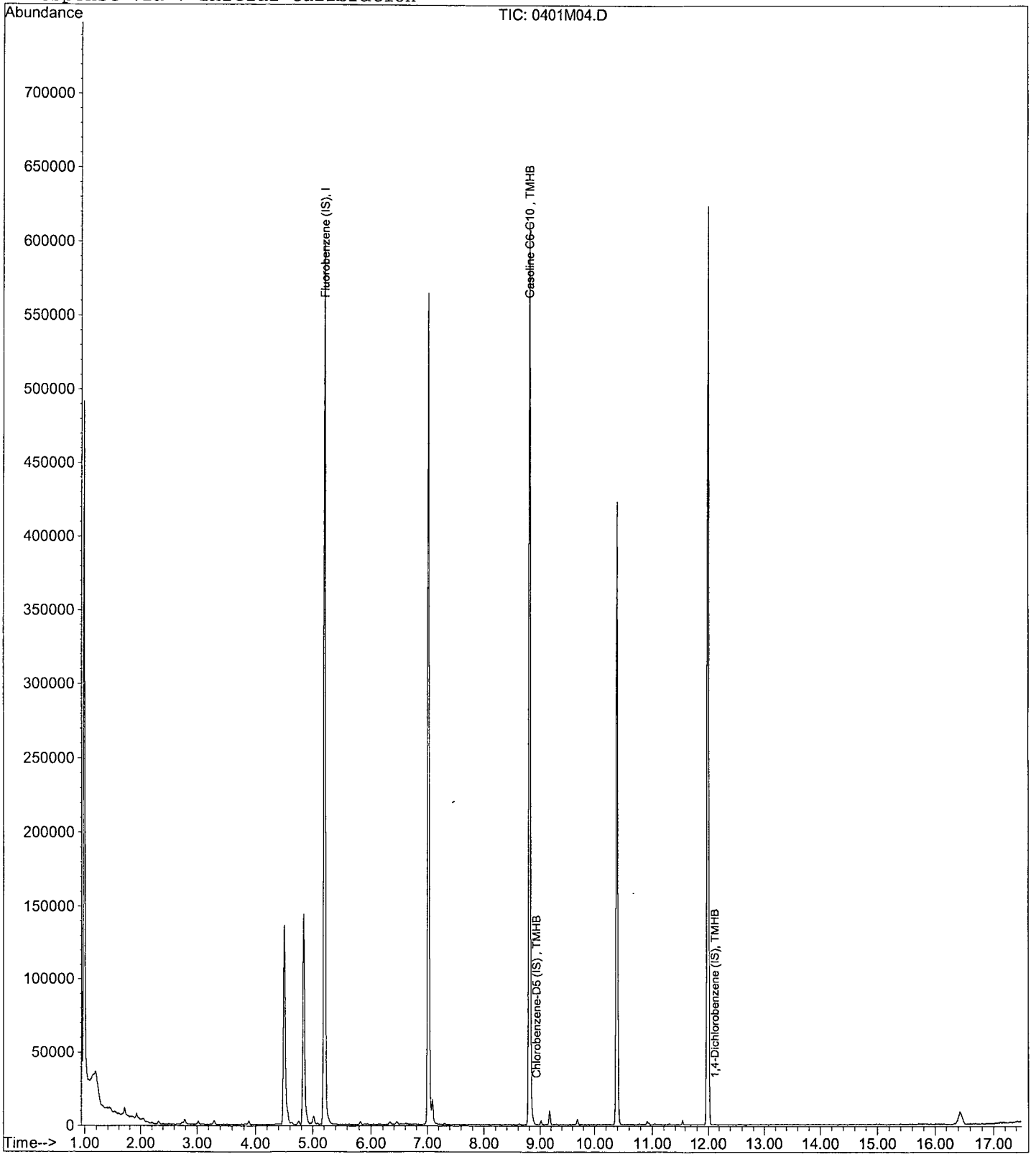
Data File : M:\MAX\DATA\M190401\0401M04.D
Acq On : 1 Apr 19 10:31
Sample : 20ug/L GAS STD 4/01/19
Misc : IS,Surr 03/24/19

Vial: 3
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 1 15:17 2019

Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:19:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0401M05.D Vial: 4
Acq On : 1 Apr 19 11:00 Operator: PM,DG,SV,CMM,KV
Sample : 50ug/L GAS STD 4/01/19 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 1 15:17 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:16:42 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.20	TIC	587568	25.000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	117	330094m	25.000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	152	190101m	25.000	ppb	0.00
System Monitoring Compounds						
Target Compounds						Qvalue
2) Gasoline C6-C10	8.80	TIC	5463157m	51.914	ppb	100

(#) = qualifier out of range (m) = manual integration

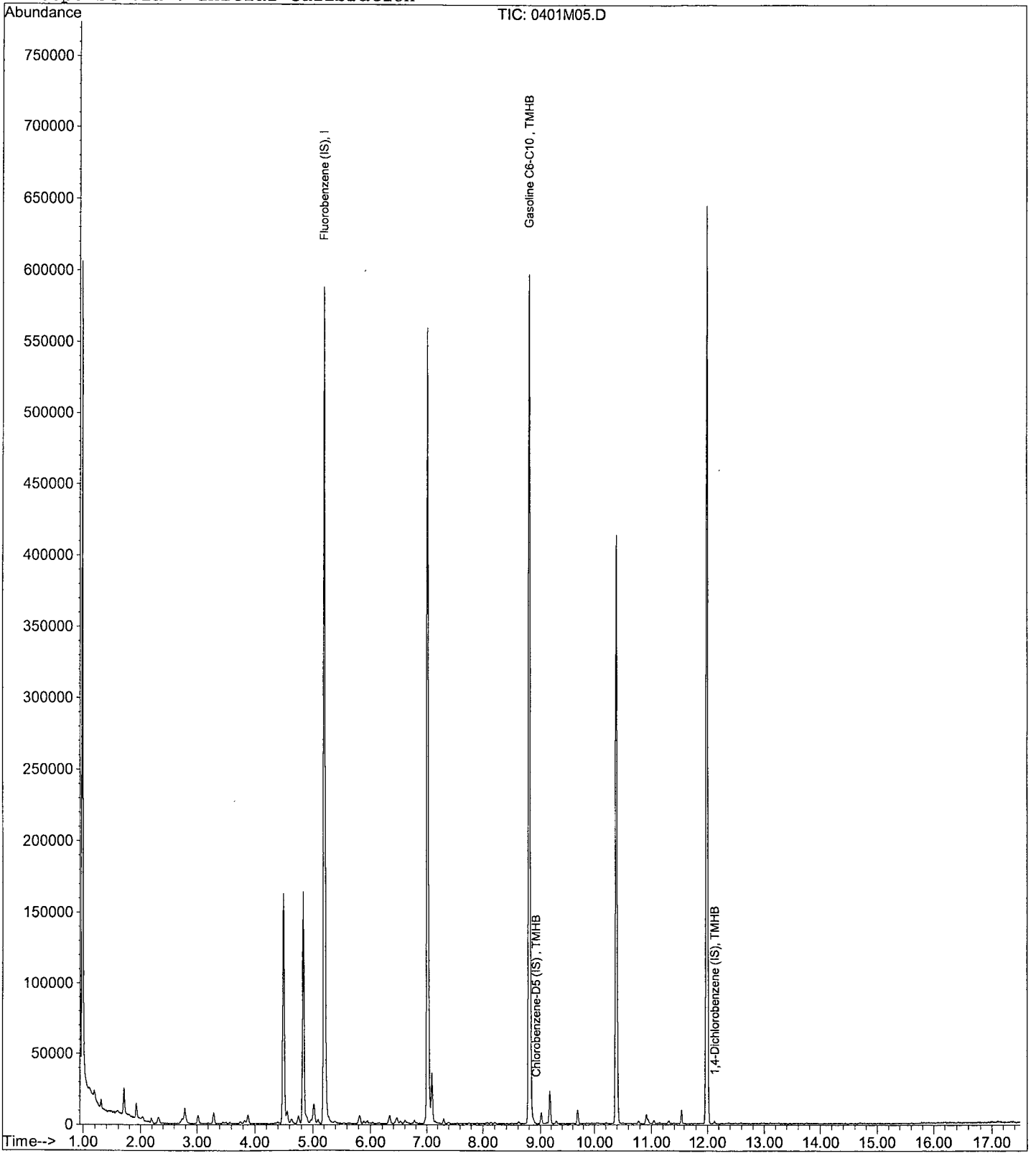
Quantitation Report

Data File : M:\MAX\DATA\M190401\0401M05.D
Acq On : 1 Apr 19 11:00
Sample : 50ug/L GAS STD 4/01/19
Misc : IS,Surr 03/24/19

Vial: 4
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 1 15:17 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:19:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0401M06.D Vial: 5
Acq On : 1 Apr 19 11:28 Operator: PM,DG,SV,CMM,KV
Sample : 100ug/L GAS STD 4/01/19 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 1 15:18 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:16:42 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	575257	25.000 ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	117	323893m	25.000 ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	152	181396m	25.000 ppb	0.00
System Monitoring Compounds					
Target Compounds					Qvalue
2) Gasoline C6-C10	8.80	TIC	5976508m	108.711 ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

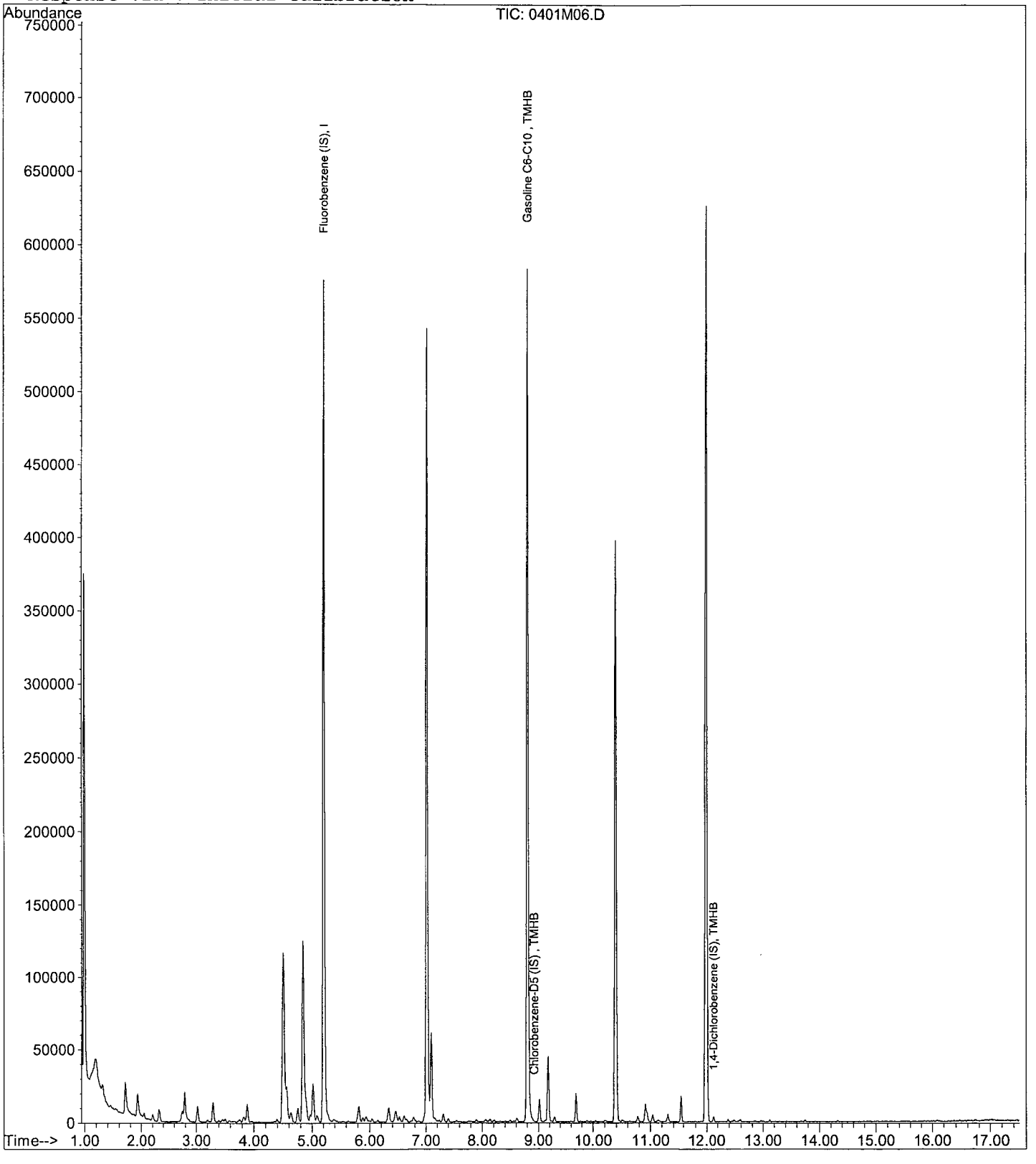
Data File : M:\MAX\DATA\M190401\0401M06.D
Acq On : 1 Apr 19 11:28
Sample : 100ug/L GAS STD 4/01/19
Misc : IS,Surr 03/24/19

Vial: 5
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 1 15:18 2019

Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:19:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0401M07.D Vial: 6
Acq On : 1 Apr 19 11:57 Operator: PM,DG,SV,CMM,KV
Sample : 300ug/L GAS STD 4/01/19 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 1 15:18 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:16:42 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	573184	25.000 ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	117	333476m	25.000 ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	152	189443m	25.000 ppb	0.00
System Monitoring Compounds					
Target Compounds					Qvalue
2) Gasoline C6-C10	8.80	TIC	8295201m	321.192 ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

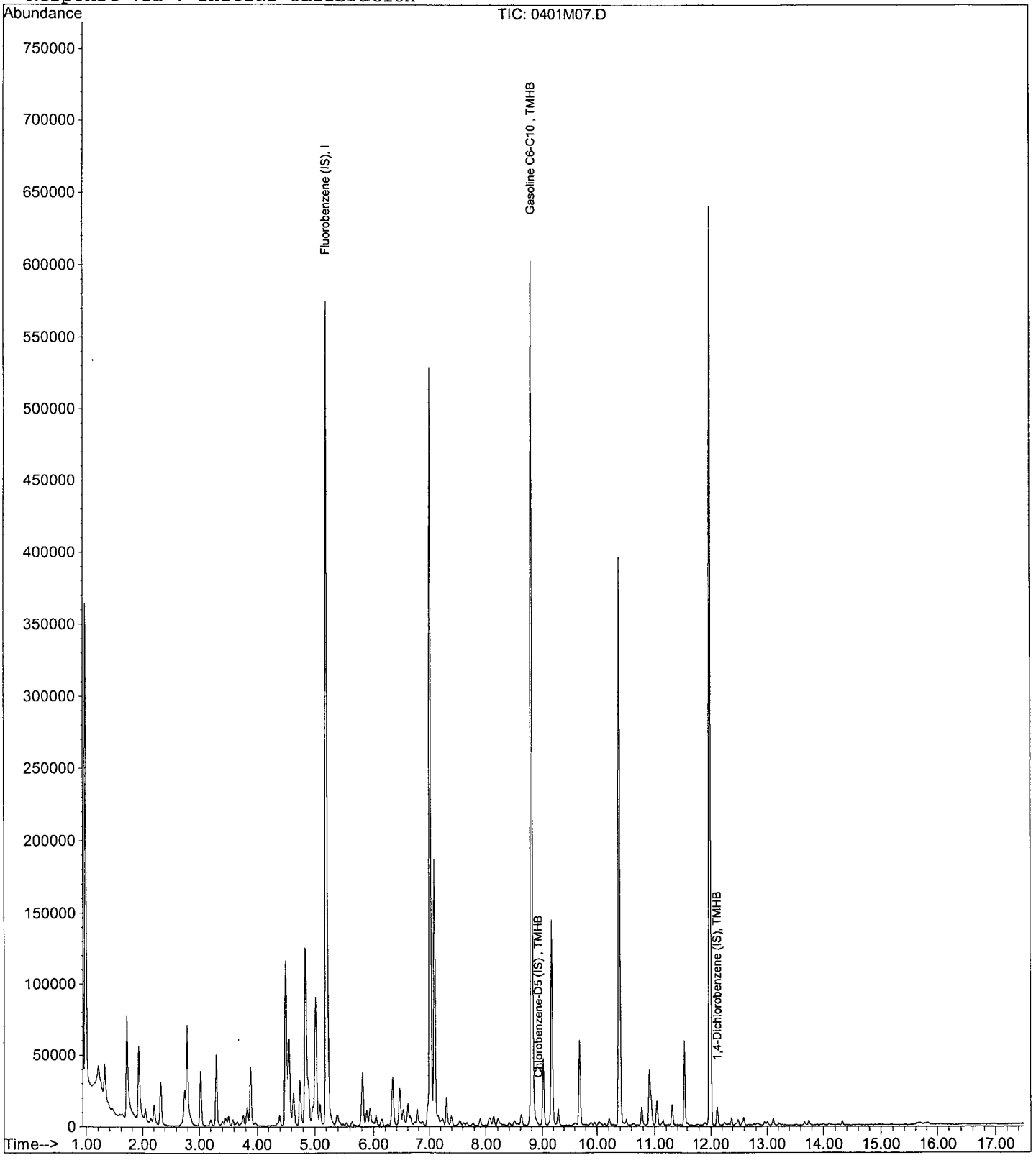
Data File : M:\MAX\DATA\M190401\0401M07.D
Acq On : 1 Apr 19 11:57
Sample : 300ug/L GAS STD 4/01/19
Misc : IS,Surr 03/24/19

Vial: 6
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 1 15:18 2019

Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:19:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0401M08.D
Acq On : 1 Apr 19 12:25
Sample : 600ug/L GAS STD 4/01/19
Misc : IS,Surr 03/24/19

Vial: 7
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 1 15:18 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:16:42 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	576087	25.000 ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	117	330146m	25.000 ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	152	190295m	25.000 ppb	0.00
System Monitoring Compounds					
Target Compounds					Qvalue
2) Gasoline C6-C10	8.80	TIC	11569749m	613.209 ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

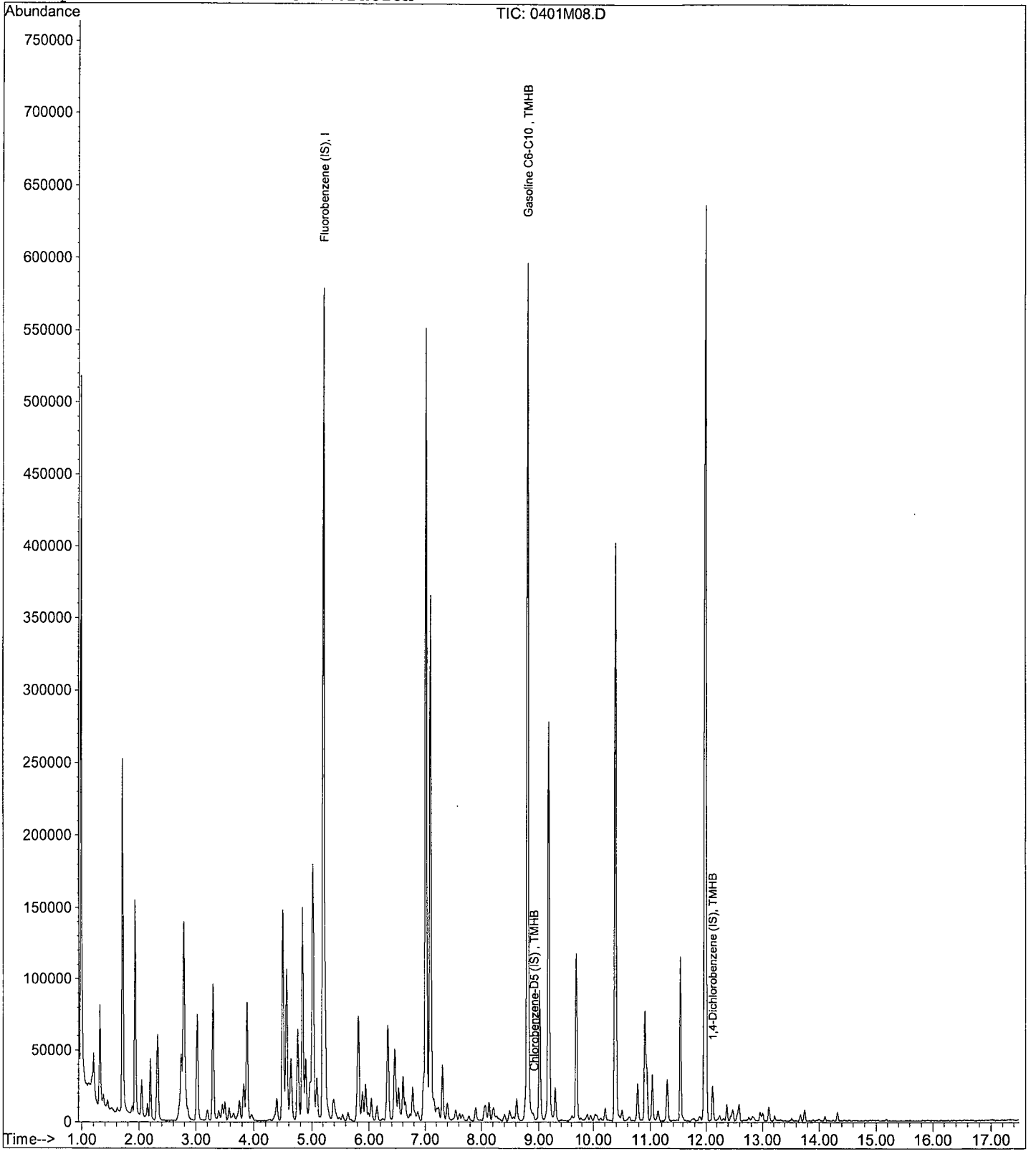
Data File : M:\MAX\DATA\M190401\0401M08.D
Acq On : 1 Apr 19 12:25
Sample : 600ug/L GAS STD 4/01/19
Misc : IS,Surr 03/24/19

Vial: 7
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 1 15:18 2019

Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:19:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0401M09.D Vial: 8
Acq On : 1 Apr 19 12:54 Operator: PM,DG,SV,CMM,KV
Sample : 800ug/L GAS STD 4/01/19 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 1 15:18 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:16:42 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	579649	25.000 ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	117	326637m	25.000 ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	152	190935m	25.000 ppb	0.00
System Monitoring Compounds					
Target Compounds					Qvalue
2) Gasoline C6-C10	8.80	TIC	13383194m	769.601 ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

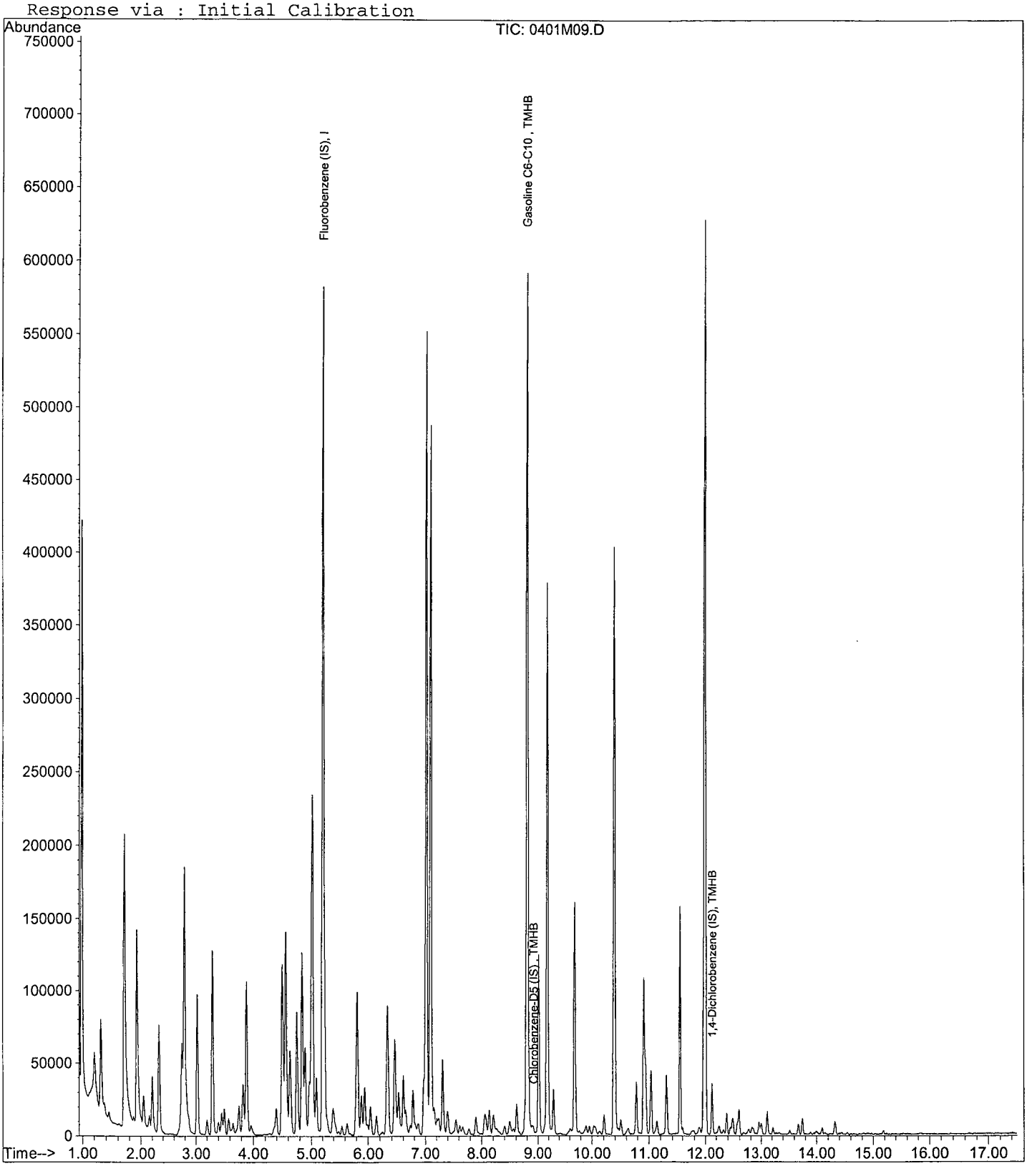
Data File : M:\MAX\DATA\M190401\0401M09.D
Acq On : 1 Apr 19 12:54
Sample : 800ug/L GAS STD 4/01/19
Misc : IS,Surr 03/24/19

Vial: 8
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 1 15:18 2019

Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:19:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0401M10.D Vial: 9
Acq On : 1 Apr 19 13:22 Operator: PM,DG,SV,CMM,KV
Sample : 1000ug/L GAS STD 4/01/19 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 1 15:19 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:16:42 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	582261	25.000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	117	329343m	25.000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	152	190806m	25.000	ppb	0.00
System Monitoring Compounds						
Target Compounds						Qvalue
2) Gasoline C6-C10	7.10	TIC	15853101m	984.969	ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

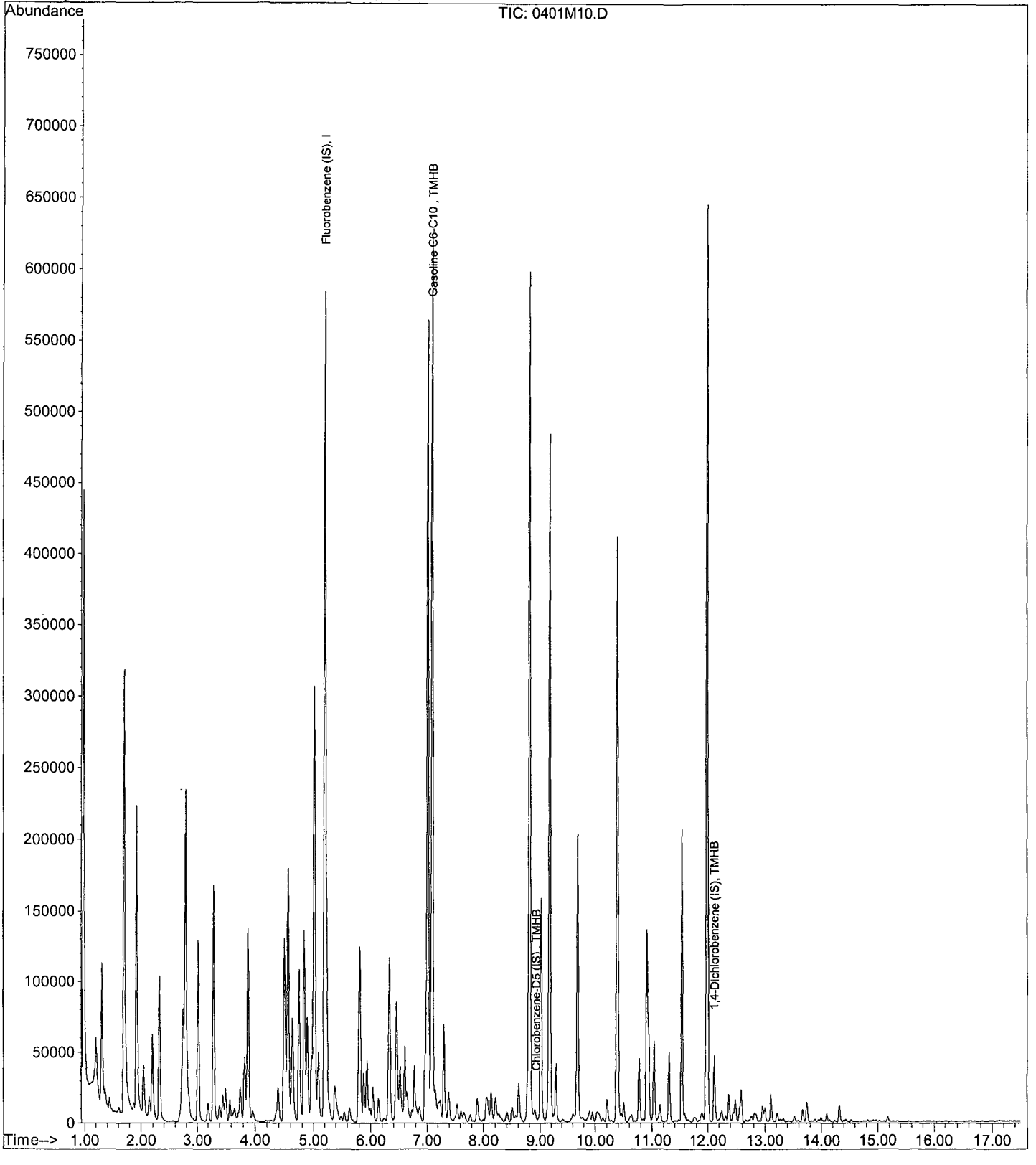
Data File : M:\MAX\DATA\M190401\0401M10.D
Acq On : 1 Apr 19 13:22
Sample : 1000ug/L GAS STD 4/01/19
Misc : IS,Surr 03/24/19

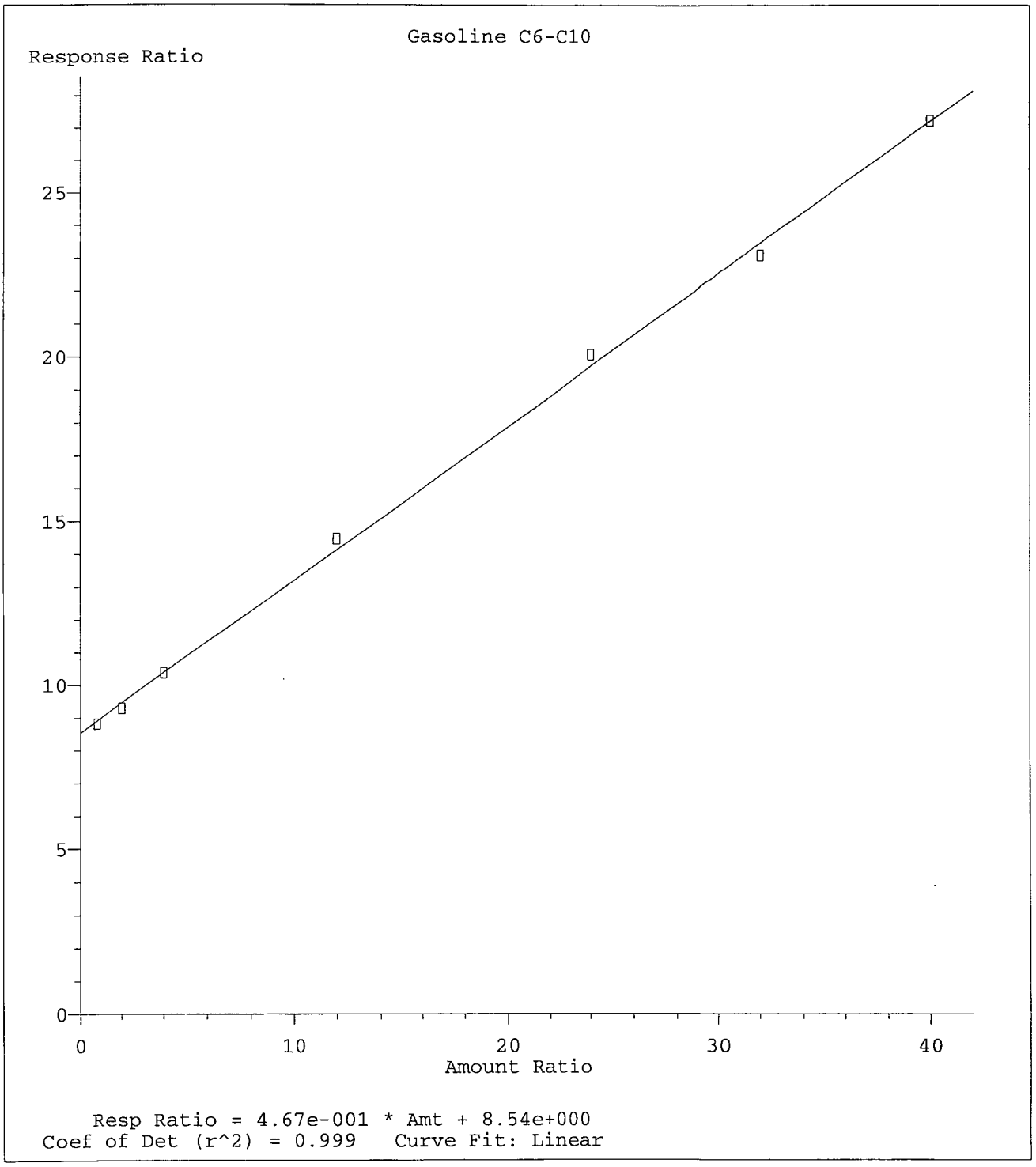
Vial: 9
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 1 15:19 2019

Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:19:09 2019
Response via : Initial Calibration





Method Name: M:\MAX\DATA\M190401\MGAS401.M
Calibration Table Last Updated: Mon Apr 01 15:30:17 2019

VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: water

SDG No:
Date Analyzed: 1 Apr 19 14:19
Instrument: Max
Initial Cal. Date: 03/24/19
Data File: 0401M12.D

		Compound	MEAN	CCRF	%D		%Drift
1	TMHB	Gasoline C6-C10	3.101	1.185	62	TMHBL	1.3
2							
3							
4							
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37							
38							
39							
40							
		Average			62.0		

Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0401M12.D Vial: 11
Acq On : 1 Apr 19 14:19 Operator: PM,DG,SV,CMM,KV
Sample : (SS)300ug/L GAS STD 4/01/19 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 2 8:08 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	565675	25.000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	1215857m	25.000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	1225243m	25.000	ppb	0.00
System Monitoring Compounds						
Target Compounds						Qvalue
2) Gasoline C6-C10	8.81	TIC	8042743m	304.047	ppb	100

(#) = qualifier out of range (m) = manual integration

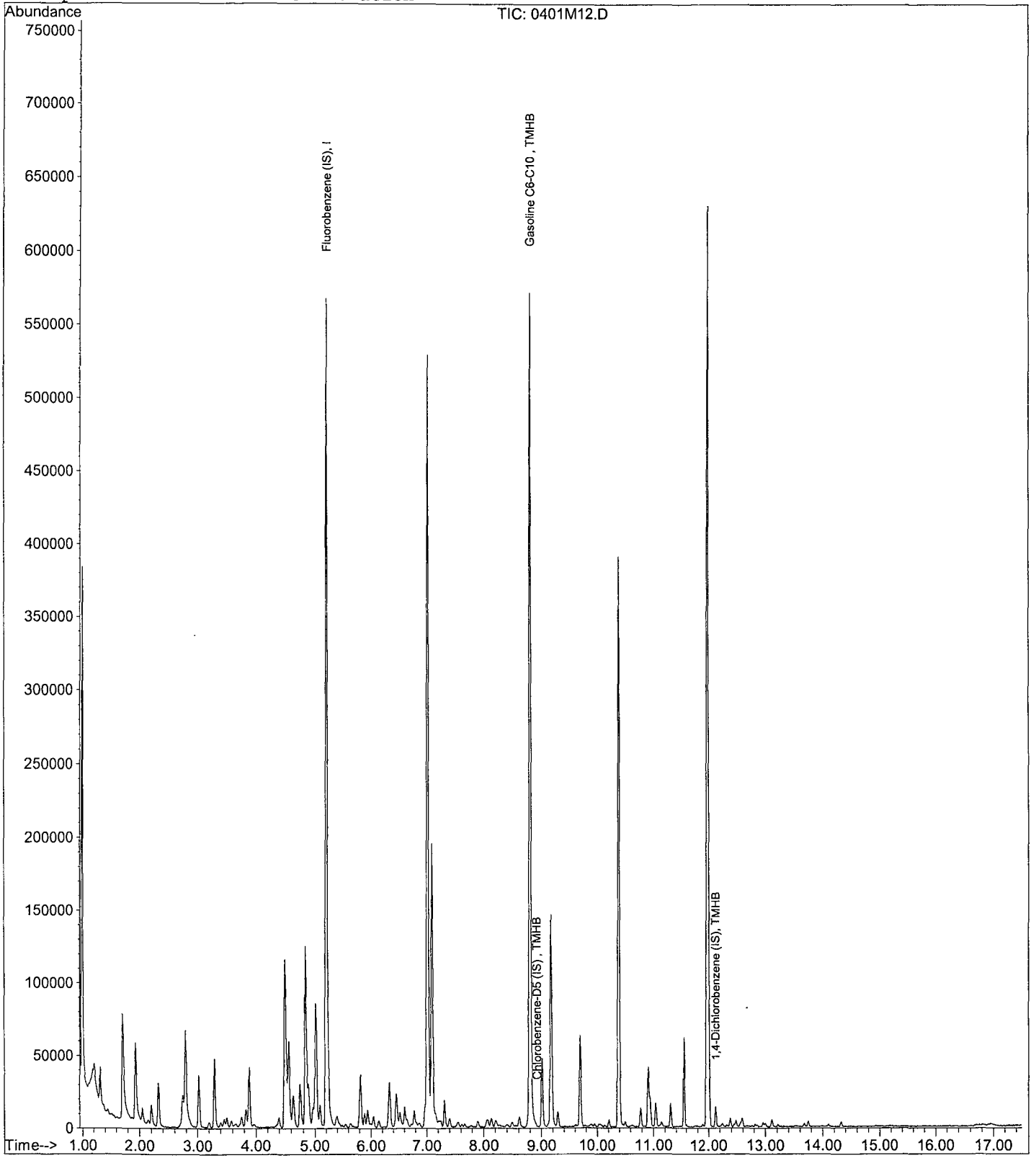
Quantitation Report

Data File : M:\MAX\DATA\M190401\0401M12.D
Acq On : 1 Apr 19 14:19
Sample : (SS)300ug/L GAS STD 4/01/19
Misc : IS,Surr 03/24/19

Vial: 11
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 2 8:08 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Second Source

Lab Name: APPL, Inc.
Case No:
Matrix: water

SDG No:
Date Analyzed: 1 Apr 19 14:19
Instrument: Max
Initial Cal. Date: 03/24/19
Data File: 0401M12.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	Fluorobenzene (IS)	ISTD			I	
2	S	Dibromofluoromethane(S)	0.1912	0.1716	10	S	
3	S	1,2-DCA-D4(S)	0.2203	0.1989	9.7	S	
4	I	Chlorobenzene-D5 (IS)	ISTD			I	
5	S	Toluene-D8(S)	1.110	1.060	4.5	S	
6	S	4-Bromofluorobenzene(S)	0.4073	0.3905	4.1	S	
7	I	1,4-Dichlorobenzene-D (IS)	ISTD			I	
8							
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34							
35							
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39							
40							
		Average			7.1		

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0401M12.D Vial: 11
Acq On : 1 Apr 19 14:19 Operator: PM,DG,SV,CMM,KV
Sample : (SS)300ug/L GAS STD 4/01/19 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 2 7:57 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	529928	25.000	ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.81	117	392457	25.000	ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	205157	25.000	ppb	-0.13
System Monitoring Compounds						
2) Dibromofluoromethane(S)	4.50	111	90934	22.431	ppb	-0.10
Spiked Amount 25.000			Recovery =	89.724%		
3) 1,2-DCA-D4(S)	4.84	65	105401	22.568	ppb	-0.10
Spiked Amount 25.000			Recovery =	90.272%		
5) Toluene-D8(S)	7.02	98	415956	23.870	ppb	-0.12
Spiked Amount 25.000			Recovery =	95.480%		
6) 4-Bromofluorobenzene(S)	10.39	95	153268	23.969	ppb	-0.13
Spiked Amount 25.000			Recovery =	95.876%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 04/26/19
Instrument: Max
Initial Cal. Date: 04/01/19
Data File: 0426m06.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	Fluorobenzene (IS)	ISTD			I	
2	TMHB	Gasoline C6-C10	3.101	1.231	60	TMHBL	11
3	TMHB	Chlorobenzene-D5 (IS)	ISTD			TMHB	
4	TMHB	1,4-Dichlorobenzene (IS)	ISTD			TMHB	
5							
6							
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39							
40							
		Average			60.0		

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 04/26/19
Instrument: Max
Initial Cal. Date: 03/24/19
Data File: 0426m06.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	Fluorobenzene (IS)	ISTD			I	
2	S	Dibromofluoromethane(S)	0.1912	0.1994	4.3	S	
3	S	1,2-DCA-D4(S)	0.2203	0.2119	3.8	S	
4	I	Chlorobenzene-D5 (IS)	ISTD			I	
5	S	Toluene-D8(S)	1.110	1.121	0.96	S	
6	S	4-Bromofluorobenzene(S)	0.4073	0.4100	0.66	S	
7	I	1,4-Dichlorobenzene-D (IS)	ISTD			I	
8							
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		Average			2.4		

Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426m06.D Vial: 5
Acq On : 26 Apr 19 11:29 Operator: PM,DG,SV,CMM,KV
Sample : 190426A CCV 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 26 13:56 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	796788	25.0000 ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	1729576m	25.0000 ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	1763357m	25.0000 ppb	0.00
System Monitoring Compounds					
Target Compounds					Qvalue
2) Gasoline C6-C10	7.01	TIC	11767733m	333.5674 ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426m06.D Vial: 5
Acq On : 26 Apr 19 11:29 Operator: PM,DG,SV,CMM,KV
Sample : 190426A CCV 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:43 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	767660	25.0000 ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	573312	25.0000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	297701	25.0000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	153087	26.0681 ppb	-0.11
Spiked Amount 25.000			Recovery = 104.272%		
3) 1,2-DCA-D4(S)	4.83	65	162694	24.0476 ppb	-0.11
Spiked Amount 25.000			Recovery = 96.192%		
5) Toluene-D8(S)	7.01	98	642500	25.2397 ppb	-0.12
Spiked Amount 25.000			Recovery = 100.960%		
6) 4-Bromofluorobenzene(S)	10.39	95	235061	25.1639 ppb	-0.13
Spiked Amount 25.000			Recovery = 100.656%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report

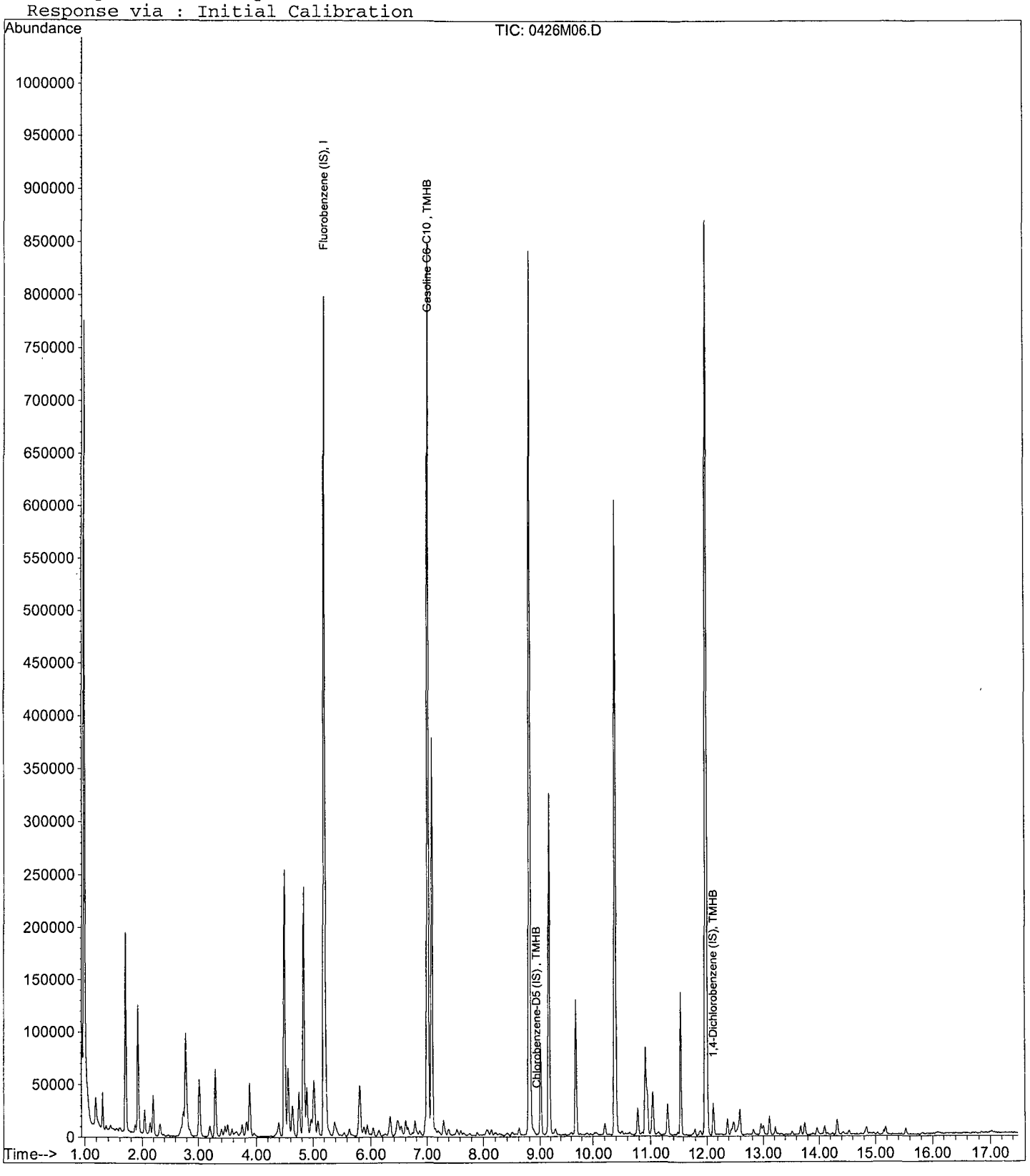
Data File : M:\MAX\DATA\M190401\0426m06.D
Acq On : 26 Apr 19 11:29
Sample : 190426A CCV 300ug/L
Misc : IS,Surr 03/24/19

Vial: 5
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 26 13:56 2019

Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 04/26/19
Instrument: Max
Initial Cal. Date: 04/01/19
Data File: 0426m24.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	Fluorobenzene (IS)	ISTD			I	
2	TMHB	Gasoline C6-C10	3.101	1.164	62	TMHBL	3.2
3	TMHB	Chlorobenzene-D5 (IS)	ISTD			TMHB	
4	TMHB	1,4-Dichlorobenzene (IS)	ISTD			TMHB	
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40							
		Average			62.0		

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 04/26/19
Instrument: Max
Initial Cal. Date: 03/24/19
Data File: 0426m24.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	Fluorobenzene (IS)	ISTD			I	
2	S	Dibromofluoromethane(S)	0.1912	0.1835	4.1	S	
3	S	1,2-DCA-D4(S)	0.2203	0.1966	11	S	
4	I	Chlorobenzene-D5 (IS)	ISTD			I	
5	S	Toluene-D8(S)	1.110	1.046	5.8	S	
6	S	4-Bromofluorobenzene(S)	0.4073	0.3937	3.4	S	
7	I	1,4-Dichlorobenzene-D (IS)	ISTD			I	
8							
9							
10							
11							
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39							
40							
		Average			6.1		

Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426m24.D Vial: 23
Acq On : 26 Apr 19 20:02 Operator: PM,DG,SV,CMM,KV
Sample : Ending CCV 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:44 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.20	TIC	814131	25.0000 ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	1751546m	25.0000 ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	1813218m	25.0000 ppb	0.00

System Monitoring Compounds

Target Compounds					Qvalue
2) Gasoline C6-C10	8.80	TIC	11369581m	290.5108 ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426m24.D Vial: 23
Acq On : 26 Apr 19 20:02 Operator: PM,DG,SV,CMM,KV
Sample : Ending CCV 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:44 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.20	96	769668	25.0000 ppb	-0.12
4) Chlorobenzene-D5 (IS)	8.80	117	589912	25.0000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	310949	25.0000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	141216	23.9839 ppb	-0.11
Spiked Amount 25.000			Recovery =	95.936%	
3) 1,2-DCA-D4(S)	4.83	65	151306	22.3060 ppb	-0.11
Spiked Amount 25.000			Recovery =	89.224%	
5) Toluene-D8(S)	7.01	98	616783	23.5477 ppb	-0.12
Spiked Amount 25.000			Recovery =	94.192%	
6) 4-Bromofluorobenzene(S)	10.39	95	232237	24.1620 ppb	-0.13
Spiked Amount 25.000			Recovery =	96.648%	

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

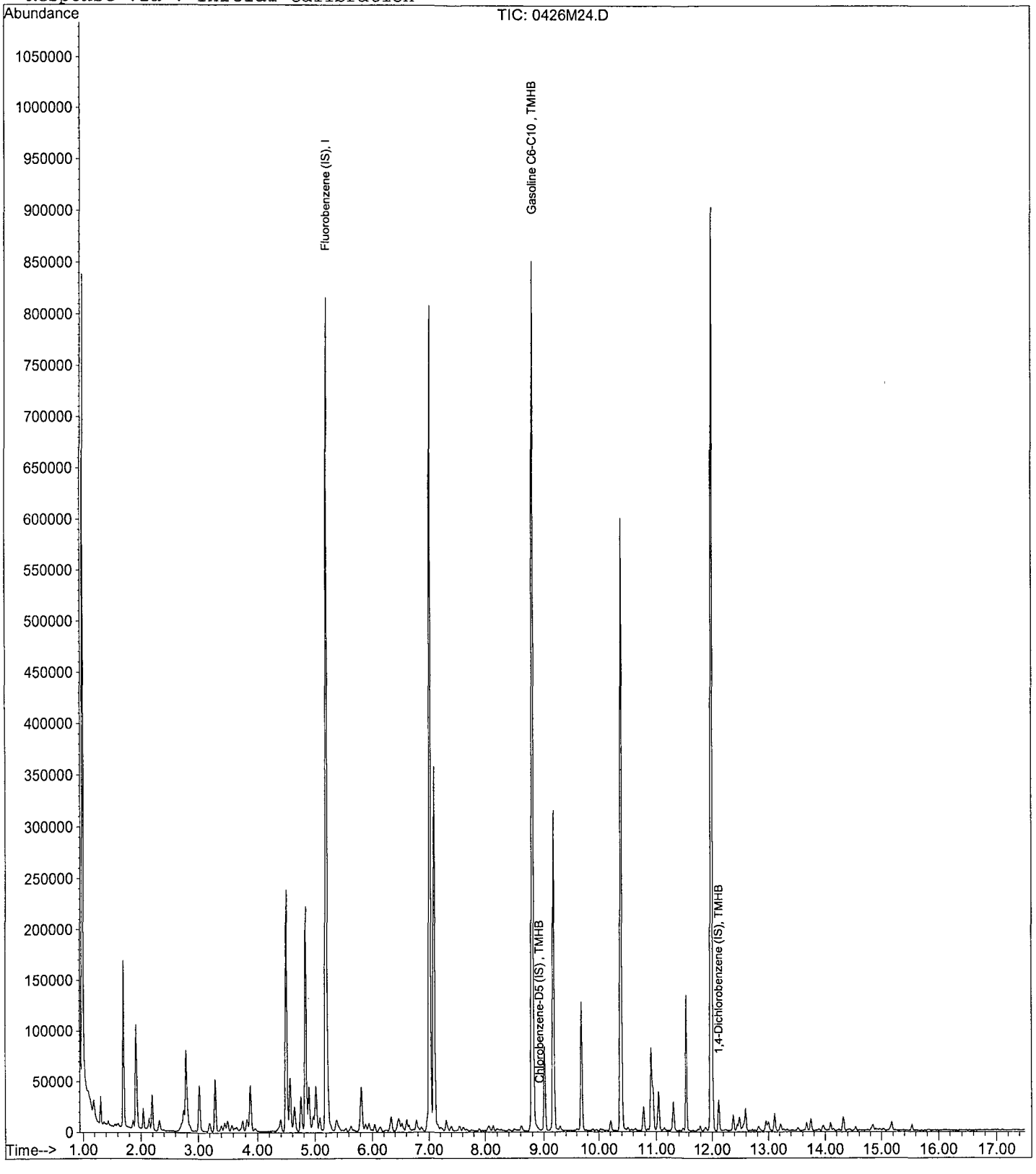
Quantitation Report

Data File : M:\MAX\DATA\M190401\0426m24.D
Acq On : 26 Apr 19 20:02
Sample : Ending CCV 300ug/L
Misc : IS,Surr 03/24/19

Vial: 23
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:44 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



ORGANICS
Raw Data

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M11.D Vial: 10
Acq On : 26 Apr 19 13:51 Operator: PM,DG,SV,CMM,KV
Sample : AZ90099W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:48 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	772742	25.0000 ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	577606	25.0000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	291681	25.0000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	151770	25.6739 ppb	-0.11
Spiked Amount 25.000			Recovery = 102.696%		
3) 1,2-DCA-D4(S)	4.83	65	158831	23.3222 ppb	-0.11
Spiked Amount 25.000			Recovery = 93.288%		
5) Toluene-D8(S)	7.01	98	631302	24.6155 ppb	-0.12
Spiked Amount 25.000			Recovery = 98.460%		
6) 4-Bromofluorobenzene(S)	10.39	95	230416	24.4832 ppb	-0.13
Spiked Amount 25.000			Recovery = 97.932%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M11.D Vial: 10
Acq On : 26 Apr 19 13:51 Operator: PM,DG,SV,CMM,KV
Sample : AZ90099W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

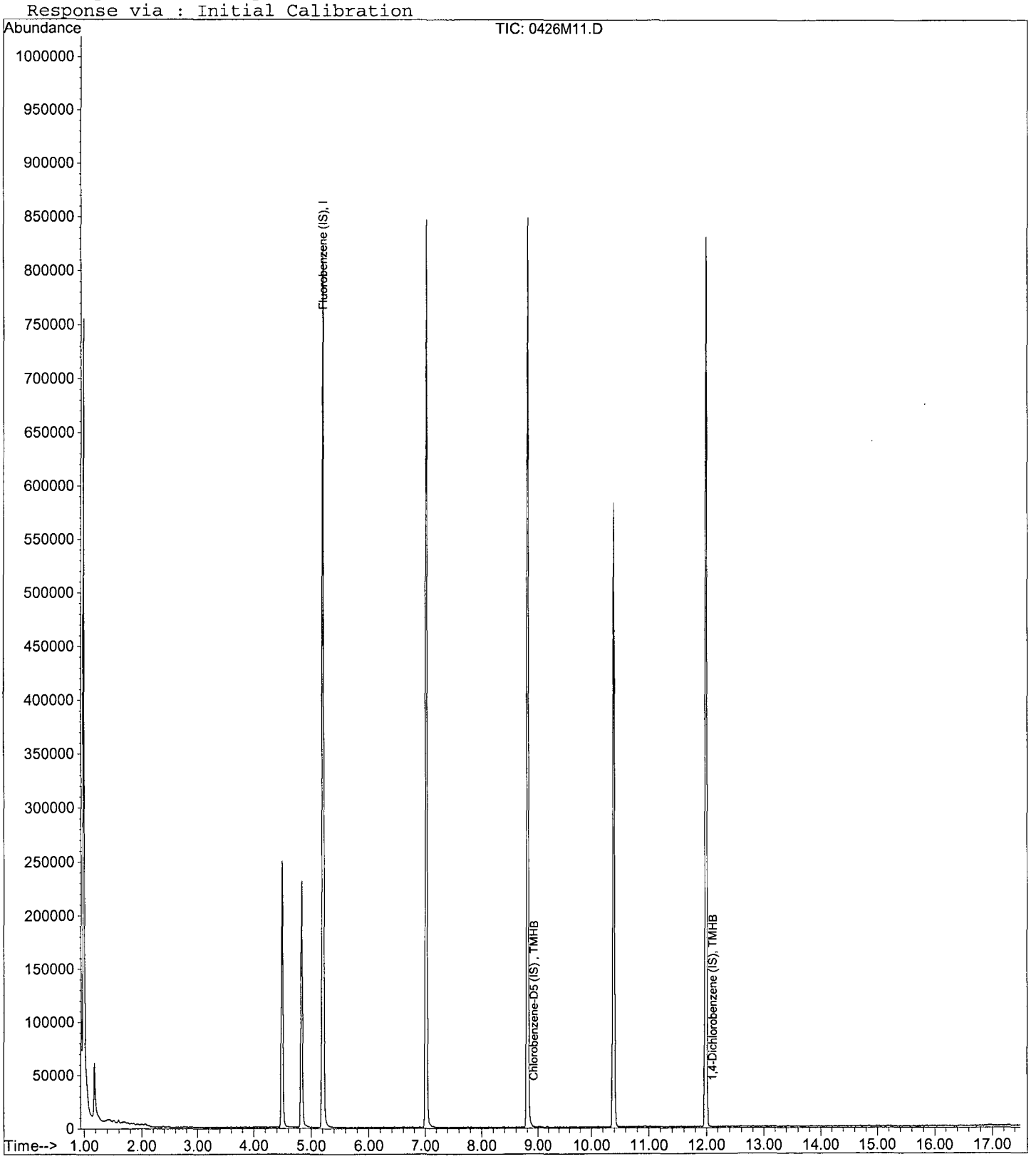
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	821772	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	786591m	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	804784m	25.0000	ppb	0.00
System Monitoring Compounds						
Target Compounds						Qvalue
2) Gasoline C6-C10	8.80	TIC	5181564m	-119.8720	ppb	100

(#) = qualifier out of range (m) = manual integration
0426M11.D MGAS401.M Mon Apr 29 16:39:24 2019 Page 1

Data File : M:\MAX\DATA\M190401\0426M11.D Vial: 10
Acq On : 26 Apr 19 13:51 Operator: PM,DG,SV,CMM,KV
Sample : AZ90099W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M16.D Vial: 15
Acq On : 26 Apr 19 16:13 Operator: PM,DG,SV,CMM,KV
Sample : AZ90100W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:48 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	752112	25.0000 ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	568075	25.0000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	290083	25.0000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	147172	25.5789 ppb	-0.11
Spiked Amount 25.000			Recovery = 102.316%		
3) 1,2-DCA-D4(S)	4.84	65	156086	23.5478 ppb	-0.11
Spiked Amount 25.000			Recovery = 94.192%		
5) Toluene-D8(S)	7.01	98	617627	24.4863 ppb	-0.12
Spiked Amount 25.000			Recovery = 97.944%		
6) 4-Bromofluorobenzene(S)	10.39	95	227664	24.5967 ppb	-0.13
Spiked Amount 25.000			Recovery = 98.388%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426M16.D Vial: 15
Acq On : 26 Apr 19 16:13 Operator: PM,DG,SV,CMM,KV
Sample : AZ90100W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	800585	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	1638134m	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	1621688m	25.0000	ppb	0.00
System Monitoring Compounds						
Target Compounds						Qvalue
2) Gasoline C6-C10	8.80	TIC	5947247m	-59.6925	ppb	100

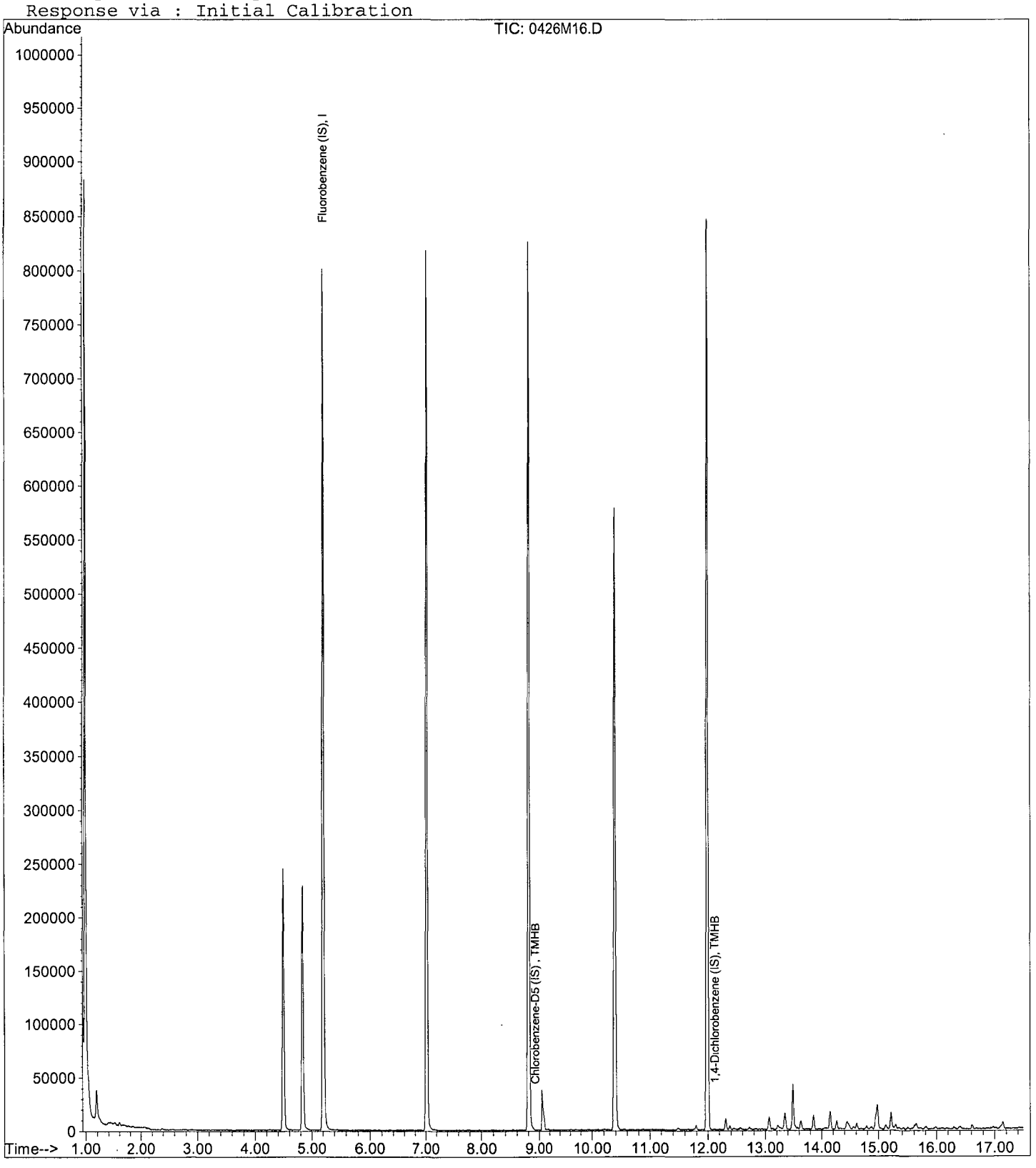
(#) = qualifier out of range (m) = manual integration
0426M16.D MGAS401.M Mon Apr 29 16:39:37 2019 Page 1

Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M16.D Vial: 15
Acq On : 26 Apr 19 16:13 Operator: PM,DG,SV,CMM,KV
Sample : AZ90100W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M12.D Vial: 11
Acq On : 26 Apr 19 14:19 Operator: PM,DG,SV,CMM,KV
Sample : AZ90101W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:48 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	752707	25.0000 ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	568527	25.0000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	293966	25.0000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	145241	25.2234 ppb	-0.11
Spiked Amount 25.000			Recovery = 100.892%		
3) 1,2-DCA-D4(S)	4.83	65	156182	23.5436 ppb	-0.11
Spiked Amount 25.000			Recovery = 94.176%		
5) Toluene-D8(S)	7.02	98	612775	24.2746 ppb	-0.12
Spiked Amount 25.000			Recovery = 97.100%		
6) 4-Bromofluorobenzene(S)	10.39	95	223378	24.1145 ppb	-0.13
Spiked Amount 25.000			Recovery = 96.456%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M12.D Vial: 11
Acq On : 26 Apr 19 14:19 Operator: PM,DG,SV,CMM,KV
Sample : AZ90101W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	803811	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	786686m	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	782506m	25.0000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) Gasoline C6-C10	8.80	TIC	5080972m	-119.0283	ppb	100

(#) = qualifier out of range (m) = manual integration
0426M12.D MGAS401.M Mon Apr 29 16:39:27 2019 Page 1

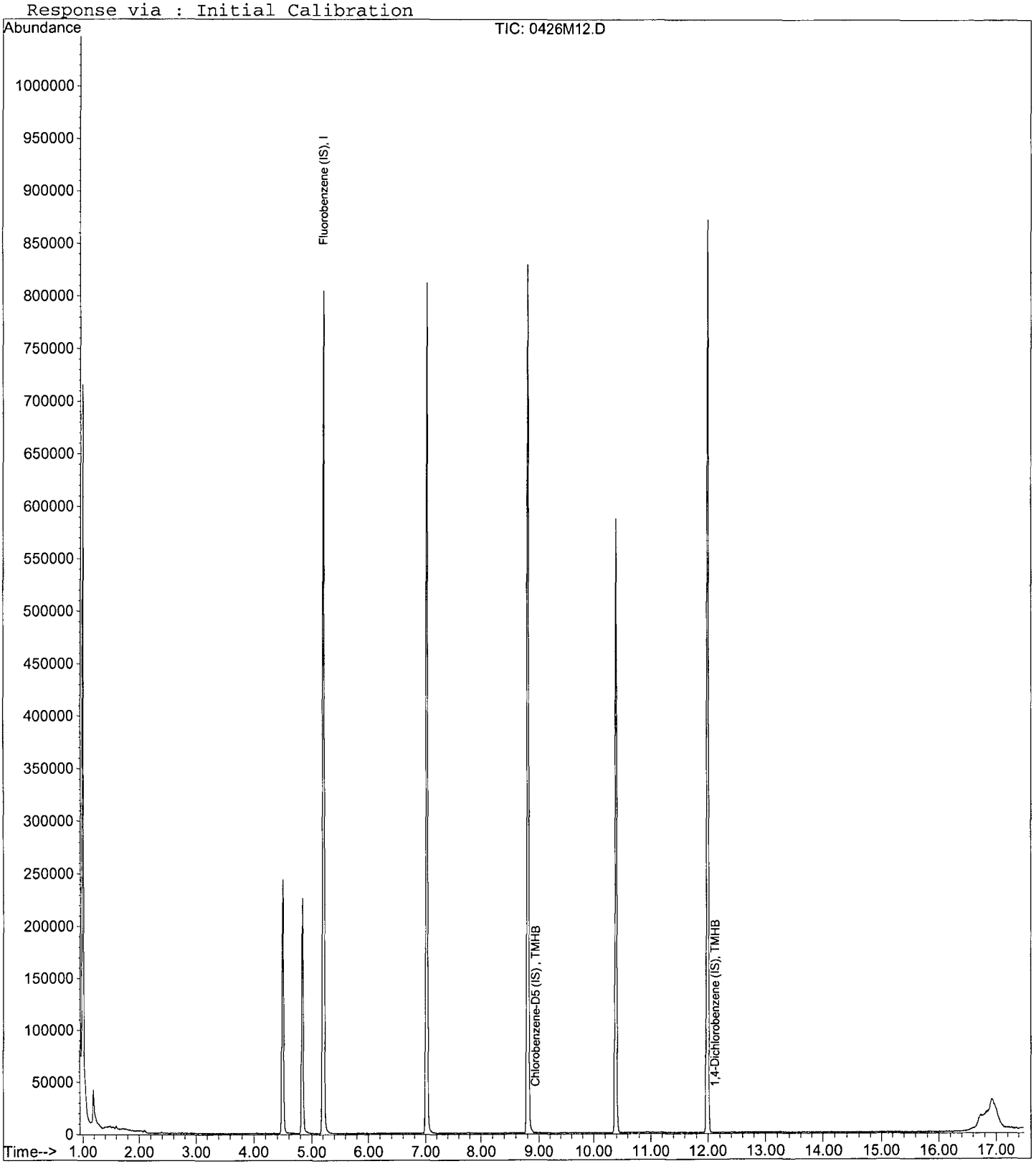
Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M12.D
Acq On : 26 Apr 19 14:19
Sample : AZ90101W01
Misc : IS,Surr 03/24/19

Vial: 11
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M17.D Vial: 16
Acq On : 26 Apr 19 16:42 Operator: PM,DG,SV,CMM,KV
Sample : AZ90102W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:48 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	751383	25.0000	ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	565484	25.0000	ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	304669	25.0000	ppb	-0.13
System Monitoring Compounds						
2) Dibromofluoromethane(S)	4.49	111	139210	24.2186	ppb	-0.11
Spiked Amount 25.000			Recovery = 96.876%			
3) 1,2-DCA-D4(S)	4.84	65	149246	22.5377	ppb	-0.11
Spiked Amount 25.000			Recovery = 90.152%			
5) Toluene-D8(S)	7.01	98	604192	24.0634	ppb	-0.12
Spiked Amount 25.000			Recovery = 96.252%			
6) 4-Bromofluorobenzene(S)	10.39	95	229875	24.9494	ppb	-0.13
Spiked Amount 25.000			Recovery = 99.796%			

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426M17.D Vial: 16
Acq On : 26 Apr 19 16:42 Operator: PM,DG,SV,CMM,KV
Sample : AZ90102W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:50 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	790006	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	791566m	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	834055m	25.0000	ppb	0.00
System Monitoring Compounds						
Target Compounds						Qvalue
2) Gasoline C6-C10	8.80	TIC	7452245m	47.7002	ppb	100

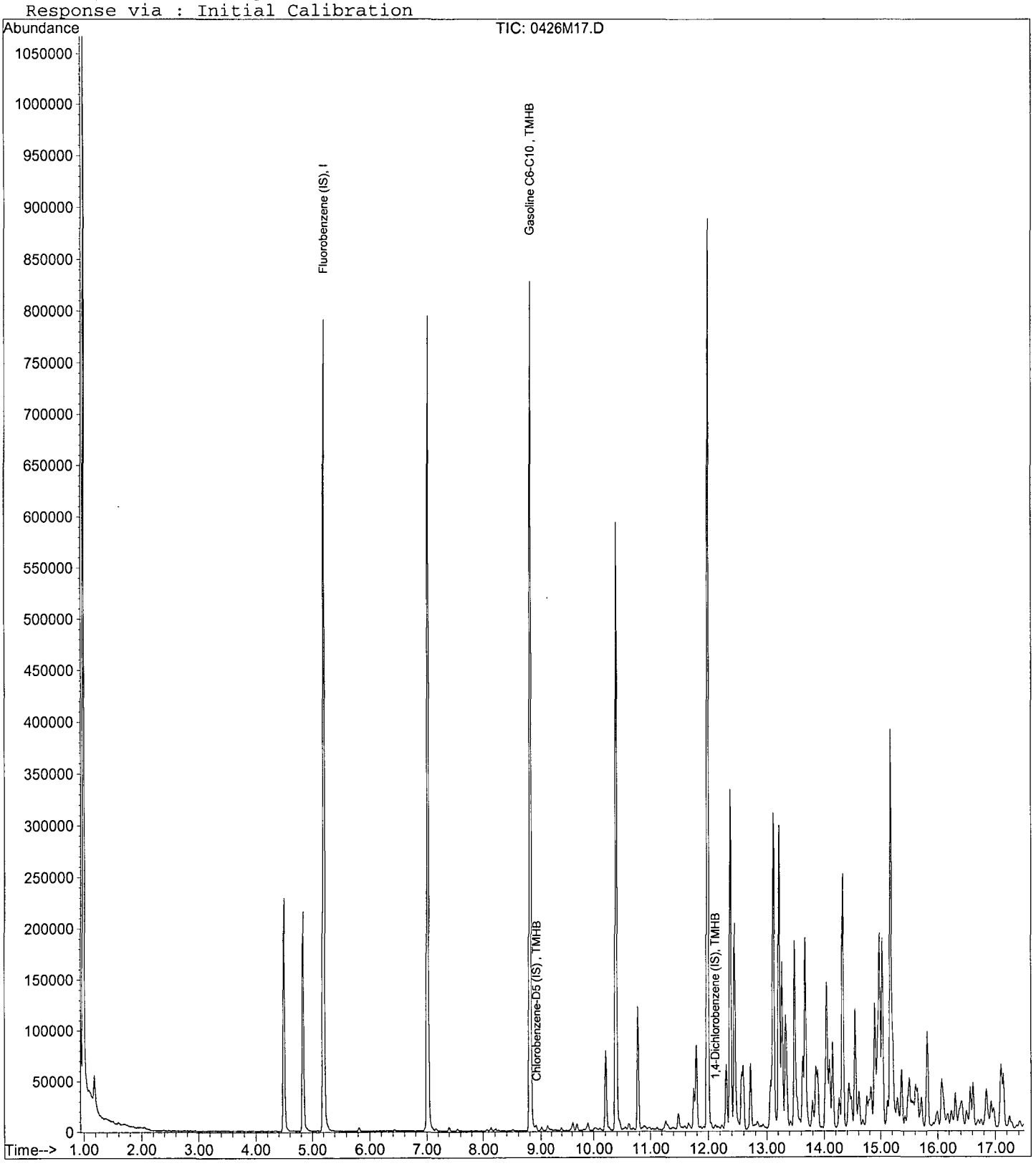
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M17.D Vial: 16
Acq On : 26 Apr 19 16:42 Operator: PM,DG,SV,CMM,KV
Sample : AZ90102W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:50 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M18.D Vial: 17
Acq On : 26 Apr 19 17:10 Operator: PM,DG,SV,CMM,KV
Sample : AZ90103W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:48 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	796671	25.0000 ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	600842	25.0000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	302482	25.0000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	154620	25.3704 ppb	-0.11
Spiked Amount 25.000			Recovery = 101.480%		
3) 1,2-DCA-D4(S)	4.84	65	163874	23.3399 ppb	-0.11
Spiked Amount 25.000			Recovery = 93.360%		
5) Toluene-D8(S)	7.01	98	661490	24.7951 ppb	-0.12
Spiked Amount 25.000			Recovery = 99.180%		
6) 4-Bromofluorobenzene(S)	10.39	95	240978	24.6153 ppb	-0.13
Spiked Amount 25.000			Recovery = 98.460%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426M18.D Vial: 17
Acq On : 26 Apr 19 17:10 Operator: PM,DG,SV,CMM,KV
Sample : AZ90103W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:49 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	837789	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	828627m	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	821968m	25.0000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) Gasoline C6-C10	8.80	TIC	8055943m	57.4813	ppb	100

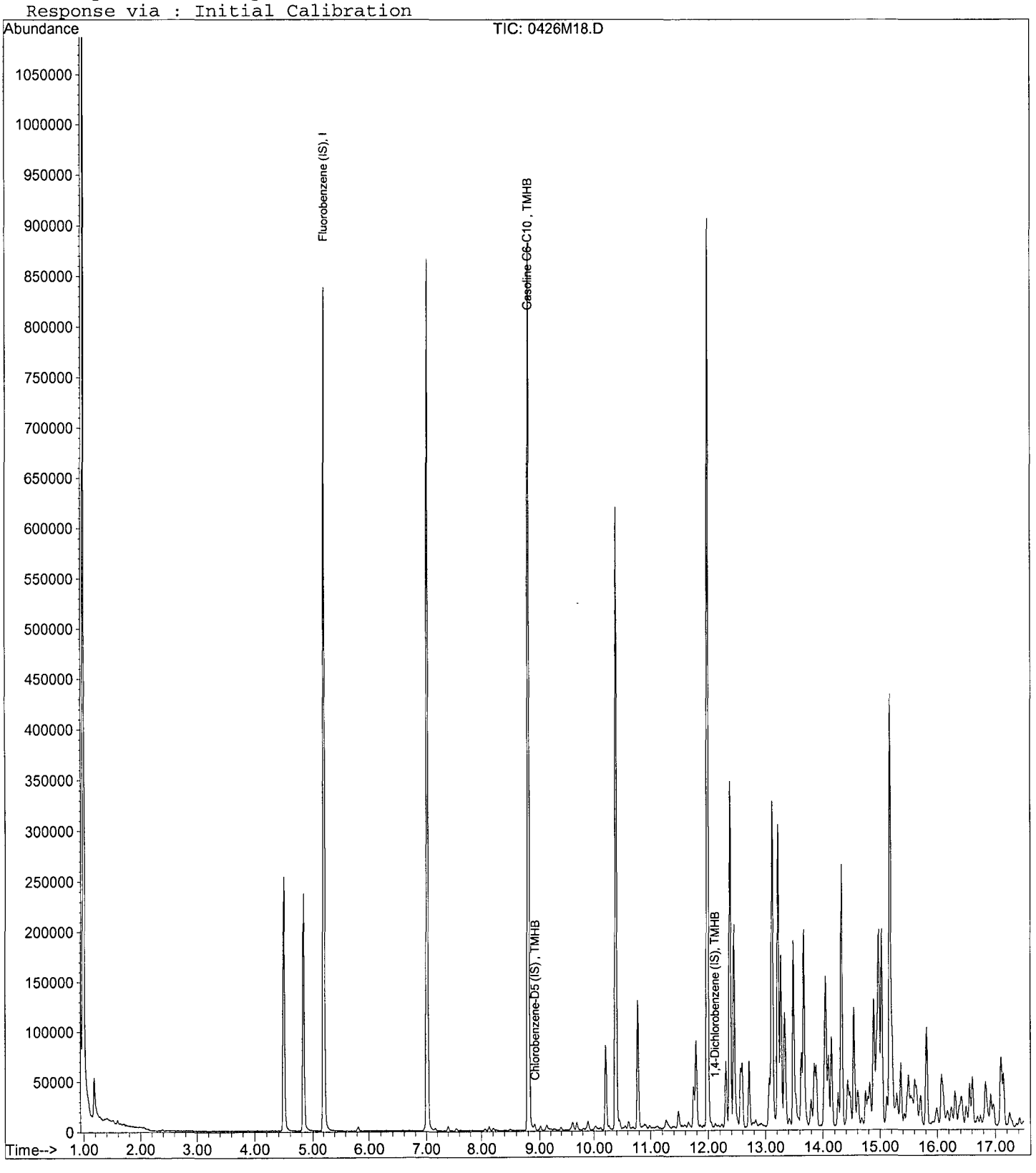
(#) = qualifier out of range (m) = manual integration
0426M18.D MGAS401.M Mon Apr 29 16:39:41 2019 Page 1

Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M18.D Vial: 17
Acq On : 26 Apr 19 17:10 Operator: PM,DG,SV,CMM,KV
Sample : AZ90103W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:49 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M13.D Vial: 12
Acq On : 26 Apr 19 14:48 Operator: PM,DG,SV,CMM,KV
Sample : AZ90104W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:48 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	773615	25.0000	ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	585975	25.0000	ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	290918	25.0000	ppb	-0.13
System Monitoring Compounds						
2) Dibromofluoromethane(S)	4.49	111	150931	25.5031	ppb	-0.11
Spiked Amount 25.000			Recovery = 102.012%			
3) 1,2-DCA-D4(S)	4.83	65	162629	23.8529	ppb	-0.11
Spiked Amount 25.000			Recovery = 95.412%			
5) Toluene-D8(S)	7.01	98	639931	24.5956	ppb	-0.12
Spiked Amount 25.000			Recovery = 98.384%			
6) 4-Bromofluorobenzene(S)	10.39	95	232421	24.3436	ppb	-0.13
Spiked Amount 25.000			Recovery = 97.376%			

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M13.D Vial: 12
Acq On : 26 Apr 19 14:48 Operator: PM,DG,SV,CMM,KV
Sample : AZ90104W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	817032	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	807725m	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	805365m	25.0000	ppb	0.00
System Monitoring Compounds						
Target Compounds						Qvalue
2) Gasoline C6-C10	8.80	TIC	5279064m	-111.5188	ppb	100

(#) = qualifier out of range (m) = manual integration

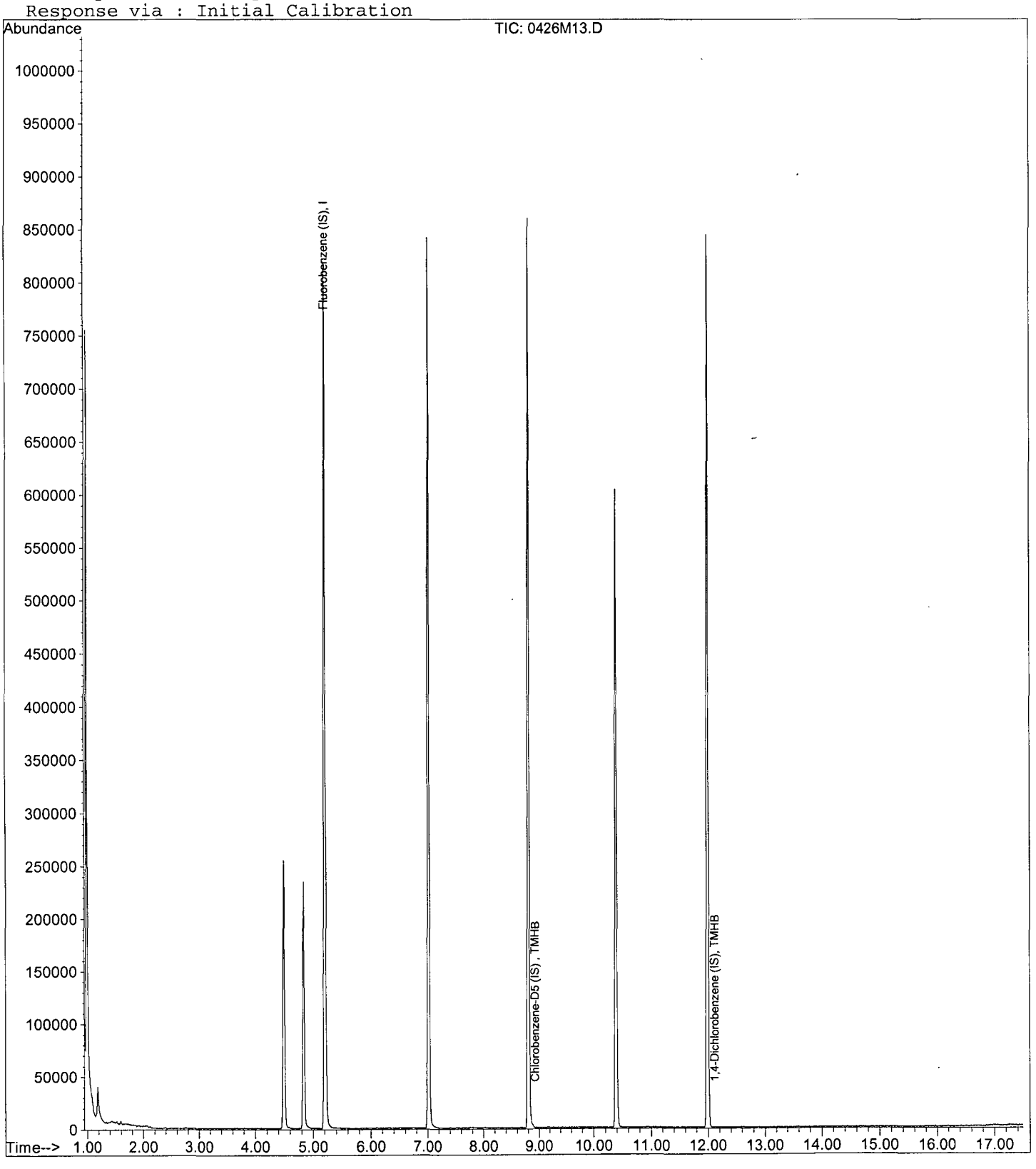
Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M13.D
Acq On : 26 Apr 19 14:48
Sample : AZ90104W01
Misc : IS,Surr 03/24/19

Vial: 12
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M19.D Vial: 18
Acq On : 26 Apr 19 17:39 Operator: PM,DG,SV,CMM,KV
Sample : AZ90105W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:48 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	734280	25.0000 ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	558644	25.0000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	295225	25.0000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	137628	24.5011 ppb	-0.11
Spiked Amount 25.000			Recovery =	98.004%	
3) 1,2-DCA-D4(S)	4.84	65	147807	22.8403 ppb	-0.11
Spiked Amount 25.000			Recovery =	91.360%	
5) Toluene-D8(S)	7.02	98	594676	23.9744 ppb	-0.12
Spiked Amount 25.000			Recovery =	95.896%	
6) 4-Bromofluorobenzene(S)	10.39	95	221993	24.3889 ppb	-0.13
Spiked Amount 25.000			Recovery =	97.556%	

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M19.D Vial: 18
Acq On : 26 Apr 19 17:39 Operator: PM,DG,SV,CMM,KV
Sample : AZ90105W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.20	TIC	783321	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	761624m	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	787624m	25.0000	ppb	0.00
System Monitoring Compounds						
Target Compounds						Qvalue
2) Gasoline C6-C10	8.80	TIC	4906545m	-122.0997	ppb	100

(#) = qualifier out of range (m) = manual integration

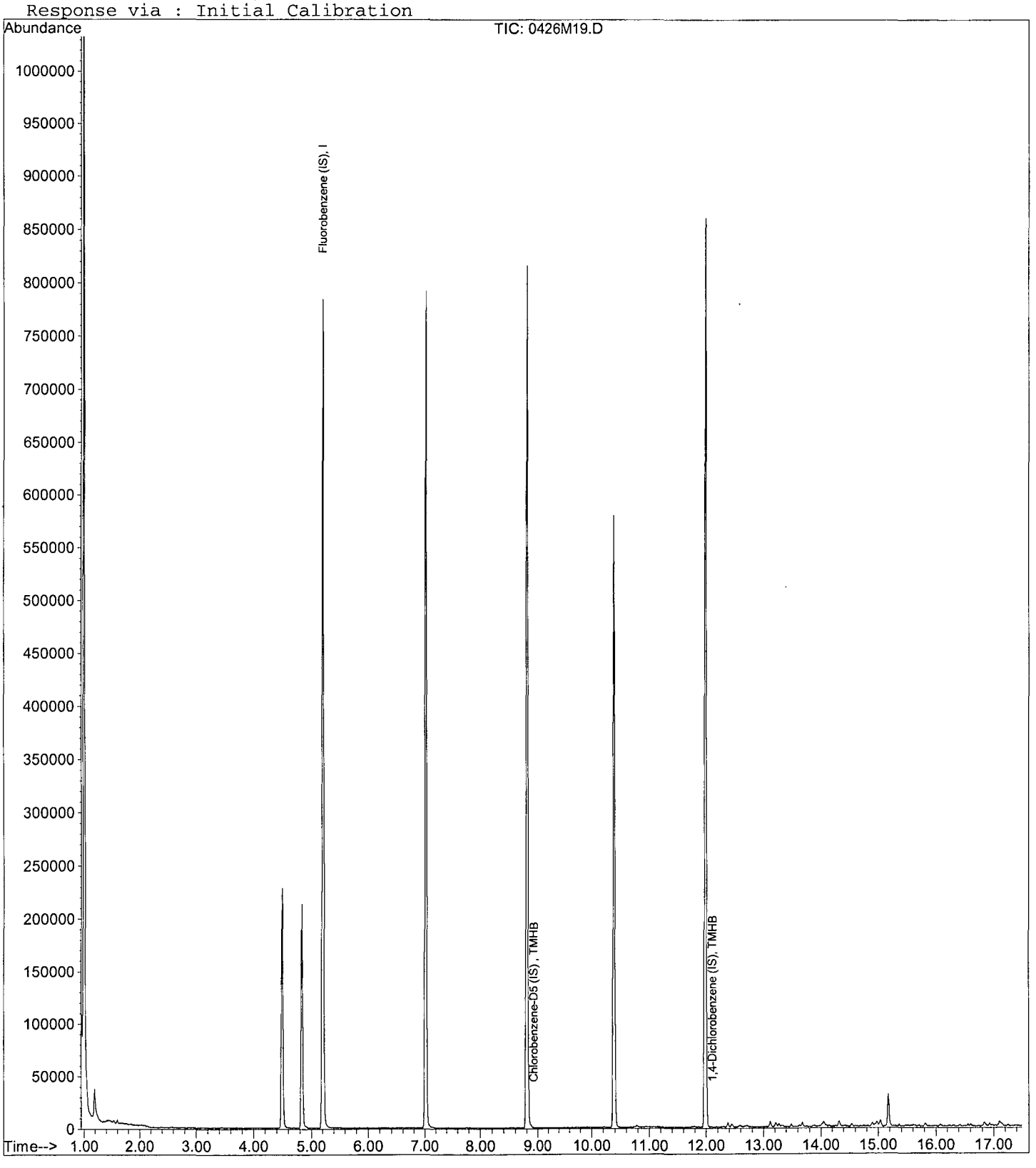
Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M19.D
Acq On : 26 Apr 19 17:39
Sample : AZ90105W01
Misc : IS,Surr 03/24/19

Vial: 18
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M14.D Vial: 13
Acq On : 26 Apr 19 15:16 Operator: PM,DG,SV,CMM,KV
Sample : AZ90106W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:48 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	733032	25.0000 ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	550923	25.0000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	287034	25.0000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	142873	25.4781 ppb	-0.11
Spiked Amount 25.000			Recovery = 101.912%		
3) 1,2-DCA-D4(S)	4.83	65	151328	23.4242 ppb	-0.11
Spiked Amount 25.000			Recovery = 93.696%		
5) Toluene-D8(S)	7.01	98	597605	24.4301 ppb	-0.12
Spiked Amount 25.000			Recovery = 97.720%		
6) 4-Bromofluorobenzene(S)	10.39	95	223941	24.9477 ppb	-0.13
Spiked Amount 25.000			Recovery = 99.792%		
Target Compounds					Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M14.D Vial: 13
Acq On : 26 Apr 19 15:16 Operator: PM,DG,SV,CMM,KV
Sample : AZ90106W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	773602	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	749885m	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	788689m	25.0000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) Gasoline C6-C10	8.80	TIC	4954556m	-114.5587	ppb	100

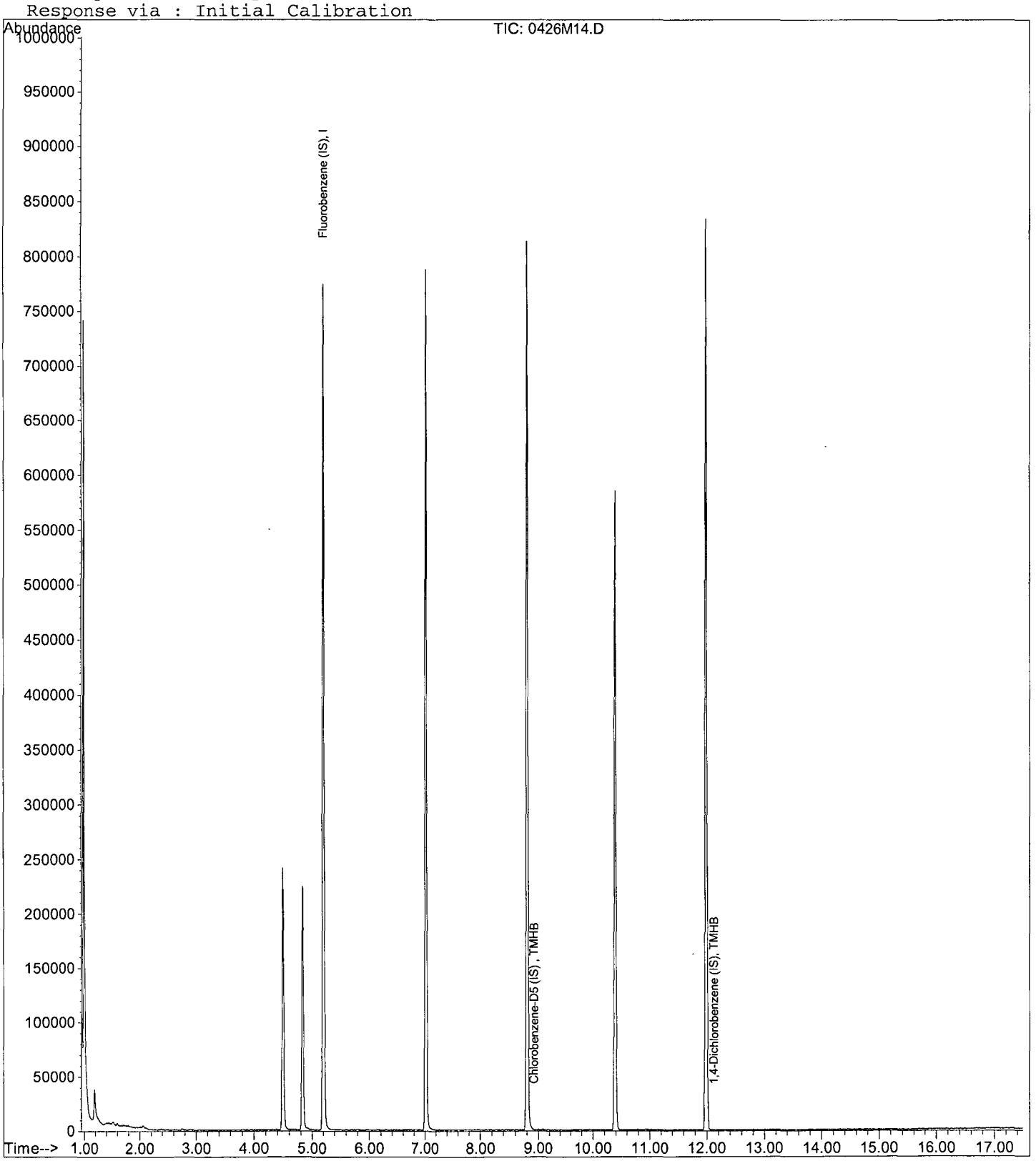
(#) = qualifier out of range (m) = manual integration
0426M14.D MGAS401.M Mon Apr 29 16:39:32 2019 Page 1

Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M14.D Vial: 13
Acq On : 26 Apr 19 15:16 Operator: PM,DG,SV,CMM,KV
Sample : AZ90106W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M20.D Vial: 19
Acq On : 26 Apr 19 18:08 Operator: PM,DG,SV,CMM,KV
Sample : AZ90107W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:48 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	734488	25.0000 ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	559504	25.0000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	287703	25.0000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	142211	25.3098 ppb	-0.11
Spiked Amount 25.000			Recovery = 101.240%		
3) 1,2-DCA-D4(S)	4.83	65	147817	22.8354 ppb	-0.11
Spiked Amount 25.000			Recovery = 91.340%		
5) Toluene-D8(S)	7.02	98	601043	24.1938 ppb	-0.12
Spiked Amount 25.000			Recovery = 96.776%		
6) 4-Bromofluorobenzene(S)	10.39	95	221908	24.3421 ppb	-0.13
Spiked Amount 25.000			Recovery = 97.368%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M20.D Vial: 19
Acq On : 26 Apr 19 18:08 Operator: PM,DG,SV,CMM,KV
Sample : AZ90107W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	783320	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	766253m	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	800614m	25.0000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) Gasoline C6-C10	8.80	TIC	4971624m	-117.6482	ppb	100

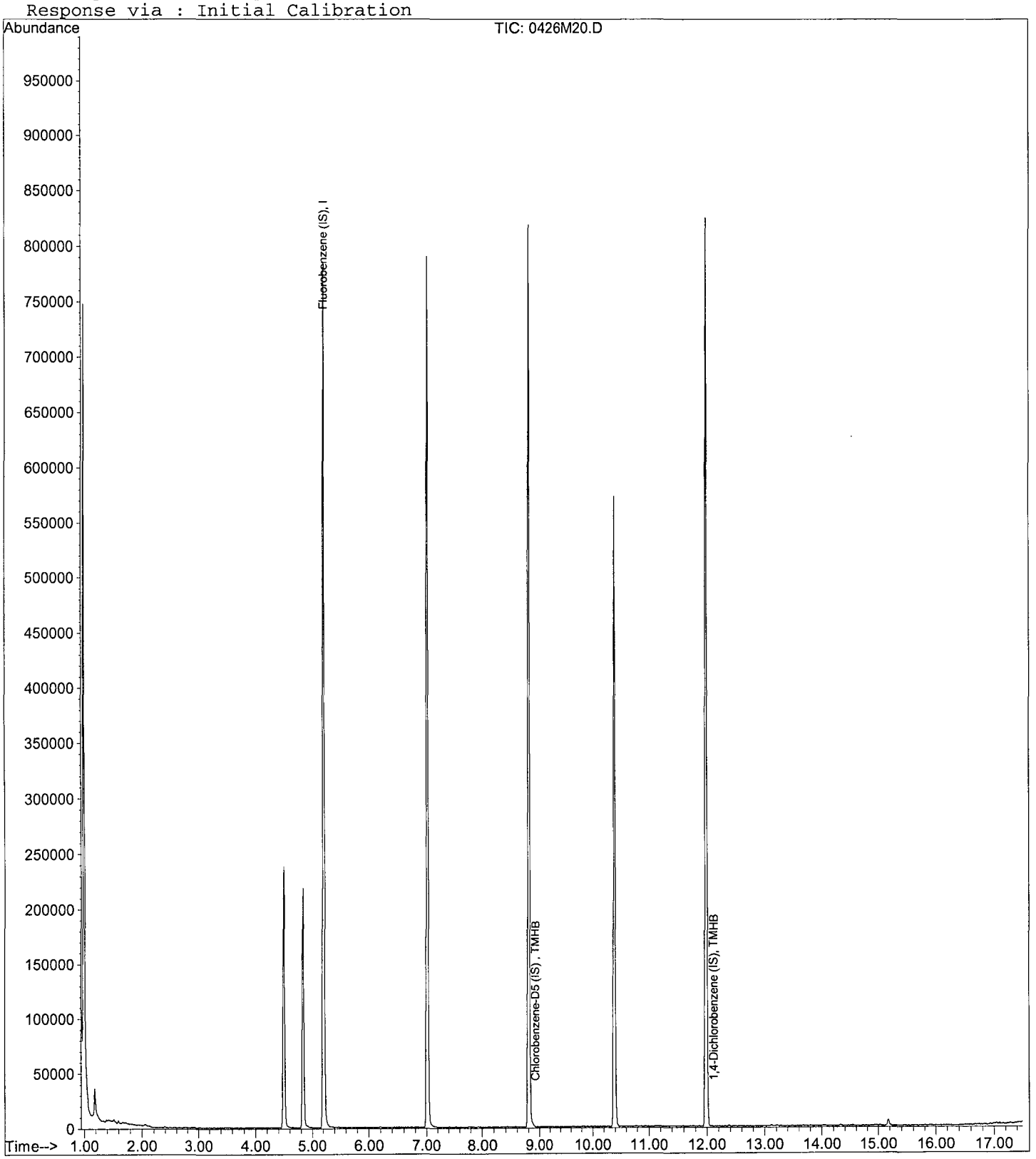
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M20.D Vial: 19
Acq On : 26 Apr 19 18:08 Operator: PM,DG,SV,CMM,KV
Sample : AZ90107W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M15.D Vial: 14
Acq On : 26 Apr 19 15:45 Operator: PM,DG,SV,CMM,KV
Sample : AZ90108W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:48 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	733023	25.0000	ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	561505	25.0000	ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	287112	25.0000	ppb	-0.13
System Monitoring Compounds						
2) Dibromofluoromethane(S)	4.49	111	142504	25.4126	ppb	-0.11
Spiked Amount 25.000			Recovery = 101.652%			
3) 1,2-DCA-D4(S)	4.84	65	152766	23.6471	ppb	-0.11
Spiked Amount 25.000			Recovery = 94.588%			
5) Toluene-D8(S)	7.01	98	603641	24.2118	ppb	-0.12
Spiked Amount 25.000			Recovery = 96.848%			
6) 4-Bromofluorobenzene(S)	10.39	95	219617	24.0049	ppb	-0.13
Spiked Amount 25.000			Recovery = 96.020%			

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M15.D Vial: 14
Acq On : 26 Apr 19 15:45 Operator: PM,DG,SV,CMM,KV
Sample : AZ90108W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	784017	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	762390m	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	806630m	25.0000	ppb	0.00
System Monitoring Compounds						
Target Compounds						Qvalue
2) Gasoline C6-C10	8.80	TIC	4968859m	-118.1395	ppb	100

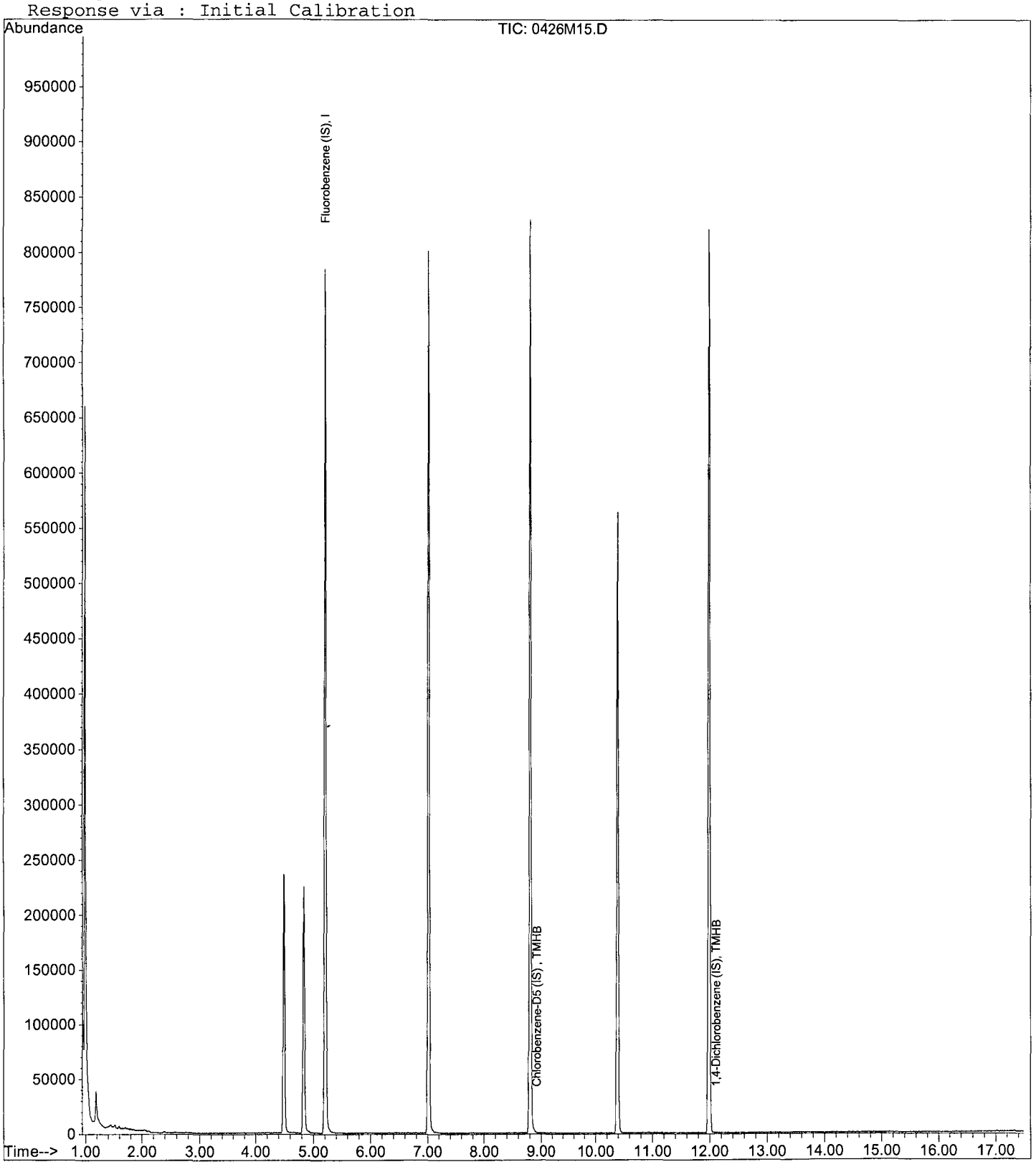
(#) = qualifier out of range (m) = manual integration
0426M15.D MGAS401.M Mon Apr 29 16:39:34 2019 Page 1

Data File : M:\MAX\DATA\M190401\0426M15.D
Acq On : 26 Apr 19 15:45
Sample : AZ90108W01
Misc : IS,Surr 03/24/19

Vial: 14
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M21.D Vial: 20
Acq On : 26 Apr 19 18:36 Operator: PM,DG,SV,CMM,KV
Sample : AZ90109W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:48 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	771608	25.0000 ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	583042	25.0000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	298723	25.0000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	148802	25.2088 ppb	-0.11
Spiked Amount 25.000			Recovery = 100.836%		
3) 1,2-DCA-D4(S)	4.83	65	155717	22.8985 ppb	-0.11
Spiked Amount 25.000			Recovery = 91.596%		
5) Toluene-D8(S)	7.02	98	627983	24.2578 ppb	-0.12
Spiked Amount 25.000			Recovery = 97.032%		
6) 4-Bromofluorobenzene(S)	10.39	95	229813	24.1915 ppb	-0.13
Spiked Amount 25.000			Recovery = 96.768%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M21.D Vial: 20
Acq On : 26 Apr 19 18:36 Operator: PM,DG,SV,CMM,KV
Sample : AZ90109W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	808050	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	802179m	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	805592m	25.0000	ppb	0.00
System Monitoring Compounds						
Target Compounds						Qvalue
2) Gasoline C6-C10	8.80	TIC	5185642m	-113.8650	ppb	100

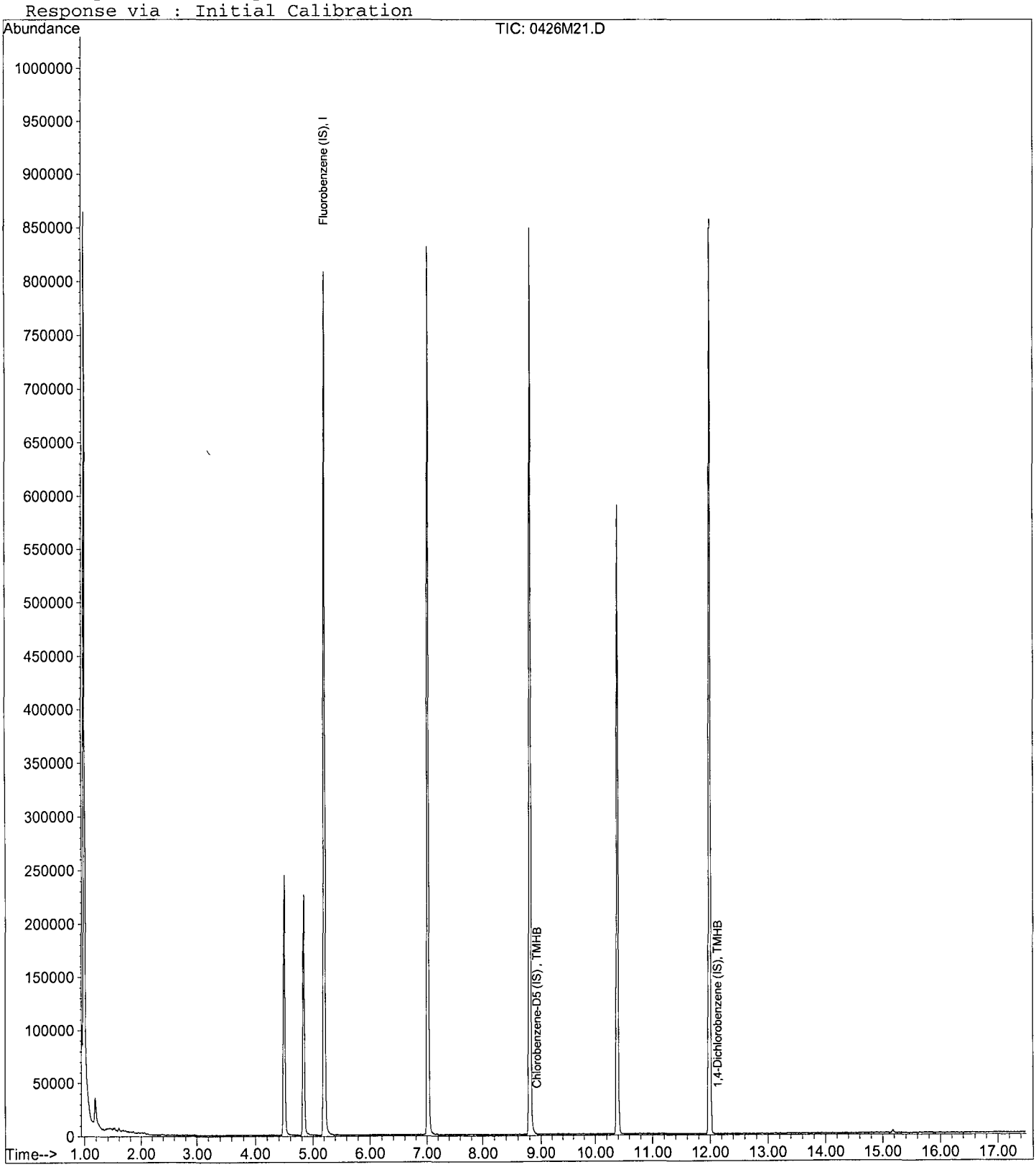
(#) = qualifier out of range (m) = manual integration
0426M21.D MGAS401.M Mon Apr 29 16:39:49 2019 Page 1

Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M21.D Vial: 20
Acq On : 26 Apr 19 18:36 Operator: PM,DG,SV,CMM,KV
Sample : AZ90109W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M10.D Vial: 9
Acq On : 26 Apr 19 13:23 Operator: PM,DG,SV,CMM,KV
Sample : 190426A blk Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:48 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	720853	25.0000	ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	544351	25.0000	ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	282492	25.0000	ppb	-0.13
System Monitoring Compounds						
2) Dibromofluoromethane(S)	4.49	111	140559	25.4890	ppb	-0.11
Spiked Amount 25.000			Recovery = 101.956%			
3) 1,2-DCA-D4(S)	4.84	65	150374	23.6698	ppb	-0.11
Spiked Amount 25.000			Recovery = 94.680%			
5) Toluene-D8(S)	7.01	98	593978	24.5750	ppb	-0.12
Spiked Amount 25.000			Recovery = 98.300%			
6) 4-Bromofluorobenzene(S)	10.39	95	221062	24.9243	ppb	-0.13
Spiked Amount 25.000			Recovery = 99.696%			

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M10.D Vial: 9
Acq On : 26 Apr 19 13:23 Operator: PM,DG,SV,CMM,KV
Sample : 190426A blk Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	776388	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	744281m	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	779290m	25.0000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) Gasoline C6-C10	8.80	TIC	4892770m	-120.0536	ppb	100

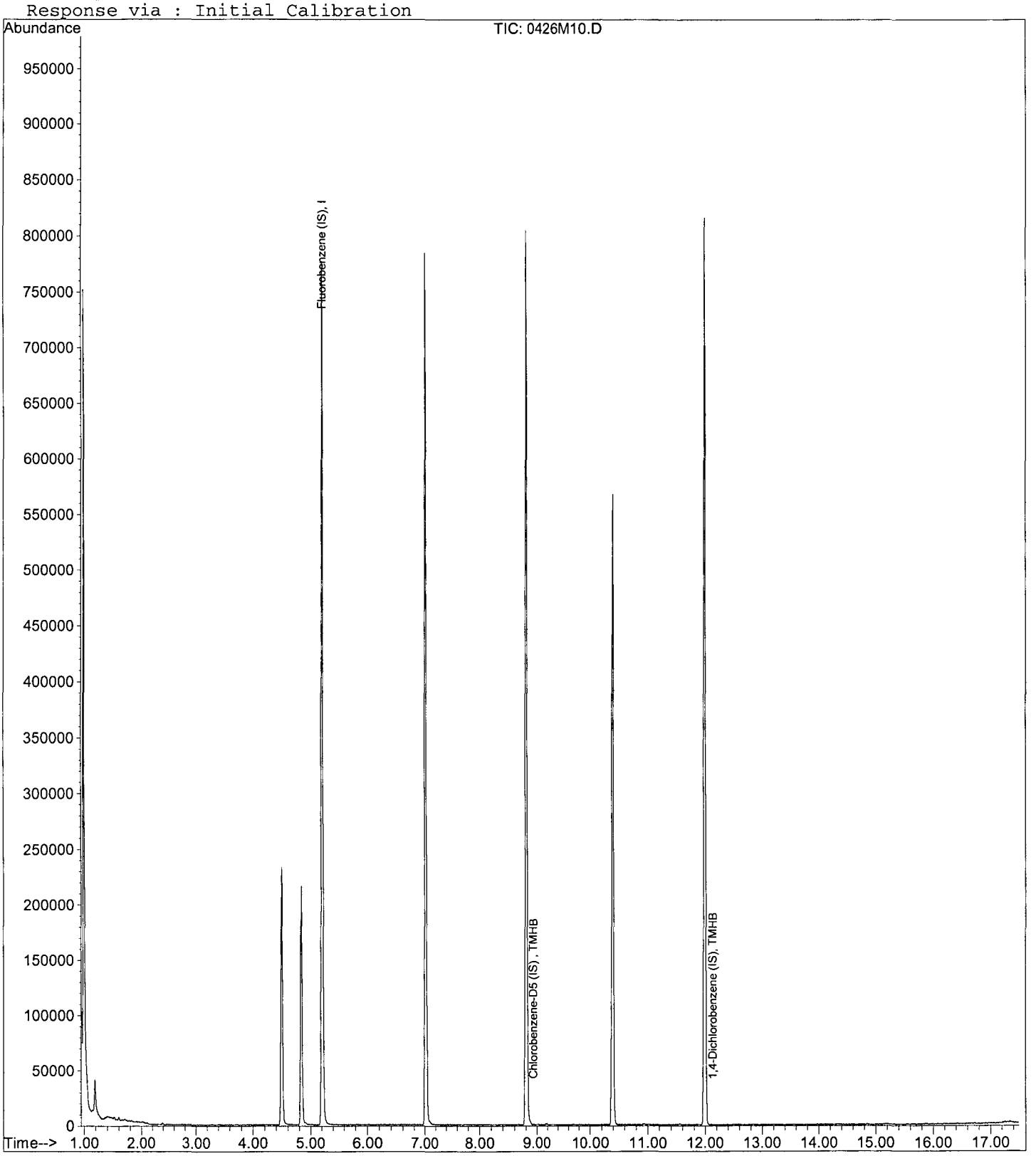
(#) = qualifier out of range (m) = manual integration
0426M10.D MGAS401.M Mon Apr 29 16:39:22 2019 Page 1

Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M10.D Vial: 9
Acq On : 26 Apr 19 13:23 Operator: PM,DG,SV,CMM,KV
Sample : 190426A blk Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:47 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M07.D Vial: 6
Acq On : 26 Apr 19 11:57 Operator: PM,DG,SV,CMM,KV
Sample : 190426A LCS 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:48 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	781592	25.0000 ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	588688	25.0000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	298186	25.0000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	153665	25.7001 ppb	-0.11
Spiked Amount 25.000			Recovery = 102.800%		
3) 1,2-DCA-D4(S)	4.84	65	162940	23.6546 ppb	-0.11
Spiked Amount 25.000			Recovery = 94.620%		
5) Toluene-D8(S)	7.01	98	657188	25.1424 ppb	-0.12
Spiked Amount 25.000			Recovery = 100.568%		
6) 4-Bromofluorobenzene(S)	10.39	95	240303	25.0531 ppb	-0.13
Spiked Amount 25.000			Recovery = 100.212%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426M07.D Vial: 6
Acq On : 26 Apr 19 11:57 Operator: PM,DG,SV,CMM,KV
Sample : 190426A LCS 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 26 13:56 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	825932	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	1755118m	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	1733612m	25.0000	ppb	0.00
System Monitoring Compounds						
Target Compounds						Qvalue
2) Gasoline C6-C10	7.01	TIC	11718922m	302.4810	ppb	100

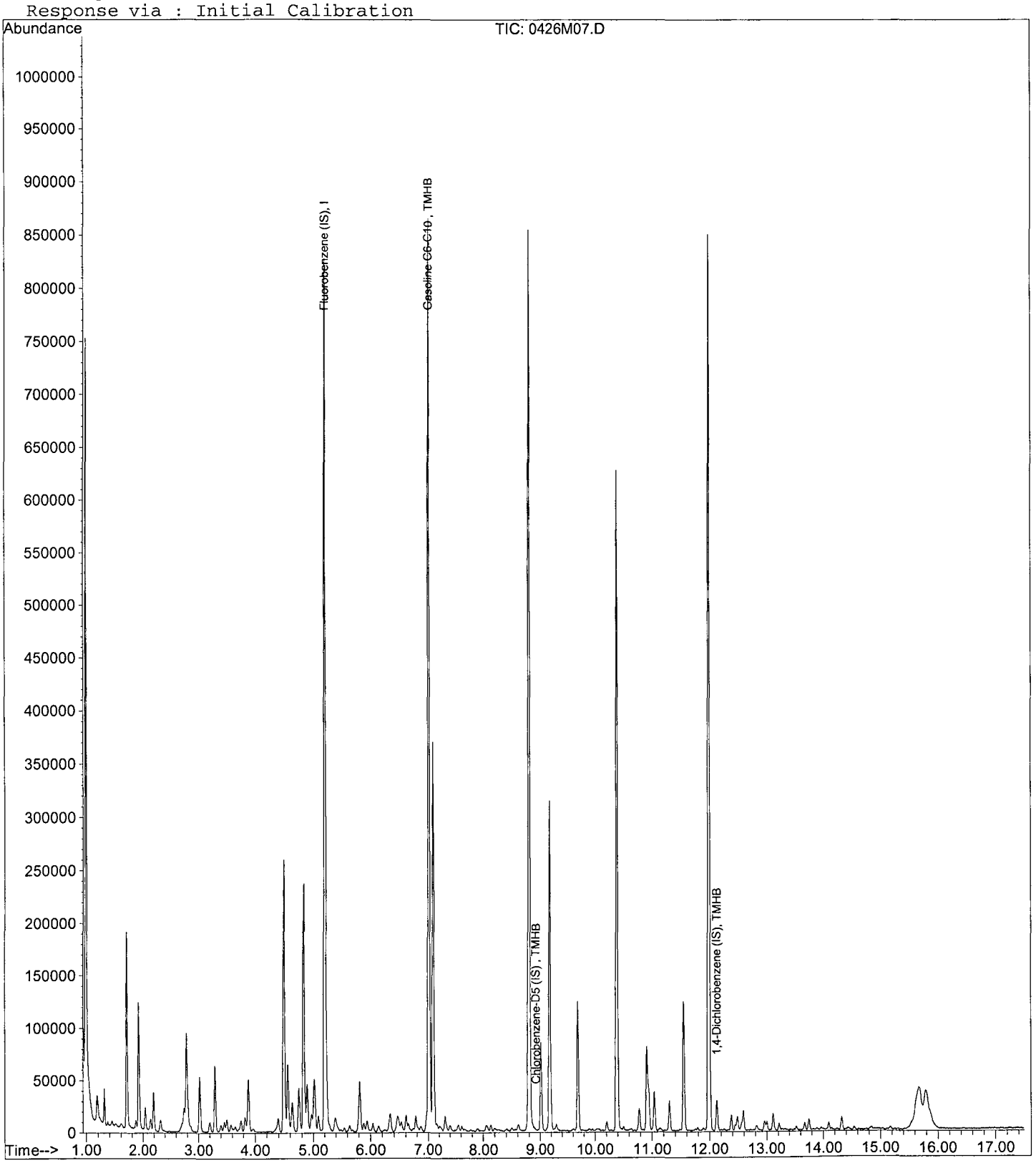
(#) = qualifier out of range (m) = manual integration
0426M07.D MGAS401.M Mon Apr 29 16:39:17 2019 Page 1

Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M07.D Vial: 6
Acq On : 26 Apr 19 11:57 Operator: PM,DG,SV,CMM,KV
Sample : 190426A LCS 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 26 13:56 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0426M08.D Vial: 7
Acq On : 26 Apr 19 12:26 Operator: PM,DG,SV,CMM,KV
Sample : 190426A LCSD 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 12:48 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	748706	25.0000	ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	564418	25.0000	ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	295019	25.0000	ppb	-0.13
System Monitoring Compounds						
2) Dibromofluoromethane(S)	4.49	111	143862	25.1174	ppb	-0.11
Spiked Amount 25.000			Recovery = 100.468%			
3) 1,2-DCA-D4(S)	4.84	65	153841	23.3147	ppb	-0.11
Spiked Amount 25.000			Recovery = 93.260%			
5) Toluene-D8(S)	7.02	98	616325	24.5930	ppb	-0.12
Spiked Amount 25.000			Recovery = 98.372%			
6) 4-Bromofluorobenzene(S)	10.39	95	226930	24.6762	ppb	-0.13
Spiked Amount 25.000			Recovery = 98.704%			

Target Compounds	Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0426M08.D Vial: 7
Acq On : 26 Apr 19 12:26 Operator: PM,DG,SV,CMM,KV
Sample : 190426A LCSD 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 26 13:57 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	788806	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	1690039m	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	1730128m	25.0000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) Gasoline C6-C10	8.80	TIC	11486181m	322.4513	ppb	100

(#) = qualifier out of range (m) = manual integration
0426M08.D MGAS401.M Mon Apr 29 16:39:20 2019 Page 1

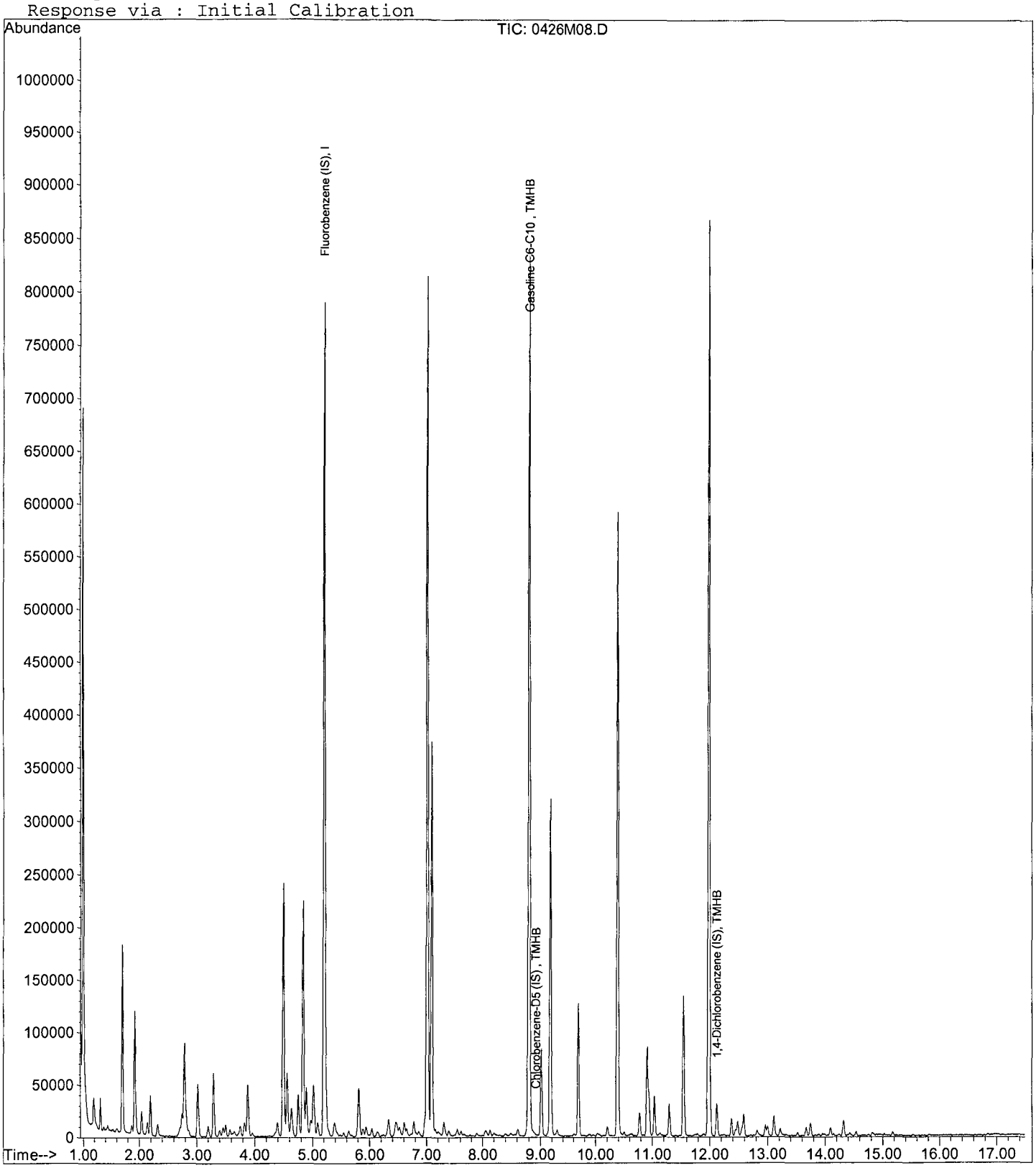
Quantitation Report

Data File : M:\MAX\DATA\M190401\0426M08.D
Acq On : 26 Apr 19 12:26
Sample : 190426A LCSD 300ug/L
Misc : IS,Surr 03/24/19

Vial: 7
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 26 13:57 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Max Gas Standard Prep

Gas Primary Working Standard

Prepared: 02/01/19 — **Prepared By (Initials):** CMM
Expires: 11/01/19
Methanol Lot No. 9077-02

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
50,000ug/mL Gas STD	Restek	30205	50,000	A0132443-39861	11/01/19	12/31/24	80uL	2mL	Methanol	2,000

Gas Second Source (SS) Working Standard

Prepared: 01/14/19 — **Prepared By (Initials):** CMM
Expires: 01/14/20
Methanol Lot No. 946

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Gasoline (5,000ppm)	O2SI	020246-06	5,000	G34-326538-39193	01/14/20	10/31/20	800uL	2mL	Methanol	2,000

Max Gas Calibration Curve

Prepared: 04/01/19 — **Prepared By (Initials):** PC
Expires: 05/31/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA Gasses Standards	Phenova	20ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	1uL	100mL	P&T Water	20
VOA Gasses Standards	Phenova	50ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	2.5uL	100mL	P&T Water	50
VOA Gasses Standards	Phenova	100ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	5uL	100mL	P&T Water	100
VOA Gasses Standards	Phenova	300ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	15uL	100mL	P&T Water	300
VOA Gasses Standards	Phenova	600ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	30uL	100mL	P&T Water	600
VOA Gasses Standards	Phenova	800ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	40uL	100mL	P&T Water	800
VOA Gasses Standards	Phenova	1,000ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	50uL	100mL	P&T Water	1,000

Max Gas Second Source

Prepared: 04/01/19 — **Prepared By (Initials):** PC
Expires: 05/31/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
50,000ug/mL Gas STD	Phenova	SS 300ug/L	2,000	Prepared 01/14/19	01/14/20	N/A	15uL	100mL	P&T Water	300

Max Gas Continuing Calibrations/Lab Control Spikes

Prepared: 04/01/19 — **Prepared By (Initials):** PC
Expires: 04/02/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
VOA Gasses Standards	Phenova	300ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	15uL	100mL	P&T Water	300

Max 8260 Standard Prep

Max 8260 Water Calibration Curve

0.3ug/L

Prepared By (Initials): DG

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	0.3ug/L	5	Prepared 03/21/19	05/20/19	N/A	3uL	50mL	P&T Water	0.3
VOA STD. 10	O2SI		5	Prepared 03/21/19	05/20/19	N/A	3uL			0.3
VOA STD. 12	O2SI		5	Prepared 03/21/19	05/20/19	N/A	3uL			0.3
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	2uL			10

0.5ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	0.5ug/L	5	Prepared 03/21/19	05/20/19	N/A	5uL	50mL	P&T Water	0.5
VOA STD. 10	O2SI		5	Prepared 03/21/19	05/20/19	N/A	5uL			0.5
VOA STD. 12	O2SI		5	Prepared 03/21/19	05/20/19	N/A	5uL			0.5
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	5uL			25

1.0ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	1.0ug/L	5	Prepared 03/21/19	05/20/19	N/A	10uL	50mL	P&T Water	1
VOA STD. 10	O2SI		5	Prepared 03/21/19	05/20/19	N/A	10uL			1
VOA STD. 12	O2SI		5	Prepared 03/21/19	05/20/19	N/A	10uL			1
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	10uL			50

2.0ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	2.0ug/L	5	Prepared 03/21/19	05/20/19	N/A	20uL	50mL	P&T Water	2
VOA STD. 10	O2SI		5	Prepared 03/21/19	05/20/19	N/A	20uL			2
VOA STD. 12	O2SI		5	Prepared 03/21/19	05/20/19	N/A	20uL			2
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	15uL			75

5ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	5ug/L	50	Prepared 03/21/19	05/20/19	N/A	5uL	50mL	P&T Water	5
VOA STD. 8	Phenova		50	Prepared 03/21/19	03/27/19	N/A	5uL			5
VOA STD. 1	O2SI		50	Prepared 03/21/19	05/20/19	N/A	5uL			5
VOA STD. 2	O2SI		50	Prepared 03/21/19	05/20/19	N/A	5uL			5
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	20uL			100

10ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	10ug/L	50	Prepared 03/21/19	05/20/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 8	Phenova		50	Prepared 03/21/19	03/27/19	N/A	10uL			10
VOA STD. 1	O2SI		50	Prepared 03/21/19	05/20/19	N/A	10uL			10
VOA STD. 2	O2SI		50	Prepared 03/21/19	05/20/19	N/A	10uL			10
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	25uL			125

20ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	20ug/L	50	Prepared 03/21/19	05/20/19	N/A	20uL	50mL	P&T Water	20
VOA STD. 8	Phenova		50	Prepared 03/21/19	03/27/19	N/A	20uL			20
VOA STD. 1	O2SI		50	Prepared 03/21/19	05/20/19	N/A	20uL			20
VOA STD. 2	O2SI		50	Prepared 03/21/19	05/20/19	N/A	20uL			20
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	30uL			150

40ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	40ug/L	50	Prepared 03/21/19	05/20/19	N/A	40uL	50mL	P&T Water	40
VOA STD. 8	Phenova		50	Prepared 03/21/19	03/27/19	N/A	40uL			40
VOA STD. 1	O2SI		50	Prepared 03/21/19	05/20/19	N/A	40uL			40
VOA STD. 2	O2SI		50	Prepared 03/21/19	05/20/19	N/A	40uL			40
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	35uL			175

100ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	100ug/L	50	Prepared 03/21/19	05/20/19	N/A	100uL	50mL	P&T Water	100
VOA STD. 8	Phenova		50	Prepared 03/21/19	03/27/19	N/A	100uL			100
VOA STD. 1	O2SI		50	Prepared 03/21/19	05/20/19	N/A	100uL			100
VOA STD. 2	O2SI		50	Prepared 03/21/19	05/20/19	N/A	100uL			100
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	40uL			200

Max 8260 Water Second Source (SS)

Prepared: 03/24/19

Prepared By (Initials): DG

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 4	Phenova	8260 Water SS	50	Prepared 03/21/19	05/20/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 5	O2SI	8260 Water SS	50	Prepared 03/21/19	05/20/19	N/A	10uL			10
VOA STD. 6	Various	8260 Water SS	50	Prepared 03/21/19	03/13/19	N/A	10uL			10
Voa STD. TBA	Various	8260 Water SS	250	Prepared 03/21/19	03/13/19	N/A	25uL			250

8260 Water Continuing Calibrations (CCV)/ Lab Control Spikes (LCS)

Prepared: 03/24/19

Prepared By (Initials): DG

Expires: 03/25/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	CCV/ LCS	50	Prepared 03/21/19	05/20/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 8	Phenova	CCV/ LCS	50	Prepared 03/21/19	03/27/19	N/A	10uL			10
VOA STD. 1	O2SI	CCV/ LCS	50	Prepared 03/21/19	05/20/19	N/A	10uL			10
VOA STD. 2	O2SI	CCV/ LCS	50	Prepared 03/21/19	05/20/19	N/A	10uL			10
VOA STD. TBA	Various	CCV/ LCS	250	Prepared 03/21/19	03/27/19	N/A	25uL			125

LCS (X4 Ketones)

Prepared: 03/24/19

Prepared By (Initials): DG

Expires: 03/25/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	LCS X4 Ketones	50	Prepared 03/21/19	05/20/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 8	Phenova	LCS X4 Ketones	50	Prepared 03/21/19	03/27/19	N/A	10uL			10
VOA STD. 1	O2SI	LCS X4 Ketones	50	Prepared 03/21/19	05/20/19	N/A	10uL			10
VOA STD. 2	O2SI	LCS X4 Ketones	50	Prepared 03/21/19	05/20/19	N/A	40uL			40
VOA STD. TBA	Various	LCS X4 Ketones	250	Prepared 03/21/19	03/27/19	N/A	25uL			125

Max 8260 Water Surrogate

Prepared: 03/24/19
Expires: 03/23/20
Methanol Lot No: 58019

Prepared By (Initials): DG

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
8260 Surrogate Solution	O2SI	120002-01	2,000	**348756-39342**	**03/24/20**	**02/10/22**	375uL	15mL	Methanol	50

Max 8260 Water Internal Standard

Prepared: 03/24/19
Expires: 03/23/20
Methanol Lot No: 58019

Prepared By (Initials): DG

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Internal Standard Solution	O2SI	120004-02	2,000	**326533-38436**	**03/24/20**	**04/27/21**	375uL	15mL	Methanol	50

Injection Log

Directory: M:\MAX\DATA\M190324\

Vial	FileName	Multiplier	SampleName	Misc Info	Injected
3	0324M05.D	1	0.3ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 12:56
4	0324M06.D	1	0.5ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 13:25
5	0324M07.D	1	1.0ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 13:54
6	0324M08.D	1	2.0ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 14:22
7	0324M09.D	1	5.0ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 14:51
8	0324M10.D	1	10ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 15:19
9	0324M11.D	1	20ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 15:48
10	0324M12.D	1	40ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 16:17
11	0324M13.D	1	100ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 16:45
3	0401M04.D	1	20ug/L GAS STD 4/01/19	IS,Surr 03/24/19	1 Apr 19 10:31
4	0401M05.D	1	50ug/L GAS STD 4/01/19	IS,Surr 03/24/19	1 Apr 19 11:00
5	0401M06.D	1	100ug/L GAS STD 4/01/19	IS,Surr 03/24/19	1 Apr 19 11:28
6	0401M07.D	1	300ug/L GAS STD 4/01/19	IS,Surr 03/24/19	1 Apr 19 11:57
7	0401M08.D	1	600ug/L GAS STD 4/01/19	IS,Surr 03/24/19	1 Apr 19 12:25
8	0401M09.D	1	800ug/L GAS STD 4/01/19	IS,Surr 03/24/19	1 Apr 19 12:54
9	0401M10.D	1	1000ug/L GAS STD 4/01/19	IS,Surr 03/24/19	1 Apr 19 13:22
11	0401M12.D	1	(SS)300ug/L GAS STD 4/01/19	IS,Surr 03/24/19	1 Apr 19 14:19
5	0426M06.D	1	190426A CCV 300ug/L	IS,Surr 03/24/19	26 Apr 19 11:29
6	0426M07.D	1	190426A LCS 300ug/L	IS,Surr 03/24/19	26 Apr 19 11:57
7	0426M08.D	1	190426A LCSD 300ug/L	IS,Surr 03/24/19	26 Apr 19 12:26
9	0426M10.D	1	190426A blk	IS,Surr 03/24/19	26 Apr 19 13:23
10	0426M11.D	1	AZ90099W01	IS,Surr 03/24/19	26 Apr 19 13:51
11	0426M12.D	1	AZ90101W01	IS,Surr 03/24/19	26 Apr 19 14:19
12	0426M13.D	1	AZ90104W01	IS,Surr 03/24/19	26 Apr 19 14:48
13	0426M14.D	1	AZ90106W01	IS,Surr 03/24/19	26 Apr 19 15:16
14	0426M15.D	1	AZ90108W01	IS,Surr 03/24/19	26 Apr 19 15:45
15	0426M16.D	1	AZ90100W01	IS,Surr 03/24/19	26 Apr 19 16:13
16	0426M17.D	1	AZ90102W01	IS,Surr 03/24/19	26 Apr 19 16:42
17	0426M18.D	1	AZ90103W01	IS,Surr 03/24/19	26 Apr 19 17:10
18	0426M19.D	1	AZ90105W01	IS,Surr 03/24/19	26 Apr 19 17:39
19	0426M20.D	1	AZ90107W01	IS,Surr 03/24/19	26 Apr 19 18:08
20	0426M21.D	1	AZ90109W01	IS,Surr 03/24/19	26 Apr 19 18:36
23	0426M24.D	1	Ending CCV 300ug/L	IS,Surr 03/24/19	26 Apr 19 20:02

ORGANICS
Calibration Data

APPL, INC.

RSK 175
RSK 175

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/11/19
Matrix: Instrument: 7890

Initials: cm/LP

19031100.D 19031101.D 19031103.D 19031104.D 19031105.D 19031106.D 19031107.D

		Compound	1	2	3	4	5	6	7				Avg	%RSD	Type	r^2	Q
1	ATML	Methane	17670	8968	6066	11811	14125	14507	13183				12333	31	ATM	0.999	
2	ATML	Ethane	14730	8189	5526	9883	12114	11368	10522				10333	28	ATM	0.999	
3	ATML	Ethene	12553	7178	4798	8331	10165	9095	8863				8712	28	ATM	1.000	
4																	
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7																	
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2.487833

Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031100.D Vial: 1
Acq On : 11 Mar 19 10:21 Operator: cmm
Sample : RSK Std 1 03/11/19 Inst : 7890
Misc : 125uL from RSK Std 3 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:49 2019 Quant Results File: RSK0311.RES

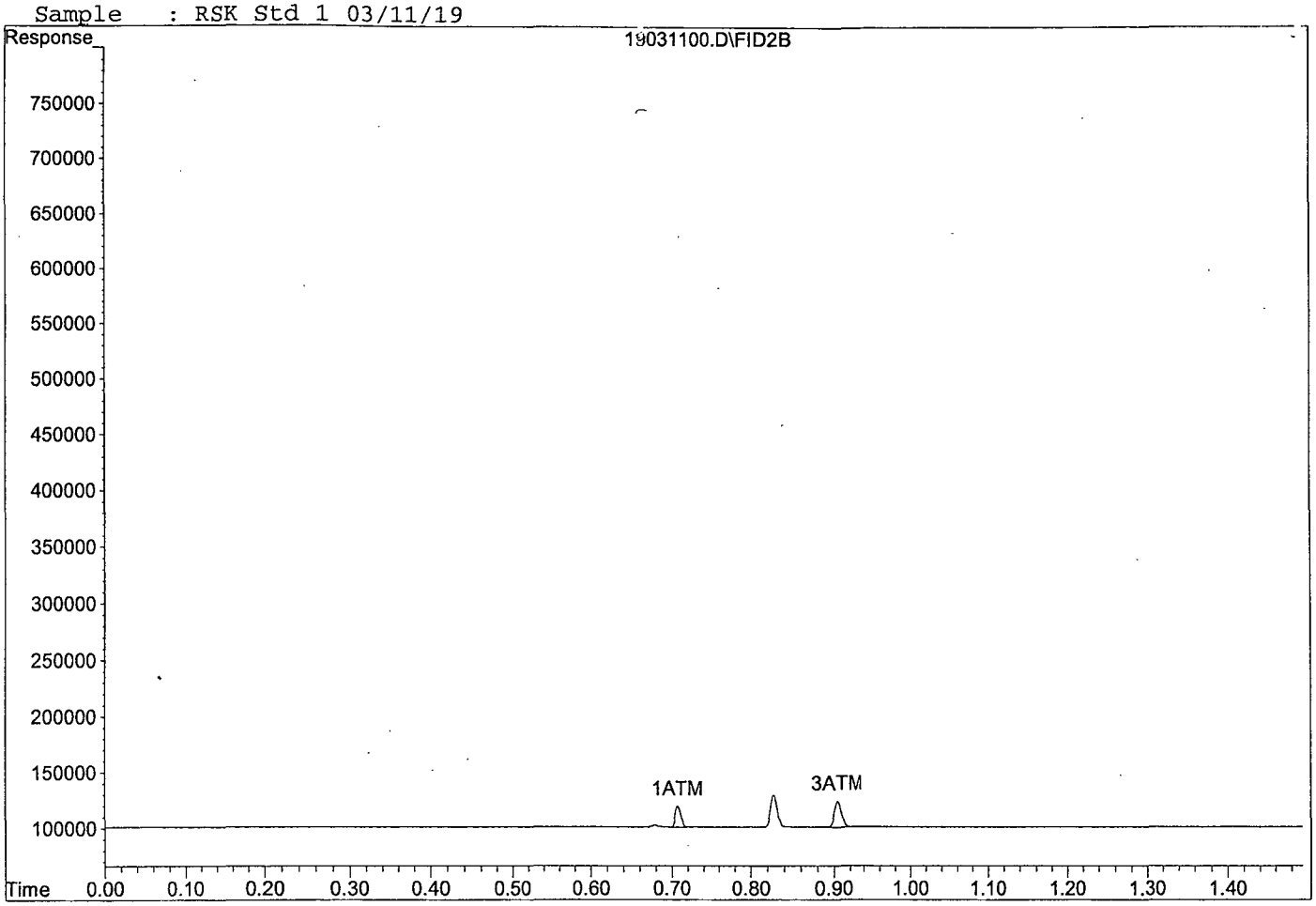
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:48:58 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) ATM Methane	0.71	18377	0.442	ppb
3) ATM Ethene	0.91	22909	1.995	ppb
Target Compounds				
2) ATM Ethane	0.83	28797	N.D.	ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031100.D
Sample : RSK Std 1 03/11/19



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031101.D Vial: 2
Acq On : 11 Mar 19 10:23 Operator: cmm
Sample : RSK Std 2 03/11/19 Inst : 7890
Misc : 250uL from RSK Std 3 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:49 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:49:30 2019
Response via : Multiple Level Calibration

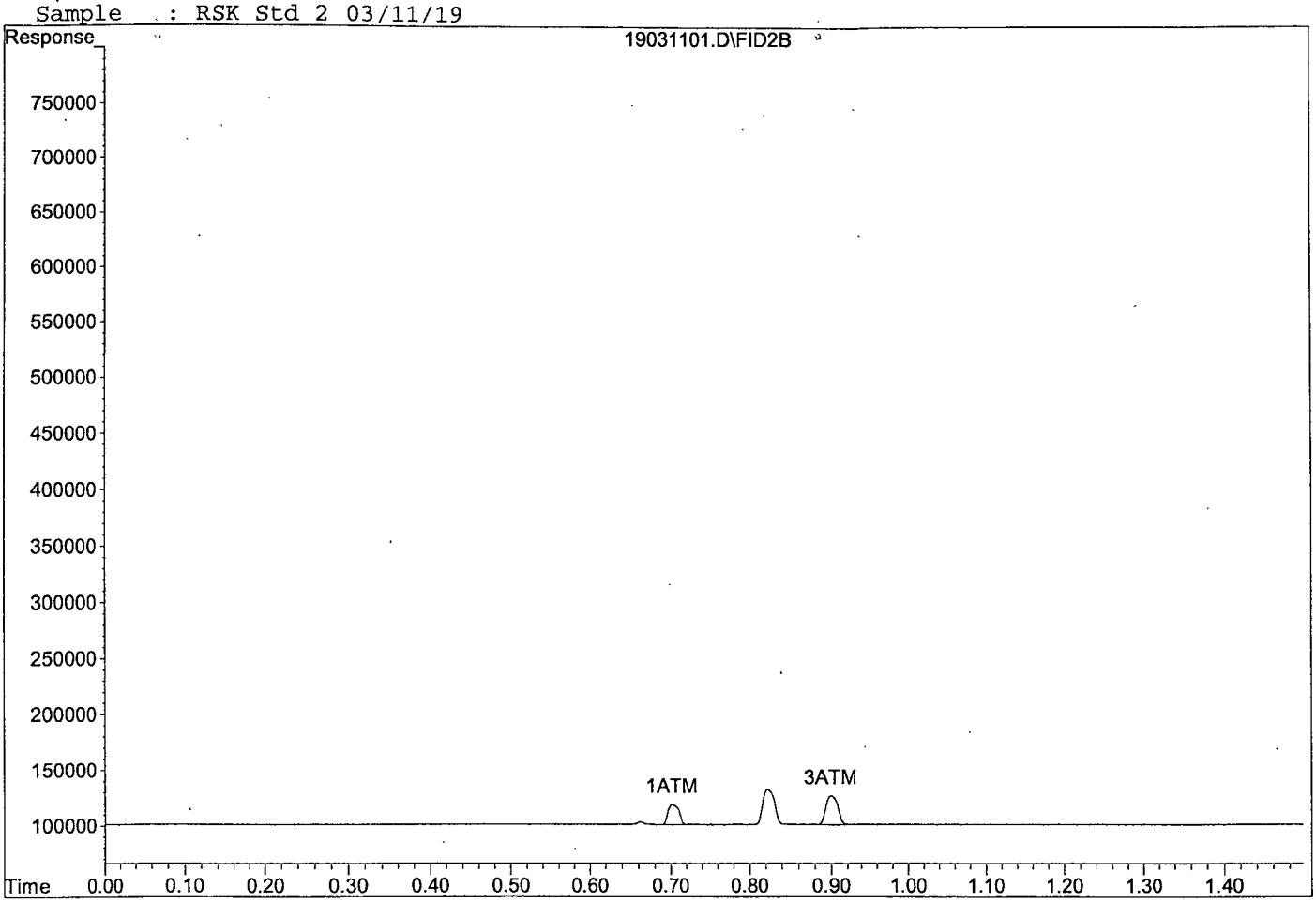
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) ATM Methane	0.70	18654	0.484	ppb
3) ATM Ethene	0.90	26201	2.738	ppb
Target Compounds				
2) ATM Ethane	0.82	31979	N.D.	ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File: G:\ROCKY\DATA\190311RS\19031101.D
Sample : RSK Std 2 03/11/19



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031103.D Vial: 4
Acq On : 11 Mar 19 10:28 Operator: cmm
Sample : RSK Std 3 03/11/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:50 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:49:59 2019
Response via : Multiple Level Calibration

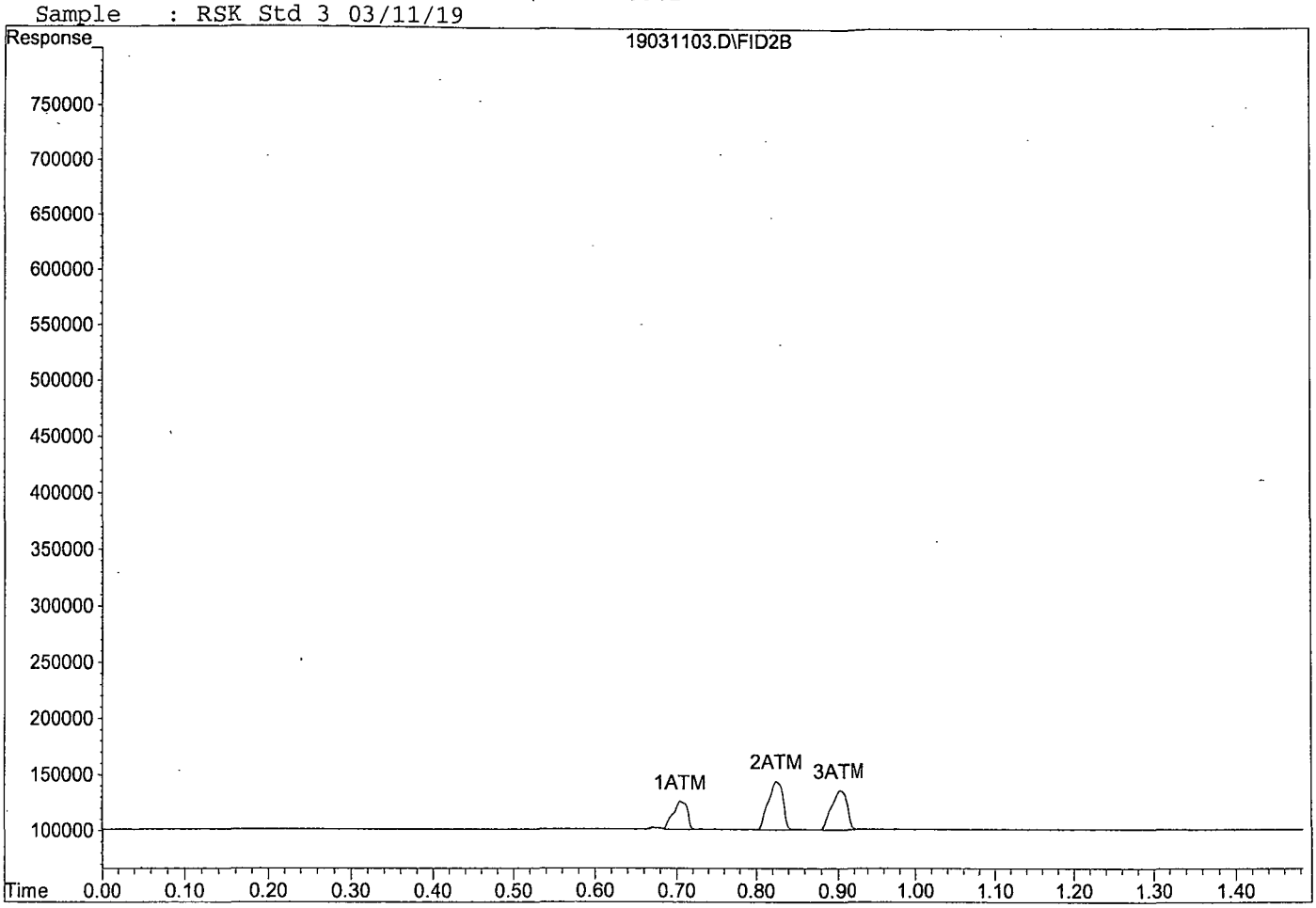
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.70	25296	1.488 ppb
2) ATM Ethane	0.83	43104	2.024 ppb
3) ATM Ethene	0.90	35029	4.730 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031103.D
Sample : RSK Std 3 03/11/19



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031104.D Vial: 5
Acq On : 11 Mar 19 10:31 Operator: cmm
Sample : RSK Std 4 03/11/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:50 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:50:29 2019
Response via : Multiple Level Calibration

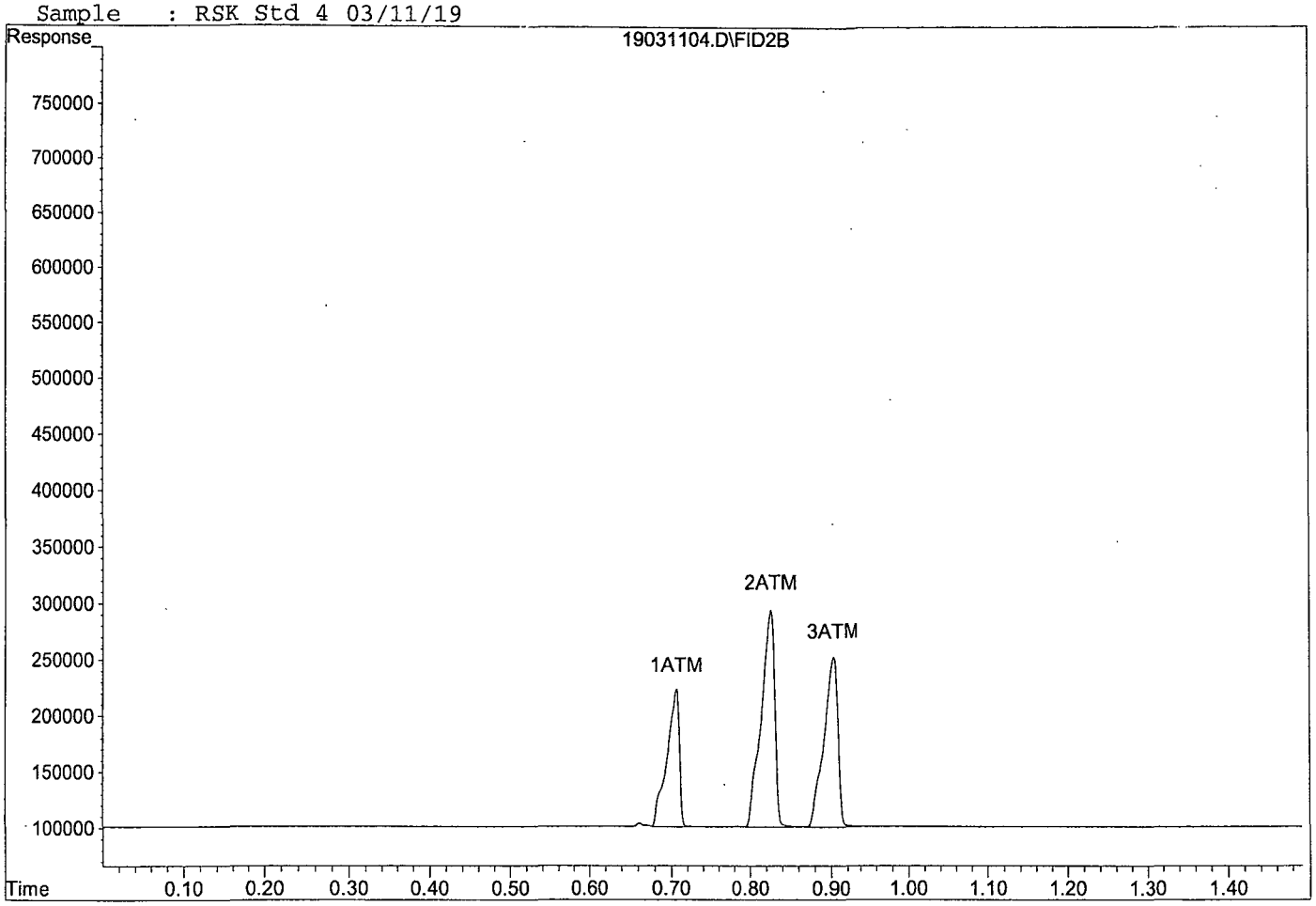
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.71	123132	16.291 ppb
2) ATM Ethane	0.83	193161	30.521 ppb
3) ATM Ethene	0.90	151872	31.095 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031104.D
Sample : RSK Std 4 03/11/19



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031105.D Vial: 6
Acq On : 11 Mar 19 10:33 Operator: cmm
Sample : RSK Std 5 03/11/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:51 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:51:01 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

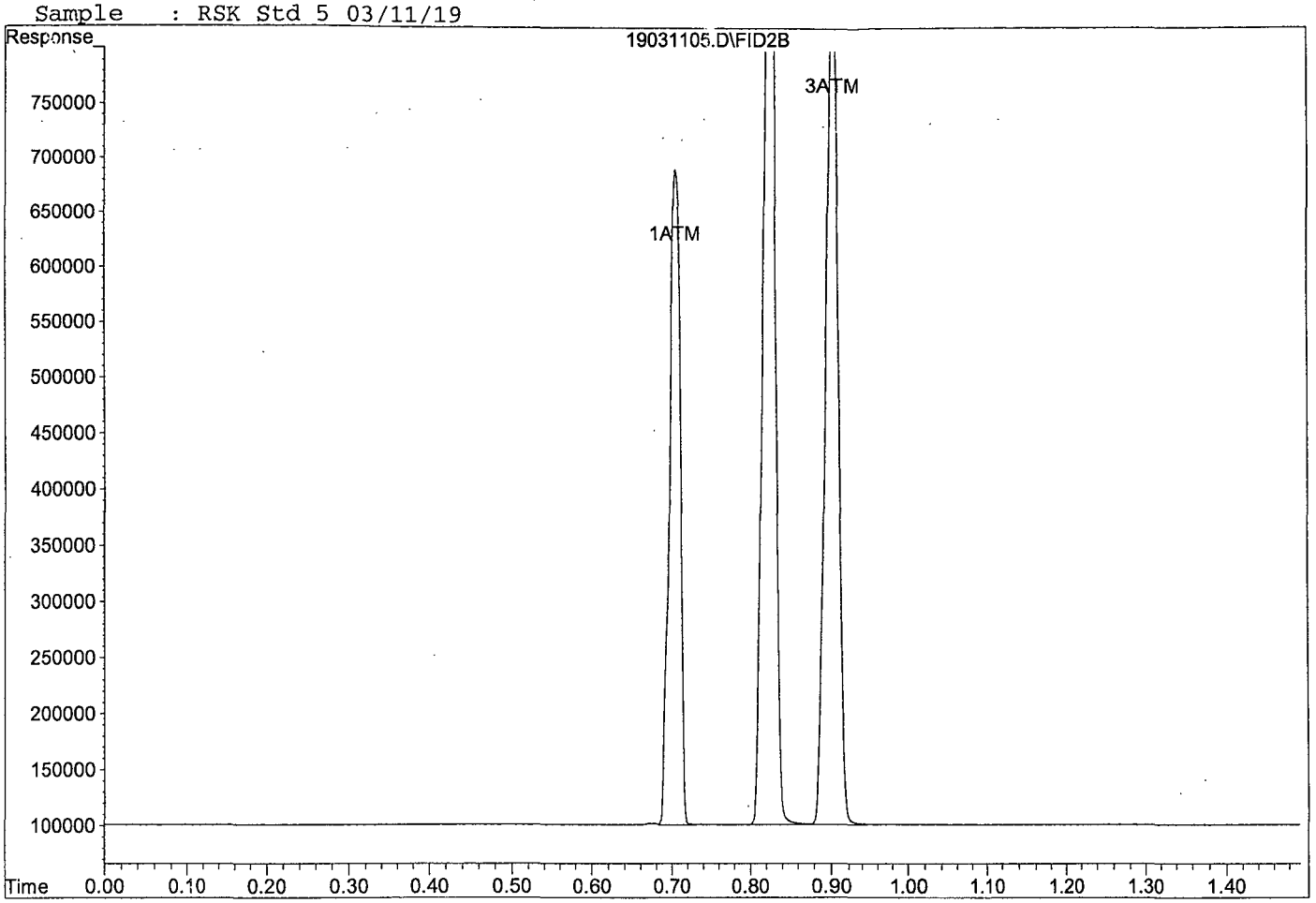
Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.70	588996	86.775 ppb
2) ATM Ethane	0.83	946997	173.678 ppb
3) ATM Ethene	0.90	741247	164.087 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File: G:\ROCKY\DATA\190311RS\19031105.D
Sample : RSK Std 5 03/11/19



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031106.D Vial: 7
Acq On : 11 Mar 19 10:35 Operator: cmm
Sample : RSK Std 6 03/11/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:51 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:51:33 2019
Response via : Multiple Level Calibration

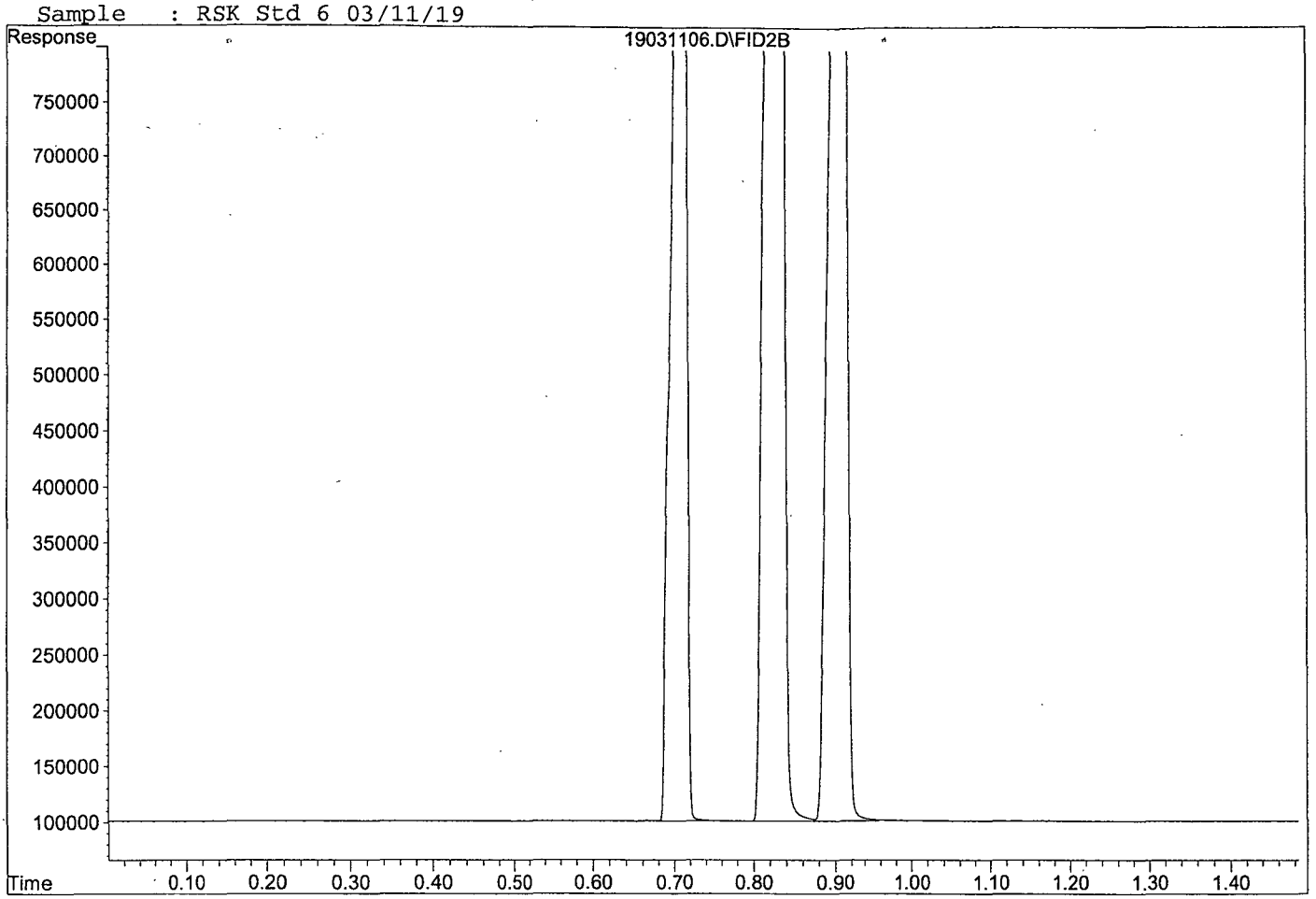
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) ATM Methane	0.71	1512363	226.478	ppb
2) ATM Ethane	0.83	2221790	415.768	ppb
3) ATM Ethene	0.91	1658041	370.960	ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031106.D
Sample : RSK Std 6 03/11/19



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031107.D Vial: 8
Acq On : 11 Mar 19 10:37 Operator: cmm
Sample : RSK Std 7 03/11/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:52 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:52:05 2019
Response via : Multiple Level Calibration

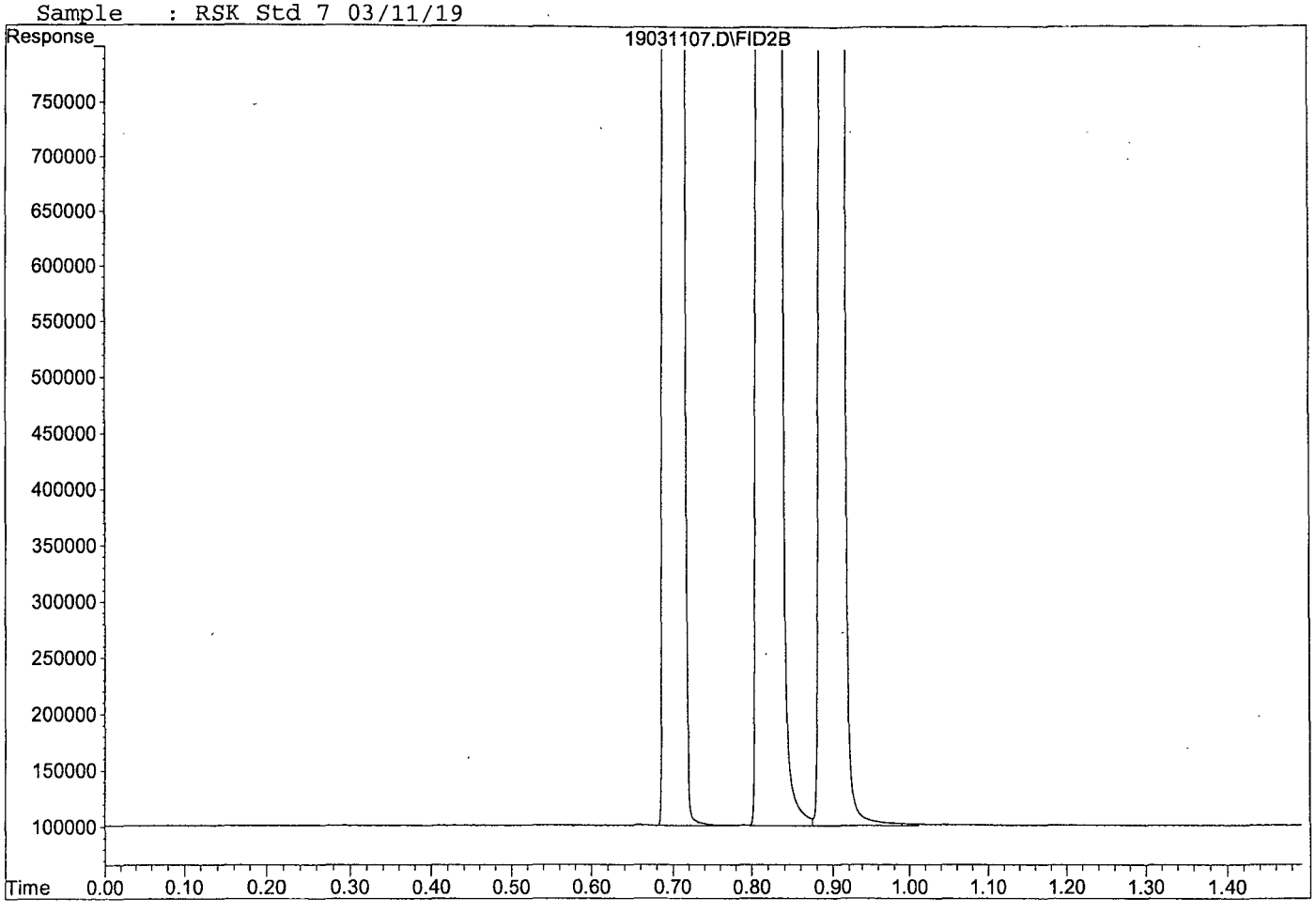
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

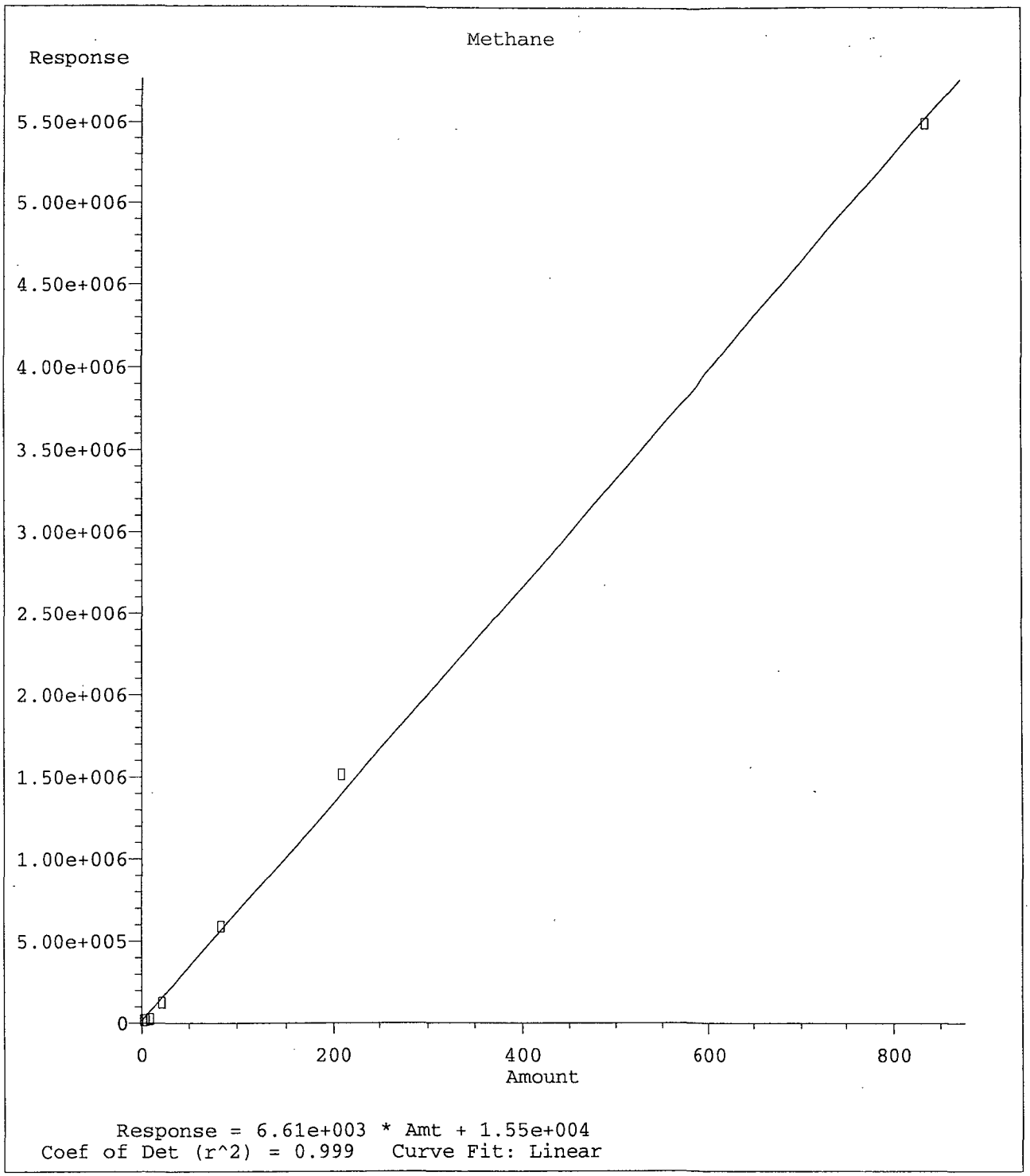
Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.71	5497199	829.373 ppb
2) ATM Ethane	0.83	8225741	1555.950 ppb
3) ATM Ethene	0.91	6463235	1455.245 ppb

Target Compounds

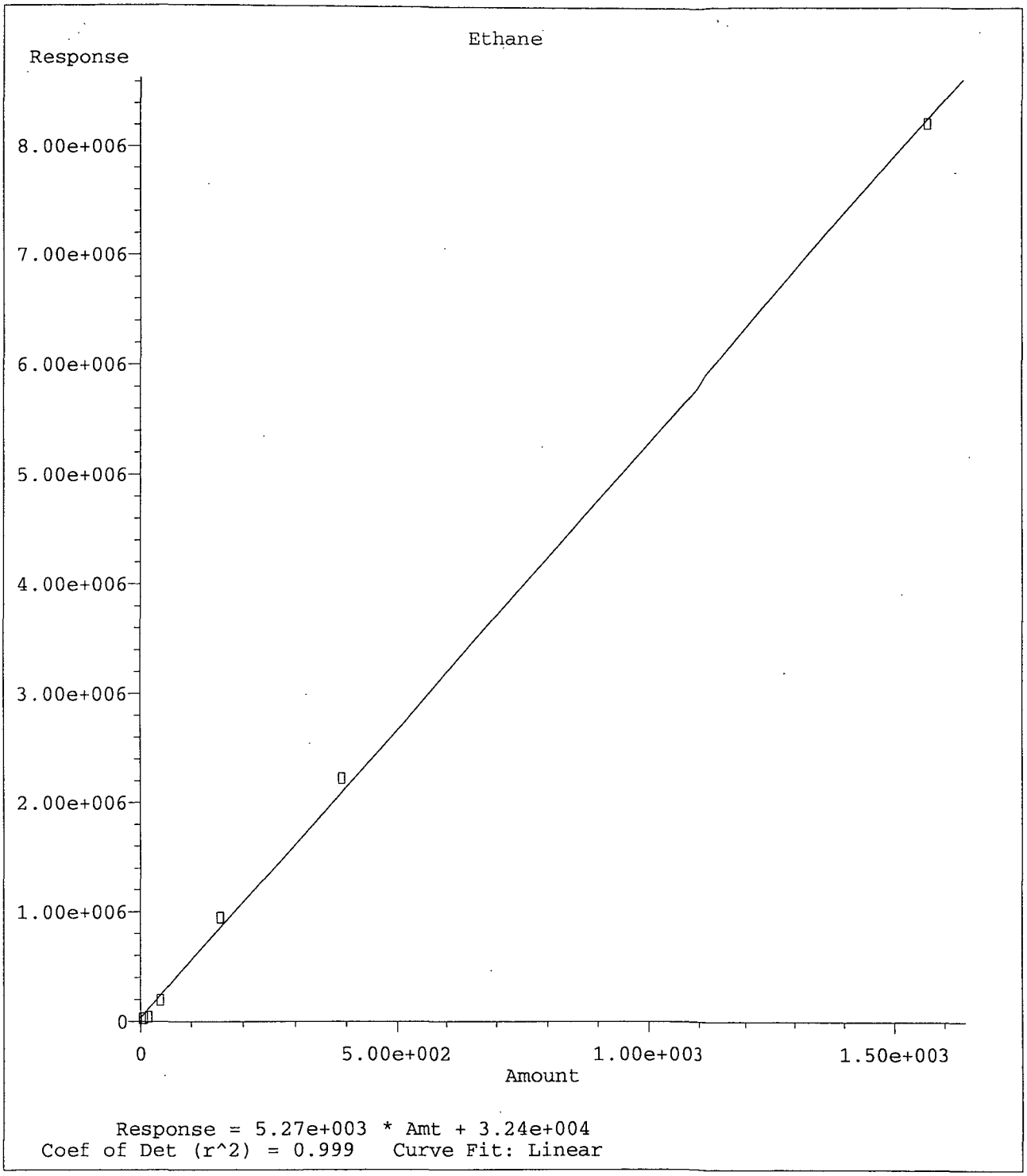
(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031107.D
Sample : RSK Std 7 03/11/19

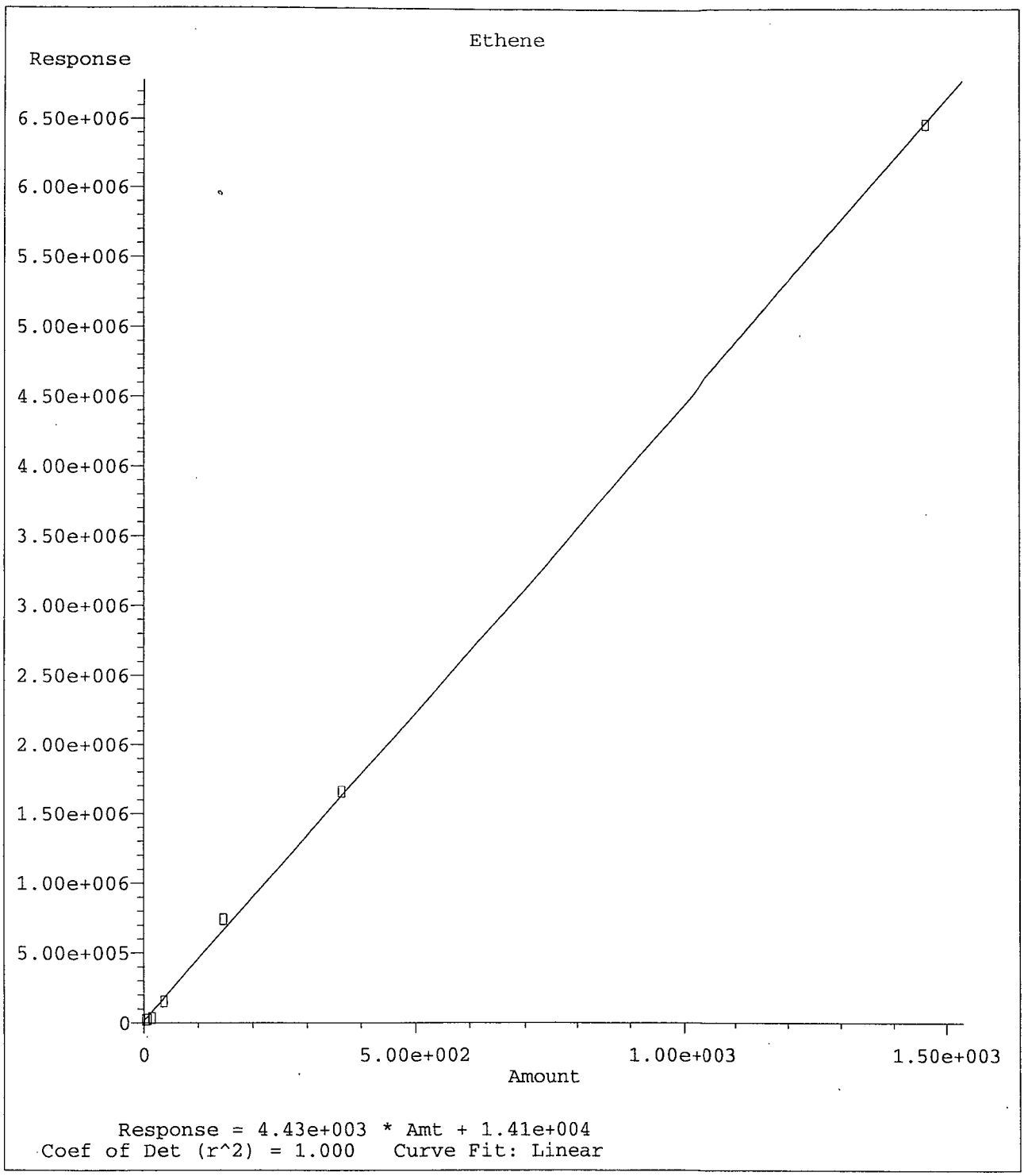




Method Name: G:\ROCKY\DATA\190311RS\RSK0311.M
Calibration Table Last Updated: Mon Mar 11 10:52:05 2019



Method Name: G:\ROCKY\DATA\190311RS\RSK0311.M
Calibration Table Last Updated: Mon Mar 11 10:52:05 2019



Method Name: G:\ROCKY\DATA\190311RS\RSK0311.M
Calibration Table Last Updated: Mon Mar 11 10:52:05 2019

RSK 175

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 03/11/19
Instrument: 7890
Initial Cal. Date: 03/11/19
Data File: 19031108.D

		Compound	MEAN	CCRF	%D		%Drift
1	ATML	Methane	12333	15569	26	ATML	15
2	ATML	Ethane	10333	12628	22	ATML	16
3	ATML	Ethene	8712	10096	16	ATML	12
4							
5							
6							
7							
8							
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31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			21.3		

Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031108.D Vial: 9
Acq On : 11 Mar 19 10:48 Operator: cmm
Sample : SS RSK Std 5 03/11/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:59 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:59:14 2019
Response via : Multiple Level Calibration

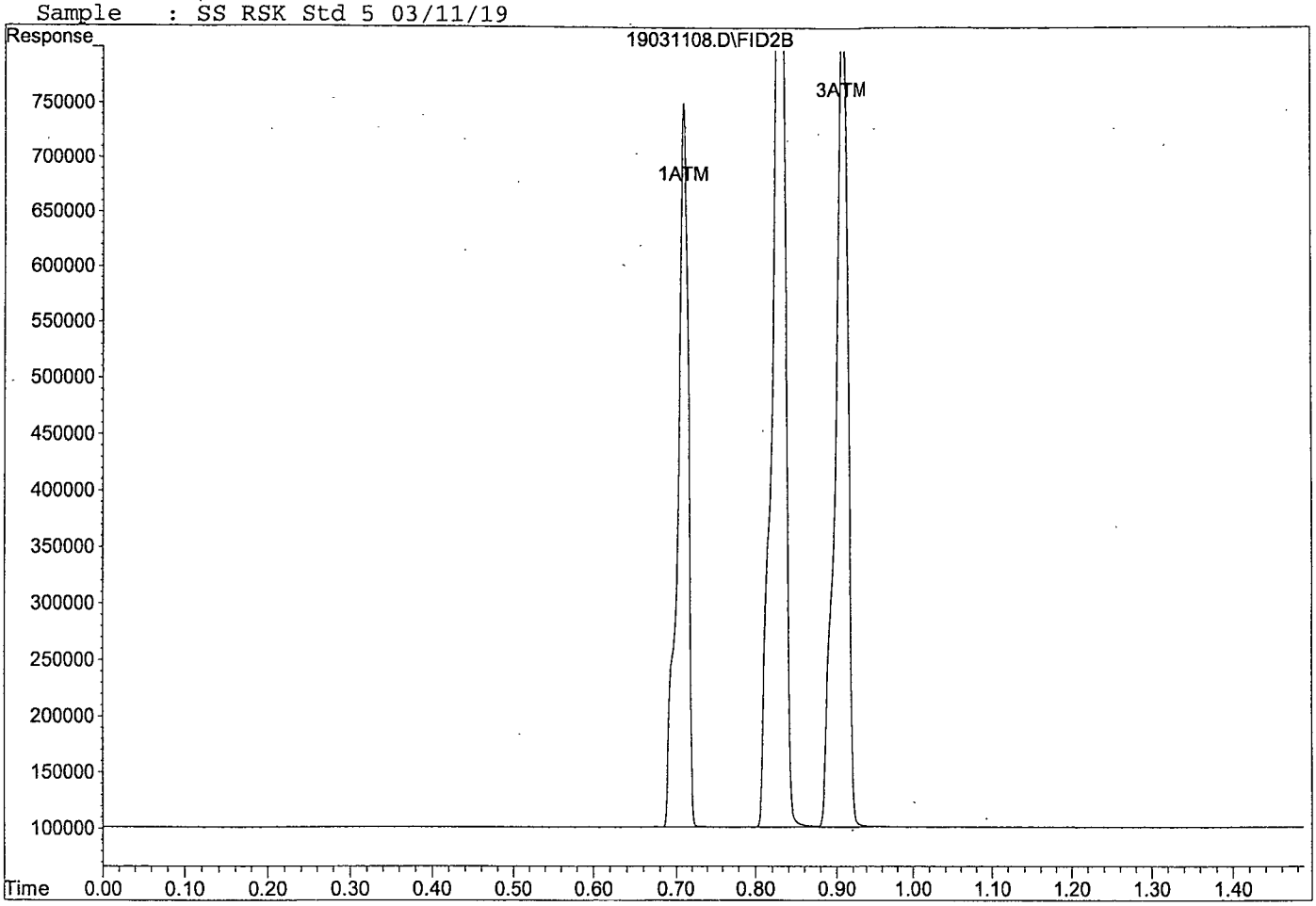
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.71	649223	95.887 ppb
2) ATM Ethane	0.83	987165	181.306 ppb
3) ATM Ethene	0.91	736184	162.944 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031108.D
Sample : SS RSK Std 5 03/11/19



Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 3 May 19 10:33
Instrument: 7890
Initial Cal. Date: 03/11/19
Data File: 19050300.D

		Compound	MEAN	CCRF	%D		%Drift
1	ATML	Methane	12333	11331	8.1	ATML	17
2	ATML	Ethane	10333	9563	7.5	ATML	13
3	ATML	Ethene	8712	7866	9.7	ATML	13
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
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35							
36							
37							
38							
39							
40							
		Average			8.4		

Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050300.D Vial: 1
Acq On : 3 May 19 10:33 Operator: cmm
Sample : 190503A LCS/CCV RSK Std 5 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 10:36 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri Apr 19 11:51:54 2019
Response via : Multiple Level Calibration

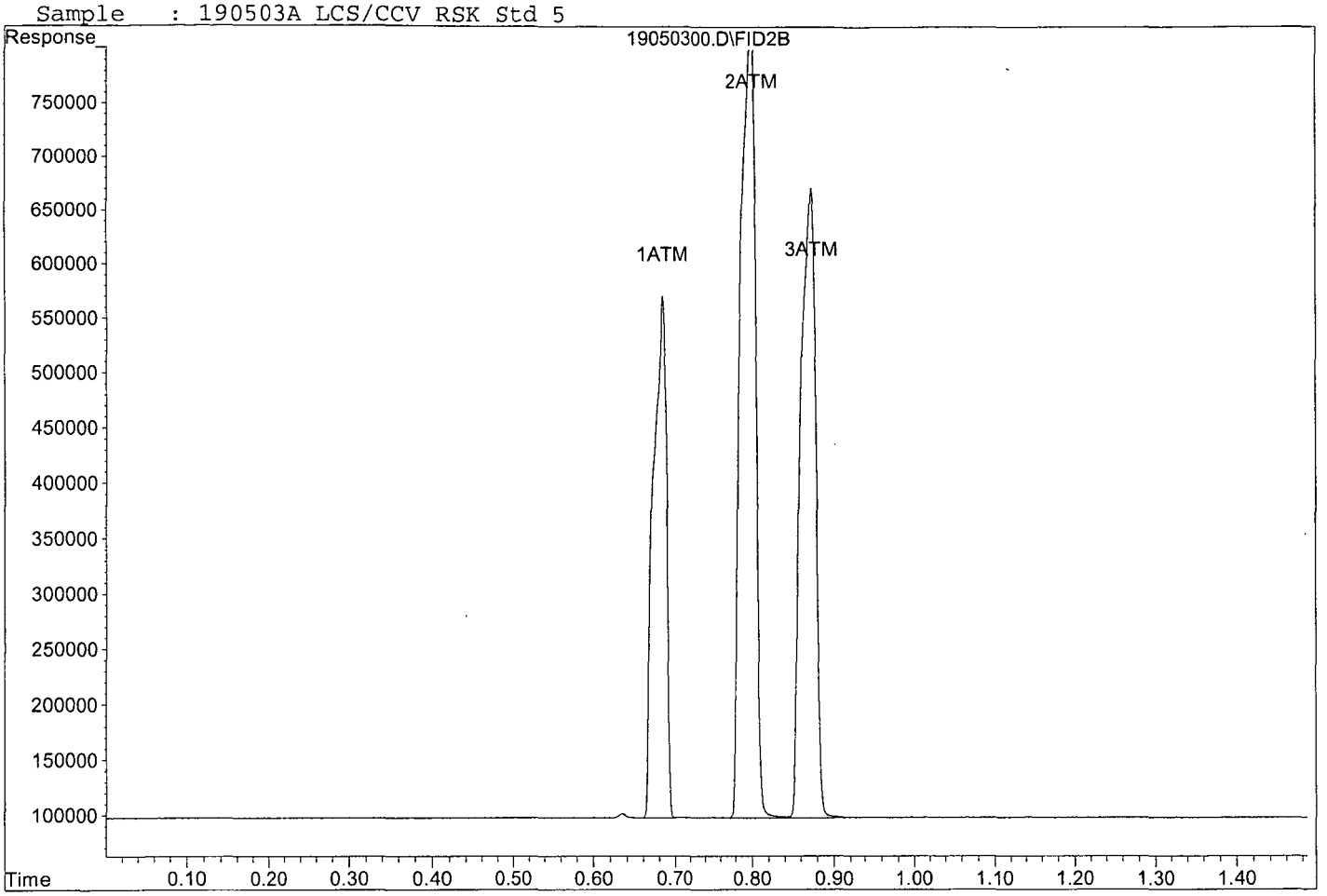
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.68	472503	69.150 ppb
2) ATM Ethane	0.80	747558	135.804 ppb
3) ATM Ethene	0.87	573589	126.255 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050300.D
Sample : 190503A LCS/CCV RSK Std 5



Form 7

Ending Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 3 May 19 11:36
Instrument: 7890
Initial Cal. Date: 03/11/19
Data File: 19050326.D

		Compound	MEAN	CCRF	%D		%Drift
1	ATML	Methane	12333	12299	0.28	ATML	9.8
2	ATML	Ethane	10333	10297	0.35	ATML	6.2
3	ATML	Ethene	8712	8355	4.1	ATML	7.9
4							
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7							
8							
9							
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11							
12							
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31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			1.6		

Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050326.D Vial: 27
Acq On : 3 May 19 11:36 Operator: cmm
Sample : Ending CCV RSK Std 5 05/03/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 11:38 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri May 03 11:06:47 2019
Response via : Multiple Level Calibration

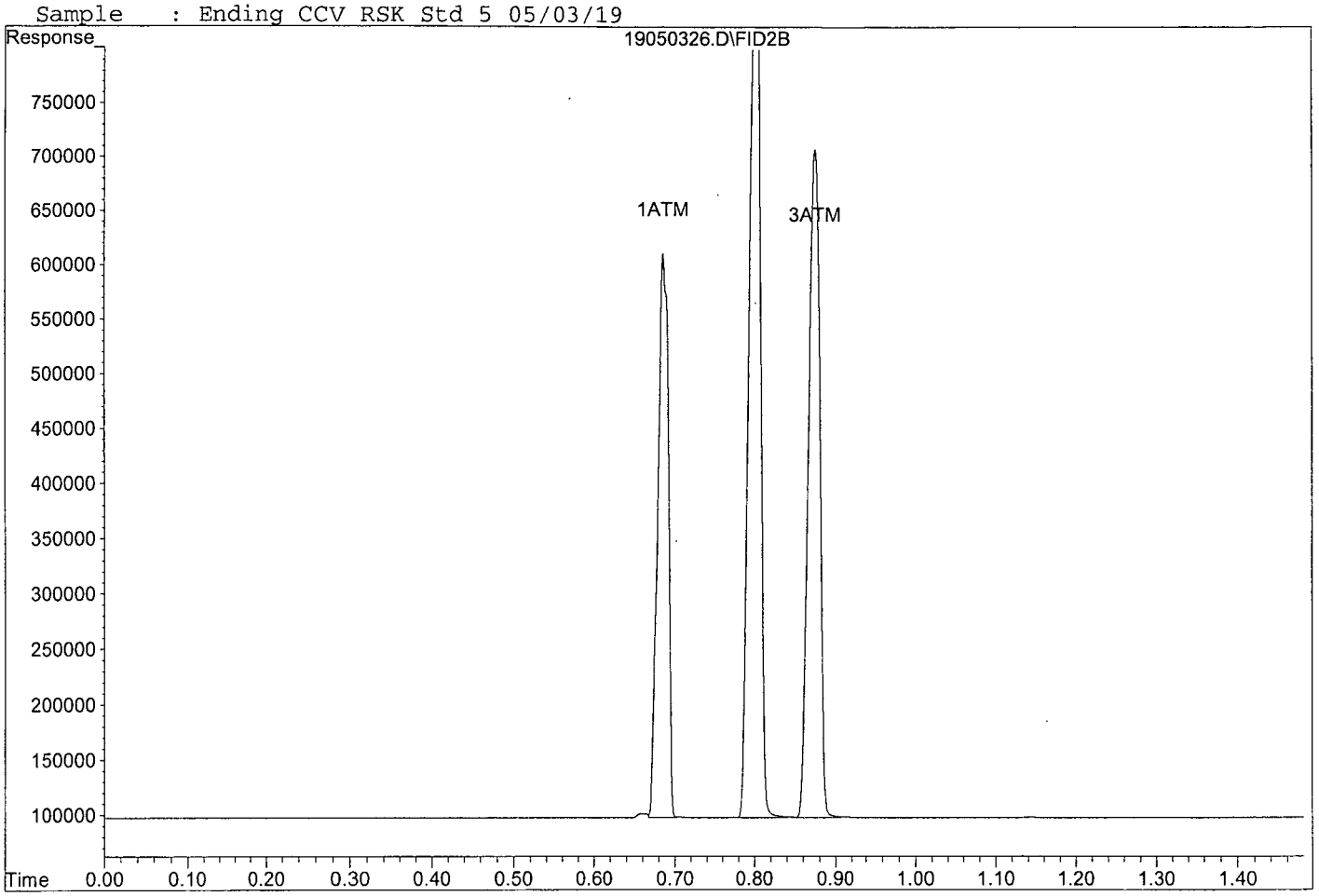
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.69	512865	75.256 ppb
2) ATM Ethane	0.80	804929	146.699 ppb
3) ATM Ethene	0.87	609221	134.295 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050326.D
Sample : Ending CCV RSK Std 5 05/03/19



ORGANICS
Raw Data

APPL, INC.

Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050307.D Vial: 8
Acq On : 3 May 19 10:52 Operator: cmm
Sample : AZ90099W04 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 10:54 2019 Quant Results File: RSK0311.RES

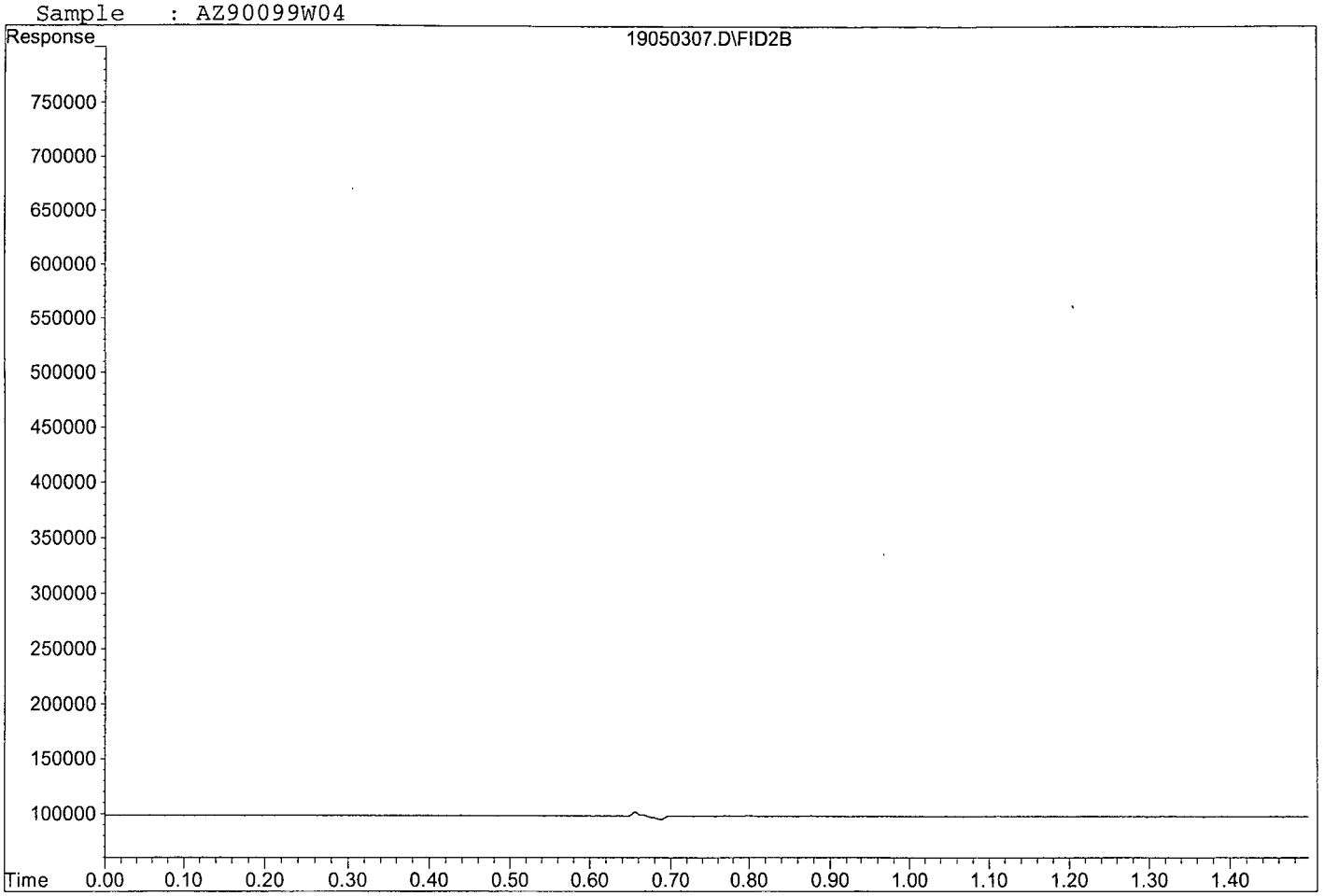
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri Apr 19 11:51:54 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
Target Compounds					
1) ATM Methane	0.00	0	N.D.	ppb	d
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050307.D
Sample : AZ90099W04



Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050308.D Vial: 9
Acq On : 3 May 19 10:54 Operator: cmm
Sample : AZ90100W04 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 10:57 2019 Quant Results File: RSK0311.RES

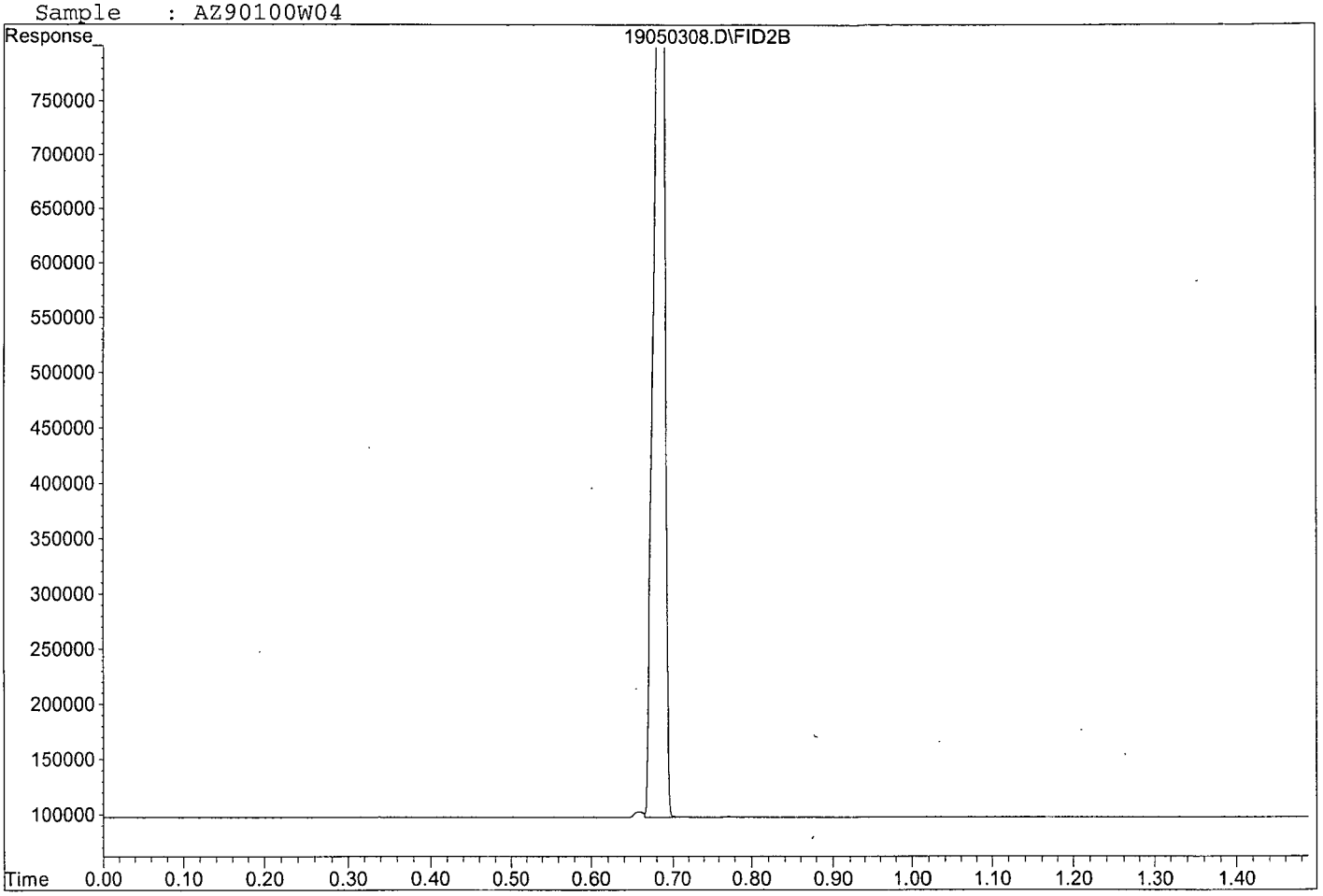
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri Apr 19 11:51:54 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
1) ATM Methane	0.69	937772	139.544	ppb	
Target Compounds					
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050308.D
Sample : AZ90100W04



Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050309.D Vial: 10
Acq On : 3 May 19 10:56 Operator: cmm
Sample : AZ90101W04 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 10:59 2019 Quant Results File: RSK0311.RES

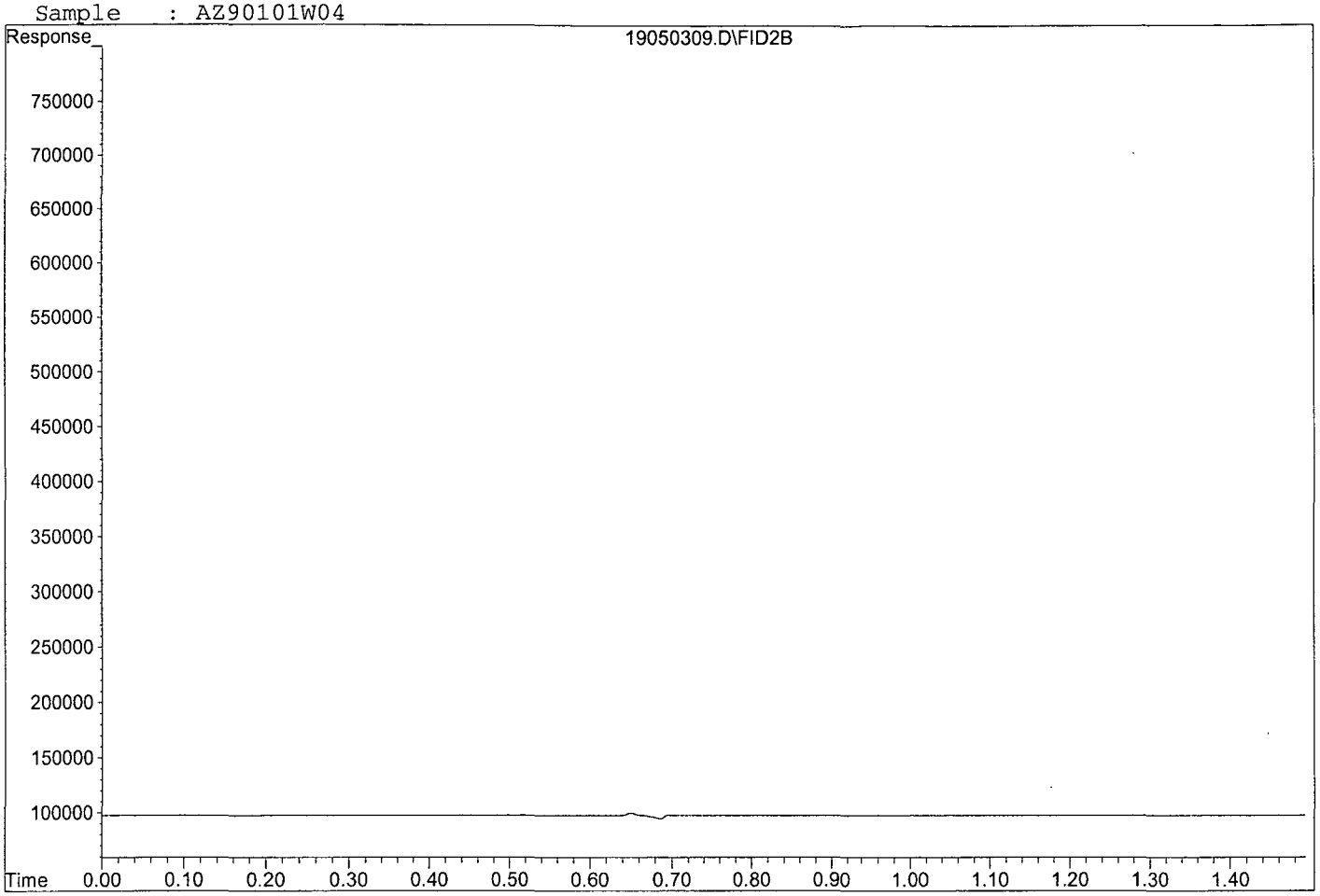
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri Apr 19 11:51:54 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
Target Compounds					
1) ATM Methane	0.00	0	N.D.	ppb	d
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050309.D
Sample : AZ90101W04



Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050310.D Vial: 11
Acq On : 3 May 19 10:58 Operator: cmm
Sample : AZ90102W04 E Methane Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 11:01 2019 Quant Results File: RSK0311.RES

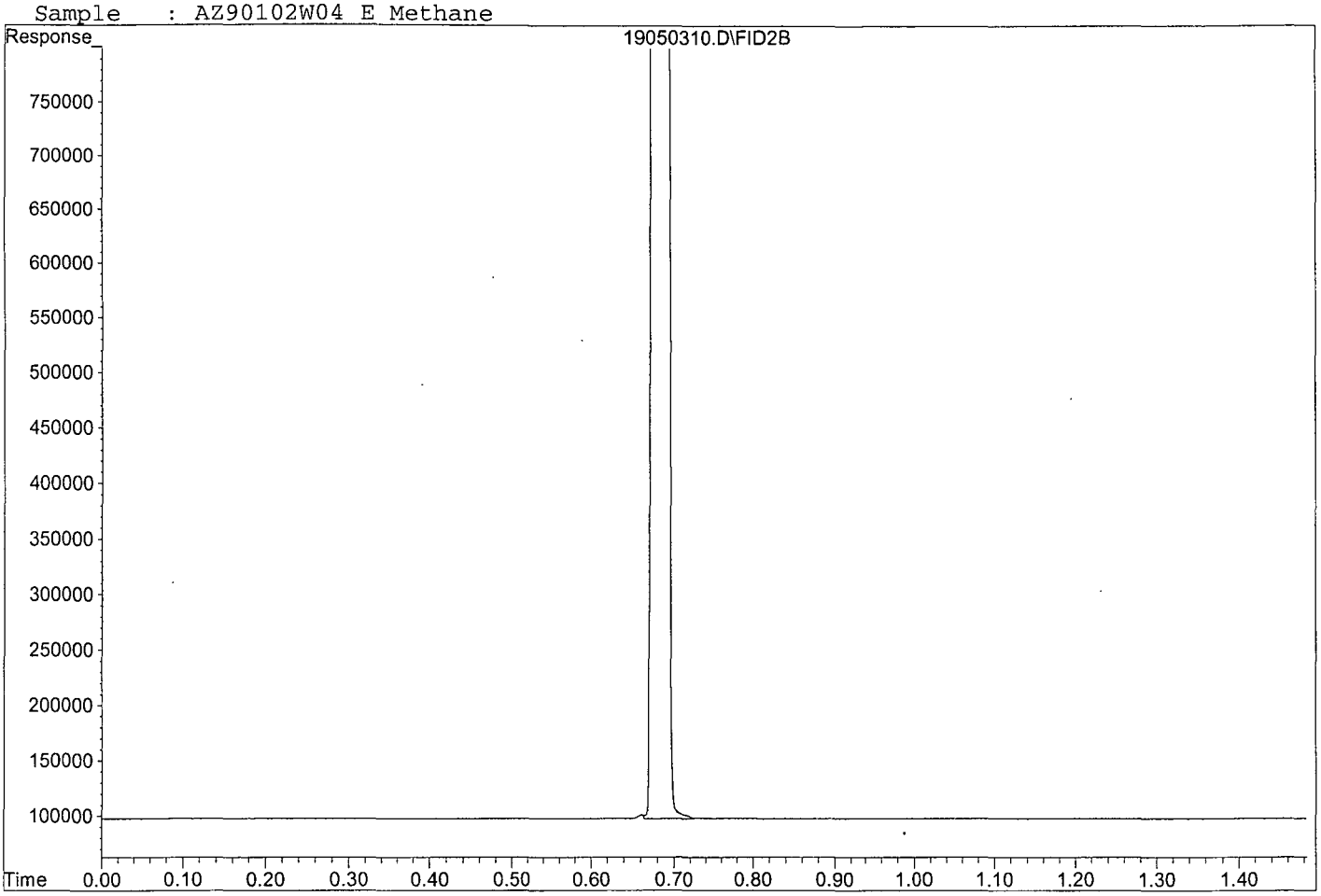
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri Apr 19 11:51:54 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
1) ATM Methane	0.68	9763474	1474.849	ppb	
Target Compounds					
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050310.D
Sample : AZ90102W04 E Methane



Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050312.D Vial: 13
Acq On : 3 May 19 11:04 Operator: cmm
Sample : AZ90102W04 DF10 Inst : 7890
Misc : Multiplr: 10.00
IntFile : autoint1.e
Quant Time: May 3 11:07 2019 Quant Results File: RSK0311.RES

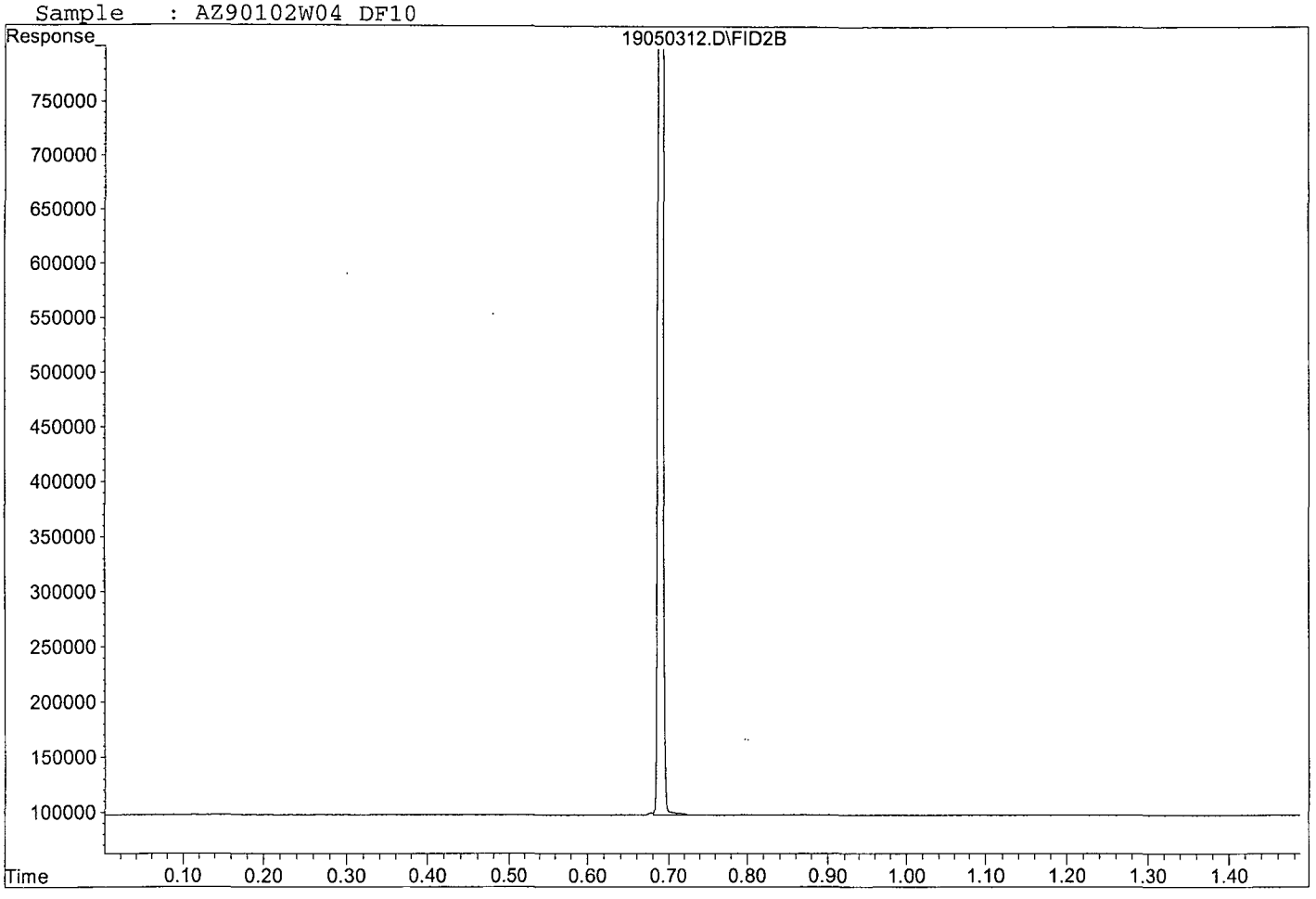
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri May 03 11:06:47 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
1) ATM Methane	0.69	2960141	4455.227	ppb	
Target Compounds					
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050312.D
Sample : AZ90102W04 DF10



Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050313.D Vial: 14
Acq On : 3 May 19 11:07 Operator: cmm
Sample : AZ90104W04 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 11:10 2019 Quant Results File: RSK0311.RES

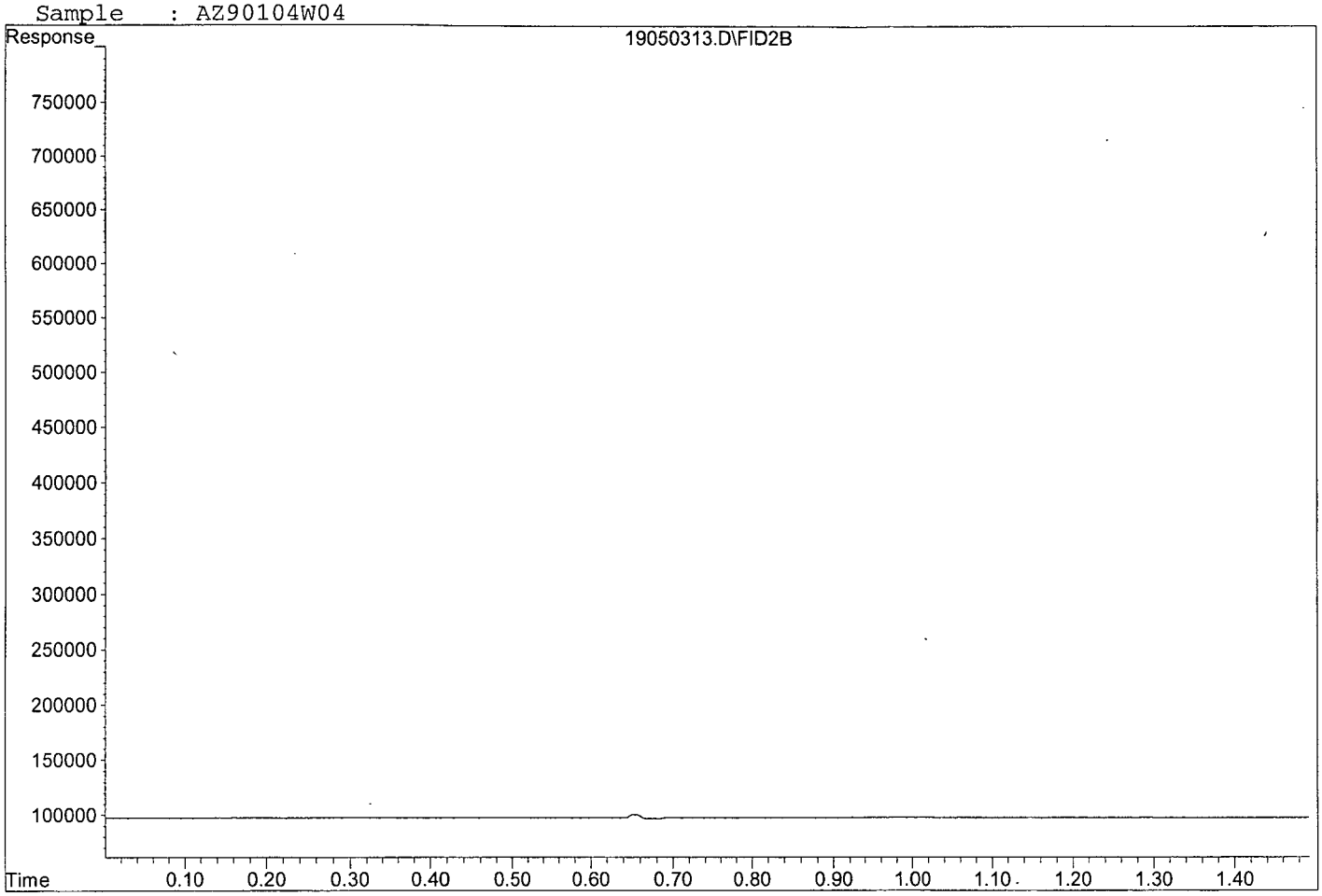
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri May 03 11:06:47 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
Target Compounds					
1) ATM Methane	0.00	0	N.D.	ppb	d
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050313.D
Sample : AZ90104W04



Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050314.D Vial: 15
Acq On : 3 May 19 11:09 Operator: cmm
Sample : AZ90105W04 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 11:12 2019 Quant Results File: RSK0311.RES

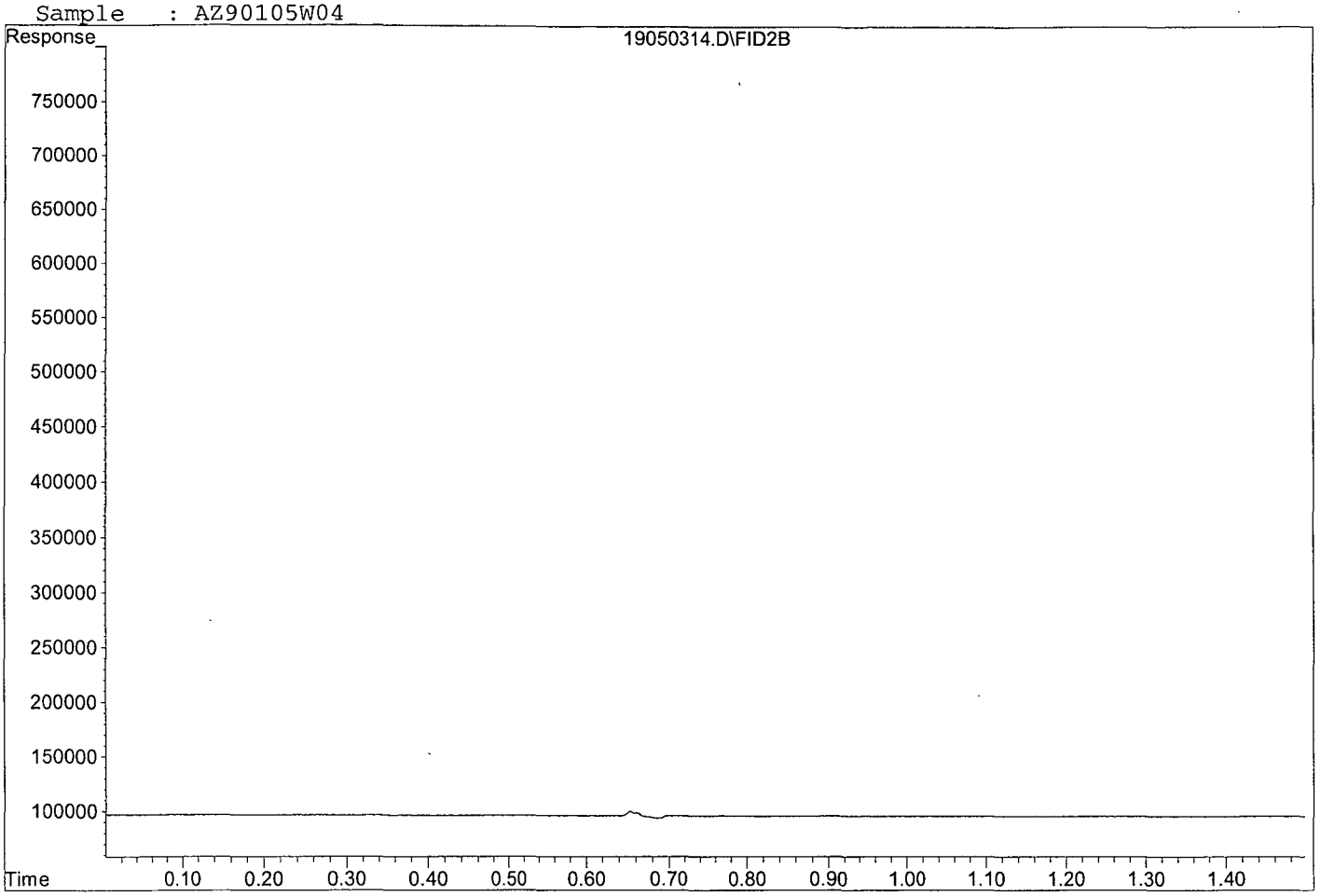
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri May 03 11:06:47 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
Target Compounds					
1) ATM Methane	0.00	0	N.D.	ppb	d
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050314.D
Sample : AZ90105W04



Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050315.D Vial: 16
Acq On : 3 May 19 11:11 Operator: cmm
Sample : AZ90106W04 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 11:14 2019 Quant Results File: RSK0311.RES

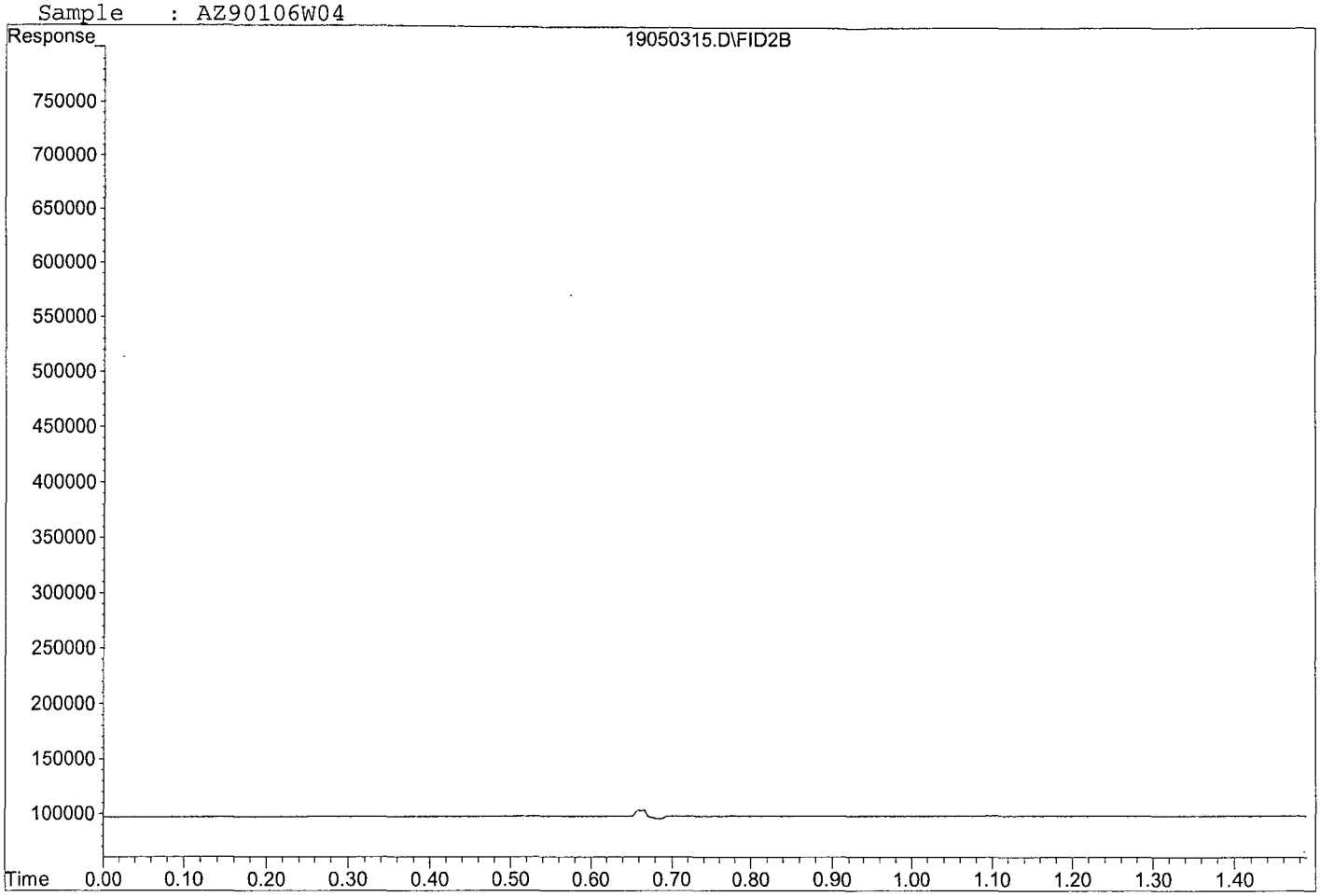
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri May 03 11:06:47 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
Target Compounds					
1) ATM Methane	0.00	0	N.D.	ppb	d
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050315.D
Sample : AZ90106W04



Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050316.D Vial: 17
Acq On : 3 May 19 11:14 Operator: cmm
Sample : AZ90107W04 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 11:16 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri May 03 11:06:47 2019
Response via : Multiple Level Calibration

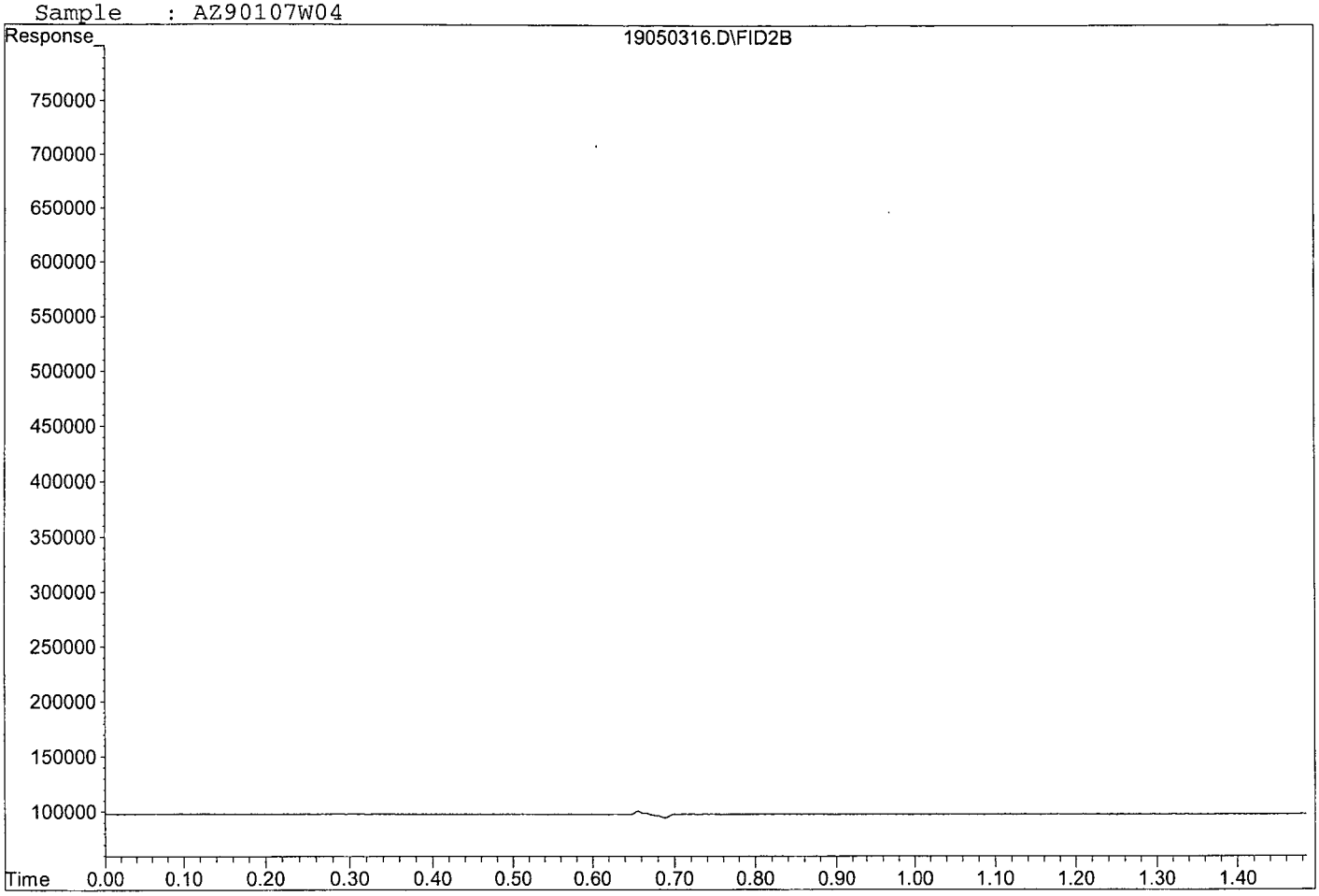
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
Target Compounds					
1) ATM Methane	0.00	0	N.D.	ppb	d
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File: G:\ROCKY\DATA\190311RS\19050316.D
Sample : AZ90107W04



Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050317.D Vial: 18
Acq On : 3 May 19 11:16 Operator: cmm
Sample : AZ90108W04 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 11:19 2019 Quant Results File: RSK0311.RES

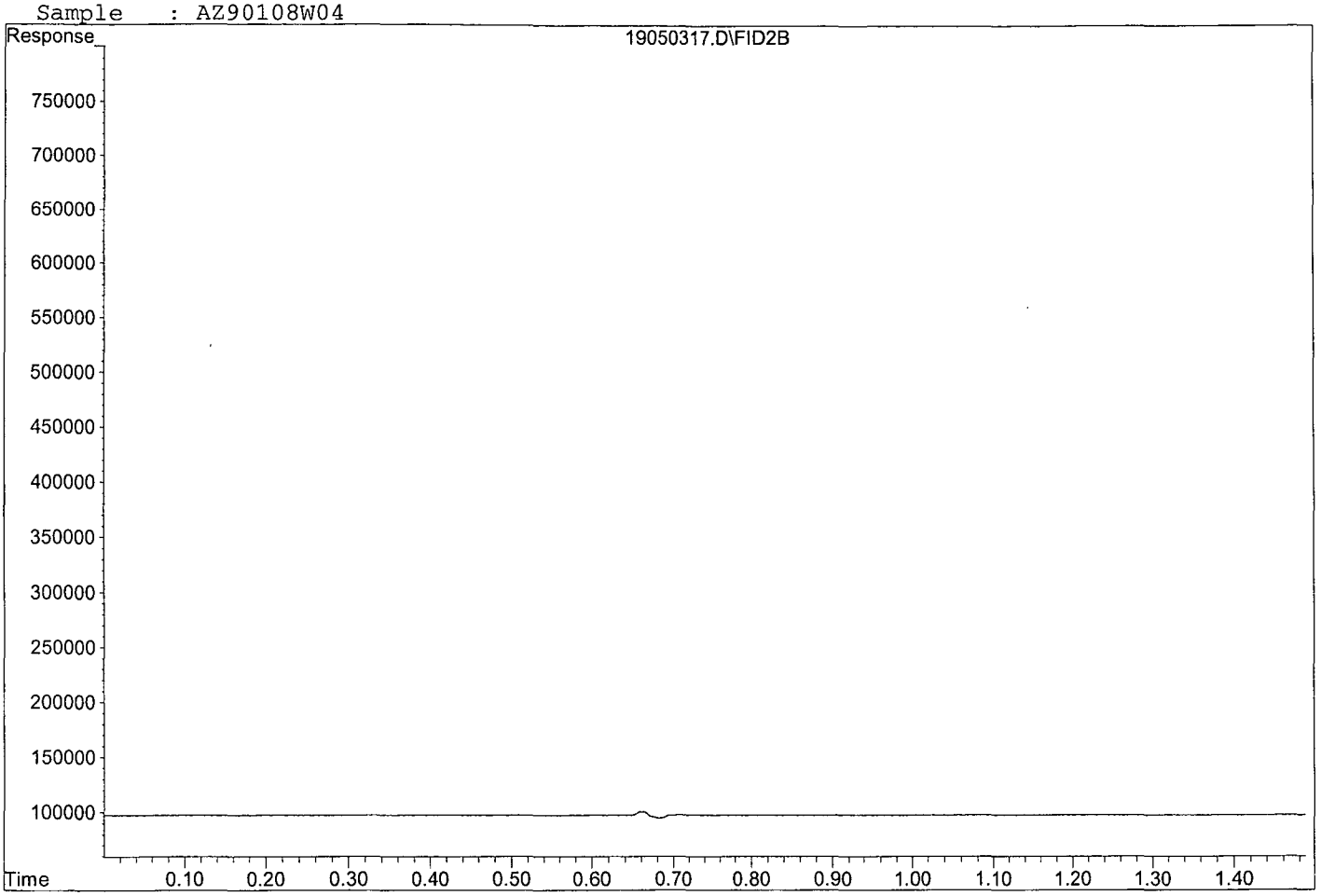
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri May 03 11:06:47 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
Target Compounds					
1) ATM Methane	0.00	0	N.D.	ppb	d
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050317.D
Sample : AZ90108W04



Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050318.D Vial: 19
Acq On : 3 May 19 11:18 Operator: cmm
Sample : AZ90109W04 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 11:21 2019 Quant Results File: RSK0311.RES

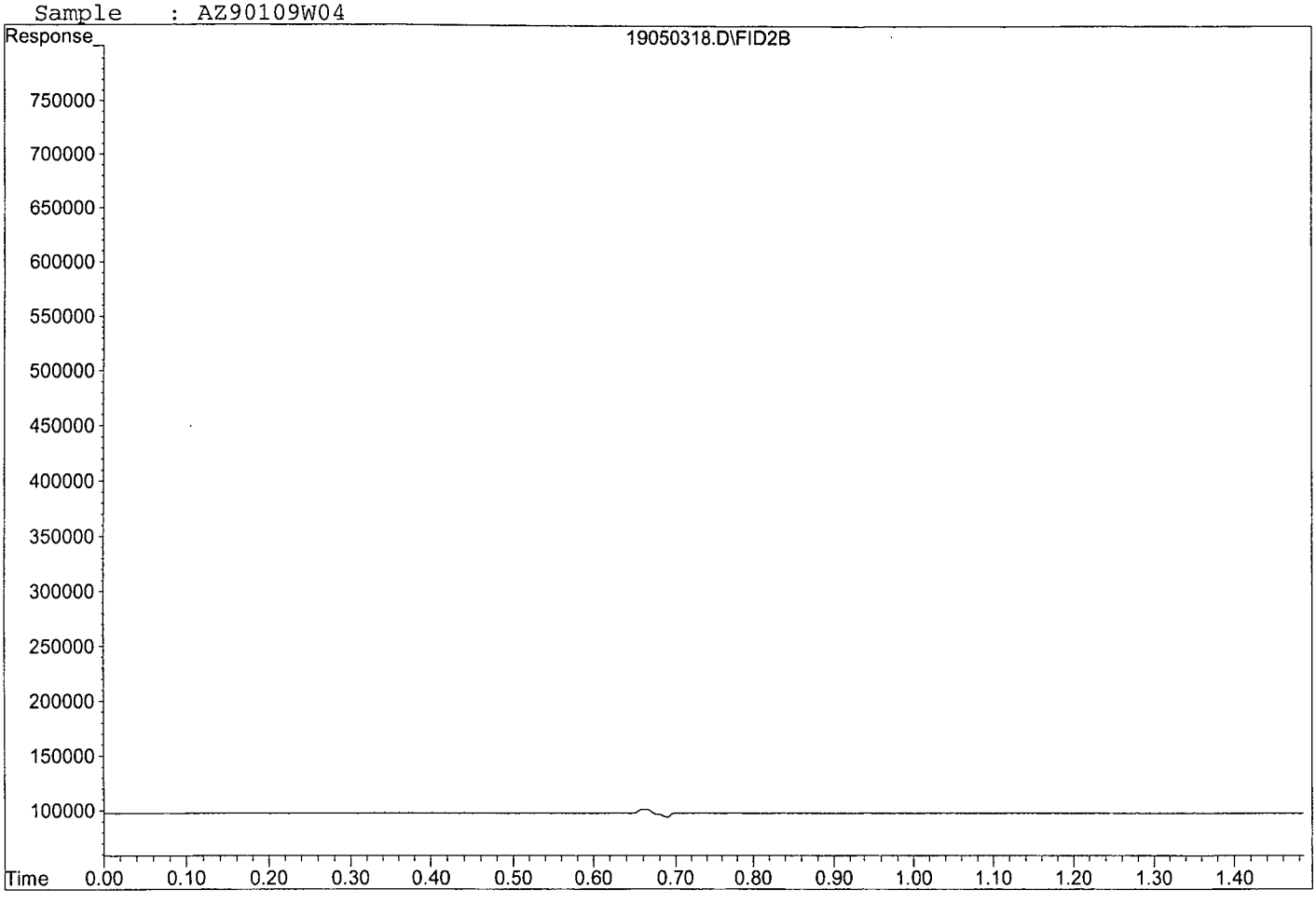
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri May 03 11:06:47 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
Target Compounds					
1) ATM Methane	0.00	0	N.D.	ppb	d
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050318.D
Sample : AZ90109W04



Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050302.D Vial: 3
Acq On : 3 May 19 10:39 Operator: cmm
Sample : 190503A Blk Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 10:43 2019 Quant Results File: RSK0311.RES

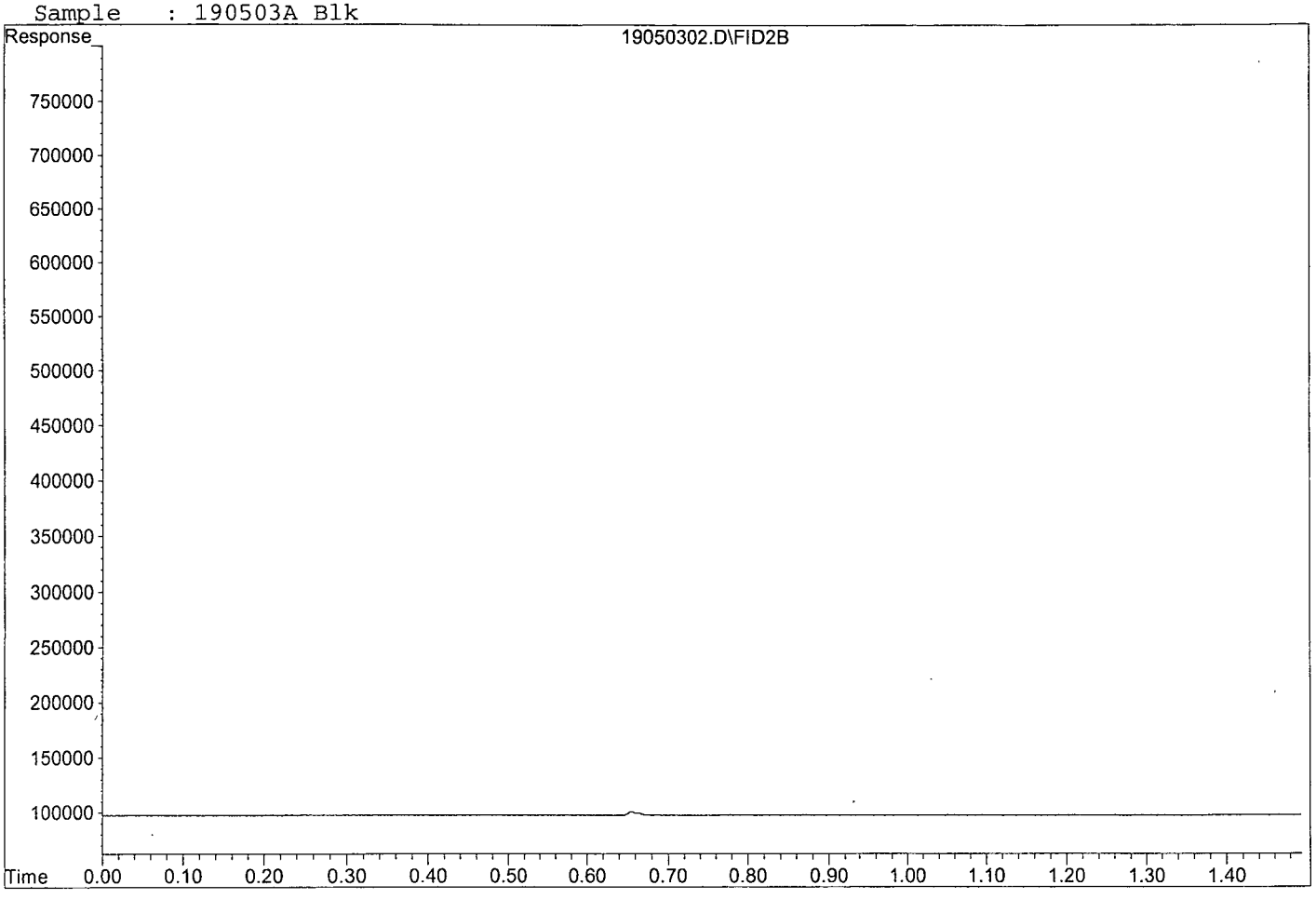
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri Apr 19 11:51:54 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
Target Compounds					
1) ATM Methane	0.00	0	N.D.	ppb	d
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050302.D
Sample : 190503A Blk



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050300.D Vial: 1
Acq On : 3 May 19 10:33 Operator: cmm
Sample : 190503A LCS/CCV RSK Std 5 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 10:36 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri Apr 19 11:51:54 2019
Response via : Multiple Level Calibration

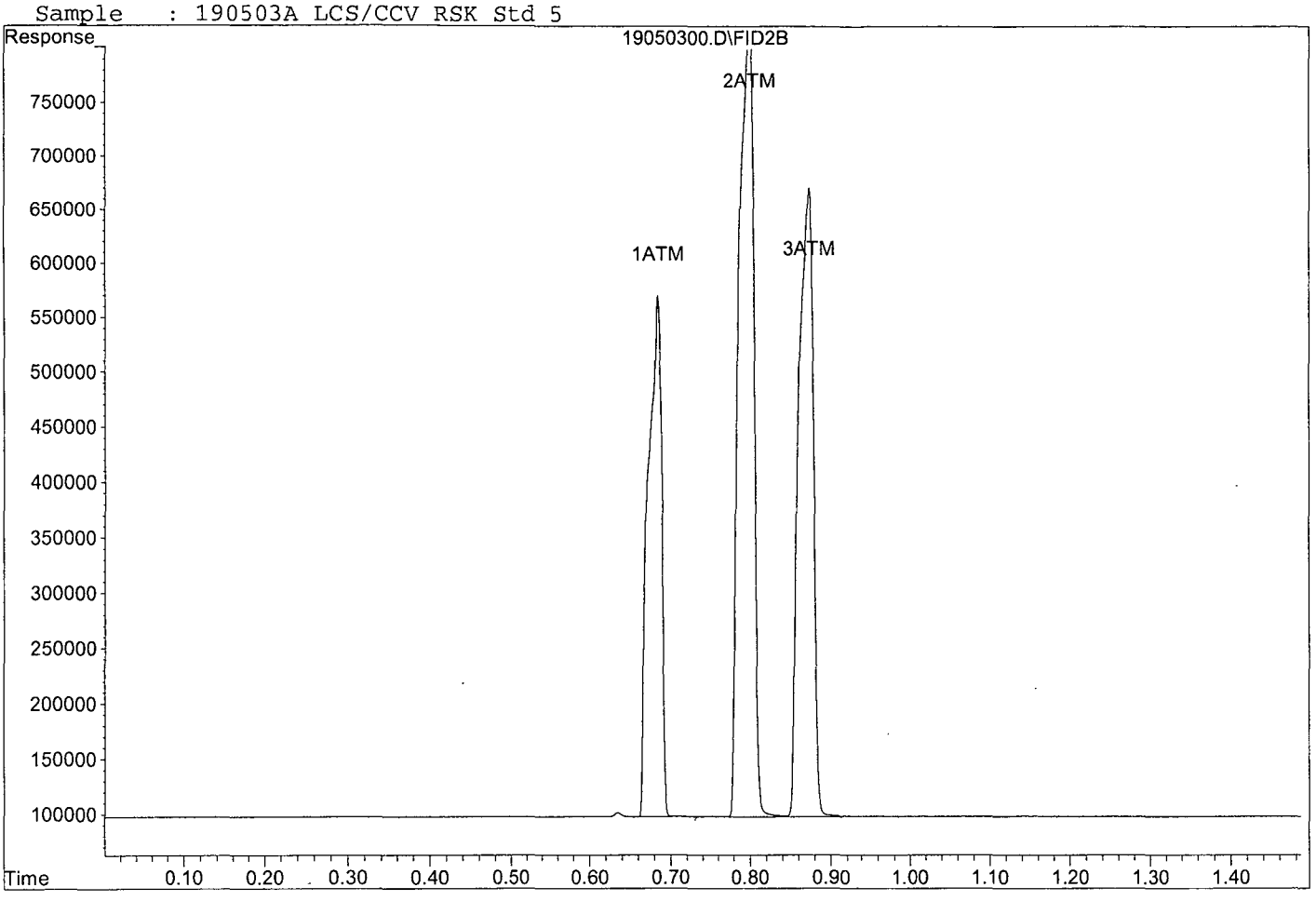
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.68	472503	69.150 ppb
2) ATM Ethane	0.80	747558	135.804 ppb
3) ATM Ethene	0.87	573589	126.255 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050300.D
Sample : 190503A LCS/CCV RSK Std 5



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050301.D Vial: 2
Acq On : 3 May 19 10:36 Operator: cmm
Sample : 190503A LCSD RSK Std 5 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 10:38 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri Apr 19 11:51:54 2019
Response via : Multiple Level Calibration

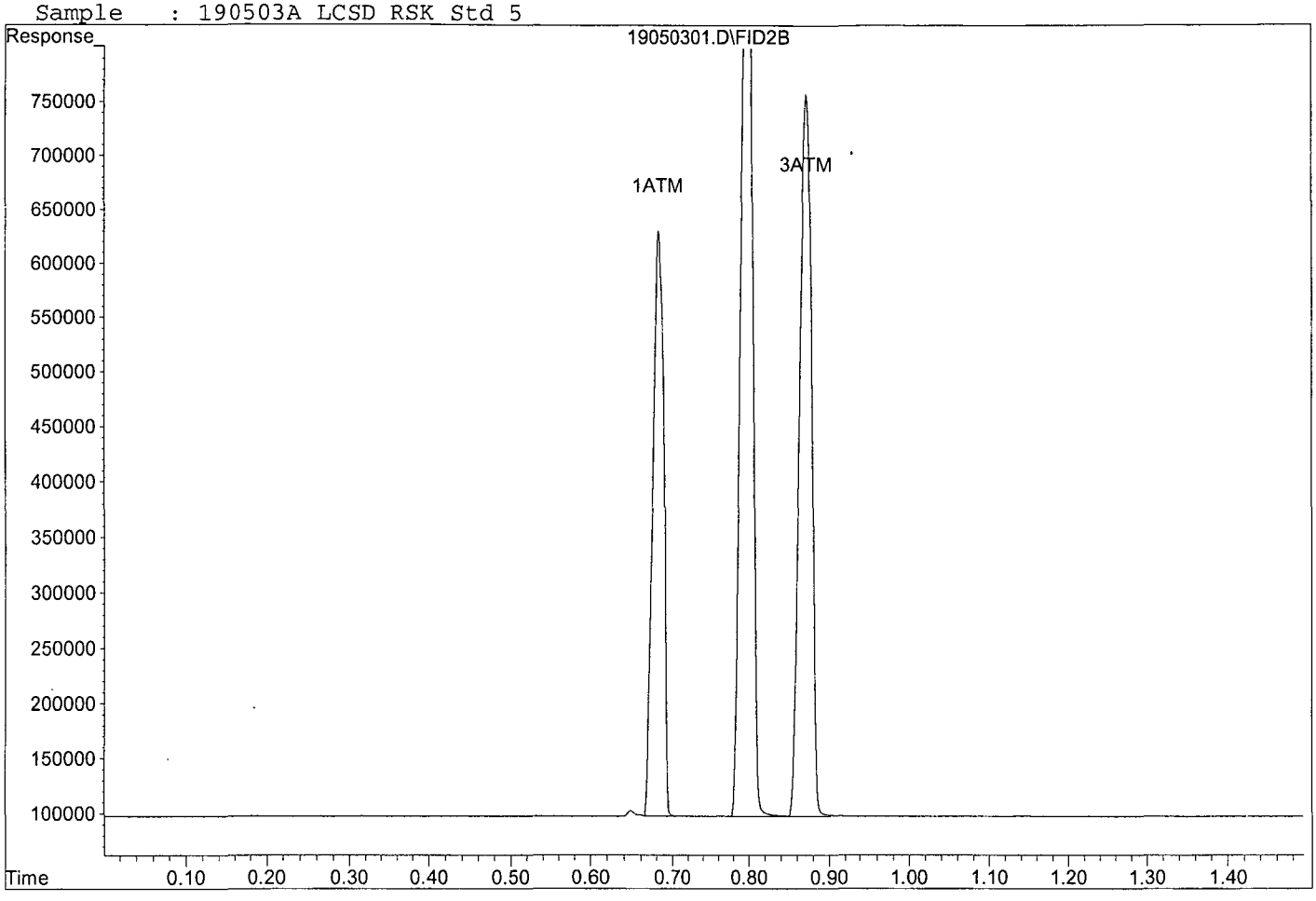
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.68	533347	78.355 ppb
2) ATM Ethane	0.80	860868	157.322 ppb
3) ATM Ethene	0.87	660243	145.808 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050301.D
Sample : 190503A LCSD RSK Std 5



Primary Source Stock Standard 10,000ppmV **Manufacturer Exp Date 9-21-21**

RSK Gas Mix (Scott Specialty Gas) Cat.# 0104E40028`4, Lot # 160-401303031-39773

1% Gas Concentration Moles = 10,000ppmV Methane, Ethane, Ethene

RSK Calibration Curve (prepared in 1.0 L Tedlar Bags at room temp) **Expires 04/11/19** **CMM 03/11/19**

Analye	Conc Std 1 (1/2 = LOD) (ug/L)	Conc Std 2 (LOQ Chk) (ug/L)	Conc Std 3 (ug/L)	Conc Std 4 (ug/L)	Conc Std 5 (ug/L)	Conc Std 6 (ug/L)	Conc Std 7 (ug/L)
Methane (MW 16.04)	2.08	4.16	8.34	20.85	83.40	208.5	834.0
Ethane (MW 30.07)	3.91	7.81	15.6	39.09	156.35	390.9	1563.5
Ethene (MW 28.05)	3.65	7.30	14.6	36.46	145.84	364.6	1458.4
Stock Source	RSK Tank Lot #170PLU5SPC06L-35410	RSK Tank Lot #170PLU5SPC06L-35410	RSK Tank Lot #170PLU5SPC06L-35410	RSK Tank Lot #170PLU5SPC06L-35410	RSK Tank Lot #170PLU5SPC06L-35410	RSK Tank Lot #170PLU5SPC06L-35410	RSK Tank Lot #170PLU5SPC06L-35410
Stock Conc (ppmv)	10,000 ppmV	10,000 ppmV	10,000 ppmV	10,000 ppmV	10,000 ppmV	10,000 ppmV	10,000 ppmV
Stock Aliquot (mL)	0.010	0.020	0.040	0.100	0.400	1.00	4.00
Final Volume P&T Water	32 mL	32 mL	32 mL	32 mL	32 mL	32 mL	32 mL

Second Source Stock Standard 10,000ppmV **Manufacturer Exp date 9-21-2021**

RSK Gas Mix (Scott Specialty Gas) Cat.# 23452, Lot # 160-401303032-1-39774

1% Gas Concentration Moles = 10,000ppmV Methane, Ethane, Ethene

Second Source **Expires 03/12/19** **CMM 03/11/19**

2.0mL of SS from tank into 980 mL Nitrogen

final conc: 13.3ug/L Methane, 25.0 ug/L Ethane, and 23.3 ug/L Ethene

CCV/LCS/LCSD **CMM 04/29/19**

Spike 0.400mL of 10,000ppmV into 32mL DI water, with 8mL Nitrogen headspace

final conc: 83.40ug/L Methane, 156.35ug/L Ethane, and 145.84ug/L Ethene

CCV/LCS/LCSD **CMM 05/03/19**

Spike 0.400mL of 10,000ppmV into 32mL DI water, with 8mL Nitrogen headspace

final conc: 83.40ug/L Methane, 156.35ug/L Ethane, and 145.84ug/L Ethene

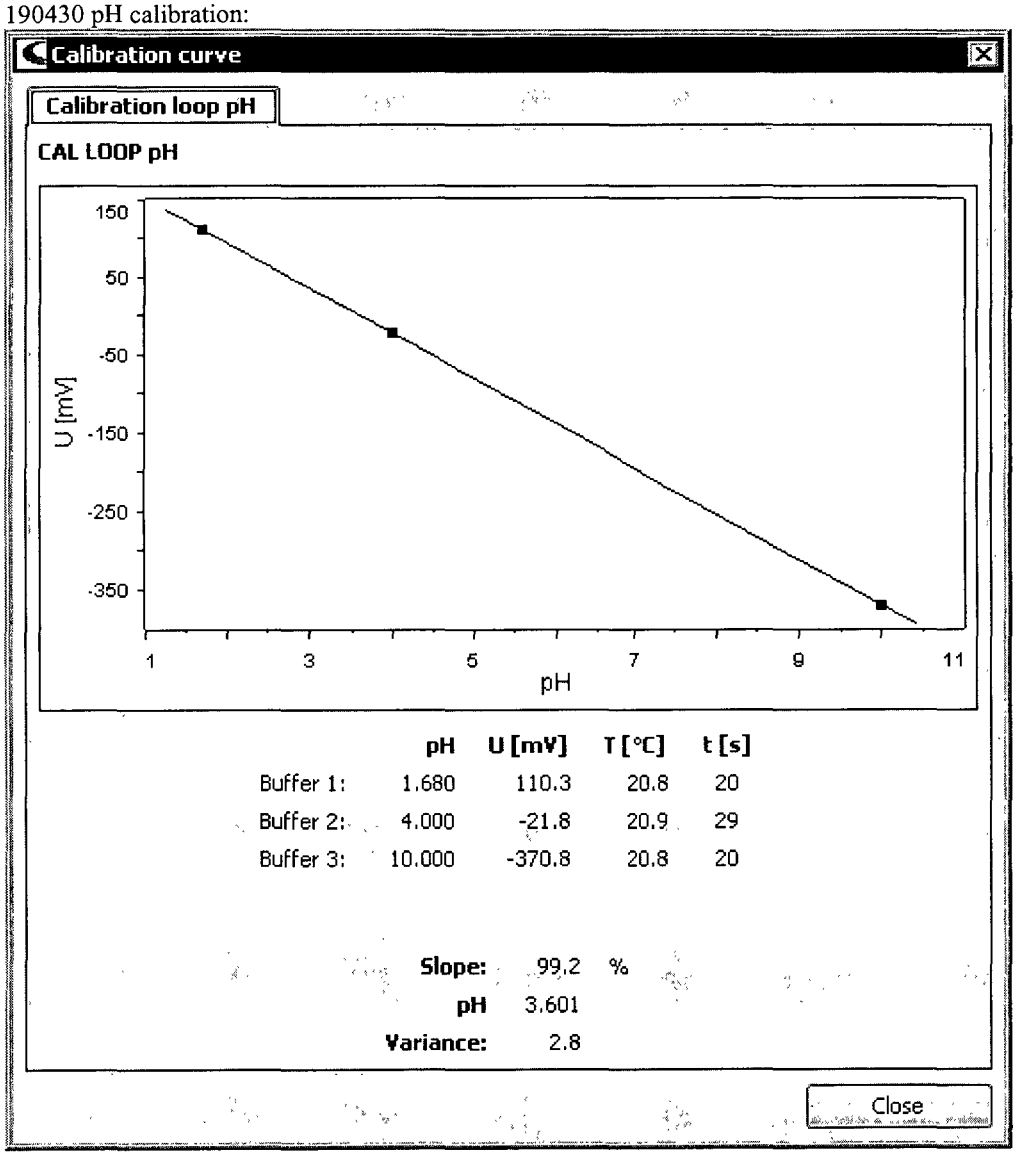
Injection Log

Directory: G:\ROCKY\DATA\190311RS\

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	19031100.D	1	RSK Std 1 03/11/19	125uL from RSK Std 3	11 Mar 19 10:21
2	2	19031101.D	1	RSK Std 2 03/11/19	250uL from RSK Std 3	11 Mar 19 10:23
3	4	19031103.D	1	RSK Std 3 03/11/19		11 Mar 19 10:28
4	5	19031104.D	1	RSK Std 4 03/11/19		11 Mar 19 10:31
5	6	19031105.D	1	RSK Std 5 03/11/19		11 Mar 19 10:33
6	7	19031106.D	1	RSK Std 6 03/11/19		11 Mar 19 10:35
7	8	19031107.D	1	RSK Std 7 03/11/19		11 Mar 19 10:37
8	9	19031108.D	1	SS RSK Std 5 03/11/19		11 Mar 19 10:48
9	1	19050300.D	1	190503A LCS/CCV RSK Std 5		3 May 19 10:33
10	2	19050301.D	1	190503A LCSD RSK Std 5		3 May 19 10:36
11	3	19050302.D	1	190503A Blk		3 May 19 10:39
12	8	19050307.D	1	AZ90099W04		3 May 19 10:52
13	9	19050308.D	1	AZ90100W04		3 May 19 10:54
14	10	19050309.D	1	AZ90101W04		3 May 19 10:56
15	11	19050310.D	1	AZ90102W04 E Methane		3 May 19 10:58
16	13	19050312.D	10	AZ90102W04 DF10		3 May 19 11:04
17	14	19050313.D	1	AZ90104W04		3 May 19 11:07
18	15	19050314.D	1	AZ90105W04		3 May 19 11:09
19	16	19050315.D	1	AZ90106W04		3 May 19 11:11
20	17	19050316.D	1	AZ90107W04		3 May 19 11:14
21	18	19050317.D	1	AZ90108W04		3 May 19 11:16
22	19	19050318.D	1	AZ90109W04		3 May 19 11:18
23	27	19050326.D	1	Ending CCV RSK Std 5 05/03/19		3 May 19 11:36

INORGANIC ANALYSIS
Calibration Data

190430 pH calibration:



A.P.P.L. INC.

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name:	A.P.P.L. INC.	Contract:	AECOM
ARF No:	88714	SDG:	88714
Initial Calibration Source:	Inorganic Ventures		
Continuing Calibration Source:	o2si		
Analysis Date:	05/01/19		

Analyte	Calibration Verification									M
	True ICV	Found 16:50	%R(1)	True CCV1	Found 18:39	%R(1)	True CCV1	Found 18:51	%R(1)	
TOXN	3	2.9656	98.9	3	3.0459	102	3	2.8702	95.7	

(1) Control Limits: 90-110

ILM02.0

A.P.P.L. INC.
3
BLANKS

Lab Name: A.P.P.L. INC. Contract: AECOM

ARF No.: 88714 SDG: 88714

Preparation Blank Matrix (soil/water): water

Preparation Blank Concentration Units (ug/L or mg/kg): mg/L

Analyte	Calibration Blanks										M
	ICB 05/01/19 16:51	C	CCB 05/01/19 18:41	C	CCB 05/01/19 18:52	C		C		C	
TOXN	.100	U	.100	U	.100	U					

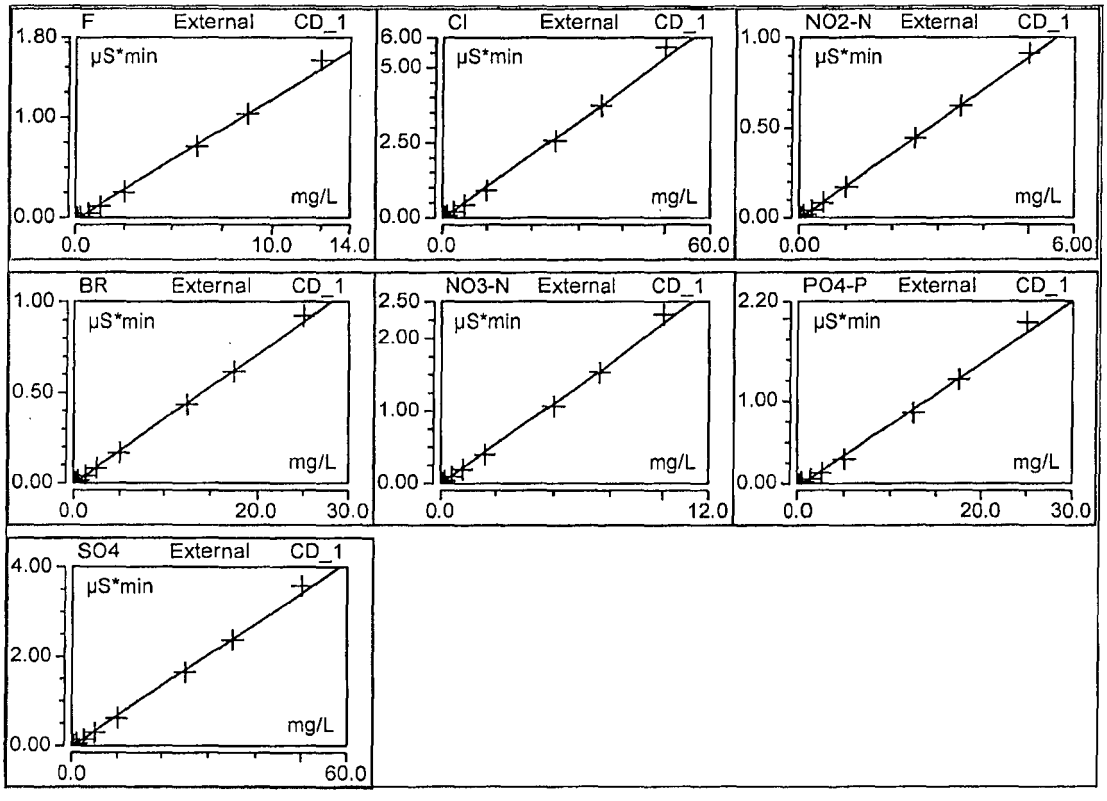
Calibration Batch Report

Sequence:	190401	*Injection Volume:*	25.00
Instrument Method:	Anions IM	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:26	*Run Time:*	5

Calibration Summary

Peak Name	Eval.Type	Cal.Type	Points	Offset (C0)	Slope (C1)	Curve (C2)	Coeff.Det. %
F	Area	Lin, WithOffset, 1/A	8.000	-0.017	0.120	0.000	99.4806
Cl	Area	Lin, WithOffset, 1/A	8.000	-0.028	0.107	0.000	99.4166
NO2-N	Area	Lin, WithOffset, 1/A	8.000	-0.001	0.179	0.000	99.9419
BR	Area	Lin, WithOffset, 1/A	8.000	-0.002	0.036	0.000	99.8824
NO3-N	Area	Lin, WithOffset, 1/A	8.000	-0.007	0.222	0.000	99.7096
PO4-P	Area	Lin, WithOffset, 1/A	7.000	-0.032	0.075	0.000	99.3402
SO4	Area	Lin, WithOffset, 1/A	8.000	-0.012	0.069	0.000	99.7352

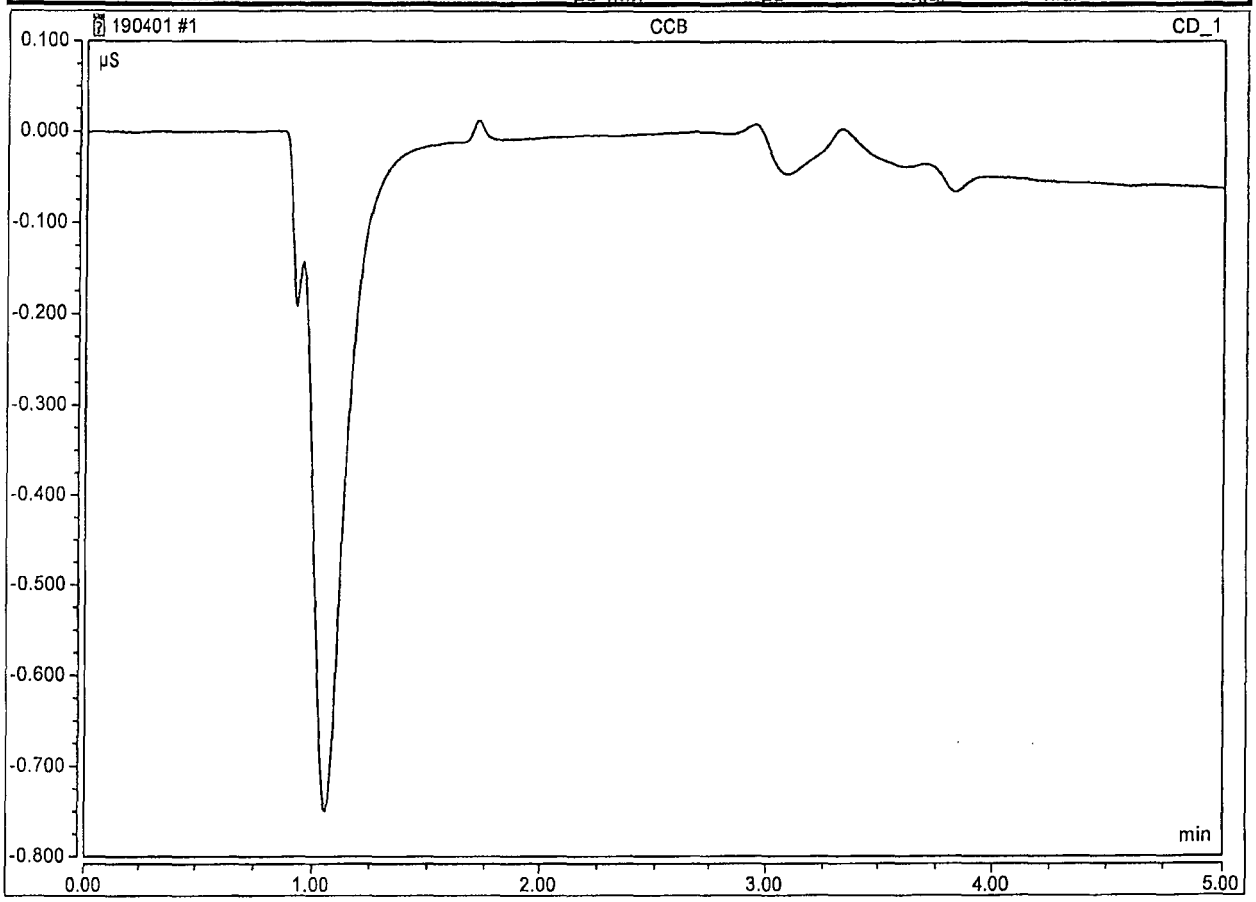
Injection Name	Amount mg/L CD_1 F	Amount mg/L CD_1 Cl	Amount mg/L CD_1 NO2-N	Amount mg/L CD_1 BR	Amount mg/L CD_1 NO3-N	Amount mg/L CD_1 PO4-P	Amount mg/L CD_1 SO4
i cal 1	0.152	0.5642	0.0447	0.2325	0.1005	0.4778	0.4991
i cal 2	0.223	1.0054	0.1008	0.5019	0.2020	0.6726	1.0108
i cal 3	0.498	2.1345	0.2378	1.1759	0.4556	1.1460	2.2782
i cal 4	1.078	4.1718	0.4757	2.3481	0.8983	2.1327	4.5095
i cal 5	2.245	8.6460	0.9640	4.7379	1.8243	4.3601	9.1640
i cal 6	6.079	24.1535	2.4749	12.2599	4.8399	11.9336	24.2601
i cal 7	8.756	35.0732	3.4778	17.3494	6.9503	17.3831	34.7622
i cal 8	13.194	53.1515	5.1141	25.8443	10.5090	26.6219	52.4162



Peak Integration Report

Sample Name:	CCB	*Inj. Vol.:*	25uL
Injection Type:	Unknown	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:27	*Run Time:*	5.00

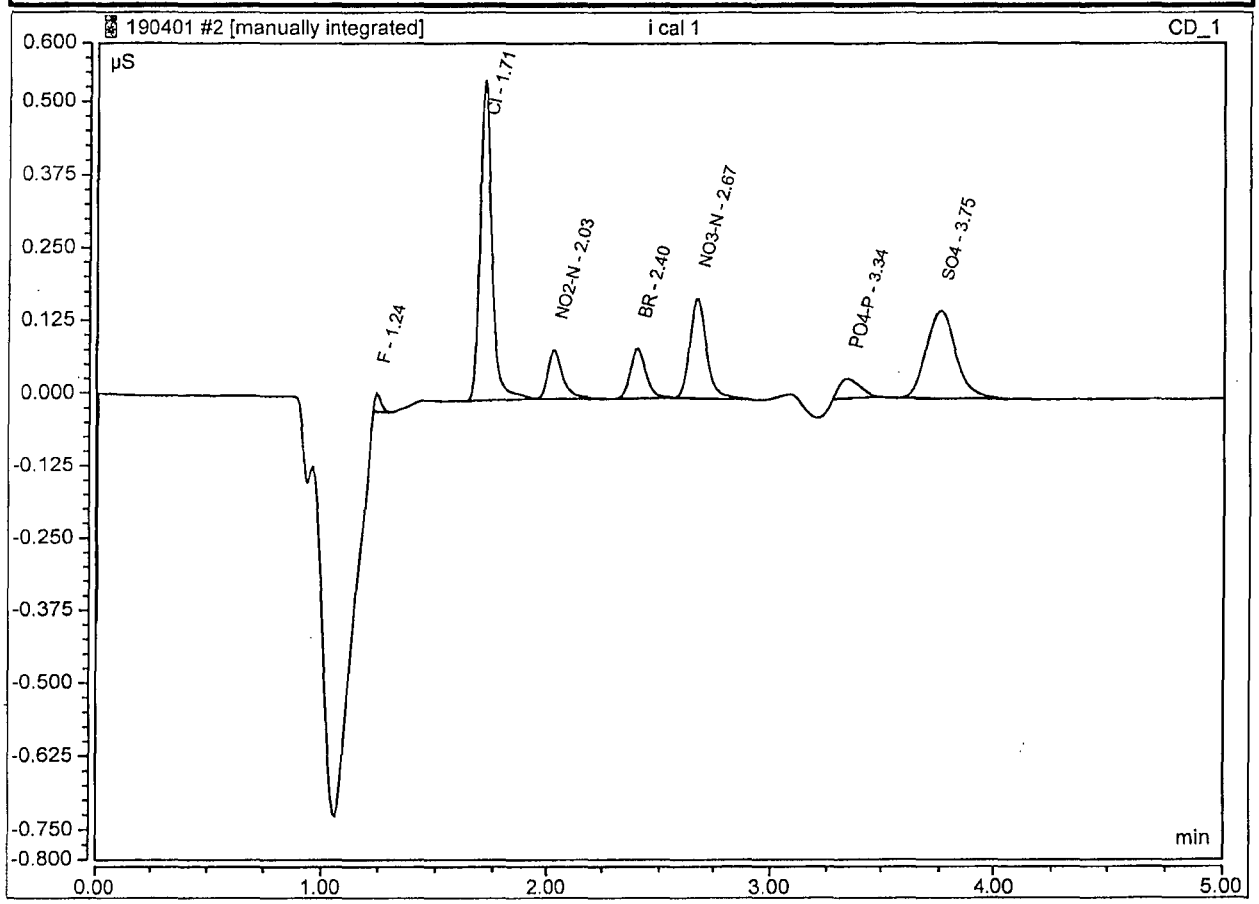
No.	Time (min)	Peak Name	Peak Type	Area (µS*min)	Height (µS)	Amount	Amount	Recovery
	min			µS*min	µS	n.a.	n.a.	



Peak Integration Report

Sample Name:	i cal 1	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:34	*Run Time:*	5.00

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB*	0.001	0.032	0.15	0.1000	152.1%
2	1.71	Cl	BMB	0.033	0.547	0.56	0.4000	141.1%
3	2.03	NO2-N	BMB	0.007	0.084	0.04	0.0400	111.8%
4	2.40	BR	BMB	0.007	0.086	0.23	0.2000	116.3%
5	2.67	NO3-N	BMB	0.016	0.173	0.10	0.0800	125.7%
6	3.34	PO4-P	BMB*	0.004	0.034	0.48	0.2000	238.9%
7	3.75	SO4	BMB	0.023	0.151	0.50	0.4000	124.8%

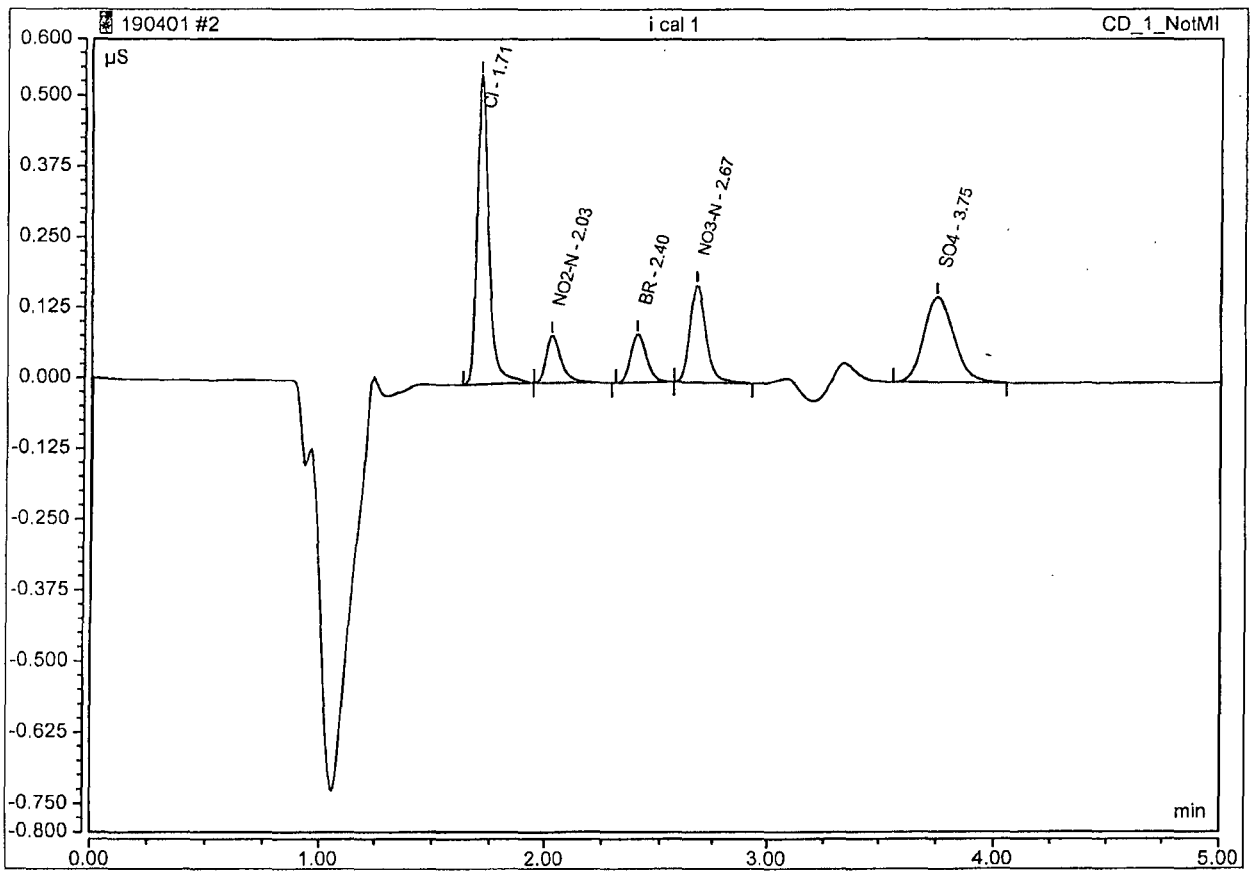


F mi1 HH 190405

Not Manipulated Peak Integration Report

Sample Name:	i cal 1	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:34	*Run Time:*	5.00

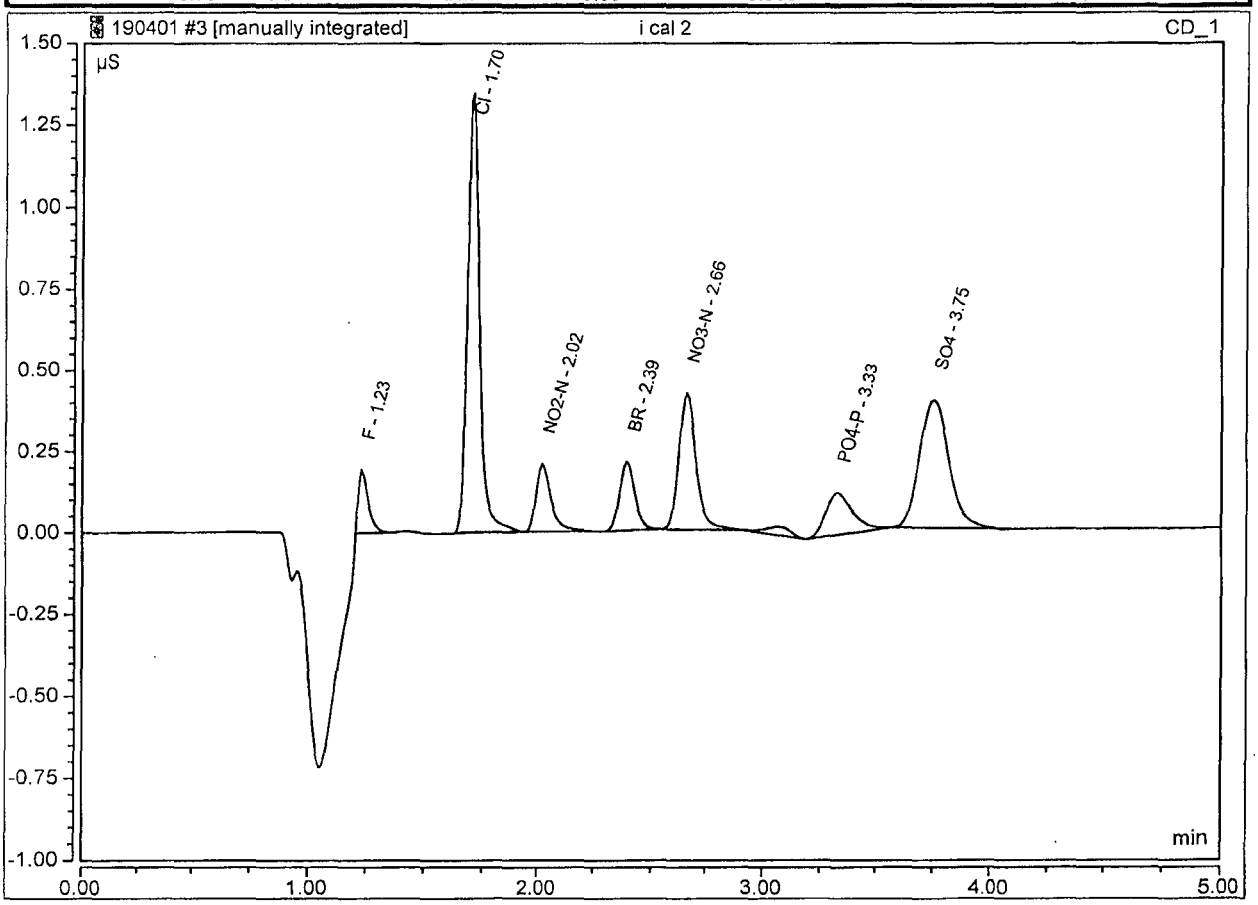
No.	Time min	Peak Name	Peak Type	Area µS*min	Height µS	Ammount mg/L
1	n.a.	F	BMB*	n.a.	n.a.	n.a.
2	1.71	Cl	BMB	0.033	0.547	0.5642
3	2.03	NO2-N	BMB	0.007	0.084	0.0447
4	2.40	BR	BMB	0.007	0.086	0.2325
5	2.67	NO3-N	BMB	0.016	0.173	0.1005
6	n.a.	PO4-P	BMB*	n.a.	n.a.	n.a.
7	3.75	SO4	BMB	0.023	0.151	0.4991



Peak Integration Report

Sample Name:	**I cal 2**	*Inj. Vol.:*	**25uL**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-Apr-2019 / 18:42**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB*	0.010	0.194	0.22	0.2500	89.3%
2	1.70	Cl	BMB	0.080	1.346	1.01	1.0000	100.5%
3	2.02	NO2-N	BMB	0.017	0.208	0.10	0.1000	100.8%
4	2.39	BR	BMB	0.016	0.211	0.50	0.5000	100.4%
5	2.66	NO3-N	BMB	0.038	0.421	0.20	0.2000	101.0%
7	3.33	PO4-P	BMB	0.018	0.129	0.67	0.5000	134.5%
8	3.75	SO4	BMB	0.058	0.395	1.01	1.0000	101.1%

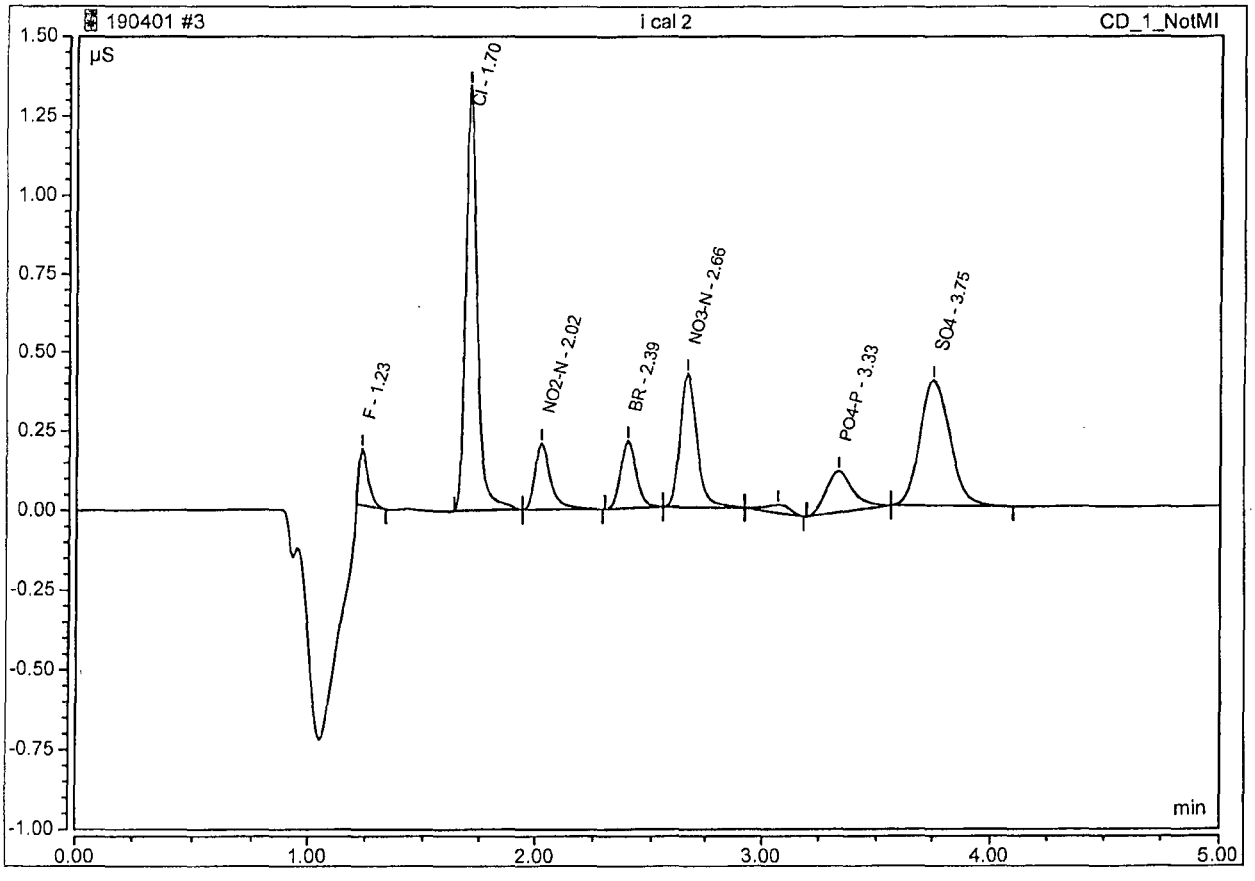


F mi1 HH 190405

-Not Manipulated Peak Integration Report

Sample Name:	i cal 2	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:42	*Run Time:*	5.00

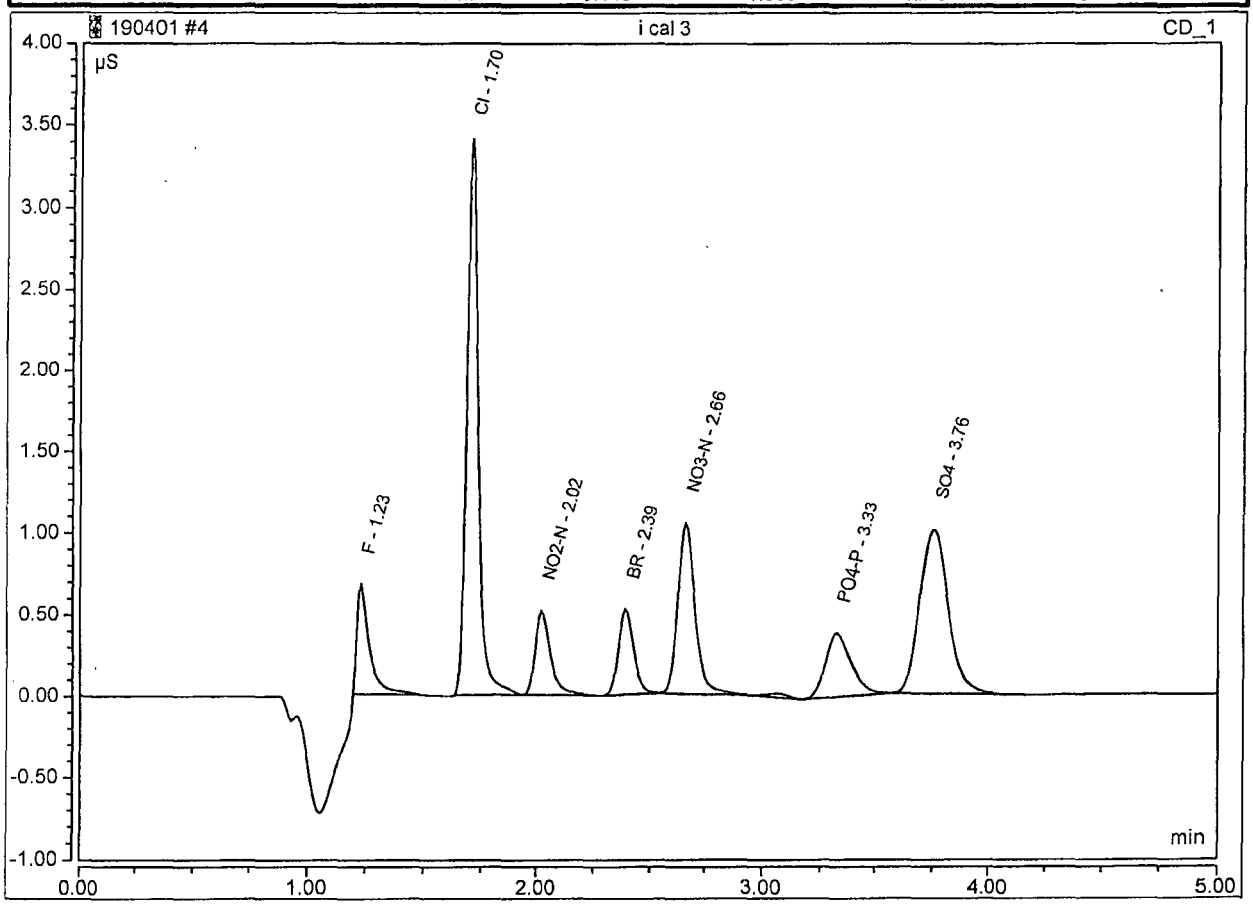
No.	Time min	Peak Name	Peak Type	Area µS*min	Height µS	Ammount mg/L
1	1.23	F	BMB*	0.008	0.177	0.3039
2	1.70	Cl	BMB	0.080	1.346	1.0054
3	2.02	NO2-N	BMB	0.017	0.208	0.1008
4	2.39	BR	BMB	0.016	0.211	0.5019
5	2.66	NO3-N	BMB	0.038	0.421	0.2020
7	3.33	PO4-P	BMB	0.018	0.129	0.6726
8	3.75	SO4	BMB	0.058	0.395	1.0108



Peak Integration Report

Sample Name:	i cal 3	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:49	*Run Time:*	5.00

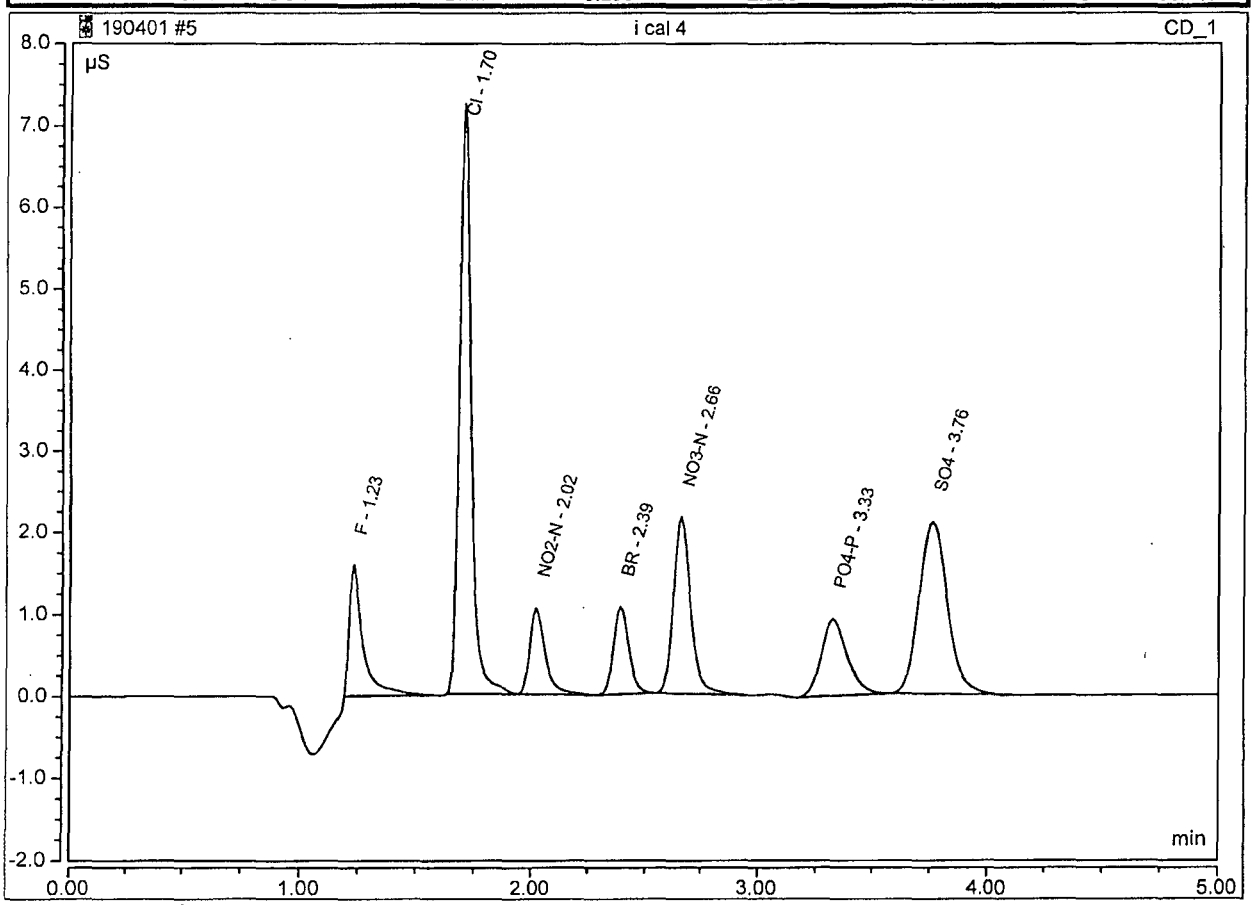
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.043	0.673	0.50	0.6250	79.7%
2	1.70	Cl	BMB	0.201	3.411	2.13	2.5000	85.4%
3	2.02	NO2-N	BMB	0.041	0.518	0.24	0.2500	95.1%
4	2.39	BR	BMB	0.040	0.524	1.18	1.2500	94.1%
5	2.66	NO3-N	BMB	0.094	1.046	0.46	0.5000	91.1%
7	3.33	PO4-P	BMB	0.053	0.392	1.15	1.2500	91.7%
8	3.76	SO4	BMB	0.145	1.005	2.28	2.5000	91.1%



Peak Integration Report

Sample Name:	I cal 4	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:56	*Run Time:*	5.00

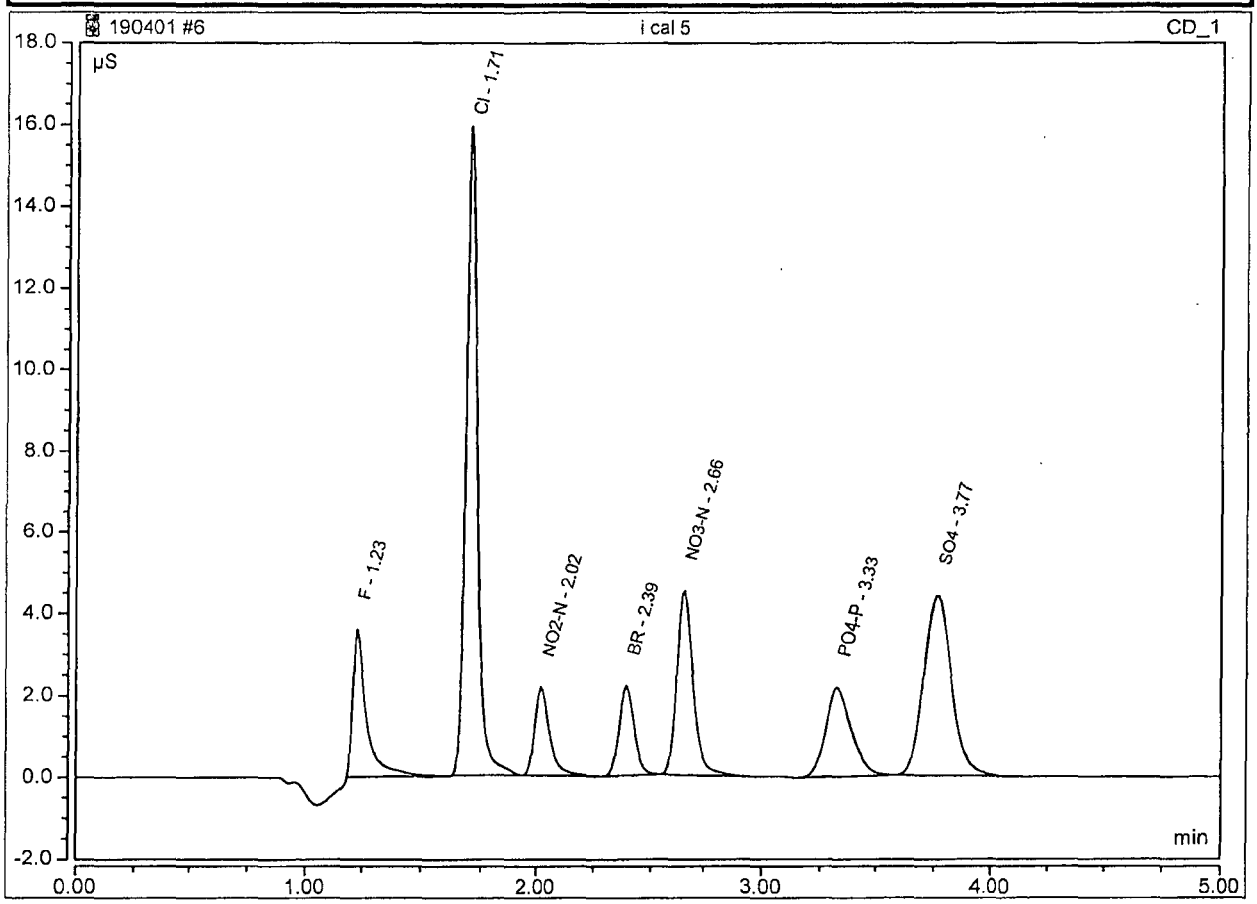
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.112	1.593	1.08	1.2500	86.2%
2	1.70	Cl	BMB	0.420	7.239	4.17	5.0000	83.4%
3	2.02	NO2-N	BMB	0.084	1.054	0.48	0.5000	95.1%
4	2.39	BR	BMB	0.082	1.069	2.35	2.5000	93.9%
5	2.66	NO3-N	BMB	0.193	2.151	0.90	1.0000	89.8%
6	3.33	PO4-P	BMB	0.127	0.939	2.13	2.5000	85.3%
7	3.76	SO4	BMB	0.298	2.093	4.51	5.0000	90.2%



Peak Integration Report

Sample Name:	i cal 5	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:04	*Run Time:*	5.00

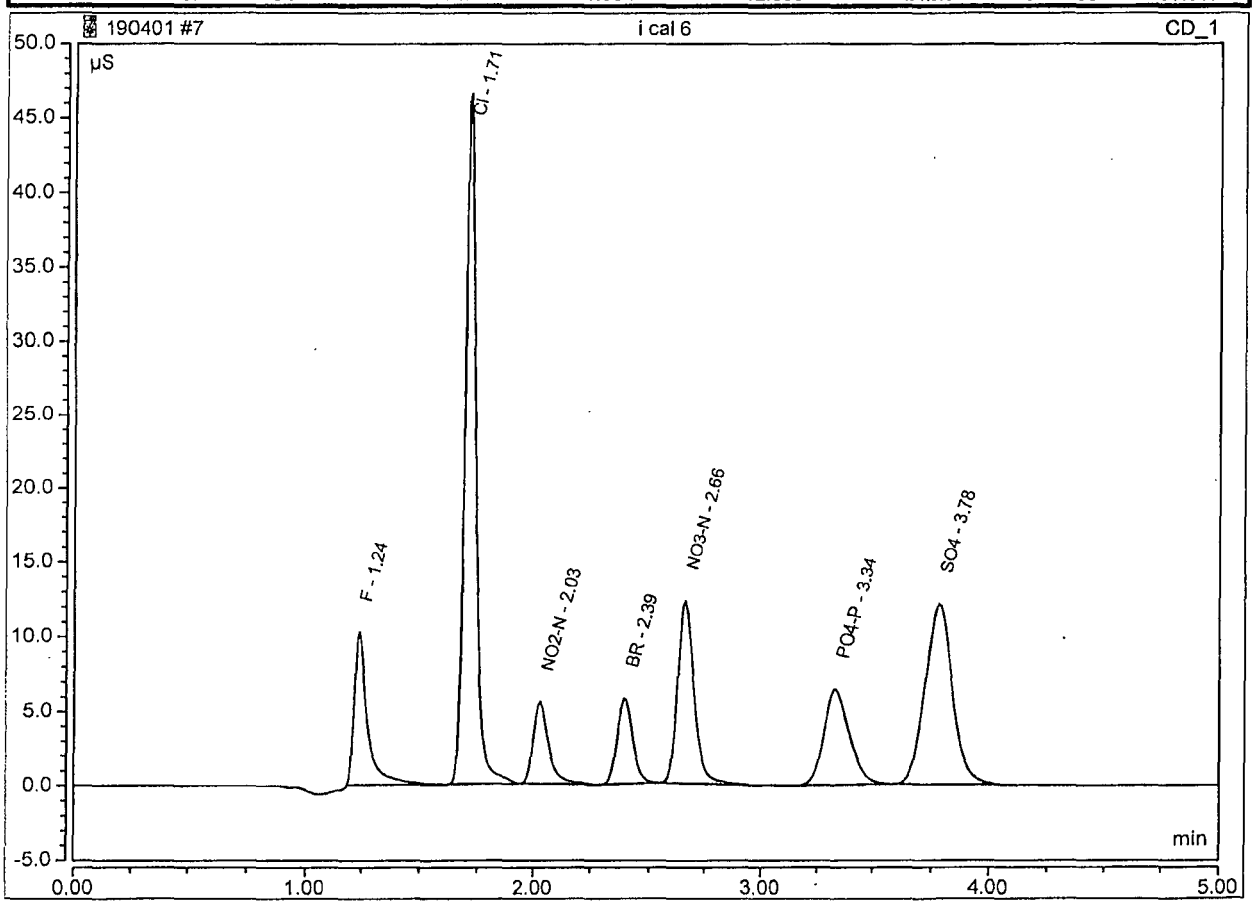
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.253	3.584	2.24	2.5000	89.8%
2	1.71	Cl	BMB	0.900	15.899	8.65	10.0000	86.5%
3	2.02	NO2-N	BMB	0.171	2.155	0.96	1.0000	96.4%
4	2.39	BR	BMB	0.167	2.196	4.74	5.0000	94.8%
5	2.66	NO3-N	BMB	0.398	4.491	1.82	2.0000	91.2%
6	3.33	PO4-P	BMB	0.293	2.182	4.36	5.0000	87.2%
7	3.77	SO4	BMB	0.618	4.399	9.16	10.0000	91.6%



Peak Integration Report

Sample Name:	i cal 6	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:11	*Run Time:*	5.00

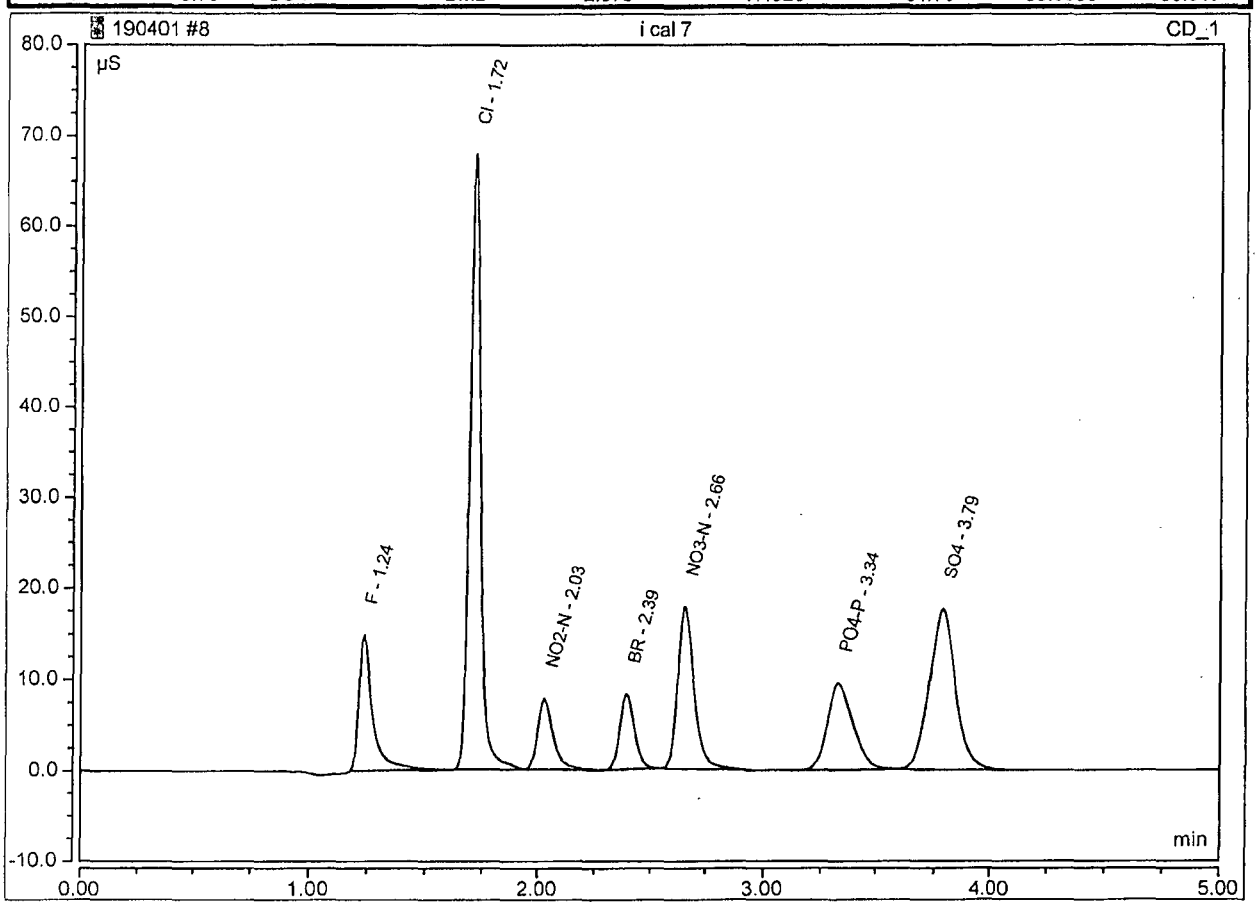
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB	0.715	10.279	6.08	6.2500	97.3%
2	1.71	Cl	BMB	2.565	46.518	24.15	25.0000	96.6%
3	2.03	NO2-N	BMB	0.441	5.520	2.47	2.5000	99.0%
4	2.39	BR	BMB	0.436	5.795	12.26	12.5000	98.1%
5	2.66	NO3-N	BMB	1.067	12.256	4.84	5.0000	96.8%
6	3.34	PO4-P	BMB	0.857	6.441	11.93	12.5000	95.5%
7	3.78	SO4	BMB	1.654	12.099	24.26	25.0000	97.0%



Peak Integration Report

Sample Name:	i cal 7	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:19	*Run Time:*	5.00

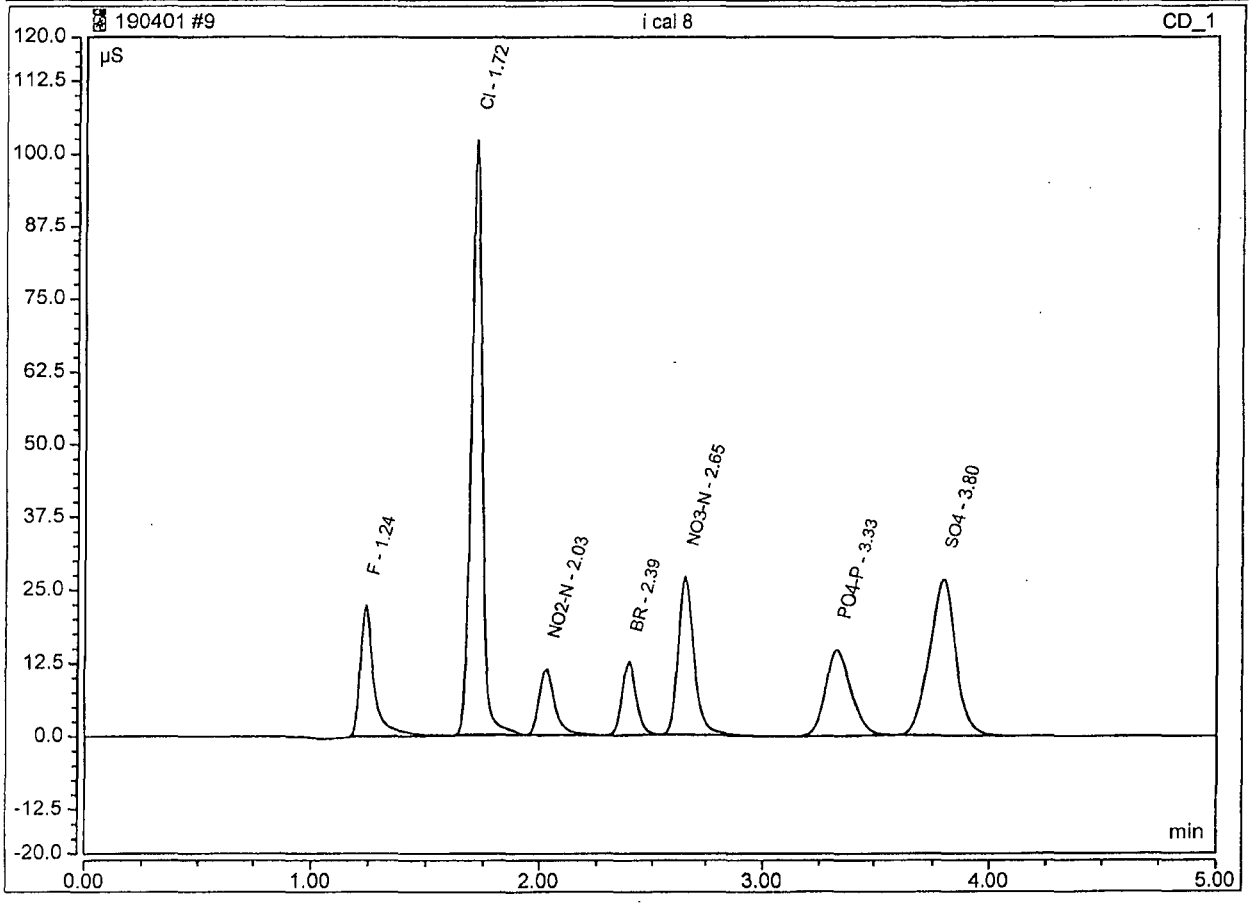
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB	1.037	14.883	8.76	8.7500	100.1%
2	1.72	Cl	BMB	3.736	67.756	35.07	35.0000	100.2%
3	2.03	NO2-N	BMB	0.621	7.719	3.48	3.5000	99.4%
4	2.39	BR	BMB	0.618	8.268	17.35	17.5000	99.1%
5	2.66	NO3-N	BMB	1.534	17.727	6.95	7.0000	99.3%
6	3.34	PO4-P	BMB	1.263	9.506	17.38	17.5000	99.3%
7	3.79	SO4	BMB	2.375	17.528	34.76	35.0000	99.3%



Peak Integration Report

Sample Name:	I cal 8	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:26	*Run Time:*	5.00

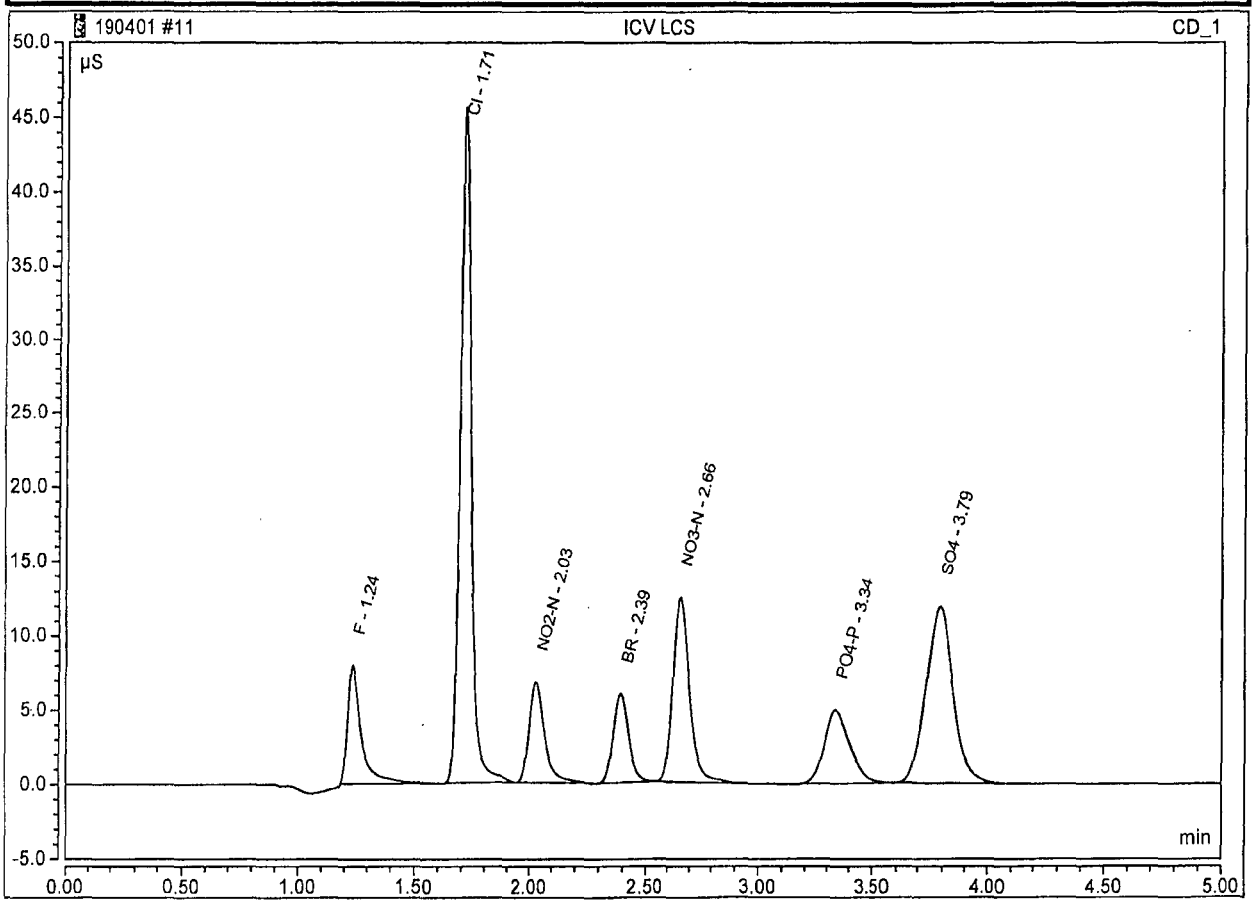
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB	1.571	22.280	13.19	12.5000	105.5%
2	1.72	Cl	BMB	5.677	102.036	53.15	50.0000	106.3%
3	2.03	NO2-N	BMB	0.913	11.224	5.11	5.0000	102.3%
4	2.39	BR	BMB	0.921	12.428	25.84	25.0000	103.4%
5	2.65	NO3-N	BMB	2.324	26.884	10.51	10.0000	105.1%
6	3.33	PO4-P	BMB	1.951	14.669	26.62	25.0000	106.5%
7	3.80	SO4	BMB	3.588	26.635	52.42	50.0000	104.8%



Peak Integration Report

Sample Name:	ICV LCS	*Inj. Vol.:*	25uL
Injection Type:	Check Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:41	*Run Time:*	5.00

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB	0.555	8.015	4.75	5.0000	95.0%
2	1.71	Cl	BMB	2.510	45.585	23.64	25.0000	94.6%
3	2.03	NO2-N	BMB	0.545	6.798	3.06	3.0400	100.6%
4	2.39	BR	BMB	0.450	5.995	12.66	12.5000	101.3%
5	2.66	NO3-N	BMB	1.085	12.464	4.92	5.0000	98.5%
6	3.34	PO4-P	BMB	0.666	4.985	9.37	10.0000	93.7%
7	3.79	SO4	BMB	1.623	11.942	23.81	25.0000	95.2%



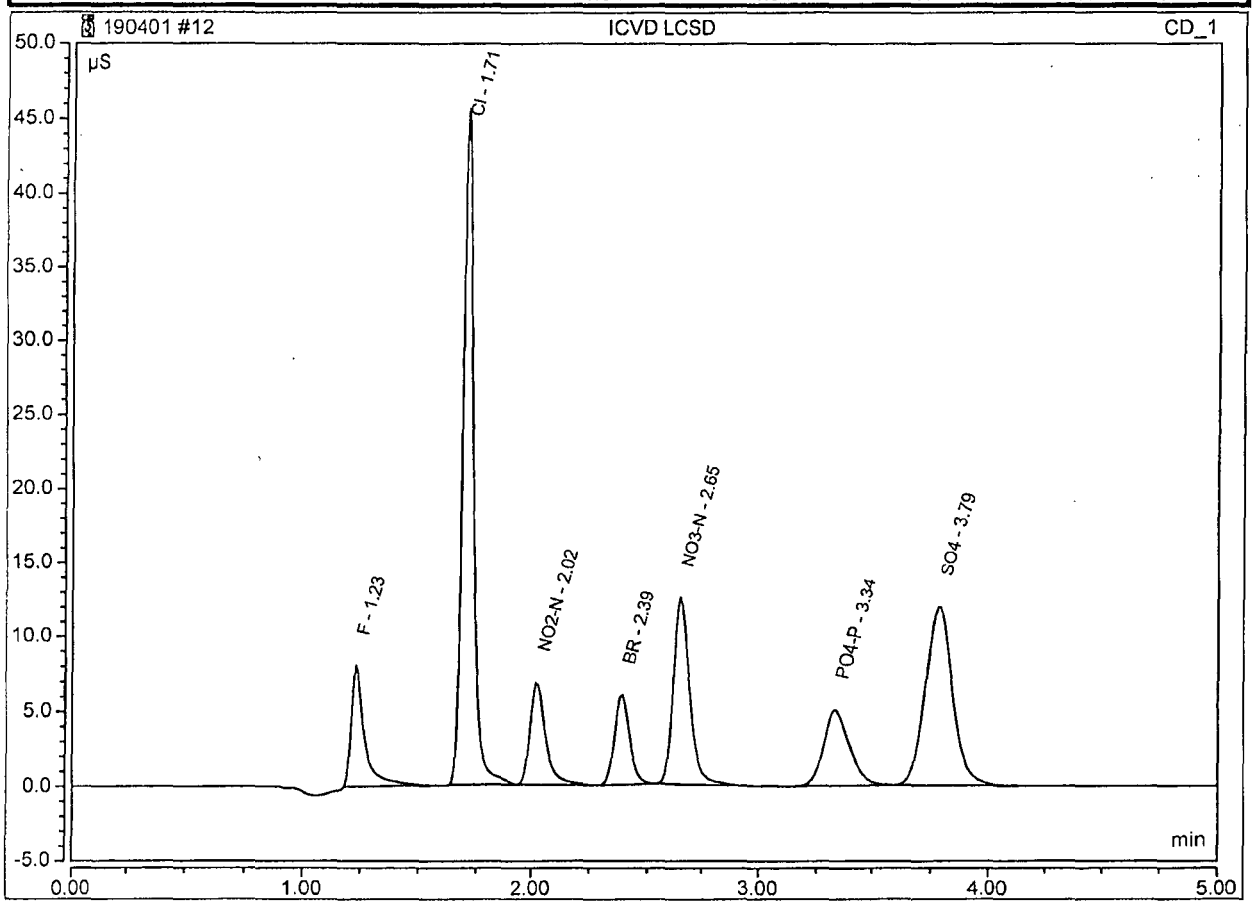
Algortith Check:
y = Peak Area
x = mg/L S04

y = 0.0687 x + -0.0115
y = 1.6231 therefor x = 23.8071 190406 HH

Peak Integration Report

Sample Name:	ICVD LCSD	*Inj. Vol.:*	25uL
Injection Type:	Check Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:48	*Run Time:*	5.00

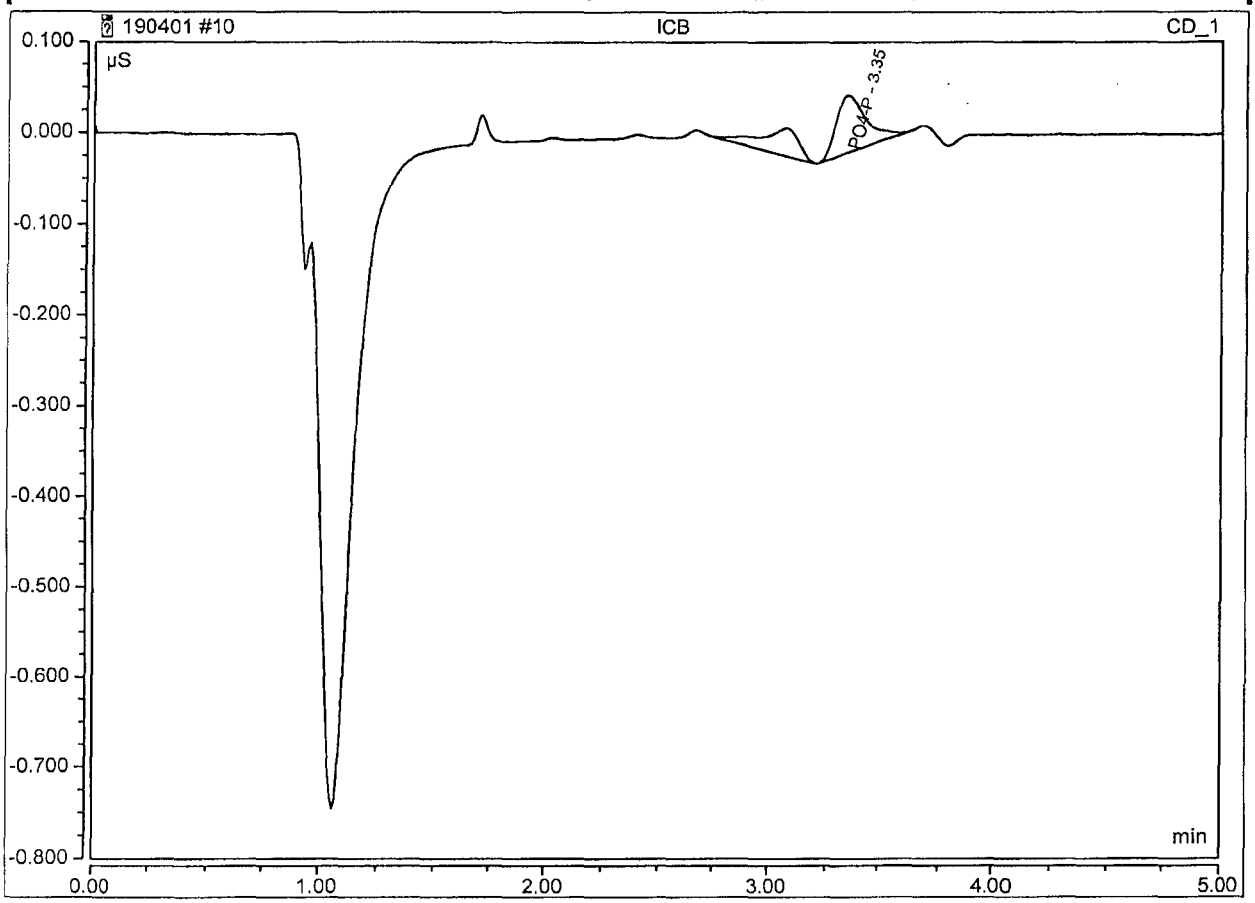
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.558	8.048	4.78	5.0000	95.6%
2	1.71	Cl	BMB	2.509	45.546	23.64	25.0000	94.6%
3	2.02	NO2-N	BMB	0.545	6.797	3.06	3.0400	100.6%
4	2.39	BR	BMB	0.450	5.991	12.66	12.5000	101.3%
5	2.65	NO3-N	BMB	1.085	12.462	4.92	5.0000	98.5%
6	3.34	PO4-P	BMB	0.676	5.055	9.50	10.0000	95.0%
7	3.79	SO4	BMB	1.624	11.941	23.83	25.0000	95.3%



Peak Integration Report

Sample Name:	ICB	*Inj. Vol.:*	25uL
Injection Type:	Unknown	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:33	*Run Time:*	5.00

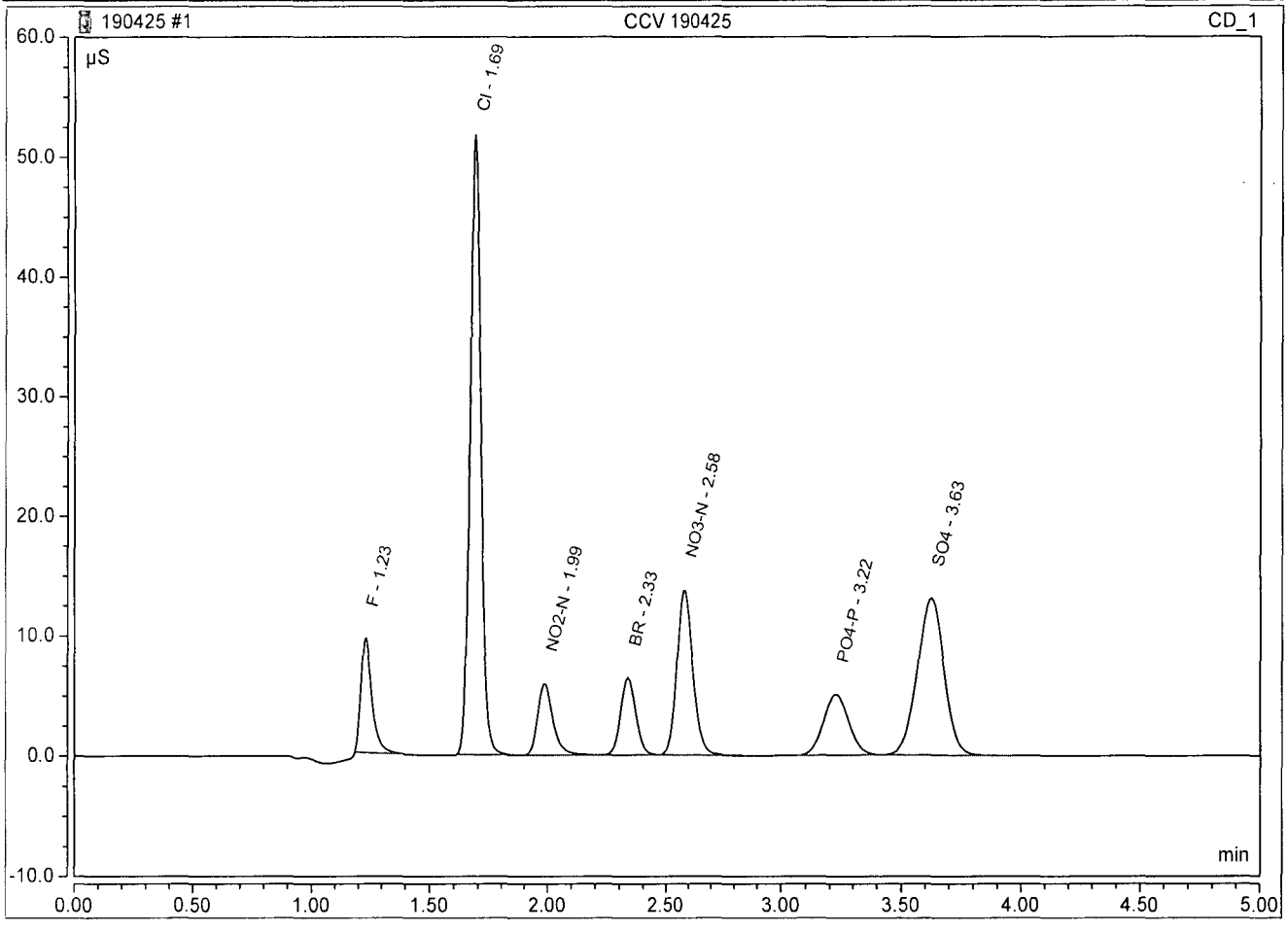
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
2	3.35	PO4-P	BMB	0.010	0.062	0.56		



Peak Integration Report

Sample Name:	**CCV 190425**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**25-Apr-2019 / 15:26**	*Run Time:*	**5.00**

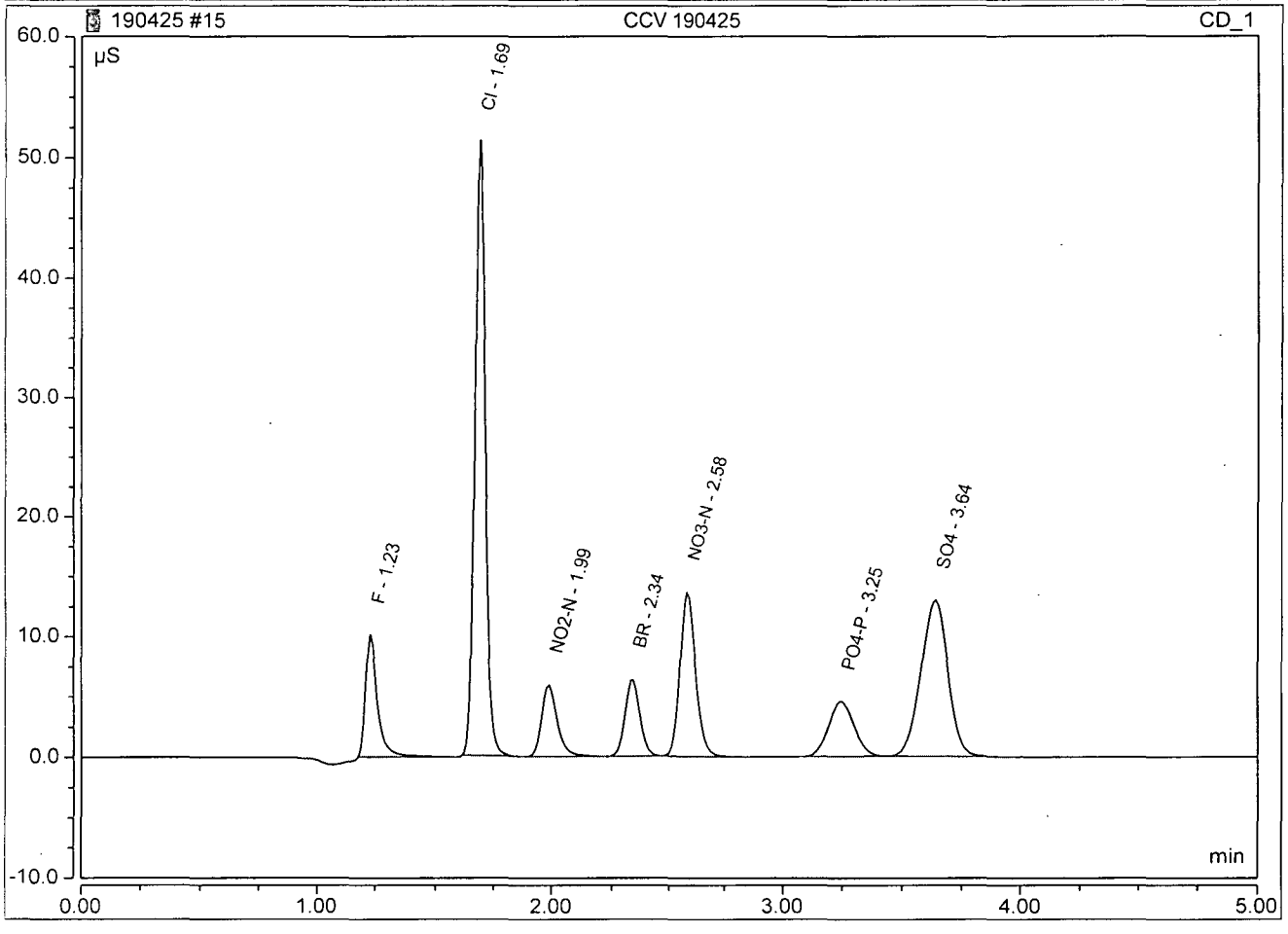
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	**F**	BMB	0.525	9.527	4.50	5.0000	90.0%
2	1.69	**Cl**	BMB	2.694	51.724	25.36	25.0000	101.5%
3	1.99	**NO2-N**	BMB	0.455	5.979	2.55	2.5000	102.0%
4	2.33	**BR**	BMB	0.470	6.447	13.21	12.5000	105.7%
5	2.58	**NO3-N**	BMB	1.130	13.771	5.13	5.0000	102.5%
6	3.22	**PO4-P**	BMB	0.630	5.068	8.89	10.0000	88.9%
7	3.63	**SO4**	BMB	1.705	13.094	25.00	25.0000	100.0%



Peak Integration Report

Sample Name:	**CCV 190425**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**25-Apr-2019 / 17:10**	*Run Time:*	**5.00**

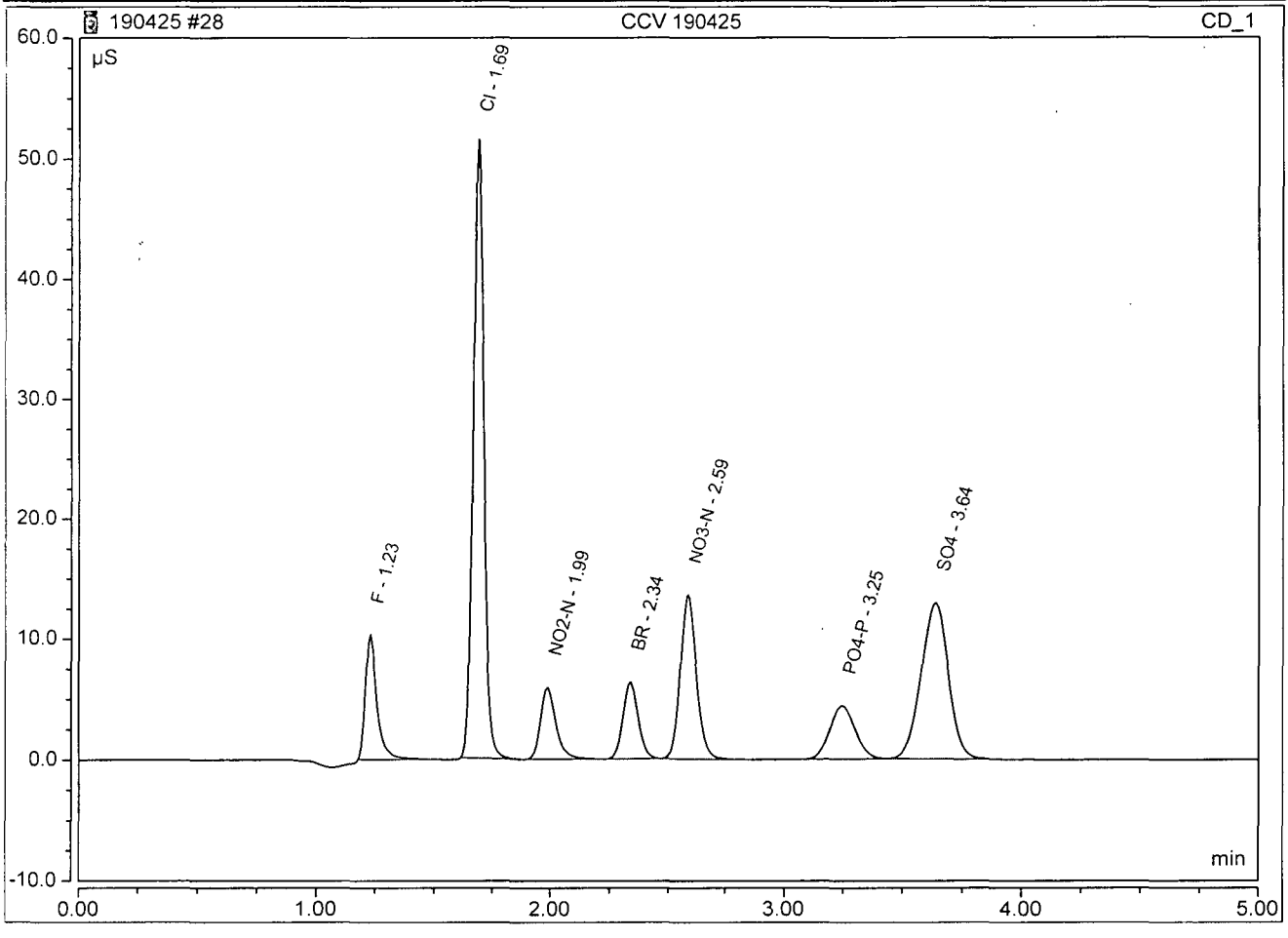
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	**F**	BMB	0.593	10.126	5.07	5.0000	101.4%
2	1.69	**Cl**	BMB	2.681	51.266	25.24	25.0000	101.0%
3	1.99	**NO2-N**	BMB	0.455	5.940	2.55	2.5000	102.1%
4	2.34	**BR**	BMB	0.467	6.368	13.13	12.5000	105.1%
5	2.58	**NO3-N**	BMB	1.125	13.640	5.10	5.0000	102.1%
6	3.25	**PO4-P**	BMB	0.567	4.531	8.04	10.0000	80.4%
7	3.64	**SO4**	BMB	1.698	12.943	24.89	25.0000	99.6%



Peak Integration Report

Sample Name:	CCV 190425	*Inj. Vol.:*	25uL
Injection Type.	Check Standard	*Dilution Factor:*	1.0000
Program.	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	25-Apr-2019 / 18:46	*Run Time:*	5.00

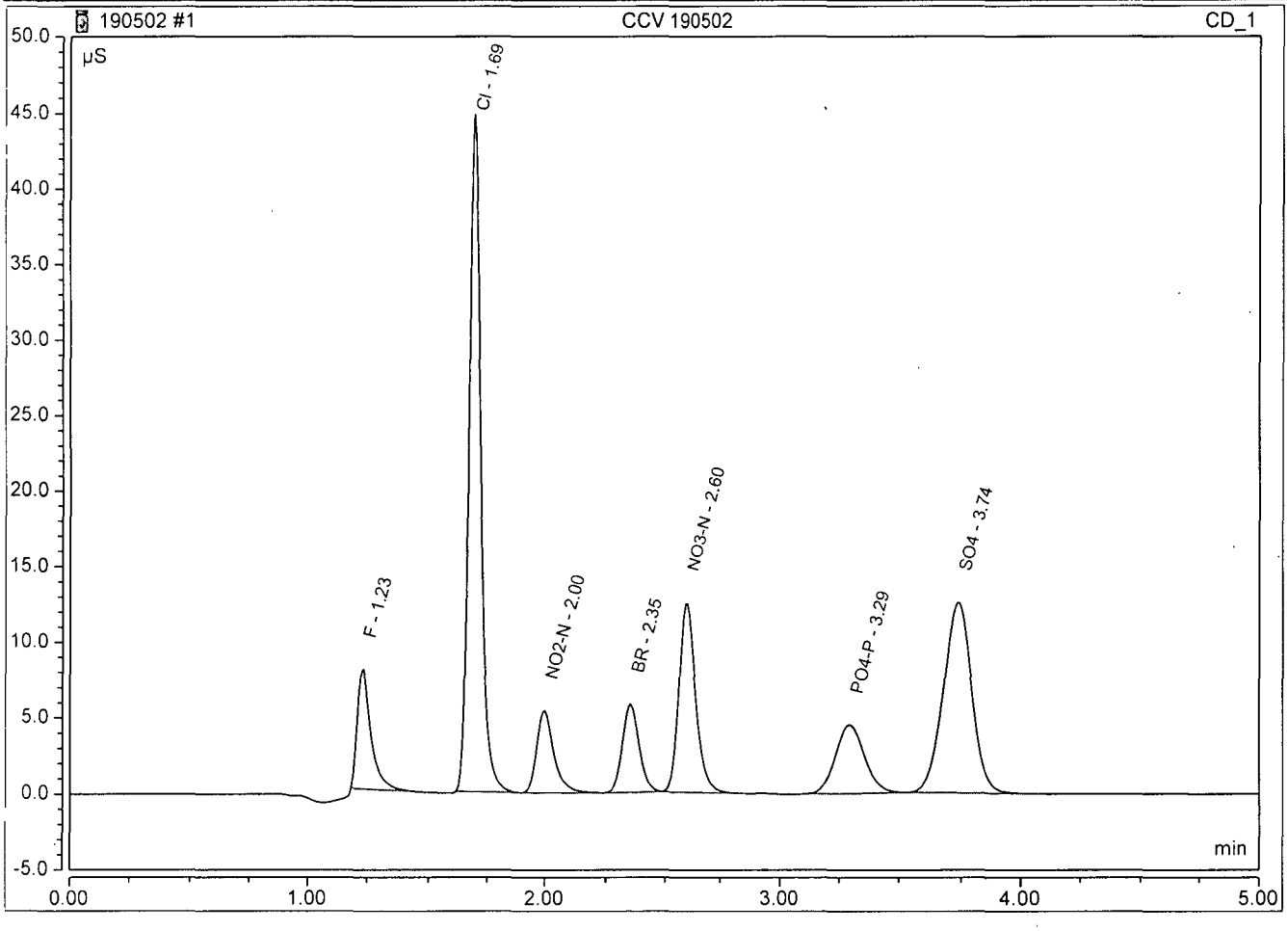
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.595	10.327	5.08	5.0000	101.6%
2	1.69	Cl	BMB	2.693	51.441	25.35	25.0000	101.4%
3	1.99	NO2-N	BMB	0.457	5.942	2.56	2.5000	102.5%
4	2.34	BR	BMB	0.467	6.343	13.13	12.5000	105.1%
5	2.59	NO3-N	BMB	1.123	13.566	5.09	5.0000	101.9%
6	3.25	PO4-P	BMB	0.555	4.414	7.88	10.0000	78.8%
7	3.64	SO4	BMB	1.696	12.904	24.87	25.0000	99.5%



Peak Integration Report

Sample Name:	**CCV 190502**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**02-May-2019 / 14:21**	*Run Time:*	**5.00**

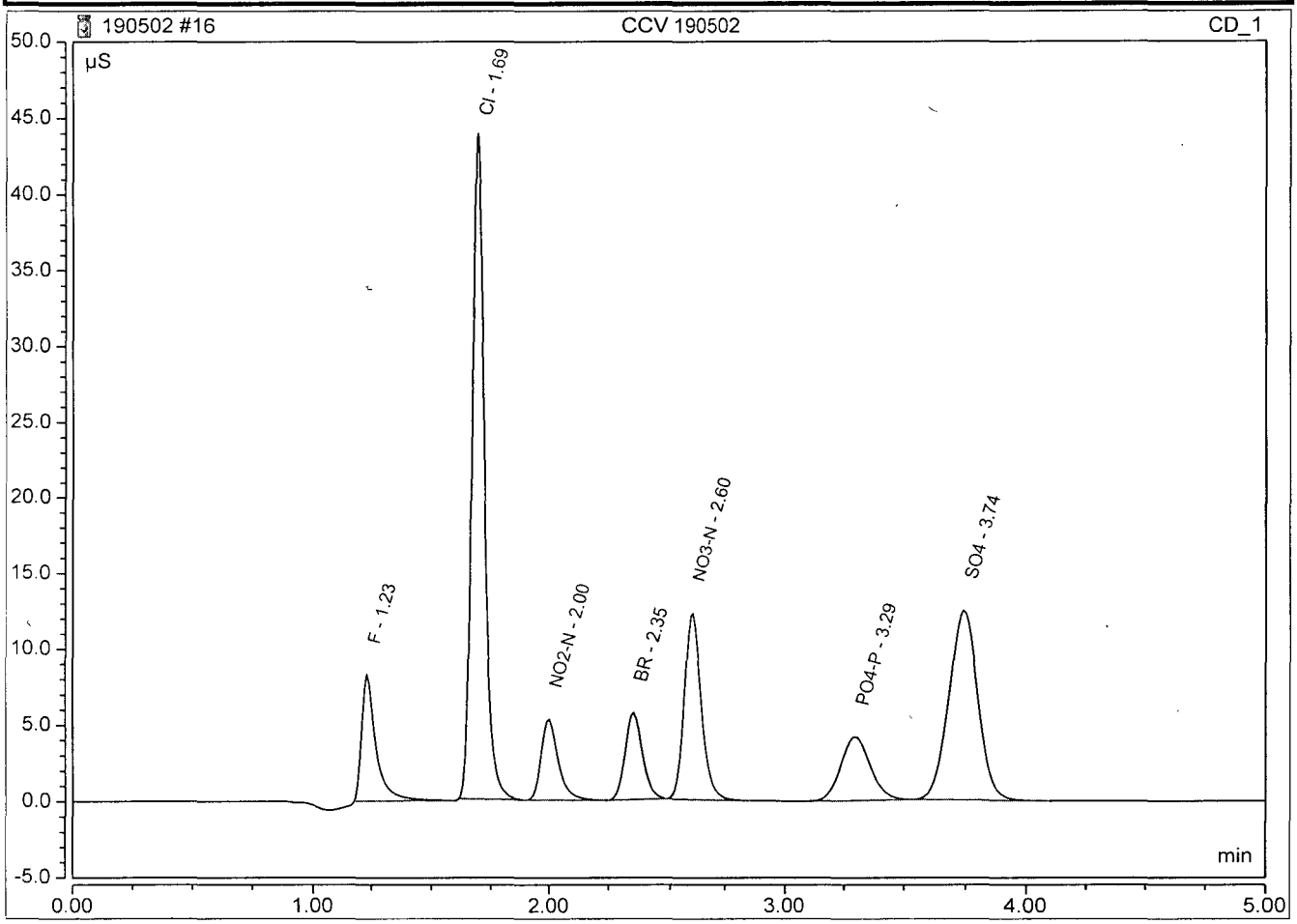
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.23	**F**	BMB	0.516	7.933	4.43	5	88.6%
2	1.69	**Cl**	BMB	2.635	44.751	24.81	25	99.2%
3	2.00	**NO2-N**	BMB	0.453	5.412	2.54	2.5	101.6%
4	2.35	**BR**	BMB	0.460	5.807	12.92	12.5	103.4%
5	2.60	**NO3-N**	BMB	1.109	12.497	5.03	5	100.7%
6	3.29	**PO4-P**	BMB	0.618	4.495	8.73	10	87.3%
7	3.74	**SO4**	BMB	1.722	12.543	25.25	25	101.0%



Peak Integration Report

Sample Name:	**CCV 190502**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**02-May-2019 / 16:12**	*Run Time:*	**5.00**

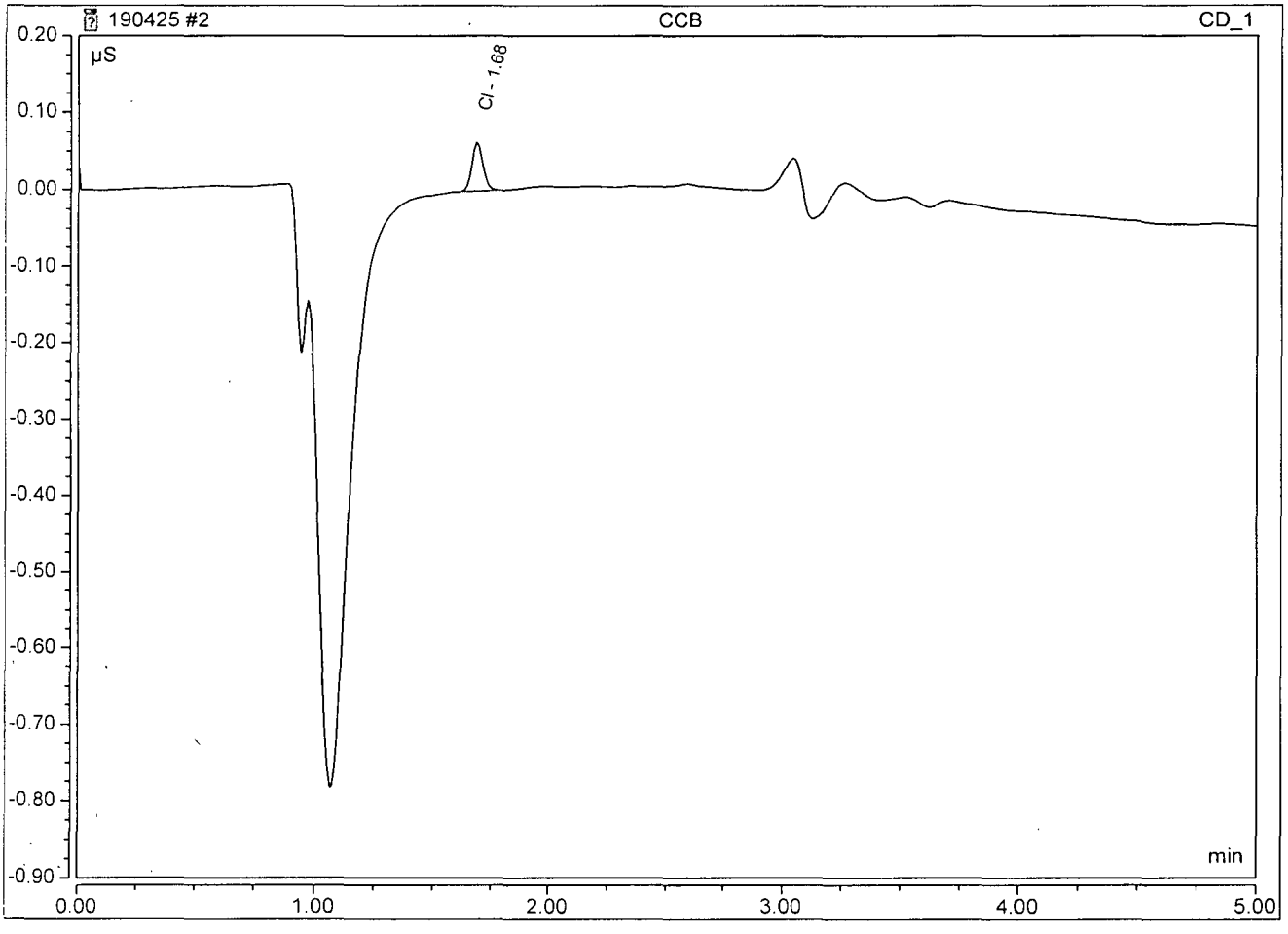
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.23	F	BMB	0.589	8.304	5.04	5	100.7%
2	1.69	Cl	BMB	2.621	43.821	24.68	25	98.7%
3	2.00	NO2-N	BMB	0.449	5.311	2.52	2.5	100.7%
4	2.35	BR	BMB	0.455	5.688	12.80	12.5	102.4%
5	2.60	NO3-N	BMB	1.100	12.267	4.99	5	99.8%
6	3.29	PO4-P	BMB	0.583	4.171	8.26	10	82.6%
7	3.74	SO4	BMB	1.718	12.445	25.19	25	100.8%



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**25-Apr-2019 / 15:34**	*Run Time:*	**5.00**

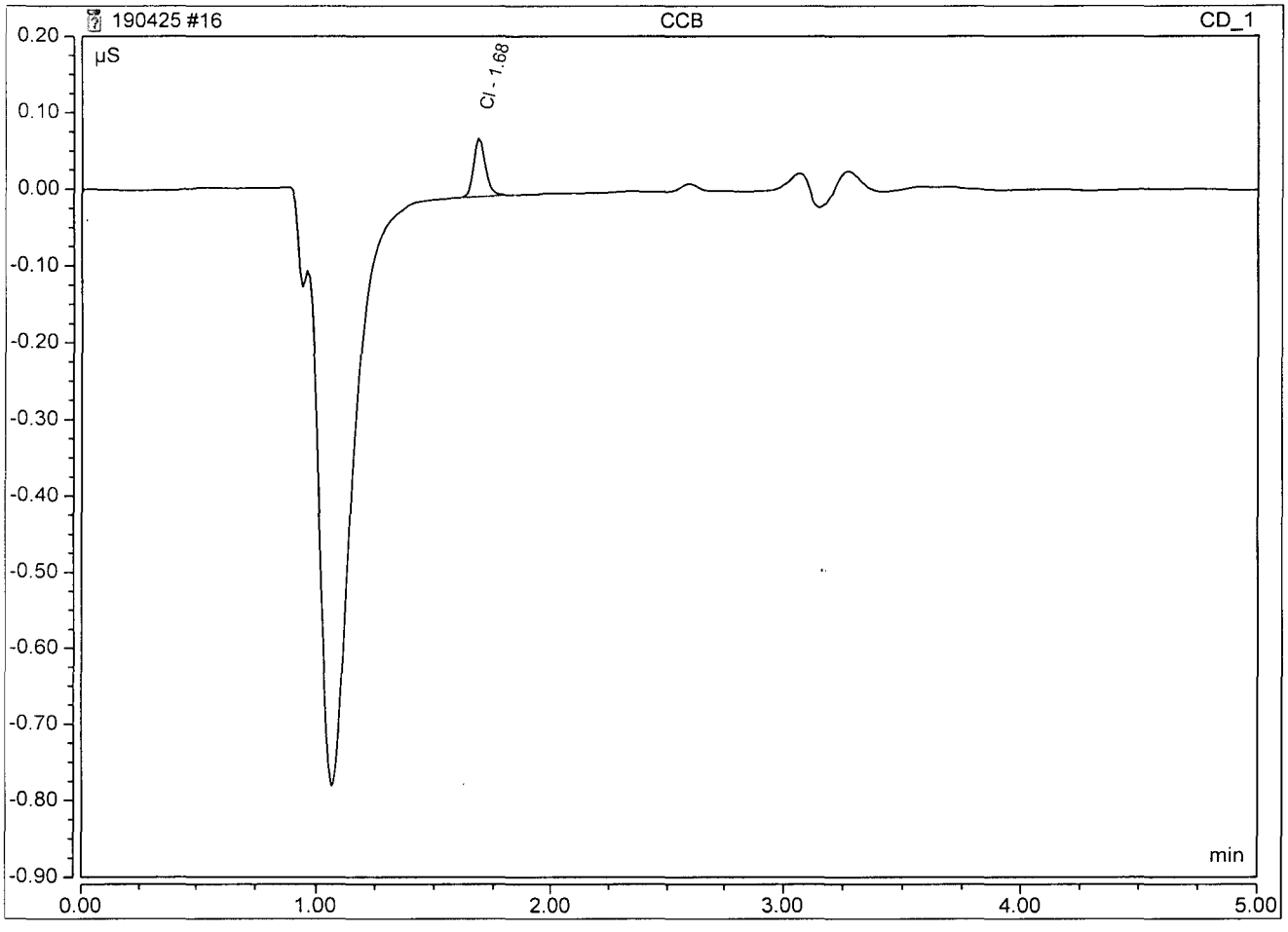
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.68	Cl	BMB	0.003	0.063	0.29		



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**25-Apr-2019 / 17:17**	*Run Time:*	**5.00**

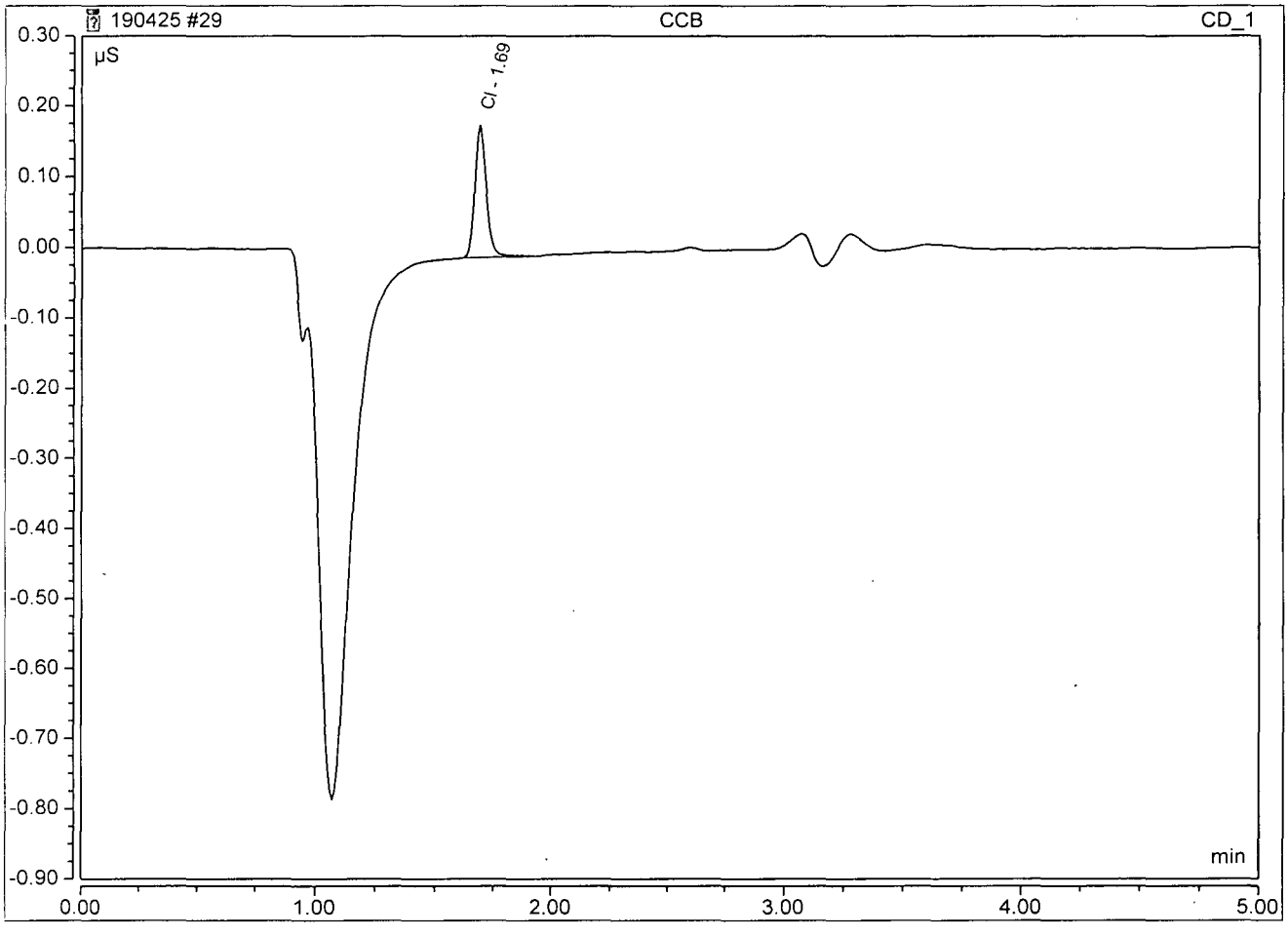
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.68	Cl	BMB	0.004	0.076	0.30		



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**25-Apr-2019 / 18:53**	*Run Time:*	**5.00**

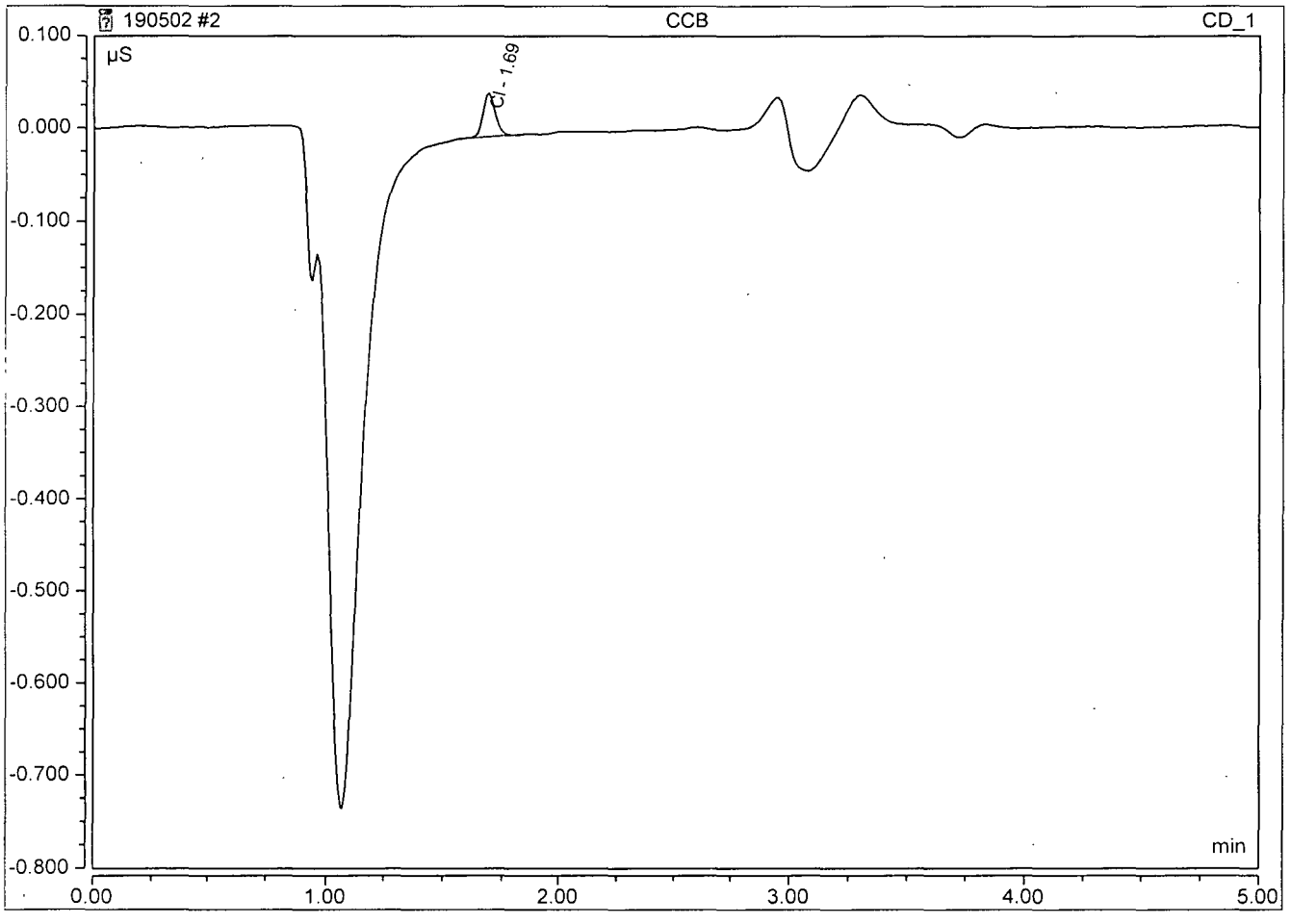
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.69	Cl	BMB	0.011	0.186	0.36		



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**02-May-2019 / 14:29**	*Run Time:*	**5.00**

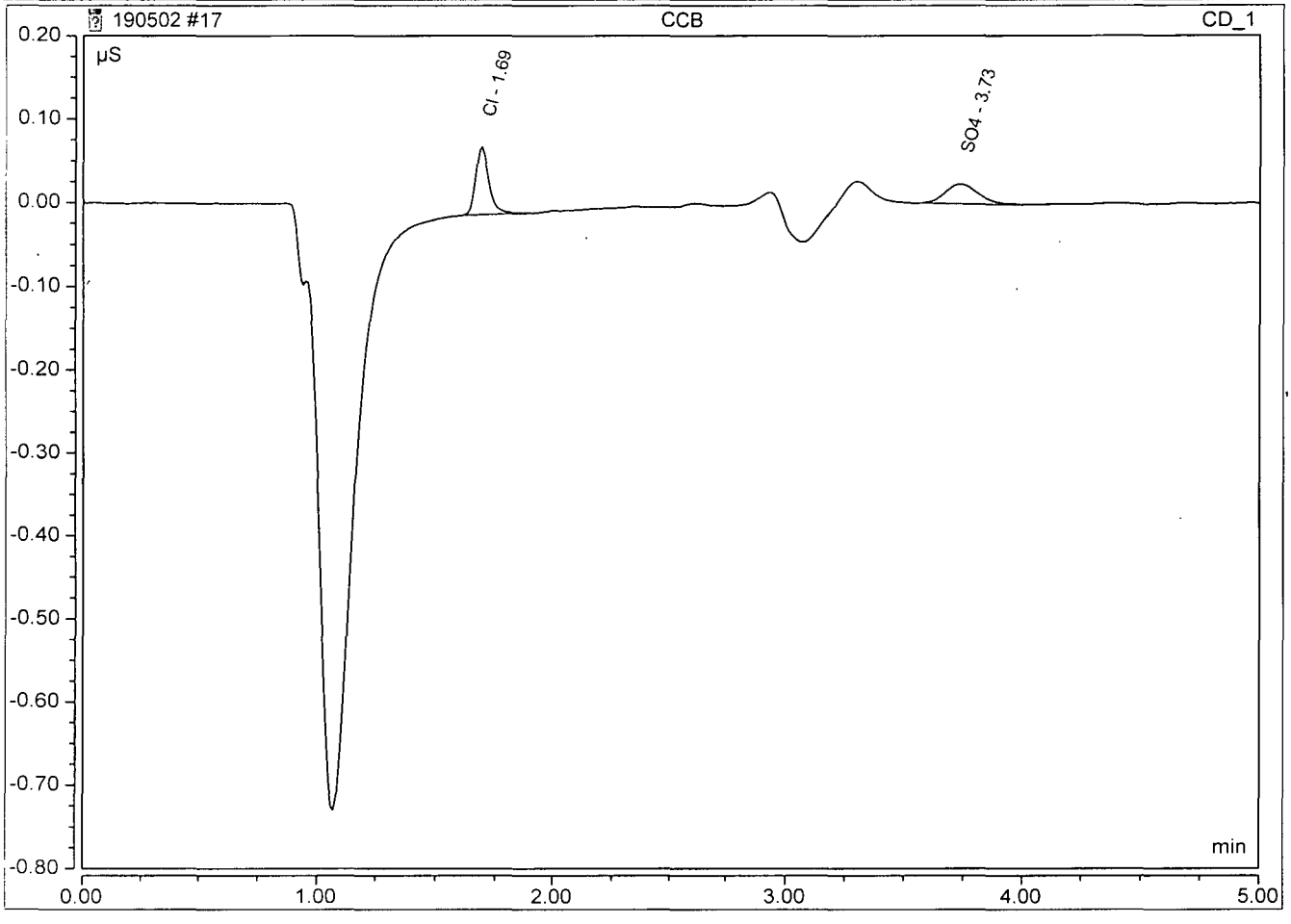
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.69	Cl	BMB	0.003	0.047	0.28		



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**02-May-2019 / 16:20**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.69	**Cl**	BMB	0.005	0.081	0.31		
2	3.73	**SO4**	BMB	0.004	0.024	0.22		



INORGANIC ANALYSIS
Raw Data

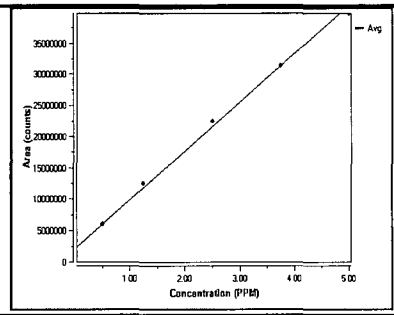
TOTAL ORGANIC CARBON

Method: WetChem | Units mg/L | Instrument: Tic Toc

Analyte: DOC | QCG: 190430

Analyst: AR | Final Volume: 40mL

Date	Time	Appl ID	[TOC]	Raw	% Recovery
02/23/19	12:37	QC blank	0.00	2073066.000	
02/23/19	13:11	Ical 1	0.50	6066781.000	
02/23/19	13:43	Ical 2	1.25	12451764.000	
02/23/19	14:15	Ical 3	2.50	22465756.000	
02/23/19	14:48	Ical 4	3.75	31457150.000	
02/23/19	15:21	Ical 5	5.00	39864495.000	
02/23/19	15:56	ICB	0.25	1917909.000	
02/23/19	16:30	ICV	2.97	23239734.000	118.9%



Date	Time	Appl ID	DF	Raw Result	SubSample Amount	Calc Conc	Result	QC True	% Recovery
2019-04-30	03:20 PM	CCV	1	22589102	40mL	2.539	2.54	2.50	101.6%
2019-04-30	03:55 PM	CCB	1	1670617	40mL	0	0.00		
2019-04-30	04:28 PM	190430A BLK	1	1619811	40mL	0	0.00		
2019-04-30	05:02 PM	190430A LCS	1	23185423	40mL	2.615	2.62	2.50	104.6%
2019-04-30	05:37 PM	190430A LCSD	1	22998094	40mL	2.591	2.59	2.50	103.6%
2019-04-30	06:12 PM	AZ90111W06	1	4998144	40mL	0.589	0.59		
2019-04-30	06:43 PM	AZ90111W06 DUP	1	4640485	40mL	0.243	0.24		
2019-04-30	07:18 PM	AZ90111W06 MS	1	25685892	40mL	2.934	2.93		
2019-04-30	07:53 PM	AZ90111W06 MSD	1	25548933	40mL	2.917	2.92		
2019-04-30	08:27 PM	AZ90112W06	1	1902024	40mL	0.194	0.19		
2019-04-30	08:58 PM	AZ90113W06	1	3623358	40mL	0.413	0.41		
2019-04-30	09:29 PM	AZ90114W06	1	4239897	40mL	0.492	0.49		
2019-04-30	10:00 PM	AZ90100W08	1	9202147	40mL	1.127	1.13		
2019-04-30	10:32 PM	AZ90102W05	1	29947409	40mL	3.78	3.78		
2019-04-30	11:05 PM	AZ90105W06	1	12638545	40mL	1.566	1.57		
2019-04-30	11:37 PM	AZ90107W09	1	2222436	40mL	0.234	0.23		
2019-05-01	12:08 AM	CCV	1	21760684	40mL	2.433	2.43	2.50	97.3%
2019-05-01	12:43 AM	CCB	1	841138	40mL	0	0.00		

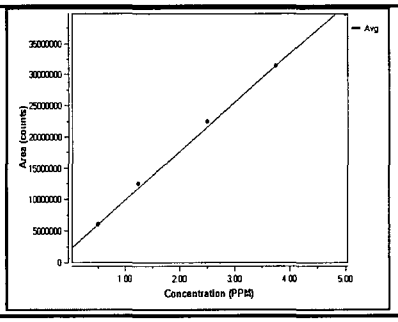
TOTAL ORGANIC CARBON

Method: WetChem | Units mg/L | Instrument: Tic Toc

Analyte: TOC | QCG: 190502A

Analyist: AR | Final Volume: 40mL

Date	Time	Appl ID	[TOC]	Raw	% Recovery
02/23/19	12:37	QC blank	0.00	2073066.000	
02/23/19	13:11	Ical 1	0.50	6066781.000	
02/23/19	13:43	Ical 2	1.25	12451764.000	
02/23/19	14:15	Ical 3	2.50	22465756.000	
02/23/19	14:48	Ical 4	3.75	31457150.000	
02/23/19	15:21	Ical 5	5.00	39864495.000	
02/23/19	15:56	ICB	0.25	1917909.000	
02/23/19	16:30	ICV	2.97	23239734.000	118.9%
r^2=	0.9984				



Date	Time	Appl ID	DF	Raw Result	SubSample Amount	Calc Conc	Result	QC True	% Recovery
2019-05-02	04:32 PM	CCV	1	21675369	40mL	2.422	2.42	2.50	96.9%
2019-05-02	05:07 PM	CCB	1	727823	40mL	0	0.00		
2019-05-02	05:40 PM	190502A BLK	1	927374	40mL	0	0.00		
2019-05-02	06:14 PM	190502A LCS	1	21760887	40mL	2.433	2.43	2.50	97.3%
2019-05-02	06:49 PM	190502A LCSD	1	21292907	40mL	2.373	2.37	2.50	94.9%
2019-05-02	07:24 PM	AZ89958W12	1	2719364	40mL	0.298	0.30		
2019-05-02	07:55 PM	AZ89958W09 DUP	1	2096550	40mL	0	0.00		
2019-05-02	08:29 PM	AZ89958W14 MS	1	22354778	40mL	2.508	2.51		
2019-05-02	09:04 PM	AZ89958W11 MSD	1	22821834	40mL	2.568	2.57		
2019-05-02	09:39 PM	AZ90051W13	1	2446110	40mL	0.263	0.26		
2019-05-02	10:10 PM	AZ90051W13 DUP	1	3624059	40mL	0.113	0.11		
2019-05-02	10:45 PM	AZ90051W16 MS	1	23433442	40mL	2.646	2.65		
2019-05-02	11:20 PM	AZ90051W16 MSD	1	23412687	40mL	2.644	2.64		
2019-05-02	11:55 PM	AZ90054W09	1	4072622	40mL	0.471	0.47		
2019-05-03	12:27 AM	AZ90058W05	1	4372254	40mL	0.509	0.51		
2019-05-03	12:58 AM	AZ90060W12	1	7550103	40mL	0.915	0.92		
2019-05-03	01:30 AM	AZ90100W09	1	8006133	40mL	0.974	0.97		
2019-05-03	02:02 AM	AZ90105W08	1	12129049	40mL	1.501	1.50		
2019-05-03	02:33 AM	AZ90109W09	1	2449956	40mL	0.263	0.26		
2019-05-03	03:05 AM	AZ90213W12	1	16936404	40mL	2.115	2.12		
2019-05-03	03:38 AM	CCV	1	21447087	40mL	2.392	2.39	2.50	95.7%
2019-05-03	04:13 AM	CCB	1	882391	40mL	0	0.00		
2019-05-03	04:46 AM	190502B BLK	1	797351	40mL	0	0.00		
2019-05-03	05:20 AM	190502B LCS	1	21956853	40mL	2.458	2.46	2.50	98.3%
2019-05-03	05:55 AM	190502B LCSD	1	21901664	40mL	2.45	2.45	2.50	98.0%
2019-05-03	06:30 AM	AZ89958W43	1	2048429	40mL	0.212	0.21		
2019-05-03	07:01 AM	AZ89958W17 DUP	1	5821945	40mL	0.394	0.39		
2019-05-03	07:36 AM	AZ89958W10 MS	1	21950218	40mL	2.457	2.46		
2019-05-03	08:12 AM	AZ89958W18 MSD	1	22462368	40mL	2.523	2.52		
2019-05-03	08:47 AM	AZ90051W09	1	2995627	40mL	0.333	0.33		
2019-05-03	09:18 AM	AZ90051W09 DUP	1	3326206	40mL	0.075	0.08		
2019-05-03	09:53 AM	AZ90051W10 MS	1	23819230	40mL	2.696	2.70		
2019-05-03	10:29 AM	AZ90051W10 MSD	1	23878289	40mL	2.704	2.70		
2019-05-03	11:04 AM	AZ90056W08	1	4065043	40mL	0.47	0.47		
2019-05-03	11:36 AM	AZ90102W10	1	27567265	40mL	3.475	3.48		
2019-05-03	12:08 PM	AZ90107W10	1	3202077	40mL	0.359	0.36		
2019-05-03	12:39 PM	AZ90215W06	1	4079275	40mL	0.472	0.47		
2019-05-03	01:11 PM	CCV	1	21730719	40mL	2.428	2.43	2.50	97.1%
2019-05-03	01:46 PM	CCB	1	969840	40mL	0	0.00		

Metrohm 814/809 Titrando Data

Sample ID	Analysis Date/Time	Method	Titration Volume (to 8.3)	Titration Volume (total)	OH	CO3	HCO3	Total Alk	Unit	Sample Vol	N	Batch	Initials
AZ90109W13	2019-04-30 11:40:29 UTC-7	Alkalinity	0.000	1.584	0.00	0.00	64.94	64.94	mg/L	25 mL	0.0205	190430A	AR
AZ90107W13	2019-04-30 11:34:55 UTC-7	Alkalinity	0.000	1.530	0.00	0.00	62.73	62.73	mg/L	25 mL	0.0205	190430A	AR
AZ90105W13	2019-04-30 11:22:08 UTC-7	Alkalinity	0.000	6.512	0.00	0.00	266.99	266.99	mg/L	25 mL	0.0205	190430A	AR
AZ90102W13	2019-04-30 11:11:45 UTC-7	Alkalinity	0.000	4.790	0.00	0.00	196.39	196.39	mg/L	25 mL	0.0205	190430A	AR
AZ90100W13	2019-04-30 11:05:25 UTC-7	Alkalinity	0.000	1.978	0.00	0.00	81.10	81.10	mg/L	25 mL	0.0205	190430A	AR
190430A LCSD	2019-04-30 10:21:29 UTC-7	Alkalinity	0.000	5.828	0.00	0.00	238.95	238.95	mg/L	25 mL	0.0205	190430A	AR
190430A LCS	2019-04-30 10:11:46 UTC-7	Alkalinity	0.000	5.794	0.00	0.00	237.55	237.55	mg/L	25 mL	0.0205	190430A	AR
190430A BLK	2019-04-30 10:08:41 UTC-7	Alkalinity	0.000	0.096	0.00	0.00	3.94	3.94	mg/L	25 mL	0.0205	190430A	AR

Ferrous Iron — Rev 2, 04-05-19

Method SM3500Fe | Units mg/L | Instrument: Genisis Spectrometer
Analyte Fe2+ | QCG: 190426 | Wavelength: 510 nm
Analyist FJR | Final Volume: 50mL | Units: mg/L

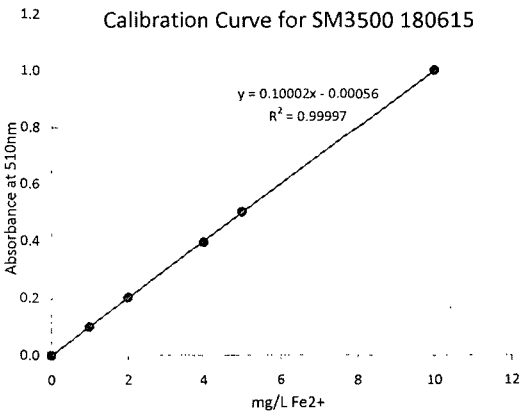
Date	Time	Appl ID	[Fe2+]	Absorbance	% Recovery
06/15/18	12:27	ICB	0.00	0.000	
06/15/18	12:27	Ical 1	1.00	0.099	99.5%
06/15/18	12:28	Ical 2	2.00	0.201	100.8%
06/15/18	12:28	Ical 3	4.00	0.396	99.1%
06/15/18	12:29	Ical 4	5.00	0.501	100.3%
06/15/18	12:30	Ical 5	10.00	1.000	100.0%
06/15/18	12:31	ICV	3.00	0.316	105.5%
06/15/18	12:32	ICB	0.00	0.000	

Slope	0.100015306
Intercept	-0.000556122
Coefficient of Determination	0.999973247

Algortithm Check:	Appl ID	Absorbance	Result
	190426A LCS	0.310	3.11

Result = (Absorbance-Raw Blk-Intercept)/ Slope

Test:	FJR	04/26/19	3.11



Date	Time	Appl ID	DF	Raw Result	SubSample Amount	Raw BLK	Calc Conc	Result	QC True	% Recovery
04/26/19	15:09	CCV 4.0 190426	1	0.382	25mL		3.82	3.82	4.00	95.6%
04/26/19	15:10	CCB 190426	1	0.000	25mL		0.01	0.01		
04/26/19	15:11	190426A LCS	1	0.310	25mL		3.11	3.11	3.00	103.5%
04/26/19	15:12	190426A LCSD	1	0.288	25mL		2.89	2.89	3.00	96.2%
04/26/19	15:13	AZ90061W01	1	0.045	25mL		0.46	0.46		
04/26/19	15:14	AZ90100W15	1	0.042	25mL		0.43	0.43		
04/26/19	15:15	AZ90102W15	1	0.227	25mL		2.28	2.28		
04/26/19	15:16	AZ90105W15	1	0.008	25mL		0.09	0.09		
04/26/19	15:17	AZ90107W15	1	0.005	25mL		0.06	0.06		
04/26/19	15:18	AZ90109W15	1	0.006	25mL		0.07	0.07		
04/26/19	15:19	AZ90109W15 MS	1	0.314	25mL		3.15	3.15		
04/26/19	15:20	AZ90109W15 MSD	1	0.321	25mL		3.22	3.22		
04/26/19	15:21	CCV 4.0 190426	1	0.390	25mL		3.90	3.90	4.00	97.6%
04/26/19	15:22	CCB 190426	1	0.000	25mL		0.01	0.01		

AQ2 Report

Serial Number:	190170
Software Version:	2.1.0
Report Requested By:	Eve V
Date & Time:	2019-05-02 09:25:07
Tray Number:	3
Tray Name:	190501A TOXN CCV

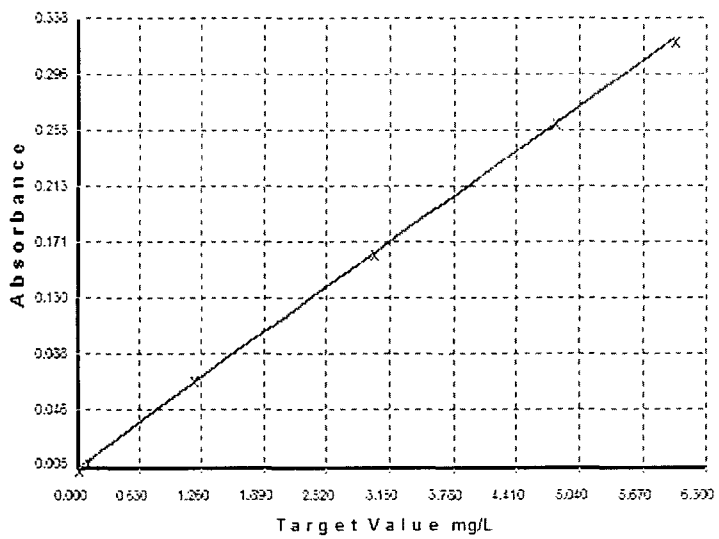
TOXN

Calibration Chart

Type	Absorbance	Calc mg/L	Target mg/L	% Error
S1	0.0045	-0.0187	0.0000	
S90	0.0100	0.0854	0.1000	-14.60
S91	0.0708	1.2299	1.2000	2.49
S92	0.1649	3.0029	3.0000	0.10
S93	0.2623	4.8388	4.8000	0.81
S94	0.3219	5.9618	6.0000	-0.64
S0	0.0054	-0.0029	0.0000	

Polynomial Order:	1
Correlation Coefficient:	0.9999
Carryover(%):	0.3
Calibration equation:	y = bx + a
y =:	Concentration mg/L
x =:	Measured absorbance
a =:	-1.038605E-001
b =:	1.884315E+001
Date & Time:	2019-05-01 16:47:29

Calibration Graph



Reagents

Name	Batch	Prepared By	Expiry Date
NO3 W Buffer	Algorithm check	Joel	
Sulfa-NEDD	Y = 18.84315 X 0.162897 - 0.1038605	Joel	
	Y = 2.97	EV 5/20/19	

Cup	Type	ID	Result	Units	QC Pro	Raw Data	Auto Dil.	Man Dil.	User	Time/Date
	S1	Standard 1	0.0045			0.004518			Ev	2019-05-01 16:37:54
	S90	Standard 90	0.0100			0.010044			Ev	2019-05-01 16:40:05
	S91	Standard 91	0.0708			0.070781			Ev	2019-05-01 16:42:17
	S92	Standard 92	0.1649			0.164873			Ev	2019-05-01 16:44:30
	S93	Standard 93	0.2623			0.262303			Ev	2019-05-01 16:45:36
	S94	Standard 94	0.3219			0.321904			Ev	2019-05-01 16:46:33
	S0	Standard 0	0.0054			0.005359			Ev	2019-05-01 16:47:29
	CCV	CCV	2.9088	mg/L		0.159881			Ev	2019-05-01 16:48:25
	CCB	CCB	-0.0233	mg/L		0.004274			Ev	2019-05-01 16:49:21
3	U1	✓ ICV TOXN	2.9656	mg/L		0.162897			Ev	2019-05-01 16:50:17
4	U2	ICB TOXN	-0.0075	mg/L		0.005115			Ev	2019-05-01 16:51:13
	CCV	CCV	2.8375	mg/L		0.156098			Ev	2019-05-01 16:52:09
	CCB	CCB	-0.0134	mg/L		0.004803			Ev	2019-05-01 16:53:05

AQ2 Report

Serial Number:	190170
Software Version:	2.1.0
Report Requested By:	Eve V
Date & Time:	2019-05-02 09:21:44
Tray Number:	5
Tray Name:	190501B TOXN

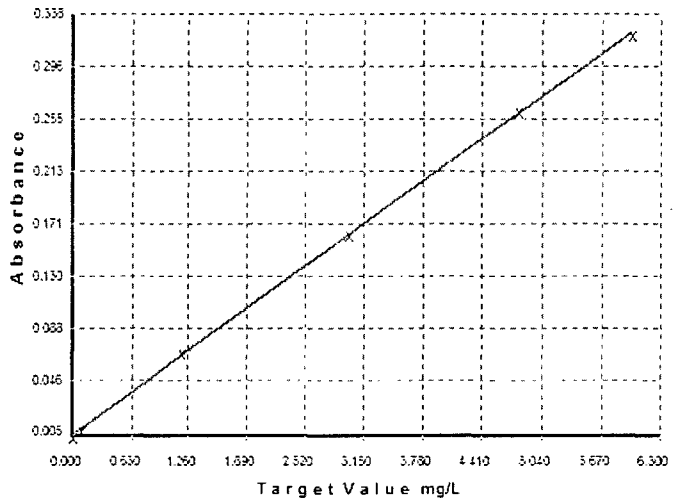
TOXN

Calibration Chart

Type	Absorbance	Calc mg/L	Target mg/L	% Error
S1	0.0045	-0.0187	0.0000	
S90	0.0100	0.0854	0.1000	-14.60
S91	0.0708	1 2299	1.2000	2.49
S92	0.1649	3.0029	3.0000	0.10
S93	0.2623	4.8388	4.8000	0.81
S94	0.3219	5.9618	6.0000	-0.64
S0	0.0054	-0.0029	0.0000	

Polynomial Order:	1
Correlation Coefficient:	0.9999
Carryover(%):	0.3
Calibration equation:	y = bx + a
y =:	Concentration mg/L
x =:	Measured absorbance
a =:	-1.038605E-001
b =:	1.884315E+001
Date & Time:	2019-05-01 16:47:29

Calibration Graph



Reagents

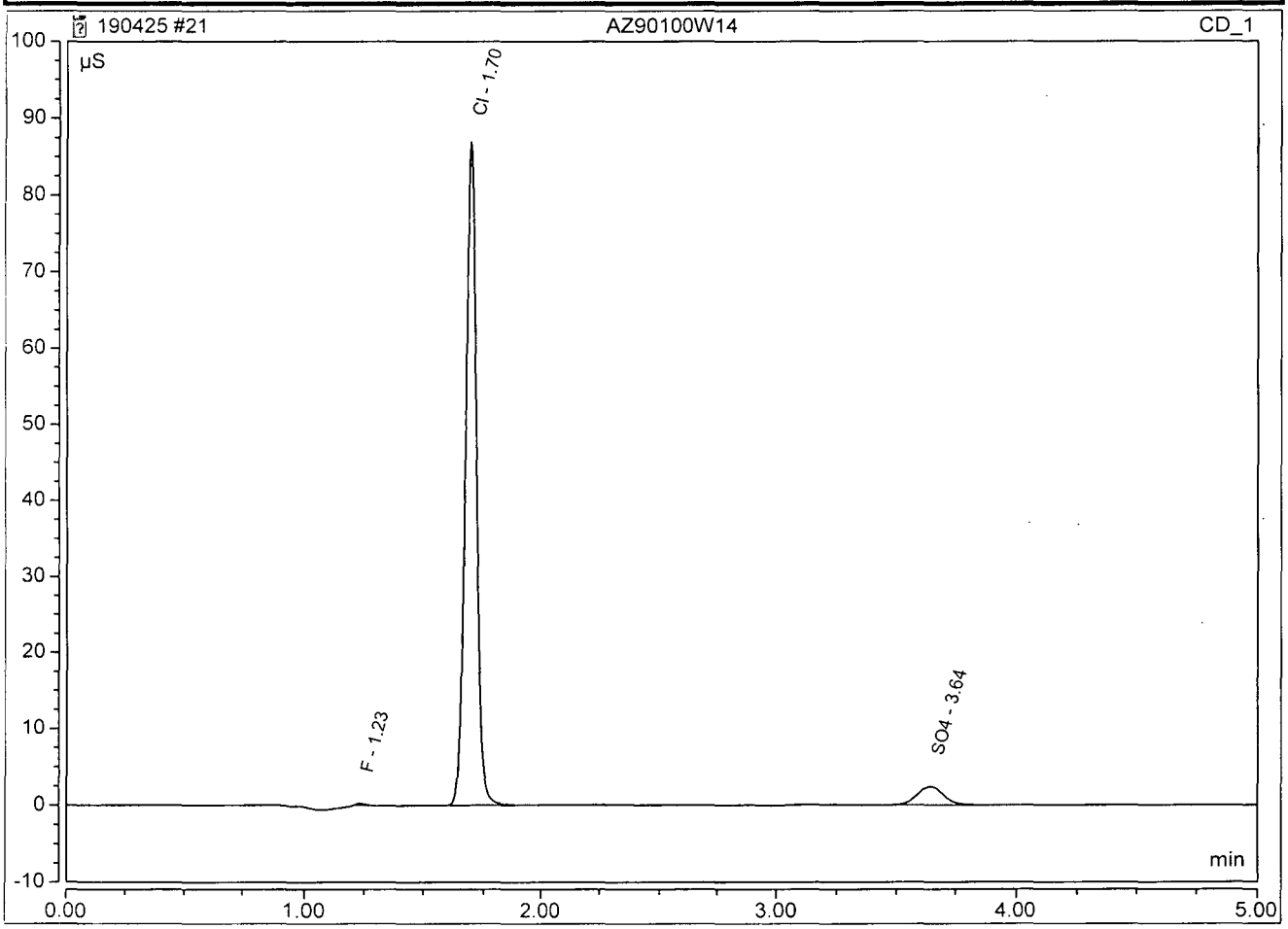
Name	Batch	Prepared By	Expiry Date
NO3 W Buffer		Joel	
Sulfa-NEDD		Joel	

Cup	Type	ID	Result	Units	QC Pro	Raw Data	Auto Dil.	Man Dil.	User	Time/Date
	CCV	CCV	3.0092	mg/L		0.165207			Ev	2019-05-01 18:12:39
	CCB	CCB	-0.0024	mg/L		0.005387			Ev	2019-05-01 18:14:51
3	U1	190501A BLK	-0.0044	mg/L		0.005278			Ev	2019-05-01 18:17:03
4	U2	190501A LCS	3.1419	mg/L		0.172251			Ev	2019-05-01 18:19:14
5	U3	190501A LCSD	3.1186	mg/L		0.171016			Ev	2019-05-01 18:21:28
6	U4	AZ90051W18	0.6235	mg/L		0.038603			Ev	2019-05-01 18:23:40
7	U5	AZ90051W18 MS	3.0373	mg/L		0.166701			Ev	2019-05-01 18:25:52
8	U6	AZ90051W18 MSD	3.1909	mg/L		0.174852			Ev	2019-05-01 18:28:04
9	U7	AZ90054W14	0.8207	mg/L		0.049066			Ev	2019-05-01 18:30:16
10	U8	AZ90056W14	0.5902	mg/L		0.036832			Ev	2019-05-01 18:32:28
11	U9	AZ90058W14	1.1029	mg/L		0.064043			Ev	2019-05-01 18:34:41
12	U10	AZ90060W14	1.2224	mg/L		0.070386			Ev	2019-05-01 18:36:53
	CCV	CCV	3.0459	mg/L		0.167154			Ev	2019-05-01 18:39:06
	CCB	CCB	-0.0121	mg/L		0.004871			Ev	2019-05-01 18:41:18
13	U11	AZ90100W14	0.0017	mg/L		0.005604			Ev	2019-05-01 18:43:31
14	U12	AZ90102W14	0.0015	mg/L		0.005590			Ev	2019-05-01 18:44:38
15	U13	AZ90105W14	1.7150	mg/L		0.096528			Ev	2019-05-01 18:45:34
16	U14	AZ90107W14	0.4616	mg/L		0.030007			Ev	2019-05-01 18:46:30
17	U15	AZ90109W14	0.4143	mg/L		0.027499			Ev	2019-05-01 18:47:26
18	U16	AZ90213W22	1.7632	mg/L		0.099082			Ev	2019-05-01 18:48:22
19	U17	AZ90215W22	0.2121	mg/L		0.016769			Ev	2019-05-01 18:49:18
20	U18	AZ90450W14	-0.0279	mg/L		0.004030			Ev	2019-05-01 18:50:14
	CCV	CCV	2.8702	mg/L		0.157831			Ev	2019-05-01 18:51:10
	CCB	CCB	-0.0154	mg/L		0.004694			Ev	2019-05-01 18:52:07

Peak Integration Report

Sample Name:	**AZ90100W14**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**25-Apr-2019 / 17:54**	*Run Time:*	**5.00**

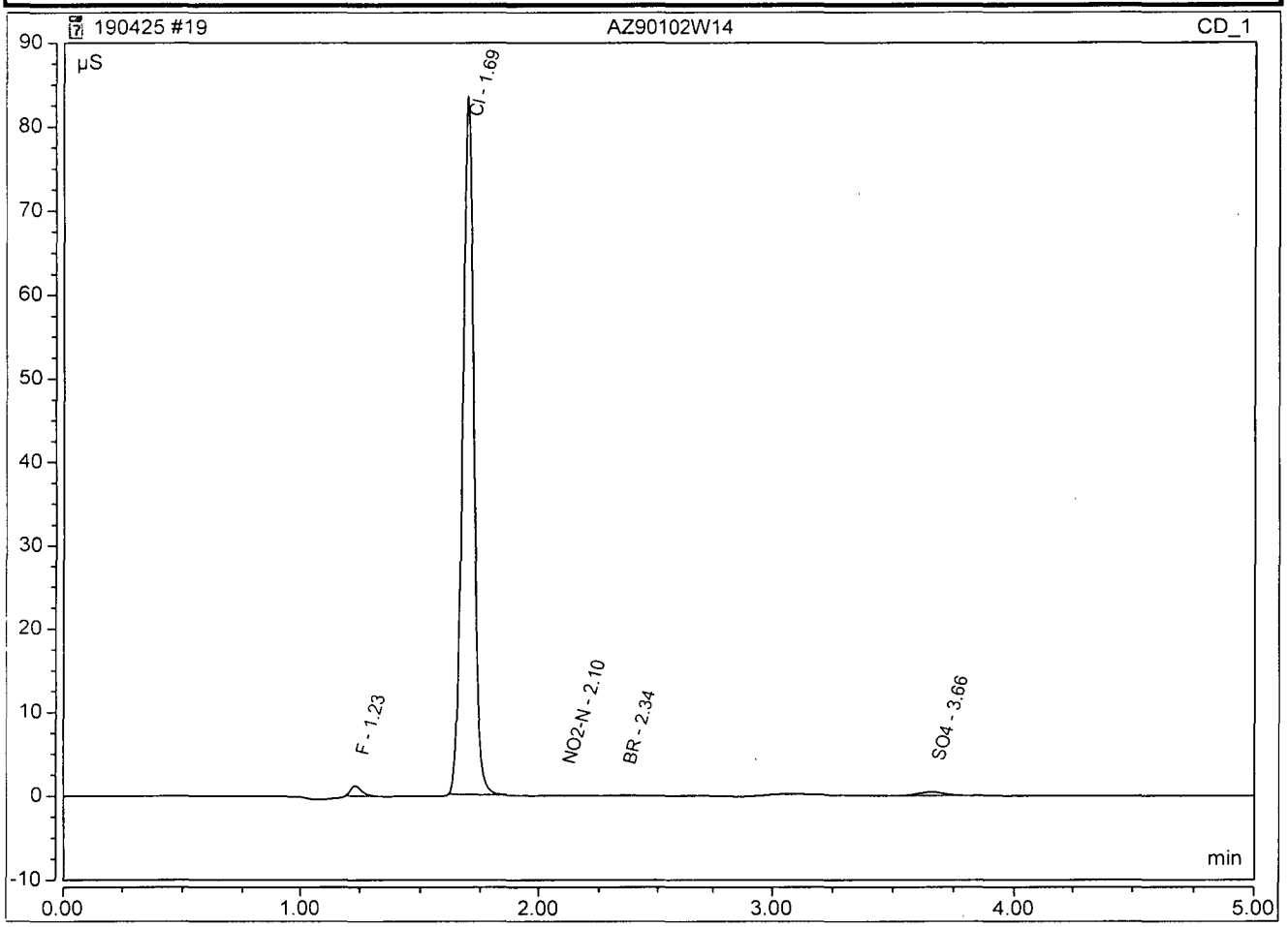
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.011	0.259	0.23		
2	1.70	Cl	BMB	4.635	86.904	43.44		
3	3.64	SO4	BMB	0.320	2.442	4.83		



Peak Integration Report

Sample Name:	**AZ90102W14**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**25-Apr-2019 / 17:39**	*Run Time:*	**5.00**

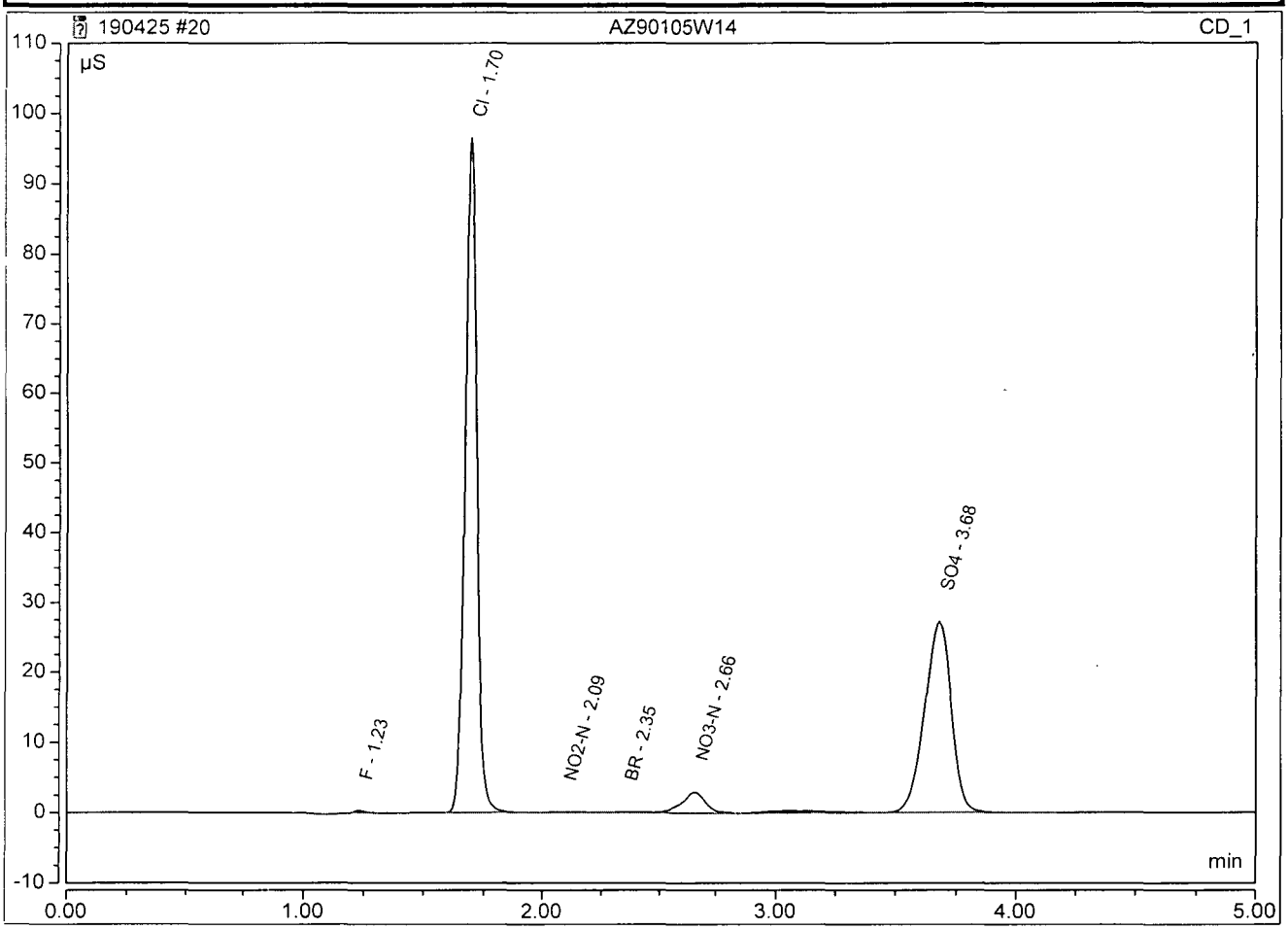
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.065	1.241	0.69		
2	1.69	Cl	BMB	4.565	83.474	42.80		
3	2.10	NO2-N	BMB	0.004	0.028	0.03		
4	2.34	BR	BMB	0.004	0.052	0.17		
5	3.66	SO4	BMB	0.056	0.439	0.98		



Peak Integration Report

Sample Name:	**AZ90105W14**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**25-Apr-2019 / 17:47**	*Run Time:*	**5.00**

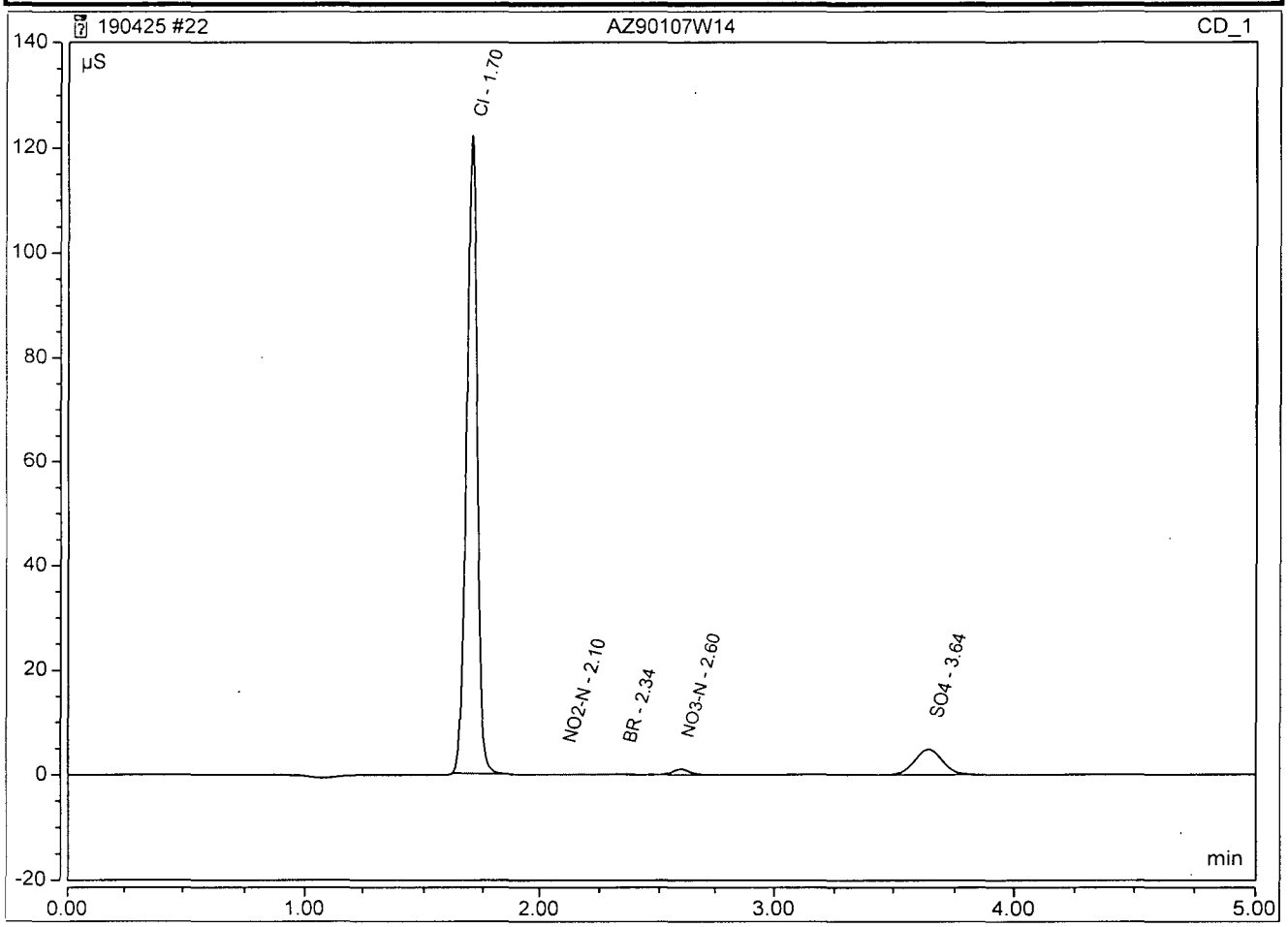
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.014	0.299	0.26		
2	1.70	Cl	BMB	5.431	96.434	50.86		
3	2.09	NO2-N	BMB	0.005	0.034	0.04		
4	2.35	BR	BMB	0.006	0.062	0.22		
5	2.66	NO3-N	BMB	0.357	2.988	1.64		
7	3.68	SO4	BMB	3.463	27.134	50.61		



Peak Integration Report

Sample Name:	**AZ90107W14**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**25-Apr-2019 / 18:01**	*Run Time:*	**5.00**

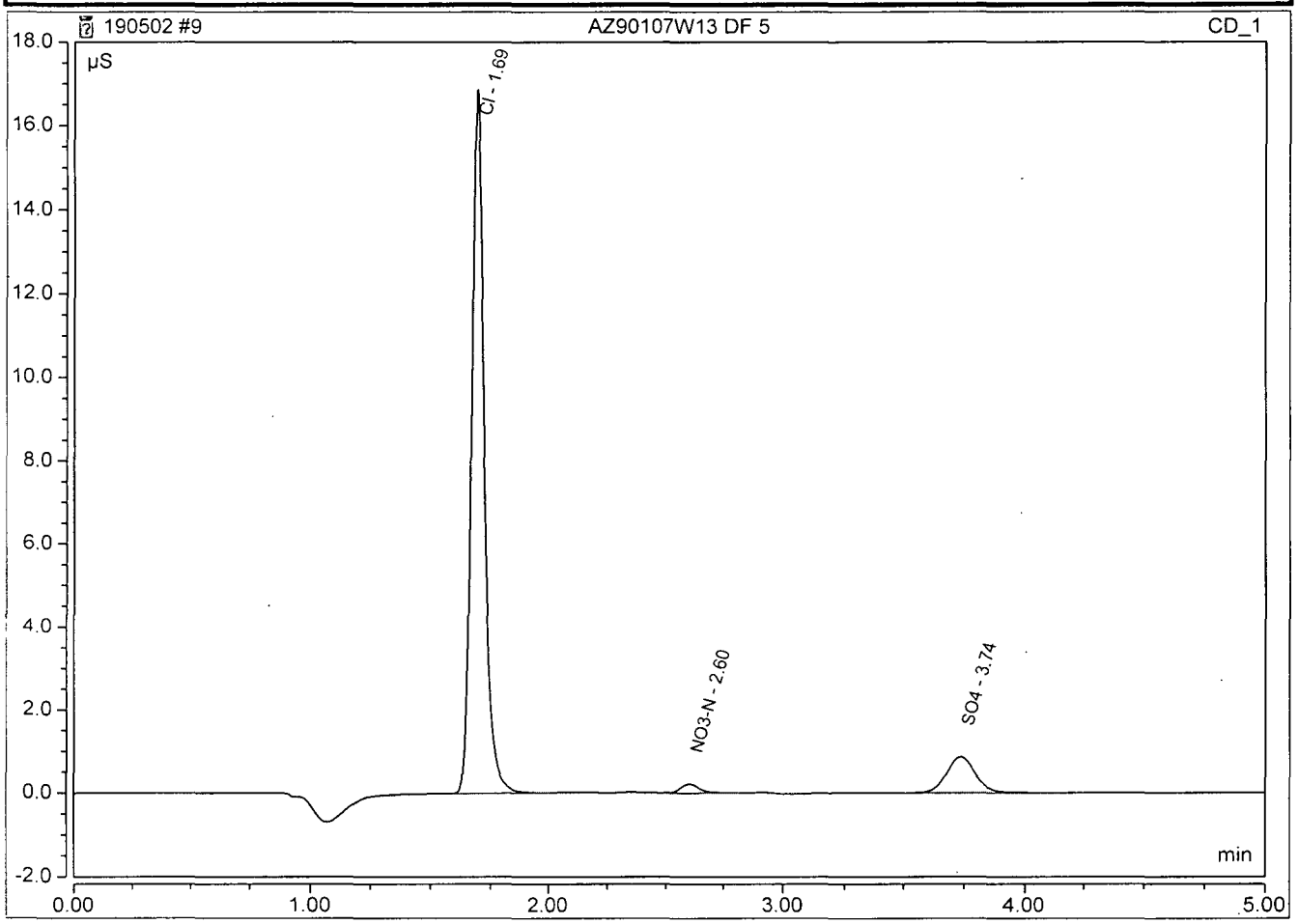
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.70	**Cl**	BMB	6.510	122.058	60.92		
2	2.10	**NO2-N**	BMB	0.006	0.038	0.04		
3	2.34	**BR**	BMB	0.006	0.085	0.22		
4	2.60	**NO3-N**	BMB	0.096	1.090	0.47		
5	3.64	**SO4**	BMB	0.630	4.812	9.35		



Peak Integration Report

Sample Name:	**AZ90107W13 DF 5**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**5.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**02-May-2019 / 15:20**	*Run Time:*	**5.00**

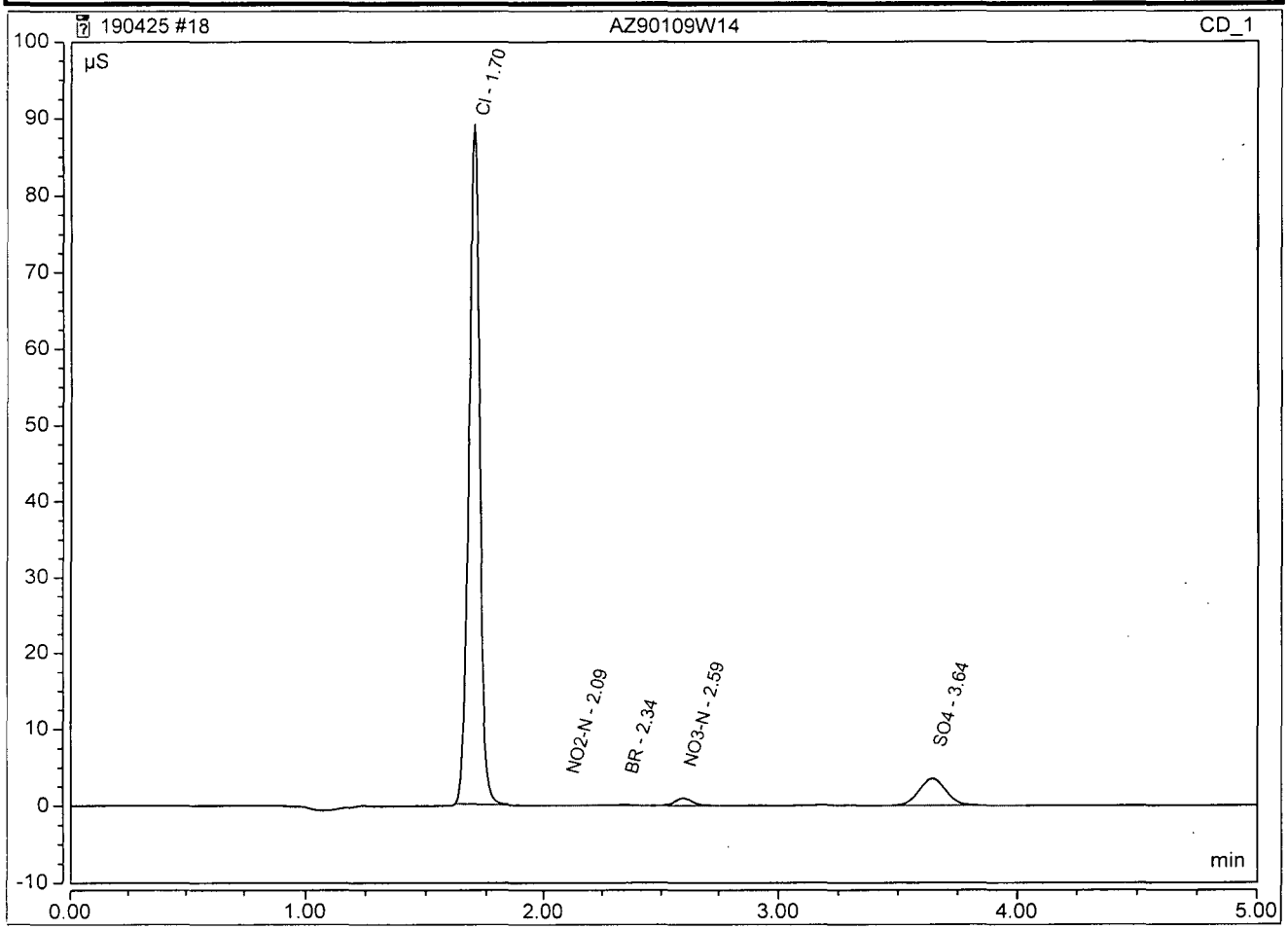
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.69	Cl	BMB	1.031	16.859	49.32		
2	2.60	NO3-N	BMB	0.020	0.214	0.60		
3	3.74	SO4	BMB	0.124	0.860	9.88		



Peak Integration Report

Sample Name:	**AZ90109W14**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**25-Apr-2019 / 17:32**	*Run Time:*	**5.00**

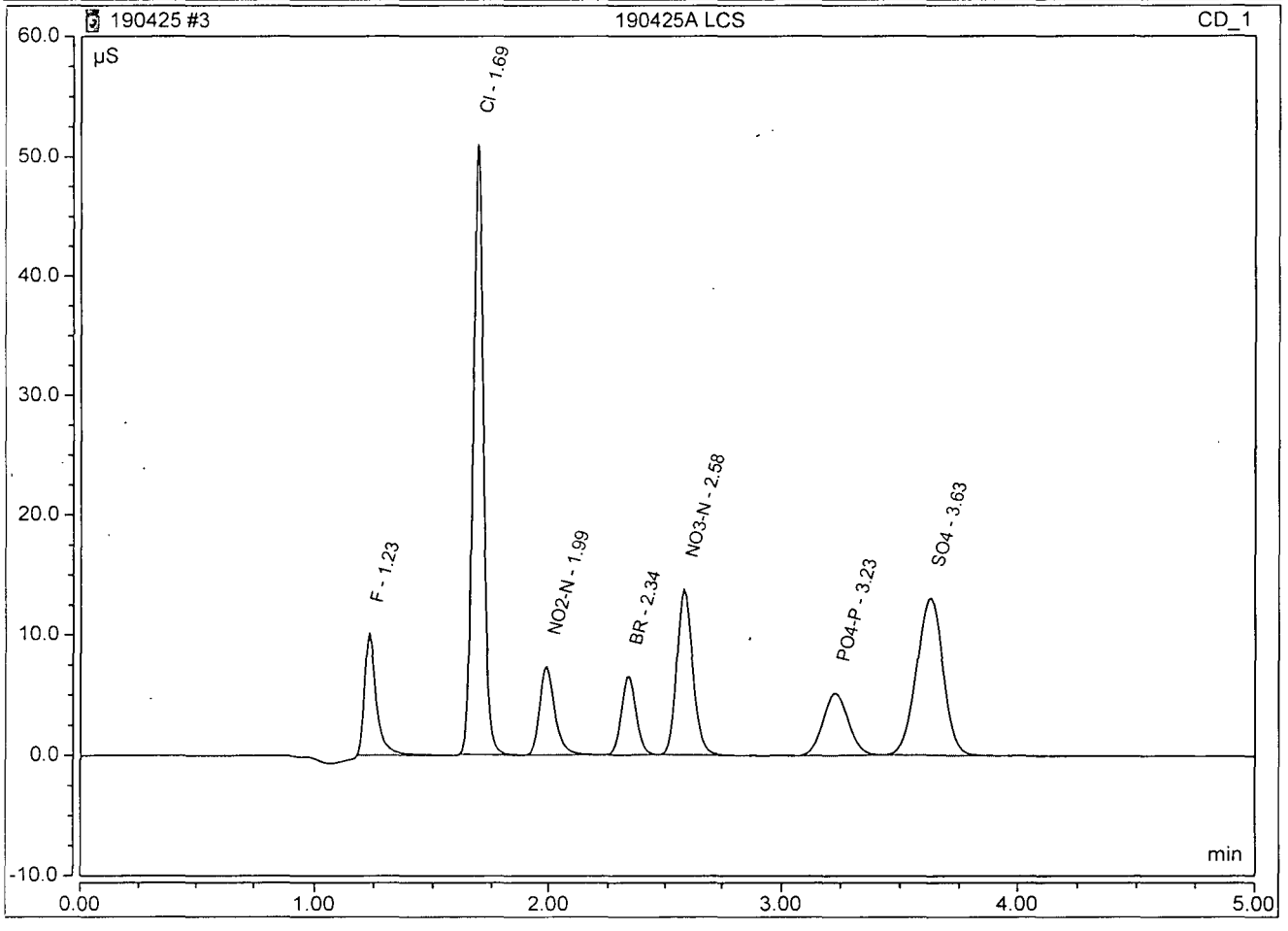
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.70	**Cl**	BMB	4.690	88.980	43.96		
2	2.09	**NO2-N**	BMB	0.004	0.029	0.03		
3	2.34	**BR**	BMB	0.005	0.068	0.19		
4	2.59	**NO3-N**	BMB	0.089	1.000	0.43		
5	3.64	**SO4**	BMB	0.463	3.530	6.90		



Peak Integration Report

Sample Name:	**190425A LCS**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**25-Apr-2019 / 15:41**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.596	10.105	5.10	5.0000	102.0%
2	1.69	Cl	BMB	2.663	50.953	25.07	25.0000	100.3%
3	1.99	NO2-N	BMB	0.561	7.320	3.14	3.0400	103.4%
4	2.34	BR	BMB	0.478	6.534	13.44	12.5000	107.5%
5	2.58	NO3-N	BMB	1.136	13.778	5.15	5.0000	103.0%
6	3.23	PO4-P	BMB	0.645	5.175	9.09	10.0000	90.9%
7	3.63	SO4	BMB	1.696	13.063	24.87	25.0000	99.5%



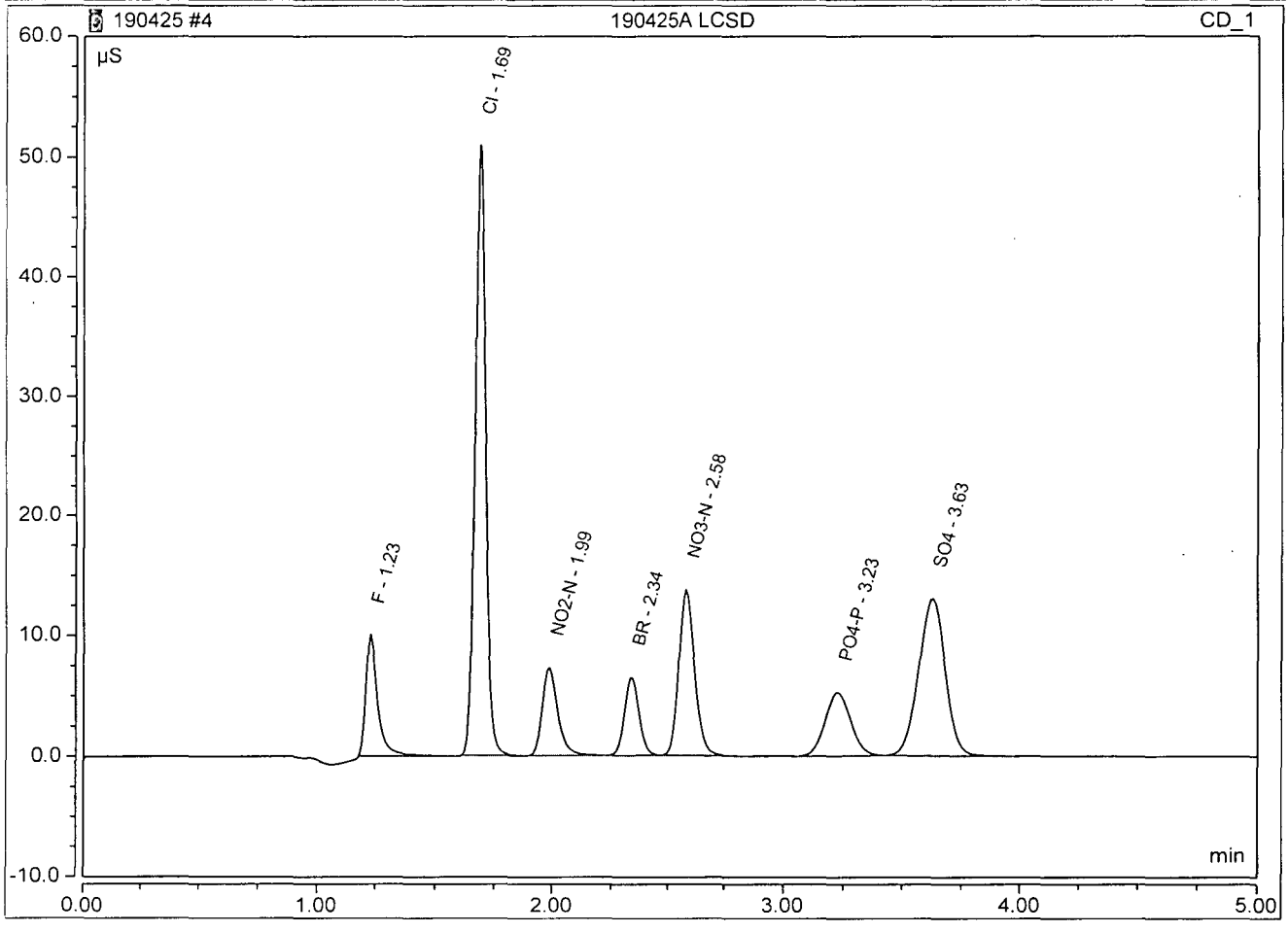
Algortith Check:
y = Peak Area
x = mg/L S04

y = 0.0687 x + -0.0115
y = 1.6963 therefor x = 24.85 190502 TH

Peak Integration Report

Sample Name:	**190425A LCSD**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**25-Apr-2019 / 15:48**	*Run Time:*	**5.00**

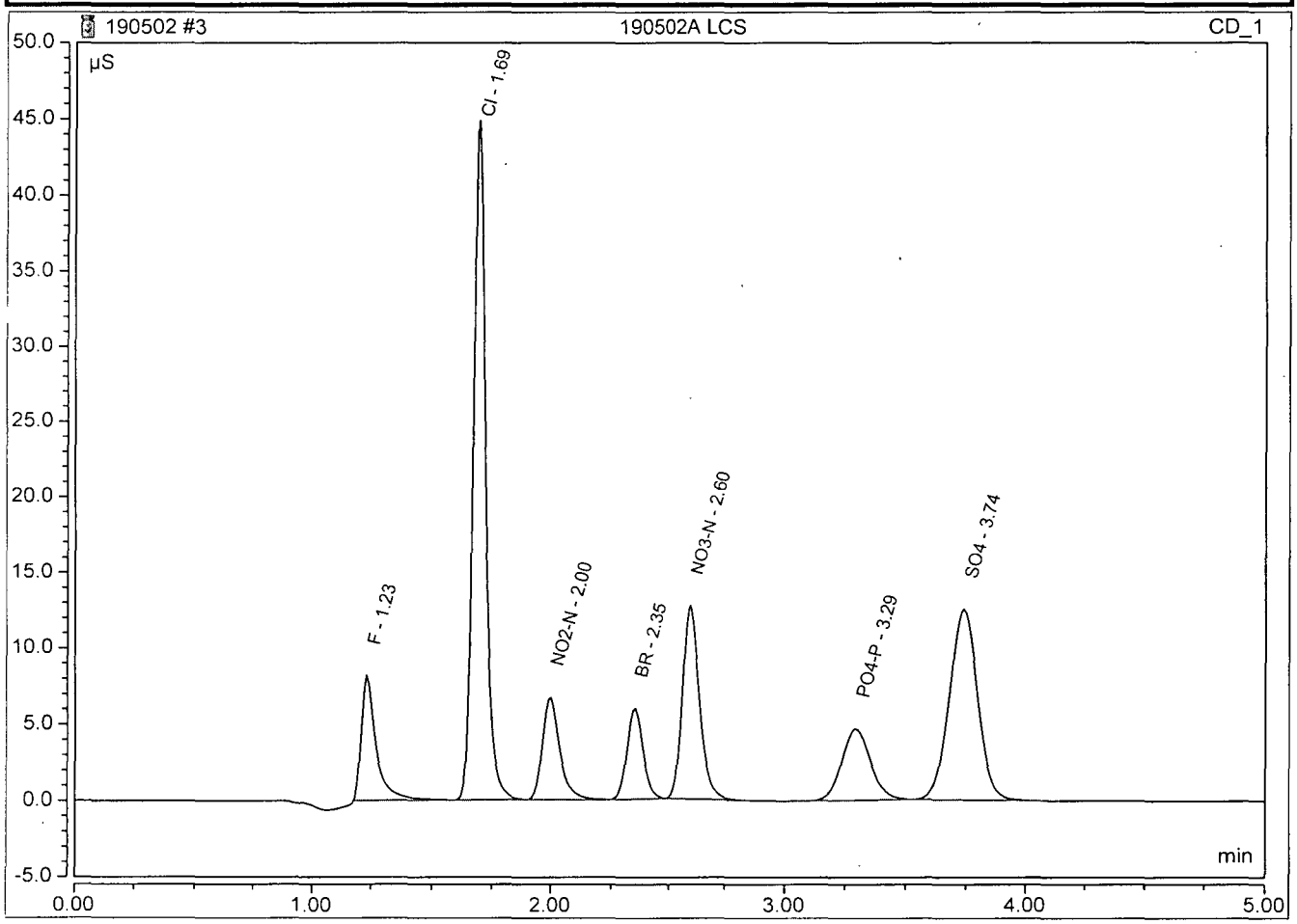
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.592	10.043	5.06	5.0000	101.2%
2	1.69	Cl	BMB	2.659	50.870	25.03	25.0000	100.1%
3	1.99	NO2-N	BMB	0.560	7.306	3.14	3.0400	103.3%
4	2.34	BR	BMB	0.477	6.519	13.41	12.5000	107.3%
5	2.58	NO3-N	BMB	1.134	13.761	5.15	5.0000	102.9%
6	3.23	PO4-P	BMB	0.657	5.272	9.25	10.0000	92.5%
7	3.63	SO4	BMB	1.695	13.043	24.85	25.0000	99.4%



Peak Integration Report

Sample Name:	**190502A LCS**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**02-May-2019 / 14:36**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.23	F	BMB	0.587	8.189	5.02	5	100.4%
2	1.69	Cl	BMB	2.667	44.814	25.11	25	100.4%
3	2.00	NO2-N	BMB	0.564	6.699	3.16	3.04	104.1%
4	2.35	BR	BMB	0.471	5.941	13.24	12.5	105.9%
5	2.60	NO3-N	BMB	1.128	12.665	5.12	5	102.4%
6	3.29	PO4-P	BMB	0.640	4.663	9.02	10	90.2%
7	3.74	SO4	BMB	1.714	12.498	25.13	25	100.5%



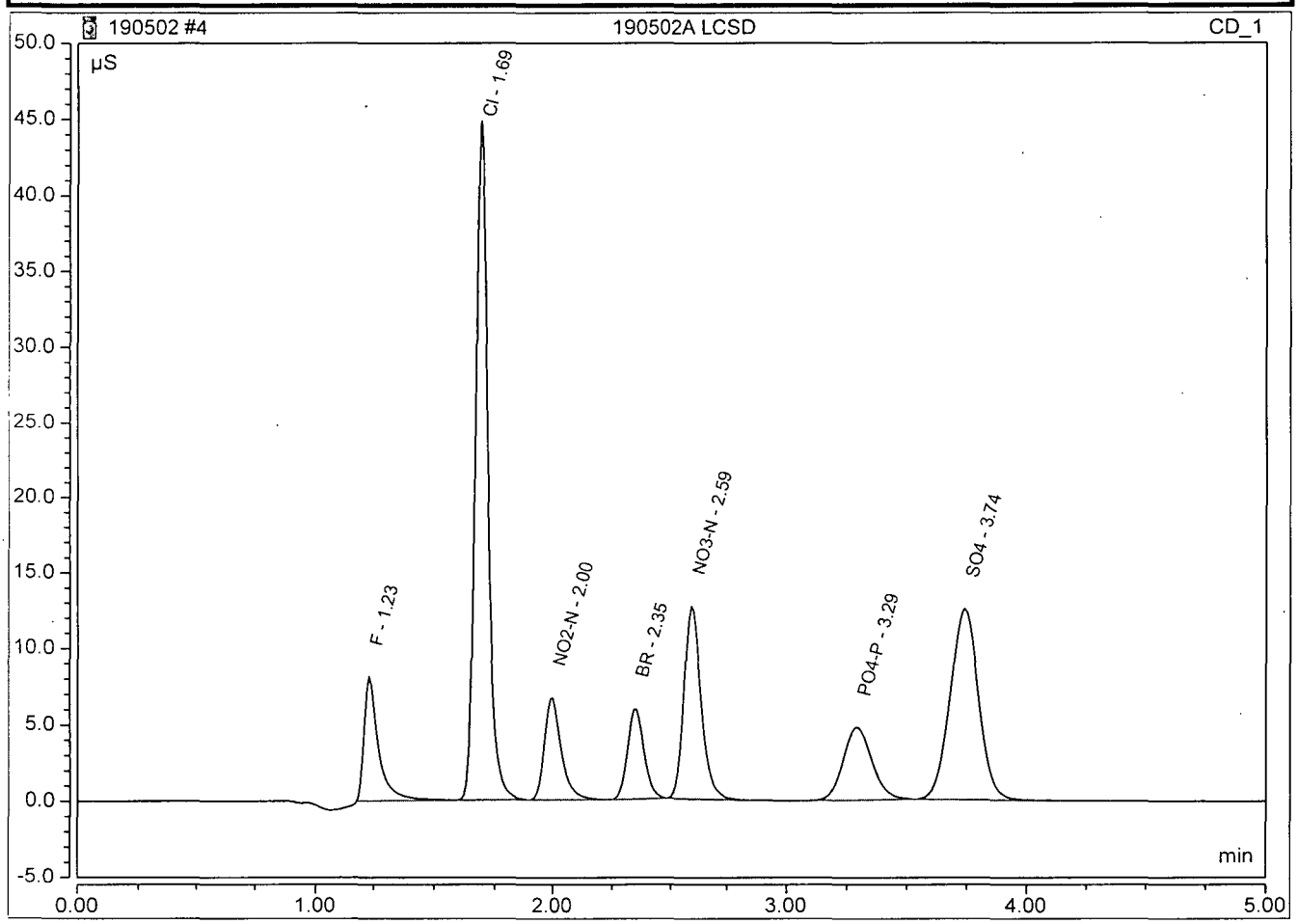
Algortith Check:
y = Peak Area
x = mg/L S04

y = 0.0687 x + -0.0115
y = 1.7141 therefor x = 25.12 190502 TH

Peak Integration Report

Sample Name:	**190502A LCSD**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**02-May-2019 / 14:43**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.23	F	BMB	0.585	8.149	5.00	5	100.1%
2	1.69	Cl	BMB	2.667	44.787	25.11	25	100.4%
3	2.00	NO2-N	BMB	0.564	6.699	3.16	3.04	104.0%
4	2.35	BR	BMB	0.471	5.942	13.23	12.5	105.9%
5	2.59	NO3-N	BMB	1.131	12.684	5.13	5	102.6%
6	3.29	PO4-P	BMB	0.653	4.758	9.19	10	91.9%
7	3.74	SO4	BMB	1.719	12.512	25.21	25	100.8%



Name of Final Standard **TOC Calibration Curve** **Prep'd By (Initials)** **MM**

Prep Date **02/23/19**

Exp Date **03/23/19**

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	20 uL	40 mL	**DI Water**	0.5 ppm
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	50 uL	40 mL	**DI Water**	1.25 ppm
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	100 uL	40 mL	**DI Water**	2.5 ppm
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	150 uL	40 mL	**DI Water**	3.75 ppm
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	200 uL	40 mL	**DI Water**	5 ppm

Name of Final Standard **ICV (TOC)** **Prep'd By (Initials)** **MM**

Prep Date **02/23/19**

Exp Date **03/23/19**

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	ULTRA Scientific	IQC-106-5	1000 mg/L	**CR-0328-37639**	**02/28/19**	100 uL	40 mL	**DI Water**	2.50 ppm

Name of Final Standard **TOC Calibration Curve** **Prep'd By (Initials)** HH

Prep Date 02/11/19

Exp Date 03/11/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	20 uL	40 mL	**DI Water**	0.5 ppm
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	50 uL	40 mL	**DI Water**	1.25 ppm
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	100 uL	40 mL	**DI Water**	2.5 ppm
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	150 uL	40 mL	**DI Water**	3.75 ppm
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	200 uL	40 mL	**DI Water**	5 ppm

Name of Final Standard **1000 PPM ICV TOC Intermediate** **Prep'd By (Initials)** HH

Prep Date 02/11/19

Exp Date 02/11/20

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Sugar	Millenia	814-293	42% Carbon	**V298J-NA**	**NA**	2.3831 g	1 L	**DI Water**	1003.45 ppm

Name of Final Standard **ICV (TOC)** **Prep'd By (Initials)** HH

Prep Date 02/11/19

Exp Date 03/11/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
1000 PPM ICV TOC Intermediate	APPL Inc.	Prep: 2/11/19	1000 mg/L	**Prep: 2/11/19**	**03/11/19**	100 uL	40mL	**DI Water**	2.5 ppm

Name of Final Standard CCV (TOC) **Prep'd By (Initials)** AR
Prep Date 04/30/19
Exp Date 05/28/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	100 uL	40 mL	**DI Water**	2.5 ppm

Name of Final Standard TOC LCS/LCSD **Prep'd By (Initials)** AR
Prep Date 04/30/19
Exp Date 05/28/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	ULTRA Scientific	IQC-106-5	1000 mg/L	**CR-0328-37639**	**02/28/19**	80 uL	40 mL	**DI Water**	2.0 ppm

Name of Final Standard TOC MS/MSD **Prep'd By (Initials)** AR
Prep Date 04/30/19
Exp Date 05/28/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	ULTRA Scientific	IQC-106-5	1000 mg/L	**CR-0328-37639**	**02/28/19**	100 uL	40 mL	**sample**	2.5 ppm

Name of Final Standard CCV (TOC) **Prep'd By (Initials)** AR
Prep Date 05/02/19
Exp Date 05/30/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	100 uL	40 mL	**DI Water**	2.5 ppm

Name of Final Standard TOC LCS/LCSD **Prep'd By (Initials)** AR
Prep Date 05/02/19
Exp Date 05/30/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	ULTRA Scientific	IQC-106-5	1000 mg/L	**CR-0328-37639**	**02/28/19**	100 uL	40 mL	**DI Water**	2.5 ppm

Name of Final Standard TOC MS/MSD **Prep'd By (Initials)** AR
Prep Date 05/02/19
Exp Date 05/30/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	ULTRA Scientific	IQC-106-5	1000 mg/L	**CR-0328-37639**	**02/28/19**	100 uL	40 mL	**sample**	2.5 ppm

Standard Prep

	Ferrous Iron Standards		Prep'd By (Initials)		HH		
Prep Date	06/15/18						
Exp Date	06/15/19						
Stock Label	Supplier	Batch Number	Exp Date	Aliquot from Stock	Final Volume	Solvent	Ferrous Iron Concentration
Ferrous Ammonium Sulfate	J.T Baker	0000184592	08/21/20	0.351	250mL	5ml H2SO4 (0000167828) Diluted with water	200ug/L
Ferrous Sulfate	Mallinckrodt	Lot 5056 KDRX	NA	0 249	250mL	5ml H2SO4 (0000167828) Diluted with water	200ug/L
Ferrous Iron CCV/LCS/MS/ICV			Prep'd By (Initials)		HH		
Prep Date	See Injection Log						
Exp Date	24 Hours						
Initial Standard Information	Supplier	Batch Number	Exp Date	Final Standard Information			
Ferrous Iron CCV	J.T Baker	0000184592	06/14/19	500uL	25mL	Deionized water	4mg/L
Ferrous Iron ICV/LCS	Mallinckrodt	Lot 5056 KDRX	06/14/19	375uL	25mL	Deionized water	3mg/L
	Ferrous Iron Calibration Curve		Prep'd By (Initials)		HH		
Prep Date	06/15/18						
Exp Date	06/16/18						
Final Standard Information							
Point Label	Supplier	Batch Number	Exp Date	Aliquot from Stock (mL)	Final Volume	Solvent	Ferrous Iron Concentration
CCB	J T.Baker	0000184592	06/14/19	0	25mL	Deionized water	0mg/L
Ical 1	J.T.Baker	0000184592	06/14/19	0.125	25mL	Deionized water	1mg/L
Ical 2	J.T.Baker	0000184592	06/14/19	0.25	25mL	Deionized water	2mg/L
Ical 3	J.T.Baker	0000184592	06/14/19	0.5	25mL	Deionized water	4mg/L
Ical 4	J.T Baker	0000184592	06/14/19	0.625	25mL	Deionized water	5mg/L
Ical 5	J.T.Baker	0000184592	06/14/19	1.25	25mL	Deionized water	10mg/L
ICV	Mallinckrodt	Lot 5056 KDRX	06/14/19	0.375	25mL	Deionized water	3mg/L

Reagent Prep

Reagent	Chemical Lot #	Chemical	Chemical Expiration Date	Amount	Date Prep
Colorizer	0747C107	1,10-phenanthroline	na	0.20023	04/26/19
		10% HCL conc	na	enough to dissolve	01/15/19
Buffer	Z28B018	Ammonia Acetate	na	250.03	04/26/19
	2018071399	Glacial Acetic Acid	06/27/20	700mL	

Nitrite

High Point @ 1.5 mg/L
0.075 mL NO2 O2Si lot 142626-24 - 38408 exp: 4/20/19*
50 mL DI Water

CCV @ 0.75 mg/L
0.0375 mL NO2 O2Si lot 142626-24-38408 exp: 4/20/19*
50 mL DI Water

*Nitrite lot 142626-24 – 38408 (O2SI) expiration date was extended to 10/20/19 by in-house re-certification against Nitrite lot M2-NOX660562-39802 (Inorganic Ventures). SD 04/25/19

ICV/LCS @ 0.73 mg/L
0.12mL NO2 Inorganic Ventures lot M2-NOX660562-39802 exp: 10/23/19
50 mL DI Water

1 mg/L NO2
400 uL of High point and 200 uL of DI made directly into a sample cup

Prep 05/01/19
Exp 05/08/19
EV

Nitrate/TOXN

High Point @ 6 mg/L
0.300 mL NO3 O2Si lot 880117-39577 exp: 2/21/20
50 mL DI Water

CCV @ 3.0 mg/L
0.150 mL NO3 O2Si lot 880117-39577 exp: 2/21/20
50 mL DI Water

ICV/LCS @ 3.0 mg/L
0.150 mL NO3 Inorganic Ventures lot N2-NOX667147-39510 exp: 10/23/19
50 mL DI Water

1 mg/L NO3
100 uL of High point and 500 uL of DI made directly into a sample cup

MS @ 2.5 mg/L NO3 and 0.73 mg/L NO2
0.125 mL NO3 Inorganic Ventures lot N2-NOX667147-39510 exp: 10/23/19
and 0.12mL NO2 Inorganic Ventures lot M2-NOX660562-39802 exp: 10/23/19
Final volume 50 mL of sample

Prep 05/01/19
Exp 05/08/19
EV

Anion Chromatography Working Standard

Prep Date: 04/01/19
Exp Date: 04/02/19
Prep'd By (Initials): TH

Initial Standard Information						Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date	Aliquot from Stock	Final Volume	Solvent	Final Standard Conc (µg/mL)
Ion Chromatography Standard Fluoride 1000µg/mL in H2O	o2si	O2SI-062002-01-01	1000	142626-24-38407	04/20/19	312.5 µL	25 mL	Millipore Water	12.5
Ion Chromatography Standard Nitrite as N 1000 ug/mL in H2O	o2si	O2SI-062004-01-01	1000	142626-24-38408	04/20/19	125 µL	25 mL	Millipore Water	5
Ion Chromatography Standard Chloride, 500mL 5,000 mg/L in H2O	o2si	062001-08-03	5000	10084781-1-39578	02/21/20	250 µL	25 mL	Millipore Water	50
Ortho-Phosphate as P Standard	Ultra Scientific	ICC-005A	1000	G34-CP-3323-39057	08/31/23	625 µL	25 mL	Millipore Water	25
Ion Chromatography Standard Nitrate as N, 500mL 1,000 mg/L in H2O	o2si	062003-01-03	1000	880117-4-39577	02/21/20	250 µL	25 mL	Millipore Water	10
Bromide Standard	Ultra Scientific	ICC-001	1000	CR-5372-39521	12/31/21	625 µL	25 mL	Millipore Water	25
Sulfate Standard	Agilent	ICC-006	1000	CS-0688-40047	03/31/22	1250 µL	25 mL	Millipore Water	50

Anion Chromatography Calibration Curve

Prep Date: 04/01/19
Exp Date: 04/02/19
Prep'd By (Initials): TH

Initial Standard Information						Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. Range (ug/mL)	Reference To APPL Prep Date	Exp. Date	Aliquot from Stock	Final Volume	Solvent	Final Conc. Range (µg/mL)
Ical2	Varries	ICal1	5.0-50.0	Prepared 04/01/19	04/02/19	400 µL	1000 µL	Millipore Water	0.08-0.40
Anion Chromatography Working Standard	Varries	ICal2	5.0-50.0	Prepared 04/01/19	04/02/19	120 µL	1000 µL	Millipore Water	0.1-1.0
Anion Chromatography Working Standard	Varries	ICal3	5.0-50.0	Prepared 04/01/19	04/02/19	50 µL	1000 µL	Millipore Water	0.25-2.5
Anion Chromatography Working Standard	Varries	ICal4	5.0-50.0	Prepared 04/01/19	04/02/19	100 µL	1000 µL	Millipore Water	0.5-5.0
Anion Chromatography Working Standard	Varries	ICal5	5.0-50.0	Prepared 04/01/19	04/02/19	200 µL	1000 µL	Millipore Water	1.0-10.0
Anion Chromatography Working Standard	Varries	ICal6	5.0-50.0	Prepared 04/01/19	04/02/19	500 µL	1000 µL	Millipore Water	2.5-25.0
Anion Chromatography Working Standard	Varries	ICal7	5.0-50.0	Prepared 04/01/19	04/02/19	700 µL	1000 µL	Millipore Water	3.5-35.0
Anion Chromatography Working Standard	Varries	ICal8	5.0-50.0	Prepared 04/01/19	04/02/19	1000 µL	1000 µL	Millipore Water	5.0-50.0

Anion Chromatography LCS/ICV

Prep Date: See Injection Log
Exp Date: 24 hours after prep
Prep'd By (Initials): TH

Initial Standard Information						Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. Range (ug/mL)	Lot Number - QA Number	Exp. Date	Aliquot from Stock	Final Volume	Solvent	Final Standard Conc (µg/mL)
Flouride	Inorganic Ventures	ICF1	993-999	K-F652018-39801	10/23/19	62.5 µL	25 mL	Millipore Water	5
Nitrite	Inorganic Ventures	ICNO21	993-1001	M2-NOX660562-39802	10/23/19	250 µL	25 mL	Millipore Water	3.04
Chloride	Inorganic Ventures	ICCL1	995-1001	NaCL664868-39904	11/26/19	500 µL	25 mL	Millipore Water	20
O-Phosphate as P	Inorganic Ventures	IPPO41	1001-1009	M2-POX655826-39803	10/23/19	125 µL	25 mL	Millipore Water	10
Nitrate as N	Inorganic Ventures	ICNNO31	994-1002	N2-NOX667147-39510	10/23/19	125 µL	25 mL	Millipore Water	5
Ion Chromatography Bromide Standard	CPI International	4400-IC8M	1000	161681-8-39539	02/06/20	312.5 µL	25 mL	Millipore Water	12.5
Sulfate	Inorganic Ventures	ICSO41	998-1006	K2-SOX01111-38875	08/13/19	500 µL	25 mL	Millipore Water	20

Anion Chromatography CCV

Prep Date: See Injection Log
Exp Date: 24 hours after prep
Prep'd By (Initials): TH

Initial Standard Information						Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date	Aliquot from Stock	Final Volume	Solvent	Final Standard Conc (µg/mL)
Ion Chromatography Standard Fluoride 1000µg/mL in H2O	o2si	O2SI-062002-01-01	1000	142626-24-38407	04/20/19	125 µL	25 mL	Millipore Water	5
Ion Chromatography Standard Nitrite as N 1000 ug/mL in H2O	o2si	O2SI-062004-01-01	1000	142626-24-38408	04/20/19	62.5 µL	25 mL	Millipore Water	2.5
Ion Chromatography Standard Chloride, 500mL 5,000 mg/L in H2O	o2si	062001-08-03	5000	10084781-1-39578	02/21/20	125 µL	25 mL	Millipore Water	25
Ortho-Phosphate as P Standard	Ultra Scientific	ICC-005A	1000	G34-CP-3323-39057	08/31/23	250 µL	25 mL	Millipore Water	10
Ion Chromatography Standard Nitrate as N, 500mL 1,000 mg/L in H2O	o2si	062003-01-03	1000	880117-4-39577	02/21/20	125 µL	25 mL	Millipore Water	5
Bromide Standard	Ultra Scientific	ICC-001	1000	CR-5372-39521	12/31/21	312.5 µL	25 mL	Millipore Water	12.5
Sulfate Standard	Agilent	ICC-006	1000	CS-0688-40047	03/31/22	625 µL	25 mL	Millipore Water	25

EPA 353.2 Injection Log

Directory: I:\EVE\Export\2019\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
1	01 May 2019	16:37	Standard 1 TOXN/NO3		190501B TO	1.
2	01 May 2019	16:40	Standard 90 TOXN/NO3		190501B TO	1.
3	01 May 2019	16:42	Standard 91 TOXN/NO3		190501B TO	1.
4	01 May 2019	16:44	Standard 92 TOXN/NO3		190501B TO	1.
5	01 May 2019	16:45	Standard 93 TOXN/NO3		190501B TO	1.
6	01 May 2019	16:46	Standard 94 TOXN/NO3		190501B TO	1.
7	01 May 2019	16:47	Standard 0 TOXN/NO3		190501B TO	1.
10	01 May 2019	16:50	ICV TOXN		190501B TO	1.
11	01 May 2019	16:51	ICB TOXN		190501B TO	1.

EPA 353.2 Injection Log

Directory: I:\EVE\Export\2019\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
16	01 May 2019	18:17	190501A BLK TOXN/NO3		190501B TO	1.
17	01 May 2019	18:19	190501A LCS TOXN/NO3		190501B TO	1.
18	01 May 2019	18:21	190501A LCSD TOXN/NO3		190501B TO	1.
26	01 May 2019	18:39	CCV TOXN/NO3		190501B TO	1.
27	01 May 2019	18:41	CCB TOXN/NO3		190501B TO	1.
28	01 May 2019	18:43	AZ90100W14 TOXN/NO3		190501B TO	1.
29	01 May 2019	18:44	AZ90102W14 TOXN/NO3		190501B TO	1.
30	01 May 2019	18:45	AZ90105W14 TOXN/NO3		190501B TO	1.
31	01 May 2019	18:46	AZ90107W14 TOXN/NO3		190501B TO	1.
32	01 May 2019	18:47	AZ90109W14 TOXN/NO3		190501B TO	1.
36	01 May 2019	18:51	CCV TOXN/NO3		190501B TO	1.
37	01 May 2019	18:52	CCB TOXN/NO3		190501B TO	1.

EPA 300.0 Injection Log

Directory: I:\Dionex\Charlie\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
1	01 Apr 2019	18:27	CCB		Anions	1.
2	01 Apr 2019	18:34	i cal 1		Anions	1.
3	01 Apr 2019	18:42	i cal 2		Anions	1.
4	01 Apr 2019	18:49	i cal 3		Anions	1.
5	01 Apr 2019	18:56	i cal 4		Anions	1.
6	01 Apr 2019	19:04	i cal 5		Anions	1.
7	01 Apr 2019	19:11	i cal 6		Anions	1.
8	01 Apr 2019	19:19	i cal 7		Anions	1.
9	01 Apr 2019	19:26	i cal 8		Anions	1.
10	01 Apr 2019	19:33	ICB		Anions	1.
11	01 Apr 2019	19:41	ICV LCS		Anions	1.
12	01 Apr 2019	19:48	ICVD LCSD		Anions	1.

EPA 300.0 Injection Log

Directory: I:\Dionex\Charlie\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
1	25 Apr 2019	15:26	CCV 190425		Anions	1.
2	25 Apr 2019	15:34	CCB		Anions	1.
3	25 Apr 2019	15:41	190425A LCS		Anions	1.
4	25 Apr 2019	15:48	190425A LCSD		Anions	1.
15	25 Apr 2019	17:10	CCV 190425		Anions	1.
16	25 Apr 2019	17:17	CCB		Anions	1.
18	25 Apr 2019	17:32	AZ90109W14		Anions	1.
19	25 Apr 2019	17:39	AZ90102W14		Anions	1.
20	25 Apr 2019	17:47	AZ90105W14		Anions	1.
21	25 Apr 2019	17:54	AZ90100W14		Anions	1.
22	25 Apr 2019	18:01	AZ90107W14		Anions	1.
28	25 Apr 2019	18:46	CCV 190425		Anions	1.
29	25 Apr 2019	18:53	CCB		Anions	1.

EPA 300.0 Injection Log

Directory: I:\Dionex\Charlie\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
36	02 May 2019	14:21	CCV 190502		Anions	1.
37	02 May 2019	14:29	CCB		Anions	1.
38	02 May 2019	14:36	190502A LCS		Anions	1.
39	02 May 2019	14:43	190502A LCSD		Anions	1.
44	02 May 2019	15:20	AZ90107W13 DF 5		Anions	5.
51	02 May 2019	16:12	CCV 190502		Anions	1.
52	02 May 2019	16:20	CCB		Anions	1.

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908 North Temperance Ave. ∇ Clovis, CA 93611 ∇ Phone 559-275-2175 ∇ Fax 559-275-4422

Certification Number: CA1312
NELAP Certification number: CA00046
DoD-ELAP Certificate number: 4064.01

Data Validatable Report

May 30, 2019

AECOM
1001 Bishop Street, Suite 1600
Honolulu, Hawaii 96813

Attn: Margie Pascua

Title: Report of Data: Case 88736

Project: 60571032 CV18F0126 Red Hill Fuel Storage. HI

Contract #: Prime contract # for DoD: NAVY CLEAN N62742-17-F-1800, CV18F0126
Subcontract: 18S-22209-HI27

Dear Ms. Pascua:

Four water samples were received April 26, 2019. Revised written results for the requested analyses are being provided on this May 30, 2019.

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

If you have any questions or require further information, please contact your APPL Project Manager, Libby Cheeseborough, libby@applinc.com, at your convenience. Thank you for choosing APPL, Inc.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC and DoD QSM. Release of the hard copy has been authorized by the Laboratory Manager or her designee, as verified by the following signature.

Paula McCartney, Laboratory Director
APPL, Inc.

PM/lac
Enclosure
cc: File

Data Validation Package
for
60481245 CIV 0053 Red Hill Fuel Storage
APPL SDG 88736
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CASE NARRATIVE

Case Narrative

ARF: 88736

Project: 60571032 CV18F0126 Red Hill Fuel Storage. HI

Sample Receipt Information:

Four water samples were received April 26, 2019, at 2.5°C, and 3.0°C. The sample group was assigned Analytical Request Form (ARF) number 88736.

Sample Preparation and Analysis Information:

For the EPA 8015B analysis, the samples were extracted according to EPA method 3520C. The sample extracts were silica gel cleaned according to APPL's SOP CLN004 and placed on hold.

For the EPA 8270D SIM analysis, the samples were extracted according to EPA method 3520C.

For the EPA 8270D Phenol analysis, the samples were extracted according to EPA method 3520C.

For the APPL SOP ANA2MEE analysis, the samples were extracted according to EPA method 3535.

For the EPA 8260B analysis, the samples were purged according to EPA method 5030B.

For the RSK-175 analysis, the samples were allowed to equilibrate for 10 minutes at 40°C and a portion of the headspace was analyzed.

For the EPA 9060A, 300.0, 353.2, SM 2320B, and SM 3500FeB analyses, the samples were prepared according to the methods.

Only the portion of the injection log relative to these samples is included. A full sequence log is available upon request. Measurement uncertainty can be reported upon request.

Analytical Exceptions, Deviations and Abnormalities.

EPA 8015B: Manual integrations were performed in accordance with APPL's SOP. Chromatograms of before and after manual integration are enclosed. The LCSD, datafile 0506005.D was manually integrated for Diesel.

EPA 8270D SIM: One sample recovered both surrogates below their lower control limit. Corrective action: The sample was re-extracted 11 days after collection, and re-analyzed with acceptable results. Both sets of data are included with the report.

EPA 8270D Phenol: One sample recovered all surrogates below their lower control limit. Corrective action: The sample was re-extracted 11 days after collection, and re-analyzed with acceptable results. Both sets of data are included with the report.

APPL SOP ANA2MEE: In the 190429A LCS/LCSD, 2MEE recovered above the upper control limit in the LCSD and the RPD exceeded the 20% limit. Corrective action: None, 2MEE was not detected in the associated samples.

SDG	Received	Client ID	APPL ID	Collected DateTime	Matrix	Method	Method Description
88736	04/26/19	ERH808	AZ90212	04/25/19 8:45:00 AM	WATER	EPA 8260B	EPA 8260B BTEX WATER
88736	04/26/19	ERH808	AZ90212	04/25/19 8:45:00 AM	WATER	EPA 8260-GAS	EPA 8260 with GAS
88736	04/26/19	ERH808	AZ90212	04/25/19 8:45:00 AM	WATER	EPA 8260B	EPA 8260B GRO WATER
88736	04/26/19	ERH808	AZ90212	04/25/19 8:45:00 AM	WATER	RSK 175	METHANE BY RSK 175
88736	04/26/19	ERH809	AZ90213	04/25/19 9:50:00 AM	WATER	SM 2320B	Wetlab 2320B - Water
88736	04/26/19	ERH809	AZ90213	04/25/19 9:50:00 AM	WATER	EPA 300.0	Wetlab 300.0 - Water
88736	04/26/19	ERH809	AZ90213	04/25/19 9:50:00 AM	WATER	EPA 300.0	Wetlab 300.0 - Water
88736	04/26/19	ERH809	AZ90213	04/25/19 9:50:00 AM	WATER	SM3500FeB	Ferrous Iron
88736	04/26/19	ERH809	AZ90213	04/25/19 9:50:00 AM	WATER	EPA 353.2	EPA 353.2 - WATER
88736	04/26/19	ERH809	AZ90213	04/25/19 9:50:00 AM	WATER	EPA 8260B	EPA 8260B BTEX WATER
88736	04/26/19	ERH809	AZ90213	04/25/19 9:50:00 AM	WATER	EPA 8270D	EPA 8270D WATER
88736	04/26/19	ERH809	AZ90213	04/25/19 9:50:00 AM	WATER	EPA 8270D	EPA 8270D MODIFIED WATER
88736	04/26/19	ERH809	AZ90213	04/25/19 9:50:00 AM	WATER	EPA 8015B-eLL	EPA 8015B TPH LIQ-LIQ
88736	04/26/19	ERH809	AZ90213	04/25/19 9:50:00 AM	WATER	SW846 9060A	9060A DOC
88736	04/26/19	ERH809	AZ90213	04/25/19 9:50:00 AM	WATER	EPA 8260-GAS	EPA 8260 with GAS
88736	04/26/19	ERH809	AZ90213	04/25/19 9:50:00 AM	WATER	EPA 8260B	EPA 8260B GRO WATER
88736	04/26/19	ERH809	AZ90213	04/25/19 9:50:00 AM	WATER	RSK 175	METHANE BY RSK 175
88736	04/26/19	ERH809	AZ90213	04/25/19 9:50:00 AM	WATER	8270D-SIM	EPA 8270D SIM LIQ-LIQ
88736	04/26/19	ERH809	AZ90213	04/25/19 9:50:00 AM	WATER	SW846 9060A	9060A TOC
88736	04/26/19	ERH810	AZ90214	04/25/19 8:15:00 AM	WATER	EPA 8260B	EPA 8260B BTEX WATER
88736	04/26/19	ERH810	AZ90214	04/25/19 8:15:00 AM	WATER	EPA 8260-GAS	EPA 8260 with GAS
88736	04/26/19	ERH810	AZ90214	04/25/19 8:15:00 AM	WATER	EPA 8260B	EPA 8260B GRO WATER
88736	04/26/19	ERH810	AZ90214	04/25/19 8:15:00 AM	WATER	RSK 175	METHANE BY RSK 175
88736	04/26/19	ERH811	AZ90215	04/25/19 9:50:00 AM	WATER	SM 2320B	Wetlab 2320B - Water
88736	04/26/19	ERH811	AZ90215	04/25/19 9:50:00 AM	WATER	EPA 300.0	Wetlab 300.0 - Water
88736	04/26/19	ERH811	AZ90215	04/25/19 9:50:00 AM	WATER	EPA 300.0	Wetlab 300.0 - Water
88736	04/26/19	ERH811	AZ90215	04/25/19 9:50:00 AM	WATER	SM3500FeB	Ferrous Iron
88736	04/26/19	ERH811	AZ90215	04/25/19 9:50:00 AM	WATER	EPA 353.2	EPA 353.2 - WATER
88736	04/26/19	ERH811	AZ90215	04/25/19 9:50:00 AM	WATER	EPA 8260B	EPA 8260B BTEX WATER
88736	04/26/19	ERH811	AZ90215	04/25/19 9:50:00 AM	WATER	EPA 8270D	EPA 8270D WATER
88736	04/26/19	ERH811	AZ90215	04/25/19 9:50:00 AM	WATER	EPA 8270D	EPA 8270D WATER RE-EXTRACT
88736	04/26/19	ERH811	AZ90215	04/25/19 9:50:00 AM	WATER	EPA 8270D	EPA 8270D MODIFIED WATER
88736	04/26/19	ERH811	AZ90215	04/25/19 9:50:00 AM	WATER	EPA 8015B-eLL	EPA 8015B TPH LIQ-LIQ
88736	04/26/19	ERH811	AZ90215	04/25/19 9:50:00 AM	WATER	SW846 9060A	9060A DOC
88736	04/26/19	ERH811	AZ90215	04/25/19 9:50:00 AM	WATER	EPA 8260-GAS	EPA 8260 with GAS

88736	04/26/19	ERH811	AZ90215	04/25/19 9:50:00 AM	WATER	EPA 8260B	EPA 8260B GRO WATER
88736	04/26/19	ERH811	AZ90215	04/25/19 9:50:00 AM	WATER	RSK 175	METHANE BY RSK 175
88736	04/26/19	ERH811	AZ90215	04/25/19 9:50:00 AM	WATER	8270D-SIM	EPA 8270D SIM LIQ-LIQ
88736	04/26/19	ERH811	AZ90215	04/25/19 9:50:00 AM	WATER	8270D-SIM	EPA 8270D SIM LIQ-LIQ RX
88736	04/26/19	ERH811	AZ90215	04/25/19 9:50:00 AM	WATER	SW846 9060A	9060A TOC

APPL Inc.
Abbreviations and Flags

FLAG	DESCRIPTION
#	Recovery or RPD outside control limits
*	Recovery or RPD outside control limits
B	Analyte detected in associated method blank
C1	Reason for correction: wrote incorrect response
C2	Reason for correction: calculated incorrectly
C3	Reason for correction: needs to be rechecked
C4	Reason for correction: data not usable
DO	Diluted out
E	Exceeds linear range
F	Estimated value
G1	Includes a wide range of hydrocarbons which does not match our gasoline standard
G10	Includes a match to hydrocarbon profiles within the range of mineral spirits
G11	Includes a match to hydrocarbon profiles within the range of JP-4
G12	Pattern does not match the gasoline standard; the carbon range for this sample is consistent with JP8
G13	Closely resembles the hydrocarbon profile of aviation gasoline
G14	Analyte concentration may be biased due to carry over
G2	Closely resembles the boiling point hydrocarbon profile consistent with weathered gasoline
G3	Includes higher boiling hydrocarbons
G4	Includes dominant peak(s) not indicative of petroleum hydrocarbons
G5	Is mainly dominant peak(s) not indicative of petroleum hydrocarbons
G6	Contains recognizable contaminant peak(s) which has been removed from quantitation
G7	Is mainly a match to hydrocarbons within the range of gasoline
G8	Closely resembles the boiling point hydrocarbon profile consistent with weathered gasoline
G9	Includes hydrocarbons within the range of kerosene
J	Estimated value
M	Matrix effect
MI1	Manual integration: integration does not follow baseline
MI2	Manual integration: non-target peak interference
MI3	Manual integration: to split a peak that was integrated as one peak by the computer.
MI4	Manual integration: to integrate a split peak
MI5	Manual integration: the whole peak or part of the peak was not integrated
MI6	Manual integration: computer integrated wrong peak
MI7	Manual integration: other – (See case narrative)
MDL	Method detection limit
ND	Not detected
NT	Non-target
Q	Acceptance criteria not met
T1 I	Includes wide range of hydrocarbons not indicative of diesel
T1 M	Is mainly wide range of hydrocarbons not necessarily indicative of diesel
T2 I	Includes lower boiling hydrocarbons, e.g. mineral spirits, kerosene, stoddard solvent, white gas
T2 M	Is mainly lower boiling hydrocarbons, e.g. mineral spirits, kerosene, stoddard solvent, white gas
T3 I	Includes higher boiling hydrocarbons, e.g. asphaltene, waste oil, motor oil, or weathered diesel fuel
T3 M	Is mainly higher boiling hydrocarbons, e.g. asphaltene, waste oil, motor oil, or weathered diesel fuel
T4 I	Includes dominant peak(s) not indicative of hydrocarbons
T4 M	Is mainly dominant peak(s) not indicative of hydrocarbons
T5	Contains recognizable contaminant peak(s) which has been removed from quantitation
T6	Is mainly a match to hydrocarbons within range of diesel fuel
T7	Closely resembles the boiling point hydrocarbon profile consistent with diesel fuel
T8	Includes a match to hydrocarbon profiles within range of diesel and kerosene fuel
T9 I	Includes non-diesel hydrocarbons within boiling point range of diesel fuel
T9 M	Is mainly non-diesel hydrocarbons within boiling point range of diesel fuel
U	Not detected
Y	Percent difference between primary and confirmation column > 40%

SAMPLE RECORDS MANAGEMENT

CHAIN OF CUSTODY,

ARF, CRF, AND

CLIENT COMMUNICATION

APPL - Analysis Request Form 88736

Client: AECOM
Address: 1001 Bishop Street, Suite 1600
Honolulu, HI 96813
Attn: Margie Pascua
Phone: 808-356-5373 Fax: 808-523-8950
Job: 60571032 CV18F0126 Red Hill Fuel Storage
PO #: 102604
Chain of Custody (Y/N): Y # 043
RAD Screen (Y/N): Y pH (Y/N): N
Turn Around Type: ONE WEEK

Received by: RBE
Date Received: 04/26/19 Time: 10:20
Delivered by: FEDEX
Shuttle Custody Seals (Y/N): Y Time Zone: -10
Chest Temp(s): 2.5°3.0°C
Color: VOA/I-PuRed
Samples Chilled until Placed in Refrig/Freezer: Y
Project Manager: Libby Cheesebor
QC Report Type: DVP4DOD/EQUIS/HI
Due Date: 05/03/19

Comments:
AN: 7 day TAT for Form 1s; 21 day TAT for PKG STYLE 1; F1s, login to Margie.Pascua@aecom.com
DOD QSM ver 5.1; Forms: Special Forms: DOD Forms: LOD (from database)
8260: BTEX & TPH-G only; 8270 SIM: 1-methylnaphthalene, 2-methylnaphthalene & naphthalene only.
TPH D & O; SGC analysis If D/O detected in samples ; RSK: Methane only;
$87DC53W5: report phenol ONLY; $87DMEEW5: 2-MEE (LCS Spk 80ppb).
WL: Ferrous Iron & TOC/DOC samples have been field filtered
FR: HC to LDC, 2 labeled CDs to Margie Pascua.
EDD: AECOM EQuIS EDD 2.5.3 87DMEE->3535A to Margie.Pascua@aecom.com & jecklund@lab-data.com

Sample Distribution:
GC: 2-$87DC53W5, 2-$87DMEEW5, 2-$DOC53W5LIQ, 2-$SIM53LIQ51
Extractions: 2-_LIQ003, 2-_LIQ005SGC, 2-_MWE2MEE
VOA: 4-$86BTOTXDOD5W, 4-$GASBL, 4-$GRO86BW, 4-$RSKMETH
Wetlab: 2-$232W(HCO3,CO3,ALK), 2-$300W(NO3,CL,SO4), 2-$35FE, 2-$35OF, 2-$DOCW53,2-$TOCW53

Charges:

Invoice To:
ACCOUNTS PAYABLE
1001 Bishop Street, Ste 1600
USAPImaging@aecom.com
mary.basano@aecom.com

	Client ID	APPL ID	Sampled	Analyses Requested
1.	ERH808	AZ90212W	04/25/19 08:45	$86BTOTXDOD5W, $GASBL, $GRO86BW, $RSKMETH
2.	ERH809	AZ90213W	04/25/19 09:50	$232W(HCO3,CO3,ALK), $300W(NO3,CL,SO4), $35FE, $35OF, $86BTOTXDOD5W, $87DC53W5, $87DMEEW5, $DOC53W5LIQ, $DOCW53, $GASBL, $GRO86BW, $RSKMETH, $SIM53LIQ51, $TOCW53 -- sgc if detections for tph-d/o
3.	ERH810	AZ90214W	04/25/19 08:15	$86BTOTXDOD5W, $GASBL, $GRO86BW, $RSKMETH

Note: All times, excluding sample collection times, are Pacific Time Zone unless noted otherwise. Collection times are in: -10 UTC
Page 1 Client Code: AECOM-CIV053 *Printed 05/03/19 9:01:20 AM* Computer: APPL-LC **# 88736**

4. ERH811	AZ90215W 04/25/19 09:50		$232W(HCO3,CO3,ALK), $300W(NO3,CL,SO4), $35FE, $35OF, $86BTOTXDOD5W, $87DC53W5, $87DMEEW5, $DOC53W5LIQ, $DOCW53, $GASBL, $GRO86BW, $RSKMETH, $SIM53LIQ51, $TOCW53 -- sgc if detections for tph-d/o

APPL Sample Receipt Form

ARF# **88736**

Sample	Container Type	Count	p
AZ90212	[13] VOAs - HCL	4	NA
AZ90213	[3] PL 250mL	1	NA
	[10] PL 250mL - H2SO4	1	1.7
	[13] VOAs - HCL	4	NA
	[17] Amber Liter	5	NA
	[32] Clear VOA - H2SO4	8	NA
	[38] 250mL brn poly, HCl prsvd	1	1.7
	[40] 500mL Amber, unprsrvd	2	NA
AZ90214	[13] VOAs - HCL	4	NA
AZ90215	[3] PL 250mL	1	NA
	[10] PL 250mL - H2SO4	1	1.7
	[13] VOAs - HCL	4	NA
	[17] Amber Liter	5	NA
	[32] Clear VOA - H2SO4	8	NA
	[38] 250mL brn poly, HCl prsvd	1	1.7
	[40] 500mL Amber, unprsrvd	2	NA

Sample	Container Type	Count	p

APPL LABS

APPL, Inc.
908 N Temperance Ave
Clovis, CA 93611
www.applinc.com

Phone: (559) 275-2175
Fax: (559) 275-4422
coc@applinc.com

CHAIN OF CUSTODY RECORD

C.O.C. 043

Report to: PLEASE PRINT

Company Name: AECOM Phone: 808-356-5373

Address: 1001 Bishop St, Suite 1600
Honolulu, HI 96813
Fax: 808-523-8950

Attn: Margie Pascua

Email: margie.pascua@aecom.com

Invoice to: PLEASE PRINT

Company Name: AECOM Phone: 808-529-7249

Address: 1001 Bishop St, Suite 1600
Honolulu, HI 96813
Fax: 808-523-8950

Attn: Mary Basano

Email: mary.basano@aecom.com; usapimaging@aecom.com

Project Name/Number: CV18F0126 / 60571032

Purchase Order Number: 102604

Sampler (Print): SM GM RS TV DH MM KL

Sampler (Signature): SM

Date Shipped: MM/DD/YY

Carrier: FedEx

Waybill No.:

Comments:

Sample Identification	Location	Date Collected	Time Collected	Time Zone	No. of Containers	Matrix: Aq	Matrix: Sed.	Matrix: Soil	8260C BTEX,TPH-g	8260C DCA 8011 EDB	8015C TPH-d/o	3630/8015C TPH-d/o w/ SGT	8270DSIM PAHs short list	8270D Phenol, ~~THO~~	8270D 2-(2-methoxy ethoxy)-ethanol	RSK175M Methane	SM3500-Fe Ferrous Iron	353.2 Nitrate-Nitrite N	SM2320B Alkalinity 300.0 Nitrate,Sulfate,Chloride	300.0 Bromide/Fluoride 6010 Total Ca,Mg,Mn,K,Na SM4500 Total & Dissolved Silica	9060A TOC, DOC
ERH 805	Trip Blank	4/25/19	0845	HST	4	X			X							X					
ERH 809	OWDFMW01	4/25/19	0950	HST	22	X			X		X	X*	X	X	X	X	X	X	X		X

4/25/19 SM

Ferrous iron and DOC are field-filtered.

*Analyze TPH w/SGT only if TPH-d/o detected.

TPH-d/o & PAHs need liquid-liquid extraction.

Shuttle Temperature:

Turnaround Requested: Check one
☐ Standard 2-3 wk ☒ One week ☐ 3 days ☐ 24/48 Hrs. ☐ Other:

Sample Disposal:
☐ Return to client ☒ Disposal by Lab (30-day retention)

Relinquished by sampler: AECOM	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
Sidney Mahoney	4/25/2019	1:00					
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received at lab by:
					04-26-19	1020	

See page 2 for Container Preservative and Sampling Information

88736

APPL LABS

APPL, Inc.
908 N Temperance Ave
Clovis, CA 93611
www.applinc.com

Phone: (559) 275-2175
Fax: (559) 275-4422
coc@applinc.com

CHAIN OF CUSTODY RECORD

C.O.C. 044

Report to: PLEASE PRINT	Invoice to: PLEASE PRINT
Company Name: AECOM Phone: 808-356-5373	Company Name: AECOM Phone: 808-529-7249
Address: 1001 Bishop St, Suite 1600 Honolulu, HI 96813 Fax: 808-523-8950	Address: 1001 Bishop St, Suite 1600 Honolulu, HI 96813 Fax: 808-523-8950
Attn: Margie Pascua	Attn: Mary Basano
Email: margie.pascua@aecom.com	Email: mary.basano@aecom.com; usapimaging@aecom.com

Project Name/Number: CV18F0126 / 60571032
Purchase Order Number: 102604
Sampler (Print):
Sampler (Signature):
Date Shipped: MM/DD/YY
Carrier: FedEx
Waybill No.:
Comments:

Sample Identification	Location	Date Collected	Time Collected	Time Zone	No. of Containers	Matrix: Aq	Matrix: Sed.	Matrix: Soil	8260C BTEX,TPH-g	8260C DCA 8011 EDB	8015C TPH-d/o	3630/8015C TPH-d/o w/ SGT	8270DSIM PAHs short list	8270D Phenol-THCs Mix	8270D 2-(2-methoxy ethoxy)-ethanol	RSK175M Methane	SM3500-Fe Ferrous Iron	353.2 Nitrate-Nitrite N	SM2320B Alkalinity 300.0 Nitrate,Sulfate,Chloride	300.0 Bromide/Fluoride 6010 Total Ca,Mg,Mn,K,Na SM4500 Total & Dissolved Silica	9060A TOC	
ERH 810	Trip Blank	4/25/19	0815	HST	4	X			X							X						
ERH 811	HDMW2253-03	4/25/19	0950	HST	22	X			X		X	X*	X	X	X	X	X	X	X		X	

MD 4/25/19

Ferrous Iron and DOC are field-filtered.
*Analyze TPH w/SGT only if TPH-d/o detected.
TPH-d/o & PAHs need liquid-liquid extraction.

Shuttle Temperature: 2.5, 3.0

Turnaround Requested: Check one
☐ Standard 2-3 wk ☒ One week ☐ 3 days ☐ 24/48 Hrs. ☐ Other:

Sample Disposal:
☐ Return to client ☒ Disposal by Lab (30-day retention)

Relinquished by sampler: AECOM	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
Morgen Donahue	4/25/19	1:00					
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received at lab By:
					4.26.19	1020	

See page 2 for Container Preservative and Sampling Information

COOLER RECEIPT FORM

ARF: 88736

1) Project: 60571032 CV18F0126 Red Hill Fuel Storage Date Received: 04/26/19

2) Coolers: Number of Coolers: 2

3) YES Were custody seals present and intact?
How many? 4 Name/Date on seal? see below

4) YES Was there a shipping slip? Carrier name: FEDEX

5) Type of packing in cooler: X bubble wrap __ popcorn __ foam X plastic bags __ other
X wet ice __ dry ice __ no ice __ gel ice

6) YES Were cooler temperatures acceptable?

7) Serial number of certified NIST thermometer use R1

8) Cooler temp(s): In °C
1: 2.5°C 2: 3.0°C 3: ____ 4: ____ 5: ____ 6: ____
7: ____ 8: ____ 9: ____ 10: ____ 11: ____ 12: ____

Chain of custody:

9) YES Was a chain of custody received?

10) YES Were the custody papers complete/signed in the appropriate places?

Sample Labels:

11) YES Were all sample labels complete (sample ID, date/time of sampling, etc.)?

12) YES Did all container labels agree with custody papers?

Sample Containers:

13) YES Were all containers sealed in separate bags?

14) YES Did all containers arrive in good condition:(unbroken, no leakage, no cracked/bro

15) YES Were correct containers and preservatives used for the tests indicated?

16) YES Was a sufficient amount of sample sent for tests indicated?

17) Yes Were bubbles present in volatile samples?
If yes, the following were received with air bubbles:
Larger than a pea: ____
Smaller than a pea: AZ90212w01-4, AZ90214w01-4

CUSTODY SEAL
AECOM (808) 521-3051
Initials MD Date 4/25

Preservation Hold time:

18) Yes Was a sufficient amount of holding time remaining to analyze the samples?

19) Yes Was the pH taken of all non-VOA preserved samples and written on the sample

20) Yes Was the pH of acid preserved non-VOA samples < 2?

21) NA Was the pH of sodium hydroxide preserved samples for Cyanide > 12 and Sulfi

22) NO Were unpreserved VOA Vials received?

23) NA Are unpreserved VOA vials noted in the ADD TEST FIELD on the ARF?
pH strip lot number: 90b2031
Lab notified if pH was not adequate: ____

Notes/Deficiencies:

Personnel receiving samples: ZG Second reviewer: AA
Personnel labeling samples: ZG
Project manager notified: ZG Date/Time of notification 04/26/19
Name of client notified: ____ Date/Time of notification ____

Revision: 22, November 5, 2013

SAMPLE RESULTS

EPA 8015B TPH LIQ-LIQ

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua
Project: 60571032 CV18F0126 Red Hill Fuel Storage
Sample ID: ERH809
Sample Collection Date: 04/25/19

ARF: 88736
APPL ID: AZ90213
QCG: #DOC53-190502A1-240184

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8015B-eL	DIESEL (C10-C24)	25.00 U	40.0	25.00	13.07	ug/L	05/02/19	05/06/19
EPA 8015B-eL	OIL (C24-C40)	40.00 U	40.0	40.00	5.54	ug/L	05/02/19	05/06/19
EPA 8015B-eL	SURROGATE: OCTACOSANE (S)	102	60-142			%	05/02/19	05/06/19
EPA 8015B-eL	SURROGATE: ORTHO-TERPHENYL (S)	97.1	56-125			%	05/02/19	05/06/19

Quant Method: DOC0411.M
Run #: 506015
Instrument: Apollo
Sequence: 190506
Dilution Factor: 1
Initials: BTI

Printed: 05/09/19 3:13:00 PM
APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8015B TPH LIQ-LIQ

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH811

APPL ID: AZ90215

Sample Collection Date: 04/25/19

QCG: #DOC53-190502A1-240184

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8015B-eL	DIESEL (C10-C24)	25.00 U	40.0	25.00	13.07	ug/L	05/02/19	05/06/19
EPA 8015B-eL	OIL (C24-C40)	40.00 U	40.0	40.00	5.54	ug/L	05/02/19	05/06/19
EPA 8015B-eL	SURROGATE: OCTACOSANE (S)	105	60-142			%	05/02/19	05/06/19
EPA 8015B-eL	SURROGATE: ORTHO-TERPHENYL (S)	100	56-125			%	05/02/19	05/06/19

Quant Method: DOC0411.M
Run #: 506017
Instrument: Apollo
Sequence: 190506
Dilution Factor: 1
Initials: BTI

Printed: 05/09/19 3:36:05 PM
APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8270D SIM LIQ-LIQ

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH809

APPL ID: AZ90213

Sample Collection Date: 04/25/19

QCG: #SIM53-190430A-239930

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
8270D-SIM	1-METHYLNAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	04/30/19	05/02/19
8270D-SIM	2-METHYLNAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	04/30/19	05/02/19
8270D-SIM	NAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	04/30/19	05/02/19
8270D-SIM	SURROGATE: 2-METHYLNAPHTHALEN	98.6	39-114			%	04/30/19	05/02/19
8270D-SIM	SURROGATE: FLUORANTHENE-D10 (S	94.4	58-120			%	04/30/19	05/02/19

Quant Method: L0326.M
Run #: 0426L044
Instrument: Linus
Sequence: L190426
Dilution Factor: 1
Initials: JPR

Printed: 05/03/19 11:26:43 AM

APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8270D SIM LIQ-LIQ

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH811

APPL ID: AZ90215

Sample Collection Date: 04/25/19

QCG: #SIM53-190430A-239930

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
8270D-SIM	1-METHYLNAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	04/30/19	05/02/19
8270D-SIM	2-METHYLNAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	04/30/19	05/02/19
8270D-SIM	NAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	04/30/19	05/02/19
8270D-SIM	SURROGATE: 2-METHYLNAPHTHALEN	13.7 #	39-114			%	04/30/19	05/02/19
8270D-SIM	SURROGATE: FLUORANTHENE-D10 (S	13.7 #	58-120			%	04/30/19	05/02/19

= Recovery (or RPD) is outside QC limits.

Quant Method: L0326.M
Run #: 0426L045
Instrument: Linus
Sequence: L190426
Dilution Factor: 1
Initials: JPR

Printed: 05/03/19 11:26:43 AM

APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8270D SIM LIQ-LIQ RX

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH811

APPL ID: AZ90215

Sample Collection Date: 04/25/19

QCG: #SIM53-190506A1-240188

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
8270D-SIM	1-METHYLNAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	05/06/19	05/08/19
8270D-SIM	2-METHYLNAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	05/06/19	05/08/19
8270D-SIM	NAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	05/06/19	05/08/19
8270D-SIM	SURROGATE: 2-METHYLNAPHTHALEN	79.9	39-114			%	05/06/19	05/08/19
8270D-SIM	SURROGATE: FLUORANTHENE-D10 (S	86.8	58-120			%	05/06/19	05/08/19

Quant Method: L0326.M
Run #: 0426L063
Instrument: Linus
Sequence: L190426
Dilution Factor: 1
Initials: JPR

Printed: 05/09/19 3:07:30 PM
APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8270D WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH809

APPL ID: AZ90213

Sample Collection Date: 04/25/19

QCG: #87DC5-190430A-239931

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8270D	PHENOL	4.00 U	5.0	4.00	1.00	ug/L	04/30/19	05/02/19
EPA 8270D	SURROGATE: 2,4,6-TRIBROMOPHENO	76.8	43-140			%	04/30/19	05/02/19
EPA 8270D	SURROGATE: 2-FLUORBIPHENYL (S)	67.2	44-119			%	04/30/19	05/02/19
EPA 8270D	SURROGATE: 2-FLUOROPHENOL (S)	72.6	19-119			%	04/30/19	05/02/19
EPA 8270D	SURROGATE: NITROBENZENE-D5 (S)	67.7	44-120			%	04/30/19	05/02/19
EPA 8270D	SURROGATE: PHENOL-D6 (S)	71.3	10-115			%	04/30/19	05/02/19
EPA 8270D	SURROGATE: TERPHENYL-D14 (S)	67.7	50-134			%	04/30/19	05/02/19

Quant Method: Y0319NC.M
Run #: 0411Y283
Instrument: Yoda
Sequence: Y190411
Dilution Factor: 1
Initials: MA

Printed: 05/03/19 11:55:10 AM
APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8270D WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH811

APPL ID: AZ90215

Sample Collection Date: 04/25/19

QCG: #87DC5-190430A-239931

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8270D	PHENOL	4.00 U	5.0	4.00	1.00	ug/L	04/30/19	05/02/19
EPA 8270D	SURROGATE: 2,4,6-TRIBROMOPHENO	8.83 #	43-140			%	04/30/19	05/02/19
EPA 8270D	SURROGATE: 2-FLUORBIPHENYL (S)	7.97 #	44-119			%	04/30/19	05/02/19
EPA 8270D	SURROGATE: 2-FLUOROPHENOL (S)	10.4 #	19-119			%	04/30/19	05/02/19
EPA 8270D	SURROGATE: NITROBENZENE-D5 (S)	9.13 #	44-120			%	04/30/19	05/02/19
EPA 8270D	SURROGATE: PHENOL-D6 (S)	9.90	10-115			%	04/30/19	05/02/19
EPA 8270D	SURROGATE: TERPHENYL-D14 (S)	8.24 #	50-134			%	04/30/19	05/02/19

= Recovery (or RPD) is outside QC limits.

Quant Method: Y0319NC.M
Run #: 0411Y284
Instrument: Yoda
Sequence: Y190411
Dilution Factor: 1
Initials: MA

Printed: 05/03/19 11:34:07 AM
APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8270D WATER RE-EXTRACT

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH811

APPL ID: AZ90215

Sample Collection Date: 04/25/19

QCG: #87DC5-190506A1-240141

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8270D	PHENOL	4.00 U	5.0	4.00	1.00	ug/L	05/06/19	05/08/19
EPA 8270D	SURROGATE: 2,4,6-TRIBROMOPHENO	99.0	43-140			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: 2-FLUORBIPHENYL (S)	81.2	44-119			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: 2-FLUOROPHENOL (S)	83.7	19-119			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: NITROBENZENE-D5 (S)	84.1	44-120			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: PHENOL-D6 (S)	79.7	10-115			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: TERPHENYL-D14 (S)	85.9	50-134			%	05/06/19	05/08/19

Quant Method: Y0319NC.M
Run #: 0411Y324
Instrument: Yoda
Sequence: Y190411
Dilution Factor: 1
Initials: JPR

Printed: 05/08/19 2:48:07 PM

APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8270D MODIFIED WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH809

APPL ID: AZ90213

Sample Collection Date: 04/25/19

QCG: #87DME-190429A-239869

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8270D	2-(2-METHOXYETHOXY)-ETHANOL	80.0 U	100	80.0	40.0	ug/L	04/29/19	04/30/19

Quant Method:	YMEE0430.M
Run #:	0430Y035
Instrument:	Yoda
Sequence:	Y190430M
Dilution Factor:	1
Initials:	MA

Printed: 05/01/19 9:45:42 AM

APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8270D MODIFIED WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH811

APPL ID: AZ90215

Sample Collection Date: 04/25/19

QCG: #87DME-190429A-239869

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8270D	2-(2-METHOXYETHOXY)-ETHANOL	80.0 U	100	80.0	40.0	ug/L	04/29/19	04/30/19

Quant Method: YMEE0430.M
Run #: 0430Y036
Instrument: Yoda
Sequence: Y190430M
Dilution Factor: 1
Initials: MA

Printed: 05/01/19 9:45:42 AM
APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8260B BTEX WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH808

APPL ID: AZ90212

Sample Collection Date: 04/25/19

QCG: #86BTO-190429AM-239826

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8260B	BENZENE	0.30 U	1.0	0.30	0.15	ug/L	04/29/19	04/29/19
EPA 8260B	ETHYLBENZENE	0.50 U	1.0	0.50	0.23	ug/L	04/29/19	04/29/19
EPA 8260B	TOLUENE	0.30 U	1.0	0.30	0.15	ug/L	04/29/19	04/29/19
EPA 8260B	XYLENES (TOTAL)	0.30 U	2.0	0.30	0.15	ug/L	04/29/19	04/29/19
EPA 8260B	SURROGATE: 1,2-DICHLOROETHANE-	96.3	81-118			%	04/29/19	04/29/19
EPA 8260B	SURROGATE: 4-BROMOFLUOROBENZ	103	85-114			%	04/29/19	04/29/19
EPA 8260B	SURROGATE: DIBROMOFLUOROMETH	103	80-119			%	04/29/19	04/29/19
EPA 8260B	SURROGATE: TOLUENE-D8 (S)	99.6	89-112			%	04/29/19	04/29/19

Quant Method: M0324.M
Run #: 0429M11
Instrument: Max
Sequence: M190401
Dilution Factor: 1
Initials: DG

Printed: 05/03/19 10:30:24 AM

APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8260B BTEX WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH809

APPL ID: AZ90213

Sample Collection Date: 04/25/19

QCG: #86BTO-190429AM-239826

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8260B	BENZENE	0.30 U	1.0	0.30	0.15	ug/L	04/29/19	04/29/19
EPA 8260B	ETHYLBENZENE	0.50 U	1.0	0.50	0.23	ug/L	04/29/19	04/29/19
EPA 8260B	TOLUENE	0.30 U	1.0	0.30	0.15	ug/L	04/29/19	04/29/19
EPA 8260B	XYLENES (TOTAL)	0.30 U	2.0	0.30	0.15	ug/L	04/29/19	04/29/19
EPA 8260B	SURROGATE: 1,2-DICHLOROETHANE-	94.1	81-118			%	04/29/19	04/29/19
EPA 8260B	SURROGATE: 4-BROMOFLUOROBENZ	103	85-114			%	04/29/19	04/29/19
EPA 8260B	SURROGATE: DIBROMOFLUOROMETH	105	80-119			%	04/29/19	04/29/19
EPA 8260B	SURROGATE: TOLUENE-D8 (S)	99.4	89-112			%	04/29/19	04/29/19

Quant Method: M0324.M
Run #: 0429M12
Instrument: Max
Sequence: M190401
Dilution Factor: 1
Initials: DG

Printed: 05/03/19 10:30:24 AM

APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8260B BTEX WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH810

APPL ID: AZ90214

Sample Collection Date: 04/25/19

QCG: #86BTO-190429AM-239826

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8260B	BENZENE	0.30 U	1.0	0.30	0.15	ug/L	04/29/19	04/29/19
EPA 8260B	ETHYLBENZENE	0.50 U	1.0	0.50	0.23	ug/L	04/29/19	04/29/19
EPA 8260B	TOLUENE	0.30 U	1.0	0.30	0.15	ug/L	04/29/19	04/29/19
EPA 8260B	XYLENES (TOTAL)	0.30 U	2.0	0.30	0.15	ug/L	04/29/19	04/29/19
EPA 8260B	SURROGATE: 1,2-DICHLOROETHANE-	97.3	81-118			%	04/29/19	04/29/19
EPA 8260B	SURROGATE: 4-BROMOFLUOROBENZ	105	85-114			%	04/29/19	04/29/19
EPA 8260B	SURROGATE: DIBROMOFLUOROMETH	106	80-119			%	04/29/19	04/29/19
EPA 8260B	SURROGATE: TOLUENE-D8 (S)	102	89-112			%	04/29/19	04/29/19

Quant Method: M0324.M
Run #: 0429M13
Instrument: Max
Sequence: M190401
Dilution Factor: 1
Initials: DG

Printed: 05/03/19 10:30:24 AM

APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8260B BTEX WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH811

APPL ID: AZ90215

Sample Collection Date: 04/25/19

QCG: #86BTO-190429AM-239826

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8260B	BENZENE	0.30 U	1.0	0.30	0.15	ug/L	04/29/19	04/29/19
EPA 8260B	ETHYLBENZENE	0.50 U	1.0	0.50	0.23	ug/L	04/29/19	04/29/19
EPA 8260B	TOLUENE	0.30 U	1.0	0.30	0.15	ug/L	04/29/19	04/29/19
EPA 8260B	XYLENES (TOTAL)	0.30 U	2.0	0.30	0.15	ug/L	04/29/19	04/29/19
EPA 8260B	SURROGATE: 1,2-DICHLOROETHANE-	98.5	81-118			%	04/29/19	04/29/19
EPA 8260B	SURROGATE: 4-BROMOFLUOROBENZ	106	85-114			%	04/29/19	04/29/19
EPA 8260B	SURROGATE: DIBROMOFLUOROMETH	108	80-119			%	04/29/19	04/29/19
EPA 8260B	SURROGATE: TOLUENE-D8 (S)	103	89-112			%	04/29/19	04/29/19

Quant Method: M0324.M
Run #: 0429M14
Instrument: Max
Sequence: M190401
Dilution Factor: 1
Initials: DG

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APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8260B GRO WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH808

APPL ID: AZ90212

Sample Collection Date: 04/25/19

QCG: #GRO86-190429AM-239825

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8260B	GASOLINE RANGE ORGANICS	18.0 U	20	18.0	8.6	ug/L	04/29/19	04/29/19
EPA 8260B	SURROGATE: 4-BROMOFLUOROBENZ	103	85-114			%	04/29/19	04/29/19

Quant Method:	MSUR324.M
Run #:	0429M11
Instrument:	Max
Sequence:	M190401
Dilution Factor:	1
Initials:	DG

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APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8260B GRO WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH809

APPL ID: AZ90213

Sample Collection Date: 04/25/19

QCG: #GRO86-190429AM-239825

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8260B	GASOLINE RANGE ORGANICS	18.0 U	20	18.0	8.6	ug/L	04/29/19	04/29/19
EPA 8260B	SURROGATE: 4-BROMOFLUOROBENZ	103	85-114			%	04/29/19	04/29/19

Quant Method:	MSUR324.M
Run #:	0429M12
Instrument:	Max
Sequence:	M190401
Dilution Factor:	1
Initials:	DG

Printed: 05/03/19 10:23:44 AM

APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8260B GRO WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH810

APPL ID: AZ90214

Sample Collection Date: 04/25/19

QCG: #GRO86-190429AM-239825

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8260B	GASOLINE RANGE ORGANICS	18.0 U	20	18.0	8.6	ug/L	04/29/19	04/29/19
EPA 8260B	SURROGATE: 4-BROMOFLUOROBENZ	105	85-114			%	04/29/19	04/29/19

Quant Method: MSUR324.M
Run #: 0429M13
Instrument: Max
Sequence: M190401
Dilution Factor: 1
Initials: DG

Printed: 05/03/19 10:23:44 AM

APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8260B GRO WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH811

APPL ID: AZ90215

Sample Collection Date: 04/25/19

QCG: #GRO86-190429AM-239825

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8260B	GASOLINE RANGE ORGANICS	18.0 U	20	18.0	8.6	ug/L	04/29/19	04/29/19
EPA 8260B	SURROGATE: 4-BROMOFLUOROBENZ	106	85-114			%	04/29/19	04/29/19

Quant Method:	MSUR324.M
Run #:	0429M14
Instrument:	Max
Sequence:	M190401
Dilution Factor:	1
Initials:	DG

Printed: 05/03/19 10:23:44 AM

APPL-F1-SC-NoMC-REG MDLs-DOD

METHANE

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH808

APPL ID: AZ90212

Sample Collection Date: 04/25/19

QCG: #RSKME-190503A-239958

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
RSK 175	METHANE	1.00 U	5.0	1.00	0.25	ug/L	05/03/19	05/03/19

Quant Method: RSK0311.M
Run #: 19050319
Instrument: Rocky
Sequence: 190311
Dilution Factor: 1
Initials: CMO

Printed: 05/06/19 10:48:49 AM

APPL-F1-SC-NoMC-REG MDLs-DOD

METHANE

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88736

Sample ID: ERH809

APPL ID: AZ90213

Sample Collection Date: 04/25/19

QCG: #RSKME-190503A-239958

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
RSK 175	METHANE	1.00 U	5.0	1.00	0.25	ug/L	05/03/19	05/03/19

Quant Method: RSK0311.M
Run #: 19050320
Instrument: Rocky
Sequence: 190311
Dilution Factor: 1
Initials: CMO

Printed: 05/06/19 10:48:49 AM
APPL-F1-SC-NoMC-REG MDLs-DOD

METHANE

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua
Project: 60571032 CV18F0126 Red Hill Fuel Storage
Sample ID: ERH810
Sample Collection Date: 04/25/19

ARF: 88736
APPL ID: AZ90214
QCG: #RSKME-190503A-239958

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
RSK 175	METHANE	1.00 U	5.0	1.00	0.25	ug/L	05/03/19	05/03/19

Quant Method: RSK0311.M
Run #: 19050321
Instrument: Rocky
Sequence: 190311
Dilution Factor: 1
Initials: CMO

Printed: 05/06/19 10:48:49 AM
APPL-F1-SC-NoMC-REG MDLs-DOD

METHANE

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua
Project: 60571032 CV18F0126 Red Hill Fuel Storage
Sample ID: ERH811
Sample Collection Date: 04/25/19

ARF: 88736
APPL ID: AZ90215
QCG: #RSKME-190503A-239958

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
RSK 175	METHANE	1.00 U	5.0	1.00	0.25	ug/L	05/03/19	05/03/19

Quant Method: RSK0311.M
Run #: 19050322
Instrument: Rocky
Sequence: 190311
Dilution Factor: 1
Initials: CMO

Printed: 05/06/19 10:48:49 AM
APPL-F1-SC-NoMC-REG MDLs-DOD

Wet Lab Analysis

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

Sample ID: ERH809

APPL ID: AZ90213

Sample Collection Date: 04/25/19

ARF: 88736

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
EPA 300.0	CHLORIDE	1200	50.0	10.00	4.00	mg/L	50	05/08/19	05/08/19
EPA 300.0	SULFATE	342	50.0	10.00	4.50	mg/L	50	05/08/19	05/08/19
EPA 300.0	NITRATE	7.1	0.5	0.18	0.04	mg/L	1	04/26/19	04/26/19
EPA 353.2	NITRATE-NITRITE-N	1.8	0.10	0.090	0.028	mg/L	1	05/01/19	05/01/19
SM 2320B	BICARBONATE AS CACO3	146	2.0	1.70	0.85	mg/L	1	04/30/19	04/30/19
SM 2320B	CARBONATE AS CACO3	1.70 U	2.0	1.70	0.85	mg/L	1	04/30/19	04/30/19
SM 2320B	TOTAL ALKALINITY AS CACO	146	2.0	1.70	0.85	mg/L	1	04/30/19	04/30/19
SM3500FeB	FERROUS IRON	0.32 U	1.0	0.32	0.16	mg/L	1	04/30/19	04/30/19
SW846 9060A	DISSOLVED ORGANIC CARB	1.3	0.93	0.350	0.130	mg/L	1	05/01/19	05/01/19
SW846 9060A	TOTAL ORGANIC CARBON	2.1	0.93	0.350	0.130	mg/L	1	05/03/19	05/03/19

Printed: 05/22/19 11:40:27 AM

APPL-F1-SC-NoMC-REG MDLs

Wet Lab Analysis

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

Sample ID: ERH811

APPL ID: AZ90215

Sample Collection Date: 04/25/19

ARF: 88736

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
EPA 300.0	CHLORIDE	85.9	5.0	1.00	0.40	mg/L	5	05/08/19	05/08/19
EPA 300.0	NITRATE	1.0	0.5	0.18	0.04	mg/L	1	04/26/19	04/26/19
EPA 300.0	SULFATE	30.1	1.0	0.20	0.09	mg/L	1	04/26/19	04/26/19
EPA 353.2	NITRATE-NITRITE-N	0.21	0.10	0.090	0.028	mg/L	1	05/01/19	05/01/19
SM 2320B	BICARBONATE AS CACO3	64.2	2.0	1.70	0.85	mg/L	1	04/30/19	04/30/19
SM 2320B	CARBONATE AS CACO3	1.70 U	2.0	1.70	0.85	mg/L	1	04/30/19	04/30/19
SM 2320B	TOTAL ALKALINITY AS CACO	64.2	2.0	1.70	0.85	mg/L	1	04/30/19	04/30/19
SM3500FeB	FERROUS IRON	0.88 J	1.0	0.32	0.16	mg/L	1	04/30/19	04/30/19
SW846 9060A	DISSOLVED ORGANIC CARB	0.47 J	0.93	0.350	0.130	mg/L	1	05/03/19	05/03/19
SW846 9060A	TOTAL ORGANIC CARBON	0.28 J	0.93	0.350	0.130	mg/L	1	05/01/19	05/01/19

J = Estimated value.

Printed: 05/22/19 11:40:27 AM

APPL-F1-SC-NoMC-REG MDLs

QC FORMS

EPA 8015B-eLL

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/06/19

Matrix: WATER Instrument: Apollo

APPL ID.	Client Sample No.	SURROGATE: OCTACOSANE (S)			SURROGATE: ORTHO-TERPHENYL (S)		
		Limits	Result	Qualifier	Limits	Result	Qualifier
190502A1-BLK	Blank	60-142	97.3		56-125	93.5	
190502A1-LCS	Lab Control Spike	60-142	90.7		56-125	89.5	
190502A1-LCSD	Lab Control SpikeD	60-142	91.1		56-125	88.8	
AZ90213	ERH809	60-142	102		56-125	97.1	
AZ90215	ERH811	60-142	105		56-125	100	

Comments: Batch: #DOC53-190502A1

EPA 8015B-eL

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/06/19

Matrix: WATER Instrument: Apollo

Blank ID: 190502A1-BLK Time Analyzed: 1730

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190502A1-BLK	Blank	506003	05/06/19 1730
190502A1-LCS	Lab Control Spike	506004	05/06/19 1750
190502A1-LCSD	Lab Control SpikeD	506005	05/06/19 1810
AZ90213	ERH809	506015	05/06/19 2129
AZ90215	ERH811	506017	05/06/19 2209

Comments: Batch: #DOC53-190502A1

Method Blank
EPA 8015B TPH LIQ-LIQ

Blank Name/QCG: **190502W-90213 - 240184**
Batch ID: #DOC53-190502A1

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	DIESEL (C10-C24)	25.00 U	40.0	25.00	13.07	ug/L	05/02/19	05/06/19
BLANK	OIL (C24-C40)	40.00 U	40.0	40.00	5.54	ug/L	05/02/19	05/06/19
BLANK	SURROGATE: OCTACOSANE (S)	97.3	60-142			%	05/02/19	05/06/19
BLANK	SURROGATE: ORTHO-TERPHEN	93.5	56-125			%	05/02/19	05/06/19

Quant Method:DOC0411.M
Run #:506003
Instrument:Apollo
Sequence:190506
Initials:BTI

GC SC-Blank-REG MDLs-DOD
Printed: 05/09/19 3:12:39 PM

EPA 8015B-eL

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/06/19

Matrix: WATER Instrument: Apollo

LCS ID: 190502A1-LCS Time Analyzed: 1750

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190502A1-BLK	Blank	506003	05/06/19 1730
190502A1-LCS	Lab Control Spike	506004	05/06/19 1750
190502A1-LCSD	Lab Control SpikeD	506005	05/06/19 1810
AZ90213	ERH809	506015	05/06/19 2129
AZ90215	ERH811	506017	05/06/19 2209

Comments: Batch: #DOC53-190502A1

Printed: 05/09/19 3:12:59 PM
Form 4, LCS Summary

Laboratory Control Spike Recoveries

EPA 8015B TPH LIQ-LIQ

APPL ID: **190502W-90213 LCS - 240184**
Batch ID: #DOC53-190502A1

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
DIESEL (C10-C24)	1250	1550	1530	124	122	36-132	1.3	30
OIL (C24-C40)	1250	1240	1310	99.2	105	41-113	5.5	30
SURROGATE: OCTACOSANE (S)	75.0	68.0	68.3	90.7	91.1	60-142		
SURROGATE: ORTHO-TERPHENYL (S)	75.0	67.1	66.6	89.5	88.8	56-125		

Comments:

Primary	SPK	DUP
Quant Method :	DOC0411.M	DOC0411.M
Extraction Date :	05/02/19	05/02/19
Analysis Date :	05/06/19	05/06/19
Instrument :	Apollo	Apollo
Run :	506004	506005
Initials :	BTI	

8270D-SIM

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/02/19

Matrix: WATER Instrument: Linus

APPL ID.	Client Sample No.	SURROGATE: 2-METHYLNAPHTHALENE-D10 (S)			SURROGATE: FLUORANTHENE-D10 (S)		
		Limits	Result	Qualifier	Limits	Result	Qualifier
190430A-BLK	Blank	39-114	61.4		58-120	77.7	
190430A-LCS	Lab Control Spike	39-114	60.5		58-120	73.1	
190430A-LCSD	Lab Control SpikeD	39-114	64.6		58-120	72.3	
AZ90213	ERH809	39-114	98.6		58-120	94.4	
AZ90215	ERH811	39-114	13.7	#	58-120	13.7	#

Comments: Batch: #SIM53-190430A

= Recovery outside of Control Limits on Sample.

8270D-SIM

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Linus

APPL ID.	Client Sample No.	SURROGATE: 2-METHYLNAPHTHALENE-D10 (S)			SURROGATE: FLUORANTHENE-D10 (S)		
		Limits	Result	Qualifier	Limits	Result	Qualifier
190506A1-BLK	Blank	39-114	71.4		58-120	81.3	
190506A1-LCS	Lab Control Spike	39-114	67.5		58-120	81.4	
AZ90215	ERH811	39-114	79.9		58-120	86.8	
190506A1-LCSD	Lab Control SpikeD	39-114	63.7		58-120	78.2	

Comments: Batch: #SIM53-190506A1

8270D-SIM

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/02/19

Matrix: WATER Instrument: Linus

Blank ID: 190430A-BLK Time Analyzed: 1216

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190430A-BLK	Blank	0426L031	05/02/19 1216
190430A-LCS	Lab Control Spike	0426L032	05/02/19 1239
190430A-LCSD	Lab Control SpikeD	0426L033	05/02/19 1301
AZ90213	ERH809	0426L044	05/02/19 1719
AZ90215	ERH811	0426L045	05/02/19 1742

Comments: Batch: #SIM53-190430A

Method Blank
EPA 8270D SIM LIQ-LIQ

Blank Name/QCG: **190430W-90100 - 239930**
Batch ID: #SIM53-190430A

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	1-METHYLNAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	04/30/19	05/02/19
BLANK	2-METHYLNAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	04/30/19	05/02/19
BLANK	NAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	04/30/19	05/02/19
BLANK	SURROGATE: 2-METHYLNAPHT	61.4	39-114			%	04/30/19	05/02/19
BLANK	SURROGATE: FLUORANTHENE-	77.7	58-120			%	04/30/19	05/02/19

Quant Method:L0326.M
Run #:0426L031
Instrument:Linus
Sequence:L190426
Initials:JPR

GC SC-Blank-REG MDLs-DOD
Printed: 05/03/19 11:26:42 AM

8270D-SIM

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Linus

Blank ID: 190506A1-BLK Time Analyzed: 1009

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190506A1-BLK	Blank	0426L057	05/08/19 1009
190506A1-LCS	Lab Control Spike	0426L058	05/08/19 1031
AZ90215	ERH811	0426L063	05/08/19 1223
190506A1-LCSD	Lab Control SpikeD	0426L064	05/08/19 1245

Comments: Batch: #SIM53-190506A1

Method Blank

EPA 8270D SIM LIQ-LIQ RX

Blank Name/QCG: **190506W-90215 - 240188**

Batch ID: #SIM53-190506A1

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	1-METHYLNAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	05/06/19	05/08/19
BLANK	2-METHYLNAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	05/06/19	05/08/19
BLANK	NAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	05/06/19	05/08/19
BLANK	SURROGATE: 2-METHYLNAPHT	71.4	39-114			%	05/06/19	05/08/19
BLANK	SURROGATE: FLUORANTHENE-	81.3	58-120			%	05/06/19	05/08/19

Quant Method:L0326.M
Run #:0426L057
Instrument:Linus
Sequence:L190426
Initials:JPR

GC SC-Blank-REG MDLs-DOD
Printed: 05/09/19 3:07:29 PM

8270D-SIM

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/02/19

Matrix: WATER Instrument: Linus

LCS ID: 190430A-LCS Time Analyzed: 1239

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190430A-BLK	Blank	0426L031	05/02/19 1216
190430A-LCS	Lab Control Spike	0426L032	05/02/19 1239
190430A-LCSD	Lab Control SpikeD	0426L033	05/02/19 1301
AZ90213	ERH809	0426L044	05/02/19 1719
AZ90215	ERH811	0426L045	05/02/19 1742

Comments: Batch: #SIM53-190430A

Laboratory Control Spike Recoveries

EPA 8270D SIM LIQ-LIQ

APPL ID: **190430W-90100 LCS - 239930**
Batch ID: #SIM53-190430A

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
1-METHYLNAPHTHALENE	6.25	3.76	3.97	60.2	63.5	41-115	5.4	20
2-METHYLNAPHTHALENE	6.25	4.07	4.33	65.1	69.3	39-114	6.2	20
NAPHTHALENE	6.25	3.87	4.27	61.9	68.3	43-114	9.8	20
SURROGATE: 2-METHYLNAPHTHALEN	6.25	3.78	4.04	60.5	64.6	39-114		
SURROGATE: FLUORANTHENE-D10 (S)	6.25	4.57	4.52	73.1	72.3	58-120		

Comments: _____

Primary	SPK	DUP
Quant Method :	L0326.M	L0326.M
Extraction Date :	04/30/19	04/30/19
Analysis Date :	05/02/19	05/02/19
Instrument :	Linus	Linus
Run :	0426L032	0426L033
Initials :	JPR	

Printed: 05/03/19 11:26:49 AM
APPL Standard LCSD

8270D-SIM

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Linus

LCS ID: 190506A1-LCS Time Analyzed: 1031

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190506A1-BLK	Blank	0426L057	05/08/19 1009
190506A1-LCS	Lab Control Spike	0426L058	05/08/19 1031
AZ90215	ERH811	0426L063	05/08/19 1223
190506A1-LCSD	Lab Control SpikeD	0426L064	05/08/19 1245

Comments: Batch: #SIM53-190506A1

Laboratory Control Spike Recoveries

EPA 8270D SIM LIQ-LIQ RX

APPL ID: **190506W-90215 LCS - 240188**
Batch ID: #SIM53-190506A1

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
1-METHYLNAPHTHALENE	6.25	6.43	6.10	103	97.6	41-115	5.3	20
2-METHYLNAPHTHALENE	6.25	7.01	6.63	112	106	39-114	5.6	20
NAPHTHALENE	6.25	6.95	6.51	111	104	43-114	6.5	20
SURROGATE: 2-METHYLNAPHTHALEN	6.25	4.22	3.98	67.5	63.7	39-114		39-11
SURROGATE: FLUORANTHENE-D10 (S)	6.25	5.09	4.89	81.4	78.2	58-120		58-12

Comments:

Primary	SPK	DUP
Quant Method :	L0326.M	L0326.M
Extraction Date :	05/06/19	05/06/19
Analysis Date :	05/08/19	05/08/19
Instrument :	Linus	Linus
Run :	0426L058	0426L064
Initials :	JPR	

Form 5
Tune Summary

Lab Name: APPL Inc.
Case No:
Matrix: Water
ID: 0326L002.D

SDG No:
Date Analyzed: 03/26/19
Instrument: Linus
Time Analyzed: 9:39

	Client Sample No.	APPL ID.	File ID.	Date Analyzed
1		0.5 SIM 03/06/19	0326L005.D	03/26/19 10:39
2		1 SIM 03/06/19	0326L006.D	03/26/19 11:01
3		5 SIM 03/06/19	0326L007.D	03/26/19 11:23
4		10 SIM 03/06/19	0326L008.D	03/26/19 11:45
5		50 SIM 03/06/19	0326L009.D	03/26/19 12:08
6		100 SIM 03/06/19	0326L010.D	03/26/19 12:30
7		0.2 SIM 01/18/19	0326L012.D	03/26/19 15:55
8		0.1 SIM 01/18/19	0326L013.D	03/26/19 17:05
9		SS SIM 03/06/19	0326L014.D	03/26/19 17:27
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

m/e		
51	9.95 - 80% of mass 198	45.8
68	0 - 2.05% of mass 69	0.0
70	0 - 2% of mass 69	0.4
127	10 - 80% of mass 198	61.0
197	0 - 2% of mass 198	0.0
198	100 - 100% of mass 198	100.0
199	5 - 9% of mass 198	6.0
275	10 - 60% of mass 198	18.6
365	1 - 100% of mass 198	2.2
441	0.01 - 24% of mass 442	14.3
442	50 - 150% of mass 198	78.8
443	15 - 24% of mass 442	19.8

Form 5
Tune Summary

Lab Name: APPL Inc.
Case No: 88736
Matrix: Water
ID: 0426L029.D

SDG No: 88736
Date Analyzed: 05/02/19
Instrument: Linus
Time Analyzed: 10:38

	Client Sample No.	APPL ID.	File ID.	Date Analyzed
1		5 SIM 03/06/19	0426L030.D	05/02/19 10:54
2	Blank	190430A BLK 1/800	0426L031.D	05/02/19 12:16
3	Lab Control Spike	190430A LCS-2 1/800	0426L032.D	05/02/19 12:39
4	Lab Control SpikeD	190430A LCSD-2 1/800	0426L033.D	05/02/19 13:01
5	ERH809	AZ90213W21 1/800	0426L044.D	05/02/19 17:19
6	ERH811	AZ90215W18 1/800	0426L045.D	05/02/19 17:42
7		5 SIM 03/06/19	0426L054.D	05/02/19 21:03
8				
9				
10				
11				
12				
13				
14				
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16				
17				
18				
19				
20				
21				
22				

m/e		
51	9.95 - 80% of mass 198	61.6
68	0 - 2.05% of mass 69	0.0
70	0 - 2% of mass 69	0.5
127	10 - 80% of mass 198	66.1
197	0 - 2% of mass 198	0.0
198	100 - 100% of mass 198	100.0
199	5 - 9% of mass 198	6.8
275	10 - 60% of mass 198	21.5
365	1 - 100% of mass 198	2.9
441	0.01 - 24% of mass 442	18.3
442	50 - 150% of mass 198	70.0
443	15 - 24% of mass 442	19.0

Form 5
Tune Summary

Lab Name: APPL Inc.
Case No: 88736
Matrix: Water
ID: 0426L055.D

SDG No: 88736
Date Analyzed: 05/08/19
Instrument: Linus
Time Analyzed: 8:42

	Client Sample No.	APPL ID.	File ID.	Date Analyzed
1		5 SIM 03/06/19	0426L056.D	05/08/19 8:58
2	Blank	190506A BLK 1/800	0426L057.D	05/08/19 10:09
3	Lab Control Spike	190506A LCS-2 1/800	0426L058.D	05/08/19 10:31
4	ERH811	AZ90215W19 1/800	0426L063.D	05/08/19 12:23
5	Lab Control SpikeD	190506A LCSD-2 1/800	0426L064.D	05/08/19 12:45
6		5 SIM 03/06/19	0426L065.D	05/08/19 13:07
7				
8				
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17				
18				
19				
20				
21				
22				

m/e		
51	9.95 - 80% of mass 198	61.6
68	0 - 2.05% of mass 69	0.0
70	0 - 2% of mass 69	0.6
127	10 - 80% of mass 198	66.2
197	0 - 2% of mass 198	0.0
198	100 - 100% of mass 198	100.0
199	5 - 9% of mass 198	6.4
275	10 - 60% of mass 198	21.0
365	1 - 100% of mass 198	2.5
441	0.01 - 24% of mass 442	17.1
442	50 - 150% of mass 198	62.6
443	15 - 24% of mass 442	20.6

INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: APPL Inc. Contract: Review

Lab Code: _____ SDG No.: 88736

Lab File ID (Standard): 0426L030.D Date Analyzed: 2 May 19 10:54

Instrument ID: Linus Time Analyzed: 2 May 19 10:54

GC Column: _____ ID: Heated Purge: (Y/N) _____

		Napthalene-D8(IS)		Acenaphthene-D10(IS)		Phenanthrene-D10(IS)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	45570	3.94	18053	5.96	28703	7.70
	UPPER LIMIT	91140	4.11	36106	6.13	57406	7.87
	LOWER LIMIT	22785	3.77	9027	5.79	14352	7.53
	SAMPLE NO.						
01	190430A BLK 1/800	66235	3.94	26500	5.96	46178	7.70
02	190430A LCS-2 1/800	66824	3.94	27543	5.96	47183	7.69
03	190430A LCSD-2 1/800	62257	3.94	24694	5.96	47014	7.69
04	AZ90213W21 1/800	39058	3.94	17215	5.96	31896	7.70
05	AZ90215W18 1/800	41401	3.95	18623	5.98	34468	7.71
06	5 SIM 03/06/19	52891	3.94	22558	5.96	34382	7.70
07							
08							
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21							
22							

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = -50% of internal standard area.
RT UPPER LIMIT = +0.17 minutes of internal standard RT
RT LOWER LIMIT = -0.17 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: APPL Inc. Contract: Review

Lab Code: SDG No.: 88736

Lab File ID (Standard): 0426L030.D Date Analyzed: 2 May 19 10:54

Instrument ID: Linus Time Analyzed: 2 May 19 10:54

GC Column: ID: Heated Purge: (Y/N)

		Chrysene-D12(IS)		Perylene-D12(IS)			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	43875	10.79	36594	13.19		
	UPPER LIMIT	87750	10.96	73188	13.36		
	LOWER LIMIT	21938	10.62	18297	13.02		
	SAMPLE NO.						
01	190430A BLK 1/800	70364	10.80	60724	13.20		
02	190430A LCS-2 1/800	69956	10.78	64347	13.17		
03	190430A LCSD-2 1/800	67213	10.78	65915	13.17		
04	AZ90213W21 1/800	47241	10.80	41917	13.18		
05	AZ90215W18 1/800	52944	10.82	51744	13.20		
06	5 SIM 03/06/19	56026	10.79	55890	13.19		
07							
08							
09							
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17							
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21							
22							

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = -50% of internal standard area.
RT UPPER LIMIT = +0.17 minutes of internal standard RT
RT LOWER LIMIT = -0.17 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: APPL Inc. Contract: Review

Lab Code: _____ SDG No.: 88736

Lab File ID (Standard): 0426L056.D Date Analyzed: 8 May 19 8:58

Instrument ID: Linus Time Analyzed: 8 May 19 8:58

GC Column: _____ ID: Heated Purge: (Y/N) _____

		Napthalene-D8(IS)		Acenaphthene-D10(IS)		Phenanthrene-D10(IS)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	42798	3.94	17066	5.96	27637	7.69
	UPPER LIMIT	85596	4.11	34132	6.13	55274	7.86
	LOWER LIMIT	21399	3.77	8533	5.79	13819	7.52
	SAMPLE NO.						
01	190506A BLK 1/800	52108	3.94	20864	5.96	35674	7.70
02	190506A LCS-2 1/800	53850	3.94	21067	5.96	36440	7.69
03	AZ90215W19 1/800	45863	3.94	20020	5.96	33557	7.70
04	190506A LCSD-2 1/800	58118	3.94	23779	5.96	38671	7.69
05	5 SIM 03/06/19	57479	3.94	23233	5.96	38452	7.70
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12							
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22							

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = -50% of internal standard area.
RT UPPER LIMIT = +0.17 minutes of internal standard RT
RT LOWER LIMIT = -0.17 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: APPL Inc. Contract: Review

Lab Code: _____ SDG No.: 88736

Lab File ID (Standard): 0426L056.D Date Analyzed: 8 May 19 8:58

Instrument ID: Linus Time Analyzed: 8 May 19 8:58

GC Column: _____ ID: Heated Purge: (Y/N) _____

		Chrysene-D12(IS)		Perylene-D12(IS)			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	41172	10.79	34456	13.18		
	UPPER LIMIT	82344	10.96	68912	13.35		
	LOWER LIMIT	20586	10.62	17228	13.01		
	SAMPLE NO.						
01	190506A BLK 1/800	48821	10.82	45724	13.21		
02	190506A LCS-2 1/800	52874	10.78	28992	13.17		
03	AZ90215W19 1/800	44685	10.80	42473	13.20		
04	190506A LCSD-2 1/800	58538	10.78	55506	13.17		
05	5 SIM 03/06/19	55097	10.78	53471	13.17		
06							
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09							
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22							

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = -50% of internal standard area.
RT UPPER LIMIT = +0.17 minutes of internal standard RT
RT LOWER LIMIT = -0.17 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

EPA 8270D

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/02/19

Matrix: WATER Instrument: Yoda

APPL ID.	Client Sample No.	SURROGATE: 2,4,6-TRIBROMOPHENOL (S)			SURROGATE: 2-FLUORBIPHENYL (S)		
		Limits	Result	Qualifier	Limits	Result	Qualifier
190430A-BLK	Blank	43-140	75.7		44-119	61.7	
190430A-LCS	Lab Control Spike	43-140	78.8		44-119	64.0	
190430A-LCSD	Lab Control SpikeD	43-140	82.0		44-119	64.1	
AZ90213	ERH809	43-140	76.8		44-119	67.2	
AZ90215	ERH811	43-140	8.83	#	44-119	7.97	#

Comments: Batch: #87DC5-190430A

= Recovery outside of Control Limits on Sample.

EPA 8270D

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/02/19

Matrix: WATER Instrument: Yoda

APPL ID.	Client Sample No.	SURROGATE: 2-FLUOROPHENOL (S)			SURROGATE: NITROBENZENE-D5 (S)		
		Limits	Result	Qualifier	Limits	Result	Qualifier
190430A-BLK	Blank	19-119	66.7		44-120	65.0	
190430A-LCS	Lab Control Spike	19-119	79.6		44-120	72.6	
190430A-LCSD	Lab Control SpikeD	19-119	84.8		44-120	77.2	
AZ90213	ERH809	19-119	72.6		44-120	67.7	
AZ90215	ERH811	19-119	10.4	#	44-120	9.13	#

Comments: Batch: #87DC5-190430A

= Recovery outside of Control Limits on Sample.

EPA 8270D

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/02/19

Matrix: WATER Instrument: Yoda

APPL ID.	Client Sample No.	SURROGATE: PHENOL-D6 (S)			SURROGATE: TERPHENYL-D14 (S)		
		Limits	Result	Qualifier	Limits	Result	Qualifier
190430A-BLK	Blank	10-115	61.1		50-134	66.0	
190430A-LCS	Lab Control Spike	10-115	74.8		50-134	66.9	
190430A-LCSD	Lab Control SpikeD	10-115	80.0		50-134	66.0	
AZ90213	ERH809	10-115	71.3		50-134	67.7	
AZ90215	ERH811	10-115	9.90		50-134	8.24	#

Comments: Batch: #87DC5-190430A

= Recovery outside of Control Limits on Sample.

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Form 2 & 8, Surrogate Recovery Summary

EPA 8270D

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Yoda

APPL ID.	Client Sample No.	SURROGATE: 2,4,6-TRIBROMOPHENOL (S)			SURROGATE: 2-FLUORBIPHENYL (S)		
		Limits	Result	Qualifier	Limits	Result	Qualifier
190506A1-BLK	Blank	43-140	94.2		44-119	77.0	
190506A1-LCS	Lab Control Spike	43-140	94.0		44-119	75.9	
190506A1-LCSD	Lab Control SpikeD	43-140	94.8		44-119	77.4	
AZ90215	ERH811	43-140	99.0		44-119	81.2	

Comments: Batch: #87DC5-190506A1

EPA 8270D

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Yoda

APPL ID.	Client Sample No.	SURROGATE: 2-FLUOROPHENOL (S)			SURROGATE: NITROBENZENE-D5 (S)		
		Limits	Result	Qualifier	Limits	Result	Qualifier
190506A1-BLK	Blank	19-119	81.0		44-120	81.1	
190506A1-LCS	Lab Control Spike	19-119	83.6		44-120	81.6	
190506A1-LCSD	Lab Control SpikeD	19-119	83.6		44-120	81.6	
AZ90215	ERH811	19-119	83.7		44-120	84.1	

Comments: Batch: #87DC5-190506A1

EPA 8270D

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Yoda

APPL ID.	Client Sample No.	SURROGATE: PHENOL-D6 (S)			SURROGATE: TERPHENYL-D14 (S)		
		Limits	Result	Qualifier	Limits	Result	Qualifier
190506A1-BLK	Blank	10-115	76.4		50-134	83.1	
190506A1-LCS	Lab Control Spike	10-115	79.6		50-134	82.4	
190506A1-LCSD	Lab Control SpikeD	10-115	79.6		50-134	84.0	
AZ90215	ERH811	10-115	79.7		50-134	85.9	

Comments: Batch: #87DC5-190506A1

EPA 8270D

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/02/19

Matrix: WATER Instrument: Yoda

Blank ID: 190430A-BLK Time Analyzed: 1235

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190430A-BLK	Blank	0411Y270	05/02/19 1235
190430A-LCS	Lab Control Spike	0411Y271	05/02/19 1303
190430A-LCSD	Lab Control SpikeD	0411Y272	05/02/19 1331
AZ90213	ERH809	0411Y283	05/02/19 1839
AZ90215	ERH811	0411Y284	05/02/19 1907

Comments: Batch: #87DC5-190430A

Method Blank
EPA 8270D WATER

Blank Name/QCG: **190430W-90100 - 239931**
Batch ID: #87DC5-190430A

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	PHENOL	4.00 U	5.0	4.00	1.00	ug/L	04/30/19	05/02/19
BLANK	SURROGATE: 2,4,6-TRIBROMOP	75.7	43-140			%	04/30/19	05/02/19
BLANK	SURROGATE: 2-FLUORBIPHENY	61.7	44-119			%	04/30/19	05/02/19
BLANK	SURROGATE: 2-FLUOROPHENO	66.7	19-119			%	04/30/19	05/02/19
BLANK	SURROGATE: NITROBENZENE-	65.0	44-120			%	04/30/19	05/02/19
BLANK	SURROGATE: PHENOL-D6 (S)	61.1	10-115			%	04/30/19	05/02/19
BLANK	SURROGATE: TERPHENYL-D14 (	66.0	50-134			%	04/30/19	05/02/19

Quant Method:Y0319NC.M
Run #:0411Y270
Instrument:Yoda
Sequence:Y190411
Initials:MA

GC SC-Blank-REG MDLs-DOD
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EPA 8270D

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Yoda

Blank ID: 190506A1-BLK Time Analyzed: 1036

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190506A1-BLK	Blank	0411Y318	05/08/19 1036
190506A1-LCS	Lab Control Spike	0411Y319	05/08/19 1104
190506A1-LCSD	Lab Control SpikeD	0411Y320	05/08/19 1132
AZ90215	ERH811	0411Y324	05/08/19 1323

Comments: Batch: #87DC5-190506A1

Method Blank

EPA 8270D WATER RE-EXTRACT

Blank Name/QCG: **190506W-90215 - 240141**

Batch ID: #87DC5-190506A1

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	PHENOL	4.00 U	5.0	4.00	1.00	ug/L	05/06/19	05/08/19
BLANK	SURROGATE: 2,4,6-TRIBROMOP	94.2	43-140			%	05/06/19	05/08/19
BLANK	SURROGATE: 2-FLUORBIPHENY	77.0	44-119			%	05/06/19	05/08/19
BLANK	SURROGATE: 2-FLUOROPHENO	81.0	19-119			%	05/06/19	05/08/19
BLANK	SURROGATE: NITROBENZENE-	81.1	44-120			%	05/06/19	05/08/19
BLANK	SURROGATE: PHENOL-D6 (S)	76.4	10-115			%	05/06/19	05/08/19
BLANK	SURROGATE: TERPHENYL-D14 (	83.1	50-134			%	05/06/19	05/08/19

Quant Method:Y0319NC.M
Run #:0411Y318
Instrument:Yoda
Sequence:Y190411
Initials:JPR

GC SC-Blank-REG MDLs-DOD
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EPA 8270D

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/02/19

Matrix: WATER Instrument: Yoda

LCS ID: 190430A-LCS Time Analyzed: 1303

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190430A-BLK	Blank	0411Y270	05/02/19 1235
190430A-LCS	Lab Control Spike	0411Y271	05/02/19 1303
190430A-LCSD	Lab Control SpikeD	0411Y272	05/02/19 1331
AZ90213	ERH809	0411Y283	05/02/19 1839
AZ90215	ERH811	0411Y284	05/02/19 1907

Comments: Batch: #87DC5-190430A

Laboratory Control Spike Recoveries
EPA 8270D WATER

APPL ID: **190430W-90100 LCS - 239931**
Batch ID: #87DC5-190430A

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
PHENOL	62.5	51.8	55.8	82.9	89.3	10-115	7.4	20
SURROGATE: 2,4,6-TRIBROMOPHENOL	250	197	205	78.8	82.0	43-140		
SURROGATE: 2-FLUORBIPHENYL (S)	125	80.0	80.1	64.0	64.1	44-119		
SURROGATE: 2-FLUOROPHENOL (S)	250	199	212	79.6	84.8	19-119		
SURROGATE: NITROBENZENE-D5 (S)	125	90.8	96.5	72.6	77.2	44-120		
SURROGATE: PHENOL-D6 (S)	250	187	200	74.8	80.0	10-115		
SURROGATE: TERPHENYL-D14 (S)	125	83.6	82.5	66.9	66.0	50-134		

Comments:

Primary	SPK	DUP
Quant Method :	Y0319NC.M	Y0319NC.M
Extraction Date :	04/30/19	04/30/19
Analysis Date :	05/02/19	05/02/19
Instrument :	Yoda	Yoda
Run :	0411Y271	0411Y272
Initials :	MA	

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APPL Standard LCSD

EPA 8270D

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Yoda

LCS ID: 190506A1-LCS Time Analyzed: 1104

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190506A1-BLK	Blank	0411Y318	05/08/19 1036
190506A1-LCS	Lab Control Spike	0411Y319	05/08/19 1104
190506A1-LCSD	Lab Control SpikeD	0411Y320	05/08/19 1132
AZ90215	ERH811	0411Y324	05/08/19 1323

Comments: Batch: #87DC5-190506A1

Laboratory Control Spike Recoveries
EPA 8270D WATER RE-EXTRACT

APPL ID: **190506W-90215 LCS - 240141**
Batch ID: #87DC5-190506A1

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
PHENOL	62.5	57.6	58.1	92.2	93.0	10-115	0.86	20
SURROGATE: 2,4,6-TRIBROMOPHENOL	250	235	237	94.0	94.8	43-140		
SURROGATE: 2-FLUORBIPHENYL (S)	125	94.9	96.8	75.9	77.4	44-119		
SURROGATE: 2-FLUOROPHENOL (S)	250	209	209	83.6	83.6	19-119		
SURROGATE: NITROBENZENE-D5 (S)	125	102	102	81.6	81.6	44-120		
SURROGATE: PHENOL-D6 (S)	250	199	199	79.6	79.6	10-115		
SURROGATE: TERPHENYL-D14 (S)	125	103	105	82.4	84.0	50-134		

Comments:

Primary	SPK	DUP
Quant Method :	Y0319NC.M	Y0319NC.M
Extraction Date :	05/06/19	05/06/19
Analysis Date :	05/08/19	05/08/19
Instrument :	Yoda	Yoda
Run :	0411Y319	0411Y320
Initials :	JPR	

Form 5
Tune Summary

Lab Name: APPL Inc.
Case No:
Matrix: Soil
ID: 0319Y002.D

SDG No:
Date Analyzed: 03/19/19
Instrument: Yoda
Time Analyzed: 18:15

	Client Sample No.	APPL ID.	File ID.	Date Analyzed
1		50ug/mL 8270 03/13/1	0319Y003.D	03/19/19 18:31
2		4ug/mL 8270 03/13/19	0319Y004.D	03/19/19 18:58
3		5ug/mL 8270 03/13/19	0319Y005.D	03/19/19 19:26
4		10ug/mL 8270 03/13/1	0319Y006.D	03/19/19 19:54
5		20ug/mL 8270 03/13/1	0319Y007.D	03/19/19 20:22
6		40ug/mL 8270 03/13/1	0319Y008.D	03/19/19 20:49
7		60ug/mL 8270 03/13/1	0319Y009.D	03/19/19 21:17
8		80ug/mL 8270 03/13/1	0319Y010.D	03/19/19 21:44
9		100ug/mL 8270 03/13/	0319Y011.D	03/19/19 22:11
10		SS-8270 03/13/19	0319Y012.D	03/19/19 22:39
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

m/e		
51	9.95 - 80.04% of mass 198	47.2
68	0 - 2% of mass 69	0.0
70	0 - 2% of mass 69	0.6
127	10 - 80% of mass 198	58.4
197	0 - 2% of mass 198	0.0
198	100 - 100% of mass 198.05	100.0
199	5 - 9% of mass 198	6.7
275	10 - 60% of mass 198	23.1
365	1 - 100% of mass 198	2.4
441	0.01 - 24% of mass 442	16.3
442	50 - 150% of mass 198.05	69.9
443	15 - 24% of mass 442	19.7

Form 5
Tune Summary

Lab Name: APPL Inc.
Case No: 88736
Matrix: Water
ID: 0411Y263.D

SDG No: 88736
Date Analyzed: 05/02/19
Instrument: Yoda
Time Analyzed: 9:11

	Client Sample No.	APPL ID.	File ID.	Date Analyzed
1		50ug/ml 8270 3/13/19	0411Y264.D	05/02/19 9:26
2	Blank	190430A BLK 1/800	0411Y270.D	05/02/19 12:35
3	Lab Control Spike	190430A LCS-1 1/800	0411Y271.D	05/02/19 13:03
4	Lab Control SpikeD	190430A LCSD-1 1/800	0411Y272.D	05/02/19 13:31
5	ERH809	AZ90213W21 1/800	0411Y283.D	05/02/19 18:39
6	ERH811	AZ90215W18 1/800	0411Y284.D	05/02/19 19:07
7		50ug/ml 8270 3/13/19	0411Y287.D	05/02/19 20:30
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

m/e		
51	9.95 - 80.04% of mass 198	53.1
68	0 - 2% of mass 69	0.0
70	0 - 2% of mass 69	0.5
127	10 - 80% of mass 198	62.7
197	0 - 2% of mass 198	0.0
198	100 - 100% of mass 198.05	100.0
199	5 - 9% of mass 198	7.2
275	10 - 60% of mass 198	22.7
365	1 - 100% of mass 198	2.3
441	0.01 - 24% of mass 442	12.8
442	50 - 150% of mass 198.05	61.8
443	15 - 24% of mass 442	19.7

Form 5
Tune Summary

Lab Name: APPL Inc.
Case No: 88736
Matrix: Water
ID: 0411Y314.D

SDG No: 88736
Date Analyzed: 05/08/19
Instrument: Yoda
Time Analyzed: 8:53

	Client Sample No.	APPL ID.	File ID.	Date Analyzed
1		50ug/ml 8270 3/13/19	0411Y315.D	05/08/19 9:14
2	Blank	190506A BLK 1/800	0411Y318.D	05/08/19 10:36
3	Lab Control Spike	190506A LCS-1 1/800	0411Y319.D	05/08/19 11:04
4	Lab Control SpikeD	190506A LCSD-1 1/800	0411Y320.D	05/08/19 11:32
5	ERH811	AZ90215W19 1/800	0411Y324.D	05/08/19 13:23
6		50ug/ml 8270 3/13/19	0411Y325.D	05/08/19 13:51
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

m/e		
51	9.95 - 80.04% of mass 198	50.4
68	0 - 2% of mass 69	0.0
70	0 - 2% of mass 69	0.2
127	10 - 80% of mass 198	60.1
197	0 - 2% of mass 198	0.0
198	100 - 100% of mass 198.05	100.0
199	5 - 9% of mass 198	7.4
275	10 - 60% of mass 198	24.9
365	1 - 100% of mass 198	2.5
441	0.01 - 24% of mass 442	15.8
442	50 - 150% of mass 198.05	67.5
443	15 - 24% of mass 442	19.7

8A
INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: APPL Inc. Contract: Review

Lab Code: SDG No.: 88736

Lab File ID (Standard): 0411Y264.D Date Analyzed: 2 May 19 9:26

Instrument ID: Yoda Time Analyzed: 2 May 19 9:26

GC Column: ID: Heated Purge: (Y/N)

		1,4-dichlorobenzene-D4(IS)		Napthalene-D8(IS)		Acenaphthene-D10(IS)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	184492	5.28	808807	6.74	439608	8.78
	UPPER LIMIT	368984	5.45	1617614	6.91	879216	8.95
	LOWER LIMIT	92246	5.11	404404	6.57	219804	8.61
	SAMPLE NO.						
01	190430A BLK 1/800	199329	5.28	866269	6.74	470806	8.77
02	190430A LCS-1 1/800	167547	5.28	753242	6.74	443671	8.78
03	190430A LCSD-1 1/800	159395	5.28	719335	6.74	448864	8.78
04	AZ90213W21 1/800	155289	5.28	709163	6.74	426862	8.78
05	AZ90215W18 1/800	160650	5.28	761577	6.74	485980	8.77
06	50ug/ml 8270 3/13/19	207550	5.28	911370	6.74	504495	8.78
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = -50% of internal standard area.
RT UPPER LIMIT = +0.17 minutes of internal standard RT
RT LOWER LIMIT = -0.17 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8A
INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: APPL Inc. Contract: Review

Lab Code: _____ SDG No.: 88736

Lab File ID (Standard): 0411Y264.D Date Analyzed: 2 May 19 9:26

Instrument ID: Yoda Time Analyzed: 2 May 19 9:26

GC Column: _____ ID: Heated Purge: (Y/N) _____

		Phenanthrene-D10(IS)		Chrysene-D12(IS)		Perylene-D12(IS)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	736697	10.53	671005	13.65	660853	15.49
	UPPER LIMIT	1473394	10.70	1342010	13.82	1321706	15.66
	LOWER LIMIT	368349	10.36	335503	13.48	330427	15.32
	SAMPLE NO.						
01	190430A BLK 1/800	780417	10.53	707014	13.64	699190	15.49
02	190430A LCS-1 1/800	766016	10.53	688048	13.64	671650	15.49
03	190430A LCSD-1 1/800	760800	10.53	689946	13.65	668653	15.49
04	AZ90213W21 1/800	721470	10.53	642632	13.64	618437	15.49
05	AZ90215W18 1/800	823809	10.53	741476	13.64	716705	15.49
06	50ug/ml 8270 3/13/19	839503	10.54	762276	13.65	743444	15.49
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = -50% of internal standard area.
RT UPPER LIMIT = +0.17 minutes of internal standard RT
RT LOWER LIMIT = -0.17 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: APPL Inc. Contract: Review

Lab Code: _____ SDG No.: 88736

Lab File ID (Standard): 0411Y315.D Date Analyzed: 8 May 19 9:14

Instrument ID: Yoda Time Analyzed: 8 May 19 9:14

GC Column: _____ ID: Heated Purge: (Y/N) _____

		1,4-dichlorobenzene-D4(IS)		Napthalene-D8(IS)		Acenaphthene-D10(IS)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	166984	5.29	768893	6.75	422405	8.78
	UPPER LIMIT	333968	5.46	1537786	6.92	844810	8.95
	LOWER LIMIT	83492	5.12	384447	6.58	211203	8.61
	SAMPLE NO.						
01	190506A BLK 1/800	164984	5.28	704479	6.74	379264	8.77
02	190506A LCS-1 1/800	168710	5.28	720597	6.74	395924	8.77
03	190506A LCSD-1 1/800	158913	5.28	673513	6.74	367411	8.78
04	AZ90215W19 1/800	156965	5.28	684744	6.74	371687	8.77
05	50ug/ml 8270 3/13/19	176117	5.28	781817	6.74	387954	8.78
06							
07							
08							
09							
10							
11							
12							
13							
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17							
18							
19							
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21							
22							

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = -50% of internal standard area.
RT UPPER LIMIT = +0.17 minutes of internal standard RT
RT LOWER LIMIT = -0.17 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: APPL Inc. Contract: Review

Lab Code: _____ SDG No.: 88736

Lab File ID (Standard): 0411Y315.D Date Analyzed: 8 May 19 9:14

Instrument ID: Yoda Time Analyzed: 8 May 19 9:14

GC Column: _____ ID: Heated Purge: (Y/N) _____

		Phenanthrene-D10(IS)		Chrysene-D12(IS)		Perylene-D12(IS)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	719429	10.54	619512	13.65	591322	15.49
	UPPER LIMIT	1438858	10.71	1239024	13.82	1182644	15.66
	LOWER LIMIT	359715	10.37	309756	13.48	295661	15.32
	SAMPLE NO.						
01	190506A BLK 1/800	653354	10.53	545290	13.64	520672	15.48
02	190506A LCS-1 1/800	662510	10.53	571921	13.65	544110	15.49
03	190506A LCSD-1 1/800	611960	10.53	537860	13.65	518530	15.49
04	AZ90215W19 1/800	615083	10.53	536050	13.64	507989	15.48
05	50ug/ml 8270 3/13/19	700744	10.53	626040	13.64	575817	15.49
06							
07							
08							
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20							
21							
22							

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = -50% of internal standard area.
RT UPPER LIMIT = +0.17 minutes of internal standard RT
RT LOWER LIMIT = -0.17 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

EPA 8270D

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 04/30/19

Matrix: WATER Instrument: Yoda

Blank ID: 190429A-BLK Time Analyzed: 1413

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190429A-BLK	Blank	0430Y013	04/30/19 1413
190429A-LCS	Lab Control Spike	0430Y014	04/30/19 1437
190429A-LCSD	Lab Control SpikeD	0430Y015	04/30/19 1501
AZ90213	ERH809	0430Y035	04/30/19 2251
AZ90215	ERH811	0430Y036	04/30/19 2314

Comments: Batch: #87DME-190429A

Method Blank
EPA 8270D MODIFIED WATER

Blank Name/QCG: **190429W-89958 - 239869**
Batch ID: #87DME-190429A

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	2-(2-METHOXYETHOXY)-ETHAN	80.0 U	100	80.0	40.0	ug/L	04/29/19	04/30/19

Quant Method:YMEE0430.M
Run #:0430Y013
Instrument:Yoda
Sequence:Y190430M
Initials:MA

GC SC-Blank-REG MDLs-DOD
Printed: 05/01/19 9:45:41 AM

EPA 8270D

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 04/30/19

Matrix: WATER Instrument: Yoda

LCS ID: 190429A-LCS Time Analyzed: 1437

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190429A-BLK	Blank	0430Y013	04/30/19 1413
190429A-LCS	Lab Control Spike	0430Y014	04/30/19 1437
190429A-LCSD	Lab Control SpikeD	0430Y015	04/30/19 1501
AZ90213	ERH809	0430Y035	04/30/19 2251
AZ90215	ERH811	0430Y036	04/30/19 2314

Comments: Batch: #87DME-190429A

Laboratory Control Spike Recoveries
EPA 8270D MODIFIED WATER

APPL ID: **190429W-89958 LCS - 239869**
Batch ID: #87DME-190429A

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
2-(2-METHOXYETHOXY)-ETHANOL	80.0	93.3	124	117	155 #	30-130	28.3 #	20

= Recovery is outside QC limits.

Comments: _____

Primary	SPK	DUP
Quant Method :	YMEE0430.M	YMEE0430.M
Extraction Date :	04/29/19	04/29/19
Analysis Date :	04/30/19	04/30/19
Instrument :	Yoda	Yoda
Run :	0430Y014	0430Y015
Initials :	MA	

Printed: 05/01/19 9:45:49 AM
APPL Standard LCSD

EPA 8260B

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 04/29/19

Matrix: WATER Instrument: Max

APPL ID.	Client Sample No.	SURROGATE: 1,2-DICHLOROETHANE-D4 (S)			SURROGATE: 4-BROMOFLUOROBENZENE (S)		
		Limits	Result	Qualifier	Limits	Result	Qualifier
190429AM-LCS	Lab Control Spike	81-118	93.2		85-114	103	
190429AM-LCSD	Lab Control SpikeD	81-118	97.2		85-114	108	
190429AM-BLK	Blank	81-118	92.5		85-114	101	
AZ90212	ERH808	81-118	96.3		85-114	103	
AZ90213	ERH809	81-118	94.1		85-114	103	
AZ90214	ERH810	81-118	97.3		85-114	105	
AZ90215	ERH811	81-118	98.5		85-114	106	

Comments: Batch: #86BTO-190429AM

EPA 8260B

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 04/29/19

Matrix: WATER Instrument: Max

APPL ID.	Client Sample No.	SURROGATE: DIBROMOFLUOROMETHANE (S)			SURROGATE: TOLUENE-D8 (S)		
		Limits	Result	Qualifier	Limits	Result	Qualifier
190429AM-LCS	Lab Control Spike	80-119	104		89-112	96.4	
190429AM-LCSD	Lab Control SpikeD	80-119	109		89-112	102	
190429AM-BLK	Blank	80-119	101		89-112	96.8	
AZ90212	ERH808	80-119	103		89-112	99.6	
AZ90213	ERH809	80-119	105		89-112	99.4	
AZ90214	ERH810	80-119	106		89-112	102	
AZ90215	ERH811	80-119	108		89-112	103	

Comments: Batch: #86BTO-190429AM

EPA 8260B

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 04/29/19

Matrix: WATER Instrument: Max

Blank ID: 190429AM-BLK Time Analyzed: 1325

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190429AM-LCS	Lab Control Spike	0429M04	04/29/19 1034
190429AM-LCSD	Lab Control SpikeD	0429M05	04/29/19 1102
190429AM-BLK	Blank	0429M10	04/29/19 1325
AZ90212	ERH808	0429M11	04/29/19 1354
AZ90213	ERH809	0429M12	04/29/19 1422
AZ90214	ERH810	0429M13	04/29/19 1451
AZ90215	ERH811	0429M14	04/29/19 1520

Comments: Batch: #86BTO-190429AM

Method Blank
EPA 8260B BTEX WATER

Blank Name/QCG: **190429W-90212 - 239826**
Batch ID: #86BTO-190429AM

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	BENZENE	0.30 U	1.0	0.30	0.15	ug/L	04/29/19	04/29/19
BLANK	ETHYLBENZENE	0.50 U	1.0	0.50	0.23	ug/L	04/29/19	04/29/19
BLANK	TOLUENE	0.30 U	1.0	0.30	0.15	ug/L	04/29/19	04/29/19
BLANK	XYLENES (TOTAL)	0.30 U	2.0	0.30	0.15	ug/L	04/29/19	04/29/19
BLANK	SURROGATE: 1,2-DICHLOROET	92.5	81-118			%	04/29/19	04/29/19
BLANK	SURROGATE: 4-BROMOFLUORO	101	85-114			%	04/29/19	04/29/19
BLANK	SURROGATE: DIBROMOFLUOR	101	80-119			%	04/29/19	04/29/19
BLANK	SURROGATE: TOLUENE-D8 (S)	96.8	89-112			%	04/29/19	04/29/19

Quant Method: M0324.M
Run #: 0429M10
Instrument: Max
Sequence: M190401
Initials: DG

GC SC-Blank-REG MDLs-DOD
Printed: 05/03/19 10:30:27 AM

EPA 8260B

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 04/29/19

Matrix: WATER Instrument: Max

LCS ID: 190429AM-LCS Time Analyzed: 1034

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190429AM-LCS	Lab Control Spike	0429M04	04/29/19 1034
190429AM-LCSD	Lab Control SpikeD	0429M05	04/29/19 1102
190429AM-BLK	Blank	0429M10	04/29/19 1325
AZ90212	ERH808	0429M11	04/29/19 1354
AZ90213	ERH809	0429M12	04/29/19 1422
AZ90214	ERH810	0429M13	04/29/19 1451
AZ90215	ERH811	0429M14	04/29/19 1520

Comments: Batch: #86BTO-190429AM

Laboratory Control Spike Recoveries

EPA 8260B BTEX WATER

APPL ID: **190429W-90212 LCS - 239826**
Batch ID: #86BTO-190429AM

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
BENZENE	10.00	9.84	10.4	98.4	104	79-120	5.5	20
ETHYLBENZENE	10.00	9.90	10.6	99.0	106	79-121	6.8	20
TOLUENE	10.00	10.1	10.5	101	105	80-121	3.9	20
XYLENES (TOTAL)	30.0	30.0	32.0	100	107	79-121	6.5	20
SURROGATE: 1,2-DICHLOROETHANE-D	25.0	23.3	24.3	93.2	97.2	81-118		
SURROGATE: 4-BROMOFLUOROBENZE	25.0	25.7	27.0	103	108	85-114		
SURROGATE: DIBROMOFLUOROMETH	25.0	26.1	27.2	104	109	80-119		
SURROGATE: TOLUENE-D8 (S)	25.0	24.1	25.5	96.4	102	89-112		

Comments: _____

Primary	SPK	DUP
Quant Method :	M0324.M	M0324.M
Extraction Date :	04/29/19	04/29/19
Analysis Date :	04/29/19	04/29/19
Instrument :	Max	Max
Run :	0429M04	0429M05
Initials :	DG	

Printed: 05/03/19 10:30:21 AM
APPL Standard LCSD

Form 5
Tune Summary

Lab Name: APPL Inc.
Case No:
Matrix: Water
ID: 0324M01.D

SDG No:
Date Analyzed: 03/24/19
Instrument: Max
Time Analyzed: 10:39

	Client Sample No.	APPL ID.	File ID.	Date Analyzed
1		0.3ug/L VOC STD 3/24	0324M05.D	03/24/19 12:56
2		0.5ug/L VOC STD 3/24	0324M06.D	03/24/19 13:25
3		1.0ug/L VOC STD 3/24	0324M07.D	03/24/19 13:54
4		2.0ug/L VOC STD 3/24	0324M08.D	03/24/19 14:22
5		5.0ug/L VOC STD 3/24	0324M09.D	03/24/19 14:51
6		10ug/L VOC STD 3/24/	0324M10.D	03/24/19 15:19
7		20ug/L VOC STD 3/24/	0324M11.D	03/24/19 15:48
8		40ug/L VOC STD 3/24/	0324M12.D	03/24/19 16:17
9		100ug/L VOC STD 3/24	0324M13.D	03/24/19 16:45
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

m/e		
50	15 - 40% of mass 95	18.1
75	30 - 60% of mass 95	49.1
95	100 - 100% of mass 95	100.0
96	5 - 9% of mass 95	6.9
173	0 - 2% of mass 174	0.4
174	50 - 100% of mass 95	92.4
175	5 - 9% of mass 174	7.8
176	95.06 - 101% of mass 174	96.4
177	5 - 9% of mass 176	7.4

Form 5
Tune Summary

Lab Name: APPL Inc.
Case No: 88736
Matrix: Water
ID: 0429M01.D

SDG No: 88736
Date Analyzed: 04/29/19
Instrument: Max
Time Analyzed: 9:11

	Client Sample No.	APPL ID.	File ID.	Date Analyzed
1		190429A CCV 10ug/L	0429M03.D	04/29/19 10:05
2	Lab Control Spike	190429A LCS 10ug/L	0429M04.D	04/29/19 10:34
3	Lab Control SpikeD	190429A LCSD 10ug/L	0429M05.D	04/29/19 11:02
4	Blank	190429A blk	0429M10.D	04/29/19 13:25
5	ERH808	AZ90212W01	0429M11.D	04/29/19 13:54
6	ERH809	AZ90213W01	0429M12.D	04/29/19 14:22
7	ERH810	AZ90214W01	0429M13.D	04/29/19 14:51
8	ERH811	AZ90215W01	0429M14.D	04/29/19 15:20
9		Ending CCV 10ug/L	0429M15.D	04/29/19 15:48
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

m/e		
50	15 - 40% of mass 95	16.7
75	30 - 60% of mass 95	47.4
95	100 - 100% of mass 95	100.0
96	5 - 9% of mass 95	6.9
173	0 - 2% of mass 174	0.8
174	50 - 100% of mass 95	97.6
175	5 - 9% of mass 174	7.2
176	95.06 - 101% of mass 174	96.5
177	5 - 9% of mass 176	7.1

INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: APPL Inc. Contract: Review

Lab Code: _____ SDG No.: 88736

Lab File ID (Standard): 0429M03.D Date Analyzed: 04/29/19

Instrument ID: Max Time Analyzed: 10:05

GC Column: _____ ID: Heated Purge: (Y/N) _____

		Fluorobenzene (IS)		Chlorobenzene-D5 (IS)		1,4-Dichlorobenzene-D (IS)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	821353	5.20	645755	8.80	350193	11.99
	UPPER LIMIT	1642706	5.37	1291510	8.97	700386	12.16
	LOWER LIMIT	410677	5.03	322878	8.63	175097	11.82
	SAMPLE NO.						
01	190429A LCS 10ug/L	766881	5.20	614548	8.80	343039	11.99
02	190429A LCSD 10ug/L	747613	5.20	592158	8.80	327439	11.99
03	190429A blk	757692	5.21	589246	8.80	307170	11.99
04	AZ90212W01	756840	5.20	586270	8.80	315541	11.99
05	AZ90213W01	761111	5.21	585777	8.80	308806	11.99
06	AZ90214W01	763221	5.21	585307	8.80	311190	11.99
07	AZ90215W01	733724	5.21	565569	8.80	303029	11.99
08	Ending CCV 10ug/L	744152	5.21	579087	8.80	311674	11.99
09							
10							
11							
12							
13							
14							
15							
16							
17							
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19							
20							
21							
22							

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = -50% of internal standard area.
RT UPPER LIMIT = +0.17 minutes of internal standard RT
RT LOWER LIMIT = -0.17 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

EPA 8260B

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 04/29/19

Matrix: WATER Instrument: Max

APPL ID.	Client Sample No.	SURROGATE: 4-BROMOFLUOROBENZENE (S)					
		Limits	Result	Qualifier	Limits	Result	Qualifier
190429AM-LCS	Lab Control Spike	85-114	103				
190429AM-LCSD	Lab Control SpikeD	85-114	101				
190429AM-BLK	Blank	85-114	101				
AZ90212	ERH808	85-114	103				
AZ90213	ERH809	85-114	103				
AZ90214	ERH810	85-114	105				
AZ90215	ERH811	85-114	106				

Comments: Batch: #GRO86-190429AM

EPA 8260B

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 04/29/19

Matrix: WATER Instrument: Max

Blank ID: 190429AM-BLK Time Analyzed: 1325

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190429AM-LCS	Lab Control Spike	0429M07	04/29/19 1159
190429AM-LCSD	Lab Control SpikeD	0429M08	04/29/19 1228
190429AM-BLK	Blank	0429M10	04/29/19 1325
AZ90212	ERH808	0429M11	04/29/19 1354
AZ90213	ERH809	0429M12	04/29/19 1422
AZ90214	ERH810	0429M13	04/29/19 1451
AZ90215	ERH811	0429M14	04/29/19 1520

Comments: Batch: #GRO86-190429AM

Method Blank
EPA 8260B GRO WATER

Blank Name/QCG: **190429W-90212 - 239825**
Batch ID: #GRO86-190429AM

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	GASOLINE RANGE ORGANICS	18.0 U	20	18.0	8.6	ug/L	04/29/19	04/29/19
BLANK	SURROGATE: 4-BROMOFLUORO	101	85-114			%	04/29/19	04/29/19

Quant Method: MSUR324.M
Run #: 0429M10
Instrument: Max
Sequence: M190401
Initials: DG

GC SC-Blank-REG MDLs-DOD
Printed: 05/03/19 10:24:22 AM

EPA 8260B

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 04/29/19

Matrix: WATER Instrument: Max

LCS ID: 190429AM-LCS Time Analyzed: 1159

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190429AM-LCS	Lab Control Spike	0429M07	04/29/19 1159
190429AM-LCSD	Lab Control SpikeD	0429M08	04/29/19 1228
190429AM-BLK	Blank	0429M10	04/29/19 1325
AZ90212	ERH808	0429M11	04/29/19 1354
AZ90213	ERH809	0429M12	04/29/19 1422
AZ90214	ERH810	0429M13	04/29/19 1451
AZ90215	ERH811	0429M14	04/29/19 1520

Comments: Batch: #GRO86-190429AM

Laboratory Control Spike Recoveries
EPA 8260B GRO WATER

APPL ID: **190429W-90212 LCS - 239825**
Batch ID: #GRO86-190429AM

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
GASOLINE RANGE ORGANICS	300	295	307	98.3	102	78-122	4.0	20
SURROGATE: 4-BROMOFLUOROBENZE	25.0	25.8	25.3	103	101	85-114		

Comments: _____

Primary	SPK	DUP
Quant Method :	MSUR324.M	MSUR324.M
Extraction Date :	04/29/19	04/29/19
Analysis Date :	04/29/19	04/29/19
Instrument :	Max	Max
Run :	0429M07	0429M08
Initials :	DG	

Printed: 05/03/19 10:23:40 AM
APPL Standard LCSD

RSK 175

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/03/19

Matrix: WATER Instrument: Rocky

Blank ID: 190503A-BLK Time Analyzed: 1039

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190503A-LCS	Lab Control Spike	19050300	05/03/19 1033
190503A-LCSD	Lab Control SpikeD	19050301	05/03/19 1036
190503A-BLK	Blank	19050302	05/03/19 1039
AZ90212	ERH808	19050319	05/03/19 1120
AZ90213	ERH809	19050320	05/03/19 1122
AZ90214	ERH810	19050321	05/03/19 1124
AZ90215	ERH811	19050322	05/03/19 1127

Comments: Batch: #RSKME-190503A

Printed: 05/06/19 10:48:40 AM

Form 4, Blank Summary

Method Blank
METHANE

Blank Name/QCG: **190503W-89959 - 239958**
Batch ID: #RSKME-190503A

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	METHANE	1.00 U	5.0	1.00	0.25	ug/L	05/03/19	05/03/19

Quant Method: RSK0311.M
Run #: 19050302
Instrument: Rocky
Sequence: 190311
Initials: CMO

GC SC-Blank-REG MDLs-DOD
Printed: 05/06/19 10:48:57 AM

RSK 175

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/03/19

Matrix: WATER Instrument: Rocky

LCS ID: 190503A-LCS Time Analyzed: 1033

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190503A-LCS	Lab Control Spike	19050300	05/03/19 1033
190503A-LCSD	Lab Control SpikeD	19050301	05/03/19 1036
190503A-BLK	Blank	19050302	05/03/19 1039
AZ90212	ERH808	19050319	05/03/19 1120
AZ90213	ERH809	19050320	05/03/19 1122
AZ90214	ERH810	19050321	05/03/19 1124
AZ90215	ERH811	19050322	05/03/19 1127

Comments: Batch: #RSKME-190503A

Laboratory Control Spike Recoveries

METHANE

APPL ID: **190503W-89959 LCS - 239958**
Batch ID: #RSKME-190503A

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
METHANE	83.4	69.1	78.4	82.9	94.0	72-125	12.6	30

Comments: _____

Primary	SPK	DUP
Quant Method :	RSK0311.M	RSK0311.M
Extraction Date :	05/03/19	05/03/19
Analysis Date :	05/03/19	05/03/19
Instrument :	Rocky	Rocky
Run :	19050300	19050301
Initials :	CMO	

EPA 300.0

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 04/26/19

Matrix: WATER Instrument: Charlie

Blank ID: 190426A1-BLK Time Analyzed: 1112

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190426A1-BLK	Blank	2	04/26/19 1112
AZ90213	ERH809	21	04/26/19 1542
AZ90215	ERH811	22	04/26/19 1549
190426A1-LCS	Lab Control Spike	3	04/26/19 1120
190426A1-LCSD	Lab Control SpikeD	4	04/26/19 1127

Comments: Batch: #300W-190426A1

EPA 300.0

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Charlie

Blank ID: 190508A1-BLK Time Analyzed: 0831

APPL ID.	Client Sample No.	File ID.	Date Analyzed
AZ90213	ERH809	11	05/08/19 0953
AZ90215	ERH811	12	05/08/19 1000
190508A1-BLK	Blank	3	05/08/19 0831
190508A1-LCS	Lab Control Spike	4	05/08/19 0838
190508A1-LCSD	Lab Control SpikeD	5	05/08/19 0845

Comments: Batch: #300WD-190508A1

EPA 353.2

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/01/19

Matrix: WATER Instrument: EVE

Blank ID: 190501A-BLK Time Analyzed: 1817

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190501A-BLK	Blank	16	05/01/19 1817
190501A-LCS	Lab Control Spike	17	05/01/19 1819
190501A-LCSD	Lab Control SpikeD	18	05/01/19 1821
AZ90213	ERH809	33	05/01/19 1848
AZ90215	ERH811	34	05/01/19 1849

Comments: Batch: #35OF-190501A

SM 2320B

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 04/30/19

Matrix: WATER Instrument: Tiamo

Blank ID: 190430A-BLK Time Analyzed: 1008

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190430A-BLK	Blank	1	04/30/19 1008
AZ90213	ERH809	13	04/30/19 1146
AZ90215	ERH811	14	04/30/19 1153
190430A-LCS	Lab Control Spike	2	04/30/19 1011
190430A-LCSD	Lab Control SpikeD	3	04/30/19 1021

Comments: Batch: #232W-190430A

SM3500FeB

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 04/30/19

Matrix: WATER Instrument: Manual Spec

Blank ID: 190430A-BLK Time Analyzed: 0903

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190430A-BLK	Blank	24	04/30/19 0903
190430A-LCS	Lab Control Spike	25	04/30/19 0904
190430A-LCSD	Lab Control SpikeD	26	04/30/19 0905
AZ90213	ERH809	27	04/30/19 0906
AZ90215	ERH811	28	04/30/19 0907

Comments: Batch: #35FE-190430A

SW846 9060A

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/03/19

Matrix: WATER Instrument: Manual Spec

Blank ID: 190502B-BLK Time Analyzed: 0446

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190502B-BLK	Blank	24	05/03/19 0446
190502B-LCS	Lab Control Spike	25	05/03/19 0520
190502B-LCSD	Lab Control SpikeD	26	05/03/19 0555
AZ90215	ERH811	38	05/03/19 1239

Comments: Batch: #DOCW5-190502B

SW846 9060A

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/01/19

Matrix: WATER Instrument: Manual Spec

Blank ID: 190530A-BLK Time Analyzed: 1459

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190530A-BLK	Blank	30	05/01/19 1459
190530A-LCS	Lab Control Spike	31	05/01/19 1530
190530A-LCSD	Lab Control SpikeD	32	05/01/19 1602
AZ90213	ERH809	37	05/01/19 1840

Comments: Batch: #DOCW5-190530A

SW846 9060A

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/02/19

Matrix: WATER Instrument: Manual Spec

Blank ID: 190502A-BLK Time Analyzed: 1740

APPL ID.	Client Sample No.	File ID.	Date Analyzed
AZ90213	ERH809	21	05/03/19 0305
190502A-BLK	Blank	4	05/02/19 1740
190502A-LCS	Lab Control Spike	5	05/02/19 1814
190502A-LCSD	Lab Control SpikeD	6	05/02/19 1849

Comments: Batch: #TOCW5-190502A

SW846 9060A

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/01/19

Matrix: WATER Instrument: Manual Spec

Blank ID: 190530A-BLK Time Analyzed: 1459

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190530A-BLK	Blank	30	05/01/19 1459
190530A-LCS	Lab Control Spike	31	05/01/19 1530
190530A-LCSD	Lab Control SpikeD	32	05/01/19 1602
AZ90215	ERH811	33	05/01/19 1634

Comments: Batch: #TOCW5-190530A

WETLAB BLANK

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Analyte	Result	LOQ	LOD	DL	Units	Prep Date	Analysis Date	QC Group
SM 2320B	BICARBONATE AS	3.9	2.0	1.70	0.85	mg/L	04/30/19	04/30/19	#232W-190430A-AZ90051
SM 2320B	CARBONATE AS C	1.70 U	2.0	1.70	0.85	mg/L	04/30/19	04/30/19	#232W-190430A-AZ90051
SM 2320B	TOTAL ALKALINITY	3.9	2.0	1.70	0.85	mg/L	04/30/19	04/30/19	#232W-190430A-AZ90051
EPA 300.0	NITRATE	0.18 U	0.5	0.18	0.04	mg/L	04/26/19	04/26/19	#300W-190426A1-AZ90213
EPA 300.0	SULFATE	0.20 U	1.0	0.20	0.09	mg/L	04/26/19	04/26/19	#300W-190426A1-AZ90213
EPA 300.0	CHLORIDE	0.30 J	1.0	0.20	0.08	mg/L	05/08/19	05/08/19	f300WD-190508A1-AZ90213
EPA 300.0	SULFATE	0.20 U	1.0	0.20	0.09	mg/L	05/08/19	05/08/19	f300WD-190508A1-AZ90213
EPA 353.2	NITRATE-NITRITE-	0.090 U	0.10	0.090	0.028	mg/L	05/01/19	05/01/19	#35OF-190501A-AZ90051
SW846 90	DISSOLVED ORGA	0.350 U	0.93	0.350	0.130	mg/L	05/01/19	05/01/19	#DOCW5-190530A-AZ90109
SW846 90	TOTAL ORGANIC C	0.350 U	0.93	0.350	0.130	mg/L	05/02/19	05/02/19	#TOCW5-190502A-AZ89958
SM3500Fe	FERROUS IRON	0.32 U	1.0	0.32	0.16	mg/L	04/30/19	04/30/19	#35FE-190430A-AZ90215
SW846 90	DISSOLVED ORGA	0.350 U	0.93	0.350	0.130	mg/L	05/03/19	05/03/19	#DOCW5-190502B-AZ89958
SW846 90	TOTAL ORGANIC C	0.350 U	0.93	0.350	0.130	mg/L	05/01/19	05/01/19	#TOCW5-190530A-AZ90215

Wetlab SC-Blank-REG MDLs
Printed: 05/22/19 11:40:39 AM

EPA 300.0

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 04/26/19

Matrix: WATER Instrument: Charlie

LCS ID: 190426A1-LCS Time Analyzed: 1120

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190426A1-BLK	Blank	2	04/26/19 1112
AZ90213	ERH809	21	04/26/19 1542
AZ90215	ERH811	22	04/26/19 1549
190426A1-LCS	Lab Control Spike	3	04/26/19 1120
190426A1-LCSD	Lab Control SpikeD	4	04/26/19 1127

Comments: Batch: #300W-190426A1

EPA 300.0

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Charlie

LCS ID: 190508A1-LCS Time Analyzed: 0838

APPL ID.	Client Sample No.	File ID.	Date Analyzed
AZ90213	ERH809	11	05/08/19 0953
AZ90215	ERH811	12	05/08/19 1000
190508A1-BLK	Blank	3	05/08/19 0831
190508A1-LCS	Lab Control Spike	4	05/08/19 0838
190508A1-LCSD	Lab Control SpikeD	5	05/08/19 0845

Comments: Batch: #300WD-190508A1

EPA 353.2

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/01/19

Matrix: WATER Instrument: EVE

LCS ID: 190501A-LCS Time Analyzed: 1819

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190501A-BLK	Blank	16	05/01/19 1817
190501A-LCS	Lab Control Spike	17	05/01/19 1819
190501A-LCSD	Lab Control SpikeD	18	05/01/19 1821
AZ90213	ERH809	33	05/01/19 1848
AZ90215	ERH811	34	05/01/19 1849

Comments: Batch: #35OF-190501A

SM 2320B

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 04/30/19

Matrix: WATER Instrument: Tiamo

LCS ID: 190430A-LCS Time Analyzed: 1011

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190430A-BLK	Blank	1	04/30/19 1008
AZ90213	ERH809	13	04/30/19 1146
AZ90215	ERH811	14	04/30/19 1153
190430A-LCS	Lab Control Spike	2	04/30/19 1011
190430A-LCSD	Lab Control SpikeD	3	04/30/19 1021

Comments: Batch: #232W-190430A

SW846 9060A

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/03/19

Matrix: WATER Instrument: Manual Spec

LCS ID: 190502B-LCS Time Analyzed: 0520

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190502B-BLK	Blank	24	05/03/19 0446
190502B-LCS	Lab Control Spike	25	05/03/19 0520
190502B-LCSD	Lab Control SpikeD	26	05/03/19 0555
AZ90215	ERH811	38	05/03/19 1239

Comments: Batch: #DOCW5-190502B

SW846 9060A

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/01/19

Matrix: WATER Instrument: Manual Spec

LCS ID: 190530A-LCS Time Analyzed: 1530

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190530A-BLK	Blank	30	05/01/19 1459
190530A-LCS	Lab Control Spike	31	05/01/19 1530
190530A-LCSD	Lab Control SpikeD	32	05/01/19 1602
AZ90213	ERH809	37	05/01/19 1840

Comments: Batch: #DOCW5-190530A

SW846 9060A

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/01/19

Matrix: WATER Instrument: Manual Spec

LCS ID: 190530A-LCS Time Analyzed: 1530

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190530A-BLK	Blank	30	05/01/19 1459
190530A-LCS	Lab Control Spike	31	05/01/19 1530
190530A-LCSD	Lab Control SpikeD	32	05/01/19 1602
AZ90215	ERH811	33	05/01/19 1634

Comments: Batch: #TOCW5-190530A

Laboratory Control Spike Recoveries

WETLAB

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Compound Name	Spike Lvl mg/L	SPK Res mg/L	DUP Res mg/L	SPK % Recov	DUP % Recov	RPD	RPD Max	QC Limits	Extract Date-Spk	Analysis Date-Spk	Extract Date-Dup	Analysis Date-Dup	QC Group
EPA 300.0	CHLORIDE	25.0	24.4	24.4	97.6	97.6	0.0	20	90-110	05/08/19	05/08/19	05/08/19	05/08/19	#300WD-190508A1-AZ902
EPA 300.0	SULFATE	25.0	26.0	26.0	104	104	0.0	20	90-110	05/08/19	05/08/19	05/08/19	05/08/19	#300WD-190508A1-AZ902
EPA 300.0	NITRATE	22.1	22.8	22.8	103	103	0.0	20	90-110	04/26/19	04/26/19	04/26/19	04/26/19	#300W-190426A1-AZ9021
EPA 353.2	NITRATE-NITRITE-N	3.00	3.14	3.12	105	104	0.64	20	90-110	05/01/19	05/01/19	05/01/19	05/01/19	#35OF-190501A-AZ90051
SM 2320B	BICARBONATE AS CACO3	250	238	239	95.2	95.6	0.42	20	90-110	04/30/19	04/30/19	04/30/19	04/30/19	#232W-190430A-AZ90051
SM 2320B	TOTAL ALKALINITY AS CA	250	238	239	95.2	95.6	0.42	20	90-110	04/30/19	04/30/19	04/30/19	04/30/19	#232W-190430A-AZ90051
SW846 90	DISSOLVED ORGANIC CA	2.50	2.57	2.43	103	97.2	5.6	20	90-110	05/01/19	05/01/19	05/01/19	05/01/19	#DOCW5-190530A-AZ901
SW846 90	TOTAL ORGANIC CARBO	2.50	2.43	2.37	97.2	94.8	2.5	20	90-110	05/02/19	05/02/19	05/02/19	05/02/19	#TOCW5-190502A-AZ899

Comments: _____

SM3500FeB

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 04/30/19

Matrix: WATER Instrument: Manual Spec

LCS ID: 190430A-LCS Time Analyzed: 0904

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190430A-BLK	Blank	24	04/30/19 0903
190430A-LCS	Lab Control Spike	25	04/30/19 0904
190430A-LCSD	Lab Control SpikeD	26	04/30/19 0905
AZ90213	ERH809	27	04/30/19 0906
AZ90215	ERH811	28	04/30/19 0907

Comments: Batch: #35FE-190430A

SW846 9060A

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88736

Case No: 88736 Date Analyzed: 05/02/19

Matrix: WATER Instrument: Manual Spec

LCS ID: 190502A-LCS Time Analyzed: 1814

APPL ID.	Client Sample No.	File ID.	Date Analyzed
AZ90213	ERH809	21	05/03/19 0305
190502A-BLK	Blank	4	05/02/19 1740
190502A-LCS	Lab Control Spike	5	05/02/19 1814
190502A-LCSD	Lab Control SpikeD	6	05/02/19 1849

Comments: Batch: #TOCW5-190502A

Laboratory Control Spike Recoveries

WETLAB

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Compound Name	Spike Lvl mg/L	SPK Res mg/L	DUP Res mg/L	SPK % Recov	DUP % Recov	RPD	RPD Max	QC Limits	Extract Date-Spk	Analysis Date-Spk	Extract Date-Dup	Analysis Date-Dup	QC Group
SM3500Fe	FERROUS IRON	3.00	3.12	3.03	104	101	2.9	20	80-120	04/30/19	04/30/19	04/30/19	04/30/19	#35FE-190430A-AZ90215
SW846 90	DISSOLVED ORGANIC CA	2.5	2.46	2.45	98.4	98.0	0.41	20	90-110	05/03/19	05/03/19	05/03/19	05/03/19	#DOCW5-190502B-AZ899
SW846 90	TOTAL ORGANIC CARBO	2.50	2.57	2.43	103	97.2	5.6	20	90-110	05/01/19	05/01/19	05/01/19	05/01/19	#TOCW5-190530A-AZ902

Comments:

ORGANICS
Calibration Data

TPH Extractables
DOC0411

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 04/11/19
Matrix: Water Instrument: Apollo
Initials: D.P.

Diesel / Motor Oil:	411002.D	411003.D	411004.D	411005.D	411006.D	411007.D
Decanoic Acid:	411009.D	411010.D	411011.D	411012.D	411013.D	411014 D

		Compound	1	2	3	4	5	6	Avg	%RSD	Type	r^2	Q
1	HATM	Diesel (C10-C24)	1479257	1066406	1154027	1149804	1155026	1151191	1192619	12	HATM		
2	HBTM	Motor Oil (C24-C40)	1115442	902464	913566	920399	937513	921175	951760	8.5	HBTM		
3	SCL	Decanoic Acid(S)	185262	314603	492479	537134	542867	560663	438835	35	SC	0.999	
4	SA	Ortho-Terphenyl(S)	2331995	1997948	2029193	1934422	1946955	1901973	2023748	7.8	SA		
5	SA	Octacosane(S)	2126705	1844471	1831603	1894540	1808281	1847266	1892144	6.3	SA		
6													
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1.990883

Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411002.D Vial: 2
Acq On : 4-11-19 12:41:17 Operator: DP
Sample : Diesel / Motor Oil - 1 1/15/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:32 2019 Quant Results File: DOC0411.RES

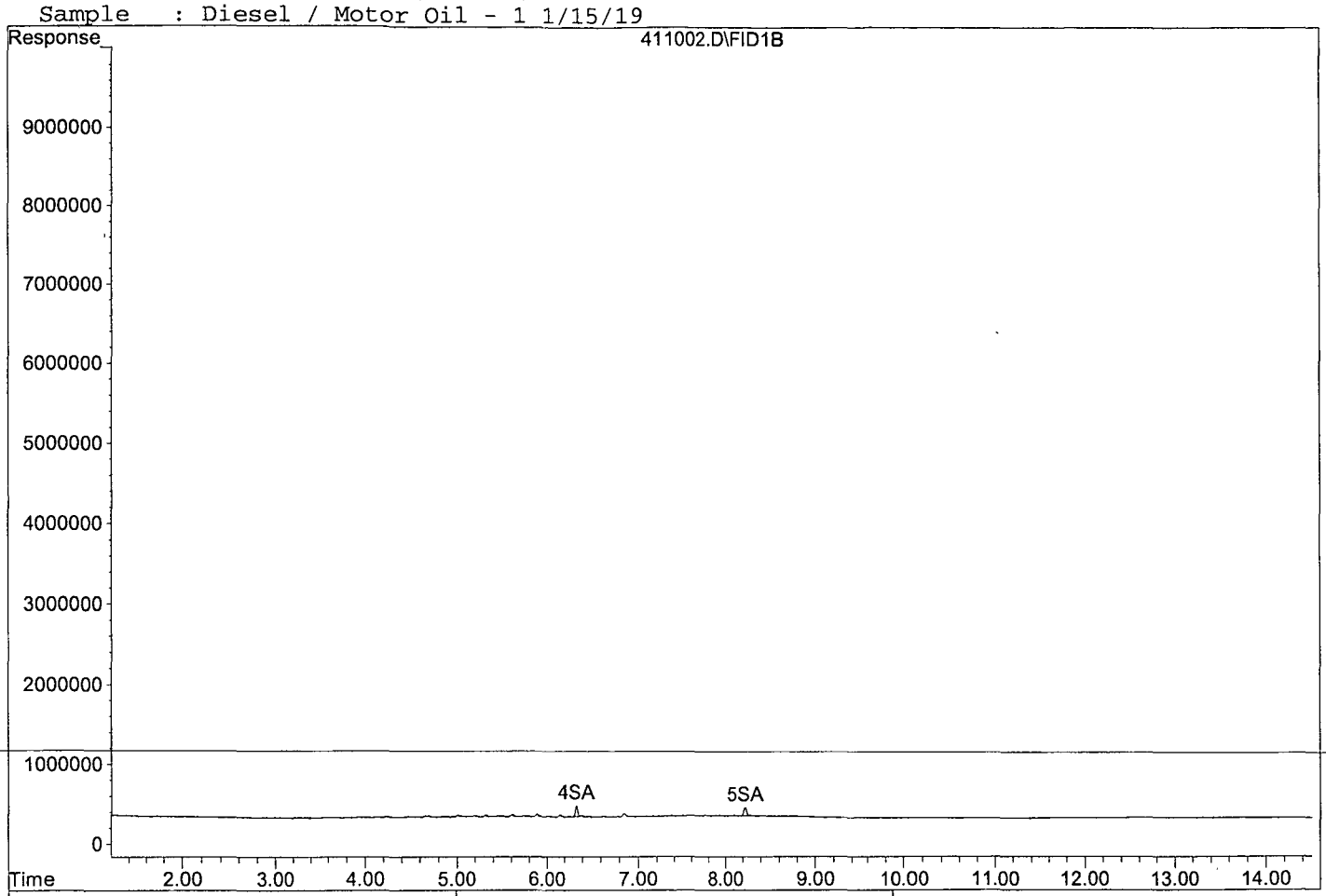
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

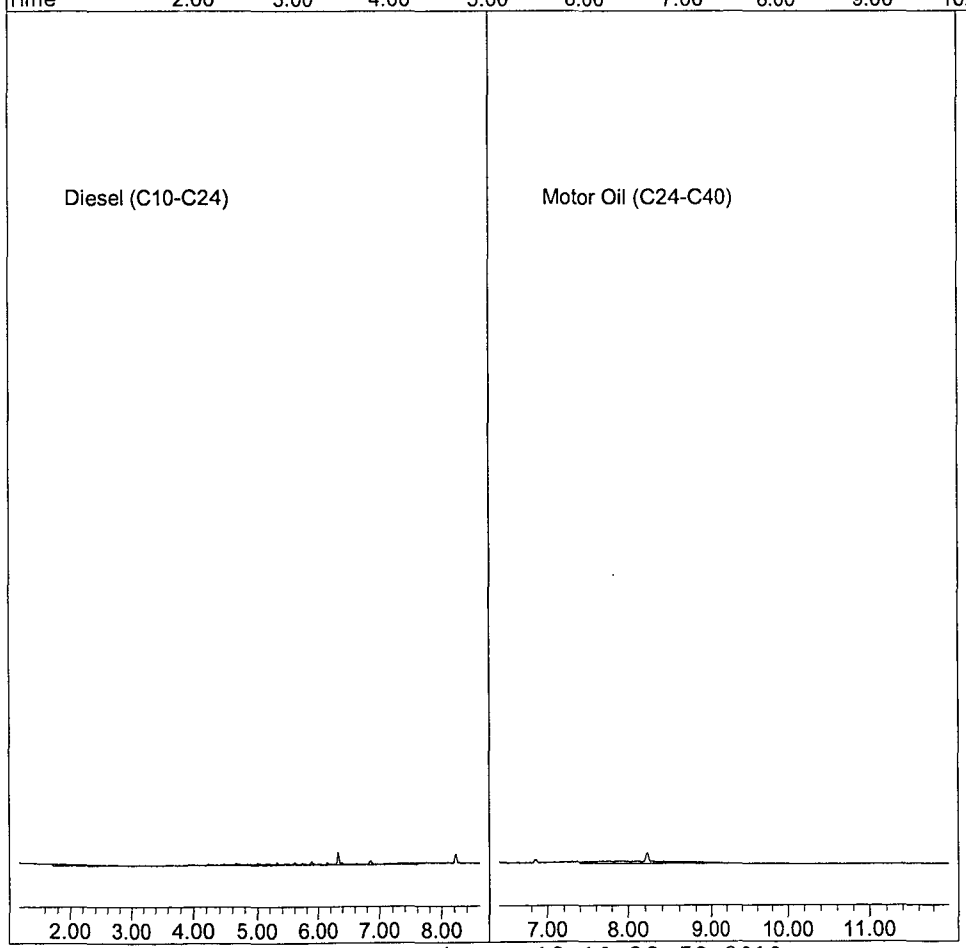
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.33	2331995	0.576 ppb
Surrogate Spike 30.000	Recovery =		1.92%
5) SA Octacosane(S)	8.23	2126705	0.562 ppb
Surrogate Spike 30.000	Recovery =		1.87%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	29585142	12.403 ppb
2) HBTM Motor Oil (C24-C40)	9.20	22308844	11.720 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411002.D
Sample : Diesel / Motor Oil - 1 1/15/19





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411003.D Vial: 3
Acq On : 4-11-19 13:00:16 Operator: DP
Sample : Diesel / Motor Oil - 2 4/11/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:32 2019 Quant Results File: DOC0411.RES

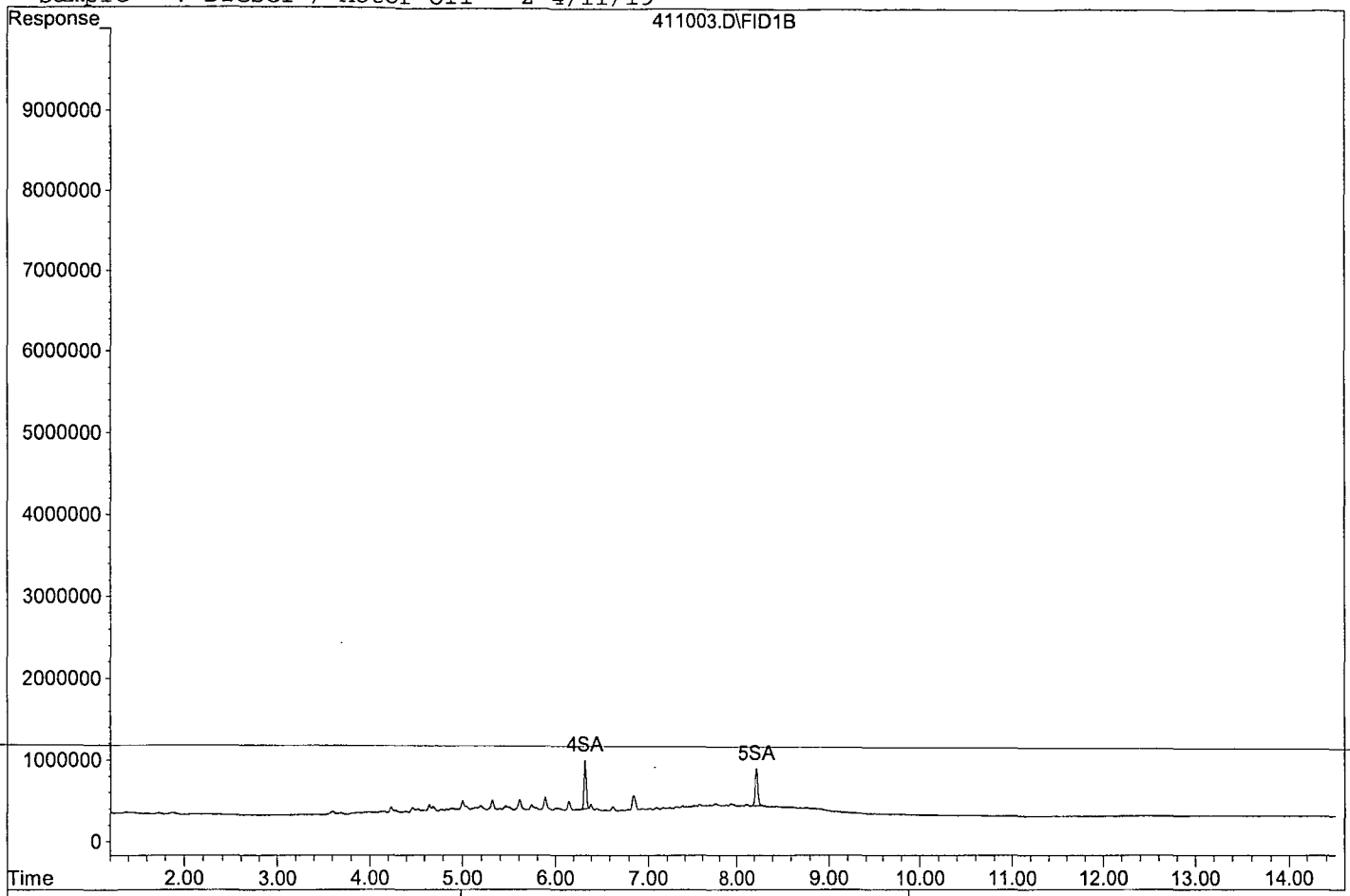
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

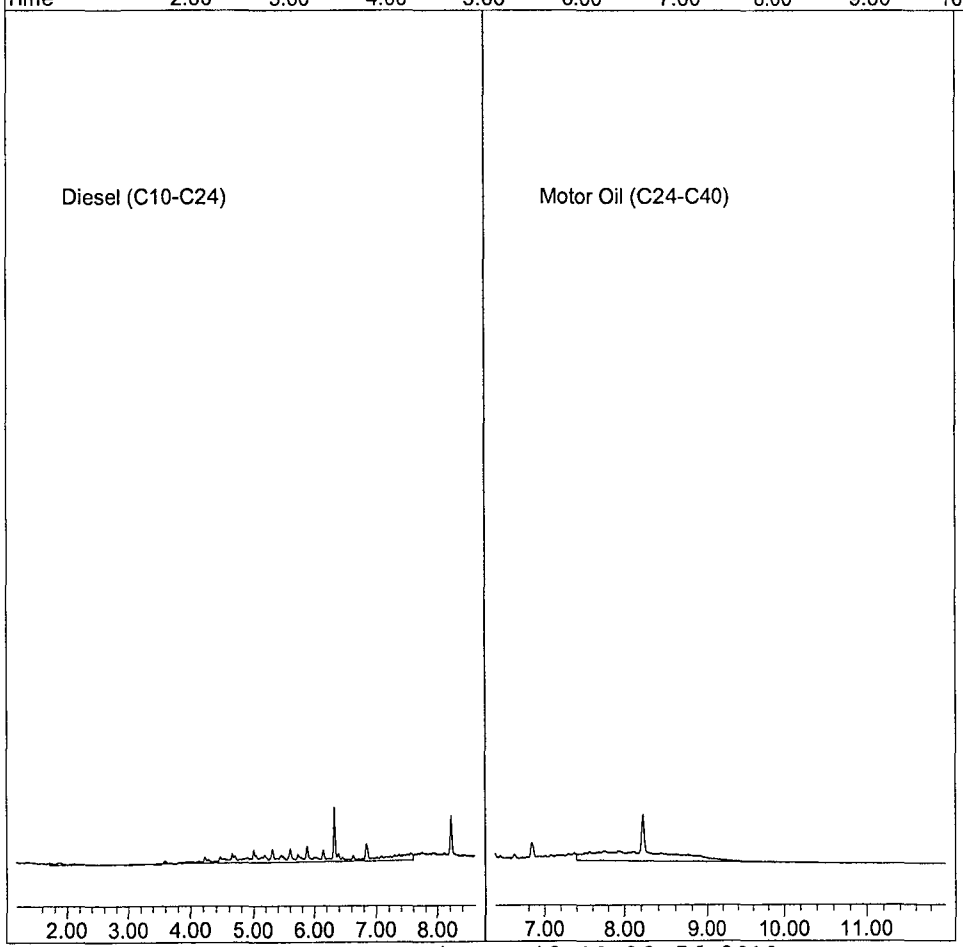
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.33	9989738	2.468 ppb
Surrogate Spike 30.000	Recovery =		8.23%
5) SA Octacosane(S)	8.22	9222354	2.437 ppb
Surrogate Spike 30.000	Recovery =		8.12%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	106640632	44.709 ppb
2) HBTM Motor Oil (C24-C40)	9.20	90246355	47.410 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411003.D
Sample : Diesel / Motor Oil - 2 4/11/19





411003.D DOC0411.M Fri Apr 12 10:32:56 2019 Page 2

Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411004.D Vial: 4
Acq On : 4-11-19 13:19:58 Operator: DP
Sample : Diesel / Motor Oil - 3 4/11/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:32 2019 Quant Results File: DOC0411.RES

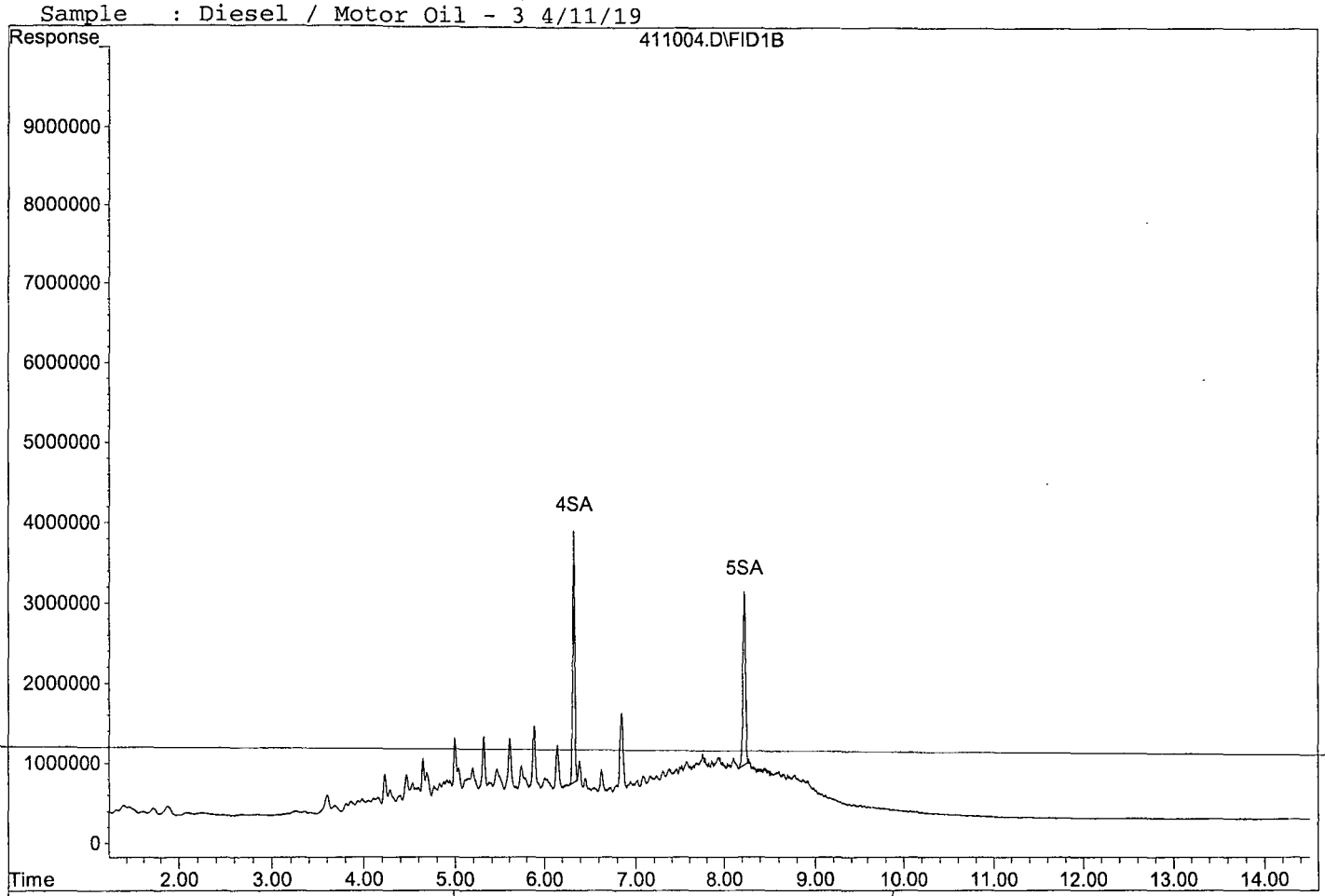
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

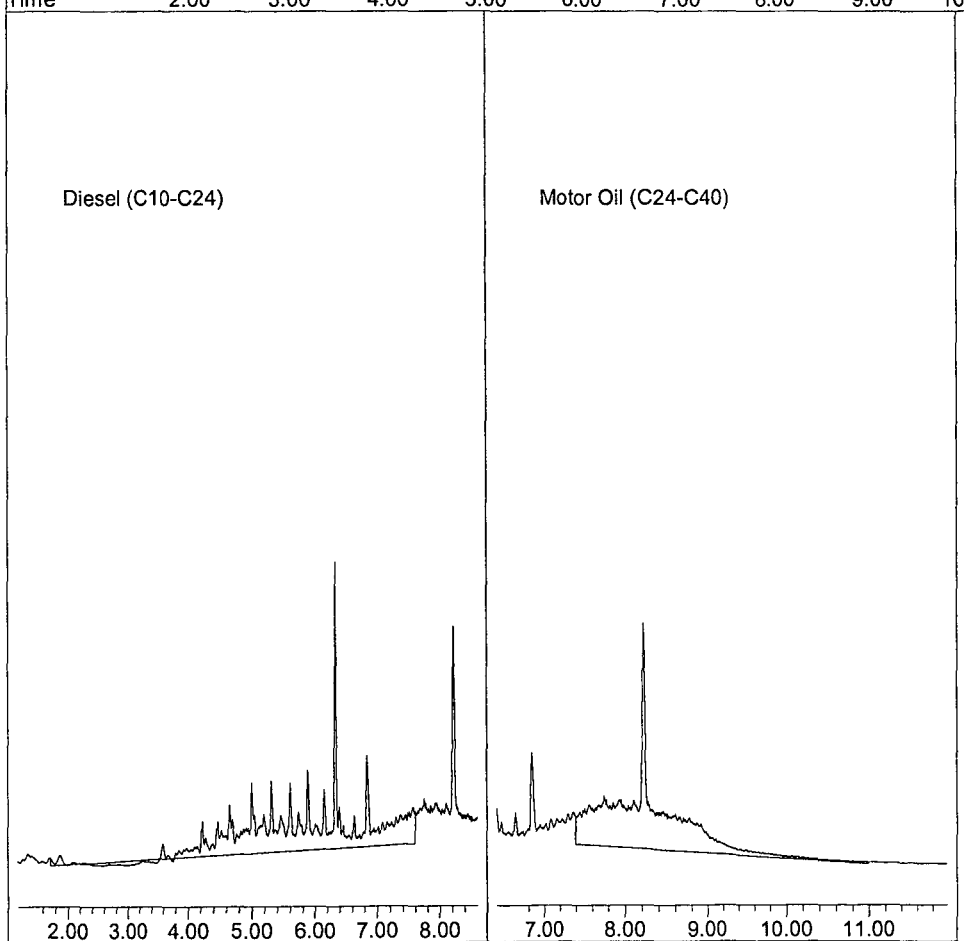
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.33	50729819	12.534 ppb
Surrogate Spike 30.000	Recovery =		41.78%
5) SA Octacosane(S)	8.23	45790065	12.100 ppb
Surrogate Spike 30.000	Recovery =		40.33%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	577013623	241.910 ppb
2) HBTM Motor Oil (C24-C40)	9.20	456782905	239.968 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411004.D
Sample : Diesel / Motor Oil - 3 4/11/19





411004.D DOC0411.M Fri Apr 12 10:33:00 2019

Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411005.D Vial: 5
Acq On : 4-11-19 13:39:40 Operator: DP
Sample : Diesel / Motor Oil - 4 4/11/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:32 2019 Quant Results File: DOC0411.RES

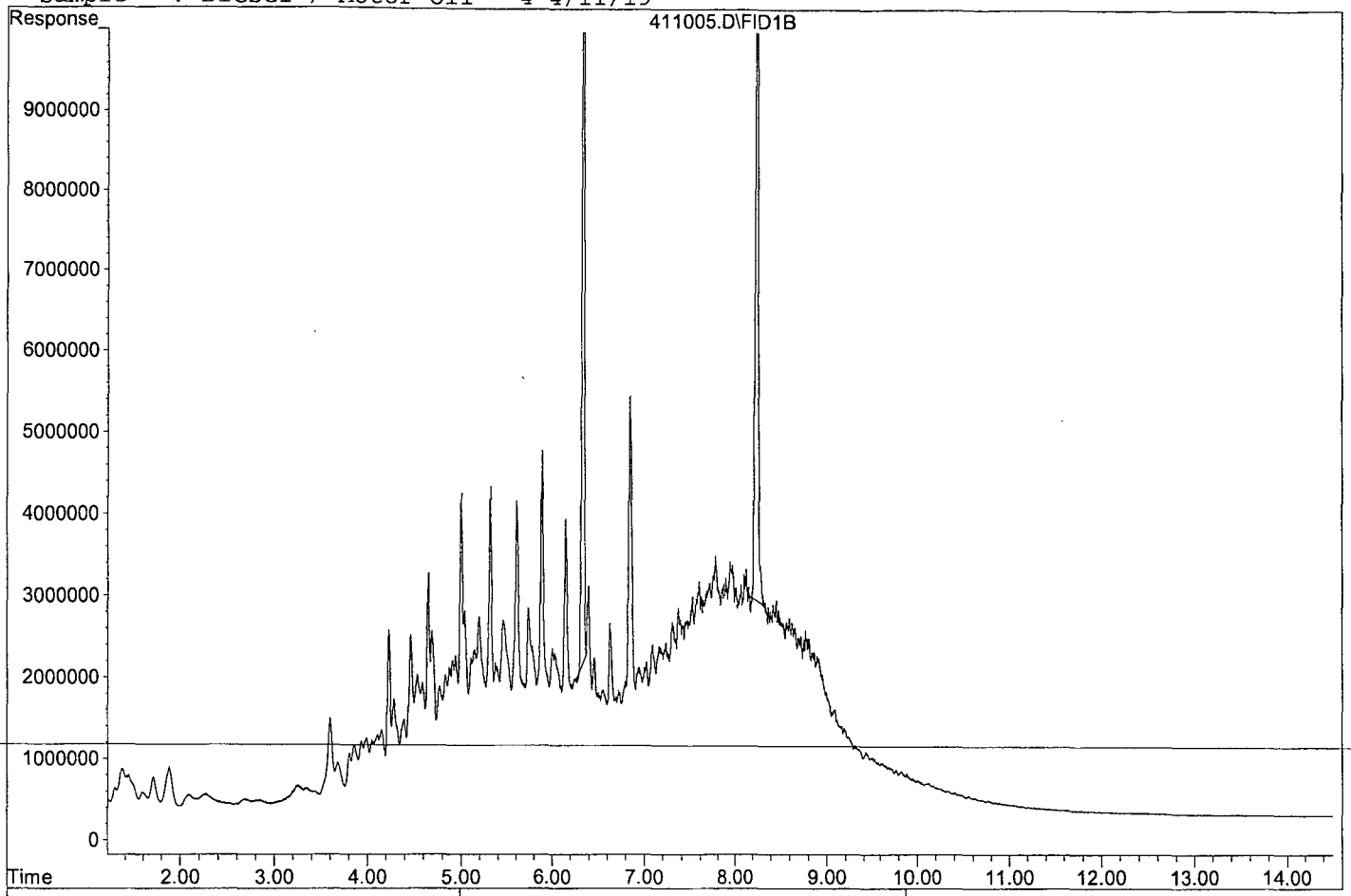
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

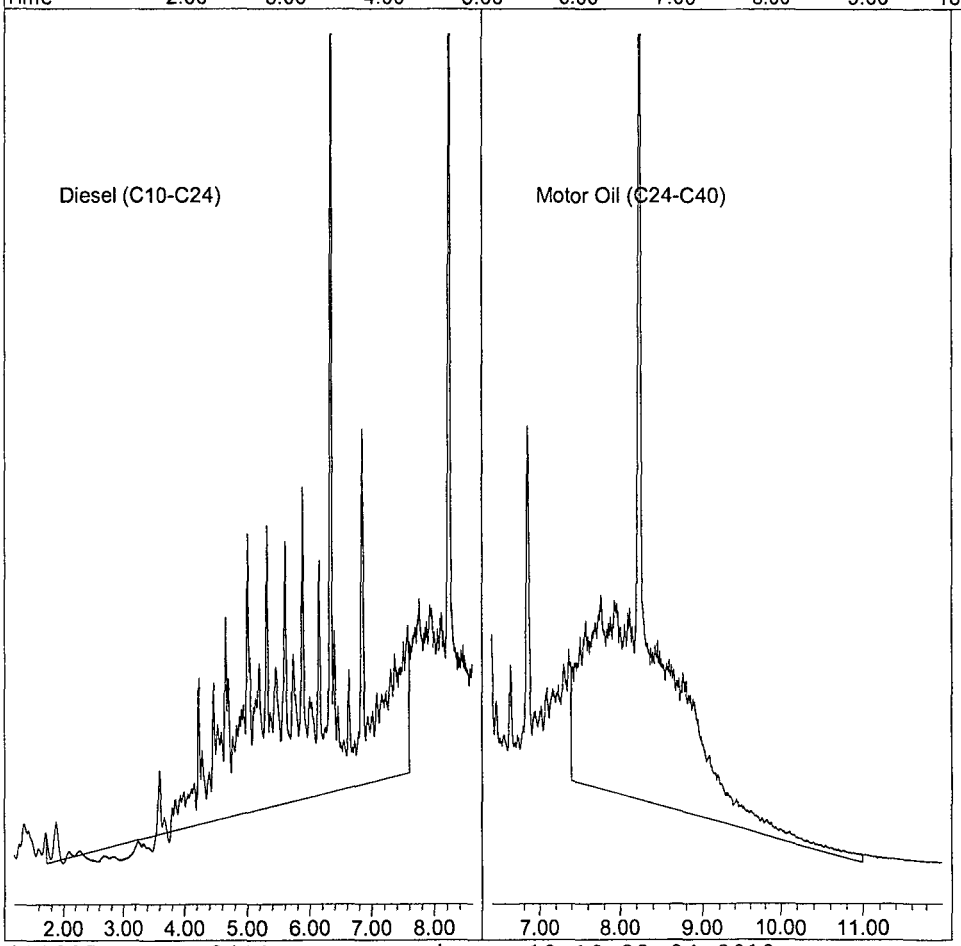
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.34	193442220	47.793 ppb
Surrogate Spike 30.000	Recovery =		159.31%
5) SA Octacosane(S)	8.24	189453974	50.063 ppb
Surrogate Spike 30.000	Recovery =		166.88%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	2299608823	964.101 ppb
2) HBTM Motor Oil (C24-C40)	9.20	1840797531	967.050 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411005.D
Sample : Diesel / Motor Oil - 4 4/11/19





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411006.D Vial: 6
Acq On : 4-11-19 13:59:26 Operator: DP
Sample : Diesel / Motor Oil - 5 4/11/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:32 2019 Quant Results File: DOC0411.RES

Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

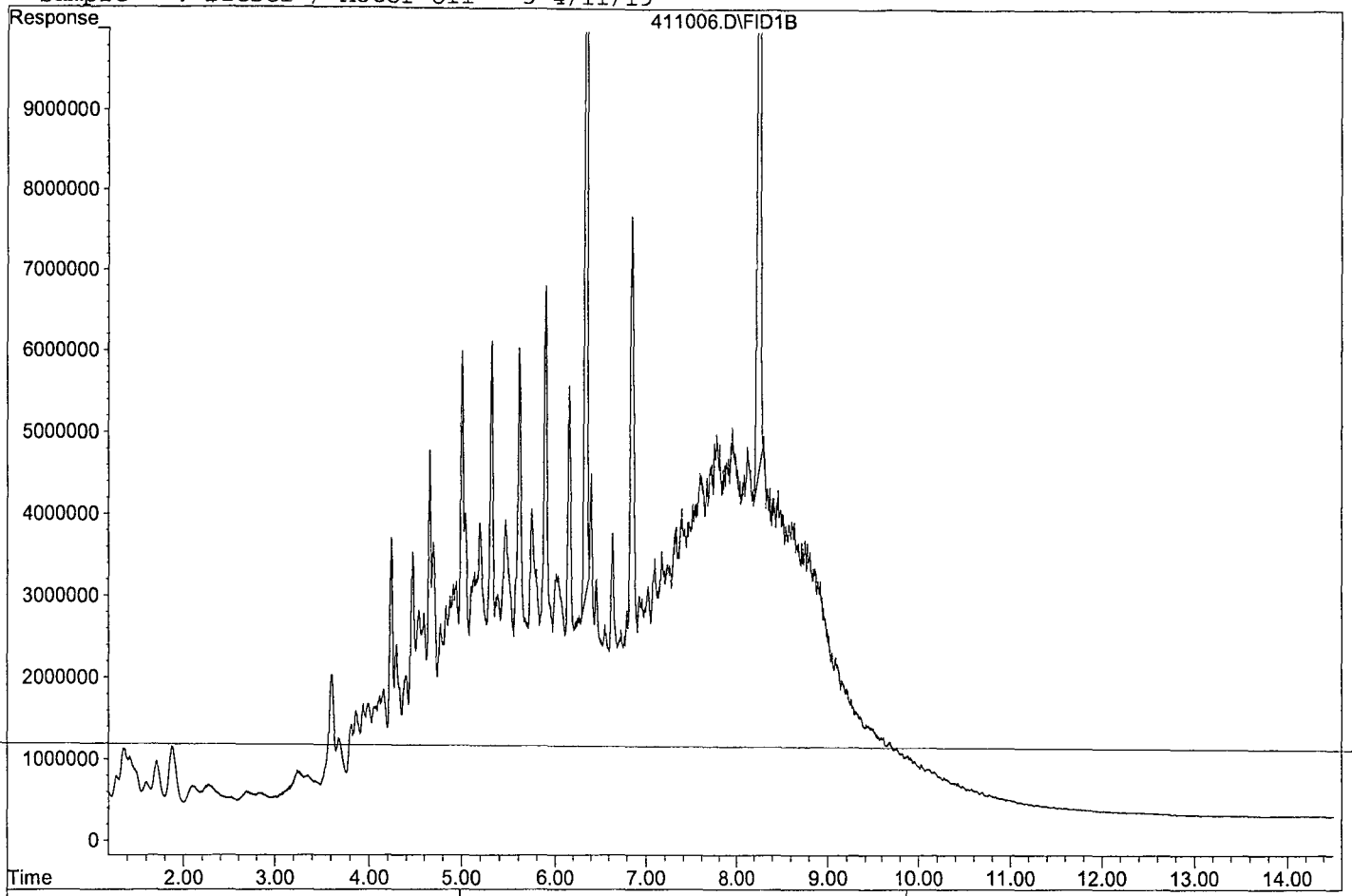
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

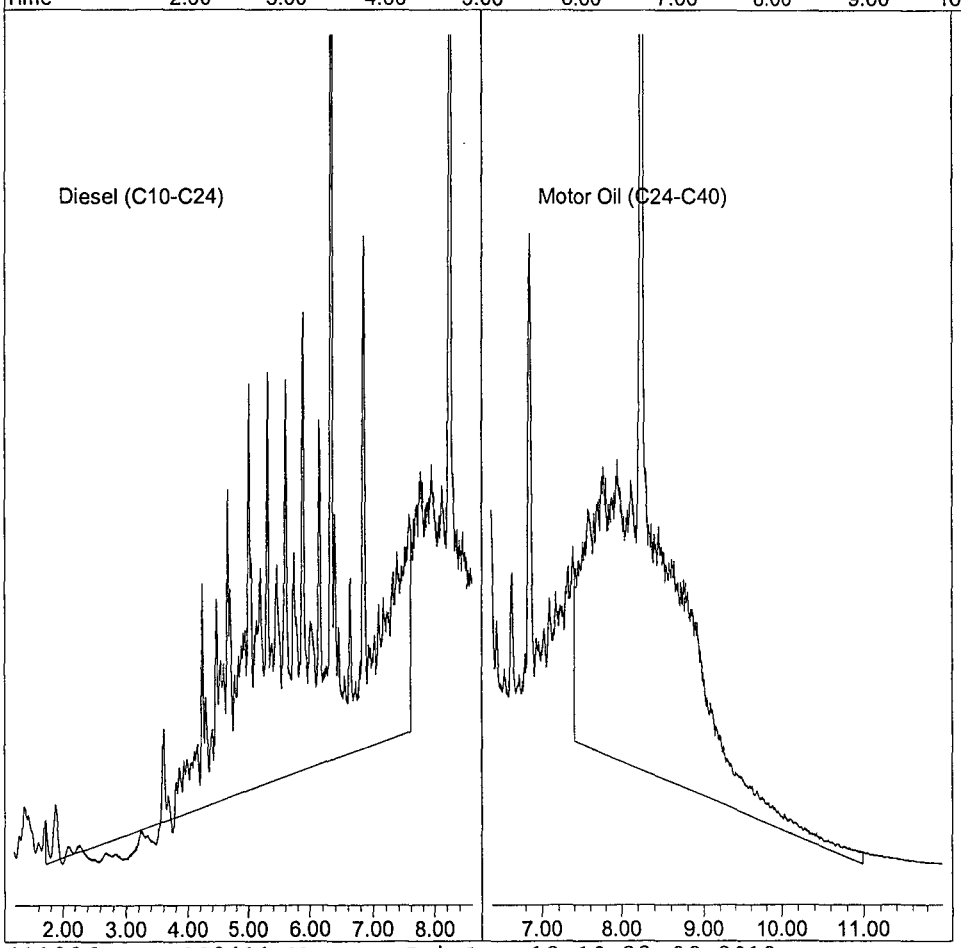
Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.35	292043263	72.154 ppb
Surrogate Spike 30.000		Recovery =	240.51%
5) SA Octacosane(S)	8.25	271242076	71.676 ppb
Surrogate Spike 30.000		Recovery =	238.92%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	3465077974	1452.718 ppb
2) HBTM Motor Oil (C24-C40)	9.20	2812537957	1477.546 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File: G:\APOLLO\DATA\190411\411006.D
Sample : Diesel / Motor Oil - 5 4/11/19





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411007.D Vial: 7
Acq On : 4-11-19 14:19:10 Operator: DP
Sample : Diesel / Motor Oil - 6 4/11/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:32 2019 Quant Results File: DOC0411.RES

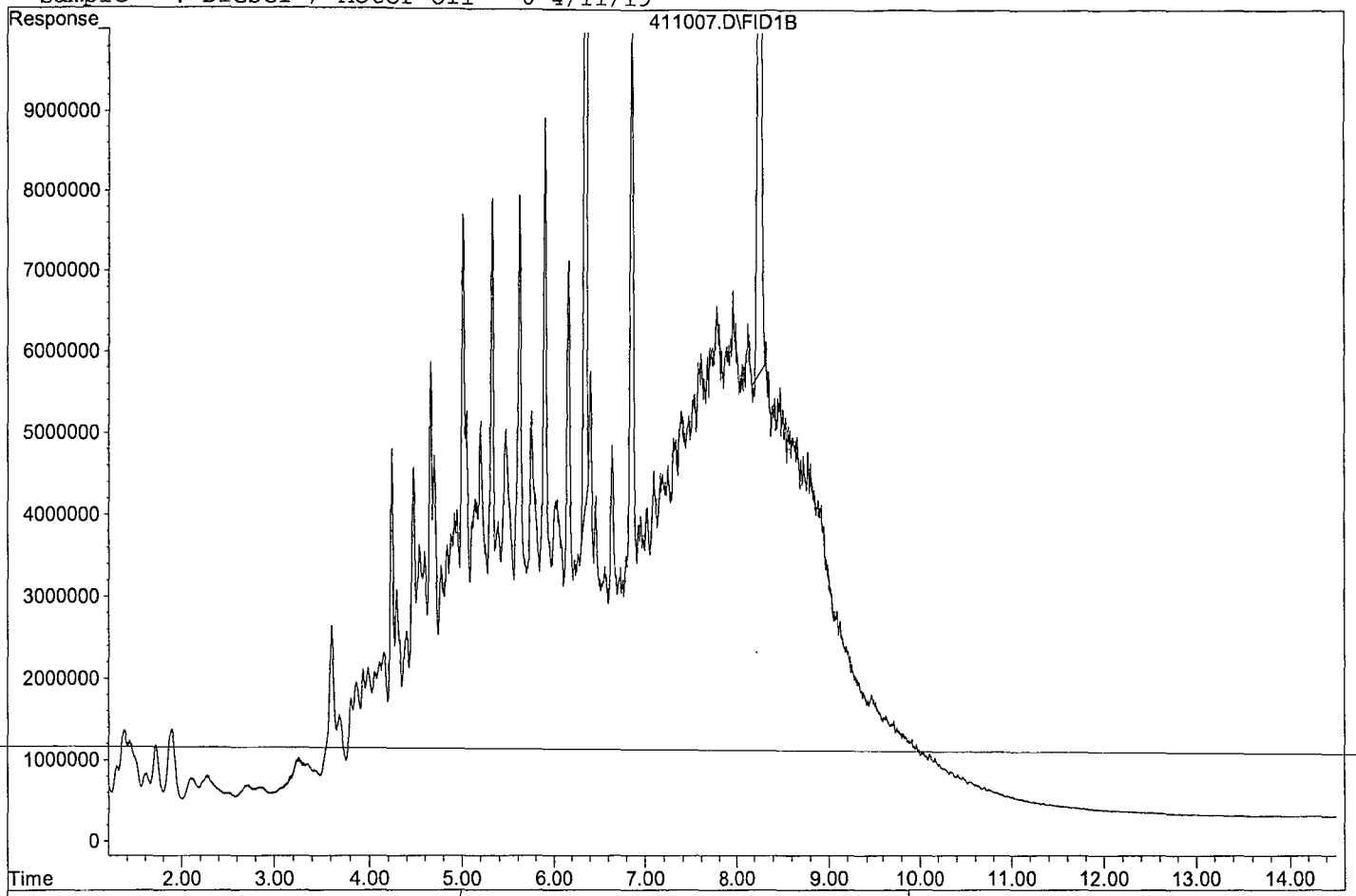
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

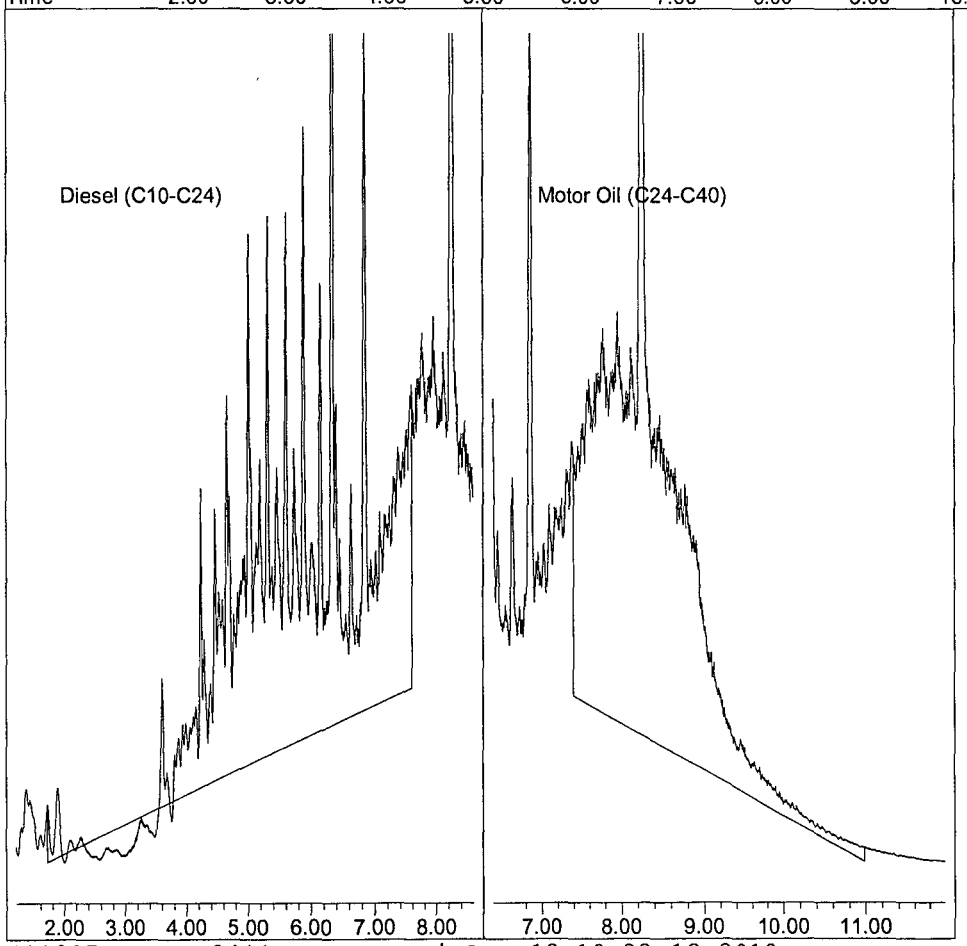
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.35	380394582	93.983 ppb
Surrogate Spike 30.000	Recovery =		313.28%
5) SA Octacosane(S)	8.25	369453158	97.628 ppb
Surrogate Spike 30.000	Recovery =		325.43%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	4604763920	1930.527 ppb
2) HBTM Motor Oil (C24-C40)	9.20	3684700650	1935.731 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411007.D
Sample : Diesel / Motor Oil - 6 4/11/19





TPH Extractables
DOC0411

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: Water

SDG No:
Date Analyzed: 04/11/19
Instrument: Apollo
Initial Cal. Date: 04/11/19
Data File: 411008.D

		Compound	MEAN	CCRF	%D		%Drift
1	HATM	Diesel (C10-C24)	1192620	1089150	8.7	HATM	
2	HBTM	Motor Oil (C24-C40)	951760	887564	6.7	HBTM	
3							
4							
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37							
38							
39							
40							
		Average			7.7		

Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411008.D Vial: 8
Acq On : 4-11-19 14:39:01 Operator: DP
Sample : Diesel / Motor Oil - 2nd Source 1/15/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:31 2019 Quant Results File: DOC0411.RES

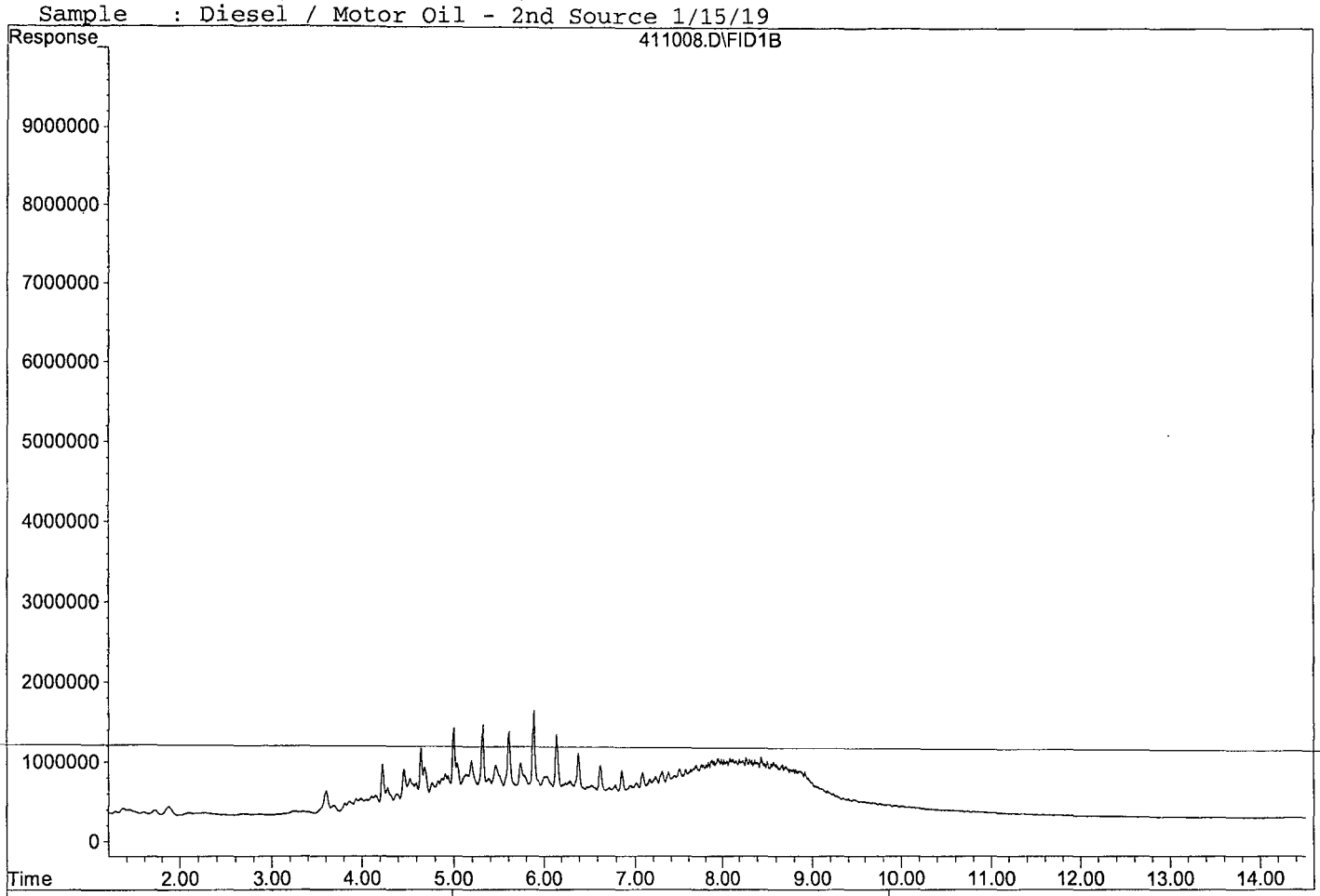
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

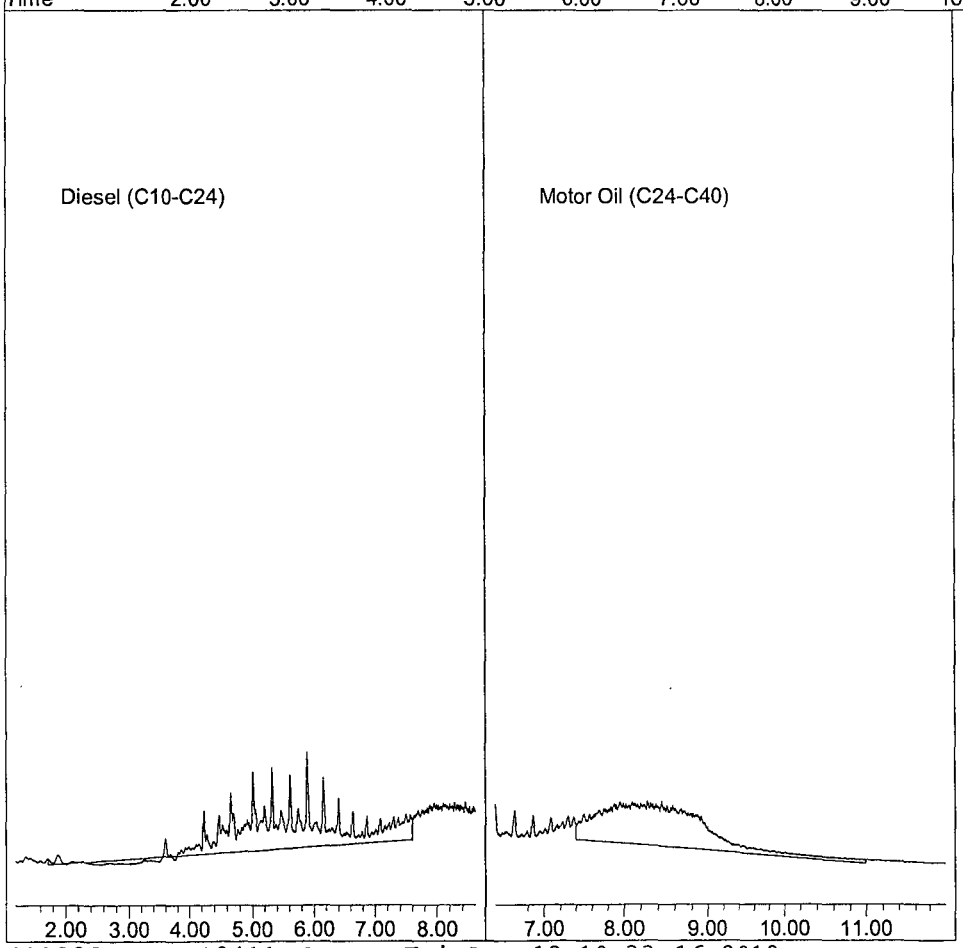
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	544574759	228.311 ppb
2) HBTM Motor Oil (C24-C40)	9.20	443782147	233.138 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411008.D
Sample : Diesel / Motor Oil - 2nd Source 1/15/19





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411009.D Vial: 9
Acq On : 4-11-19 15:57:31 Operator: DP
Sample : Decanoic Acid - 1 4/11/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:31 2019 Quant Results File: DOC0411.RES

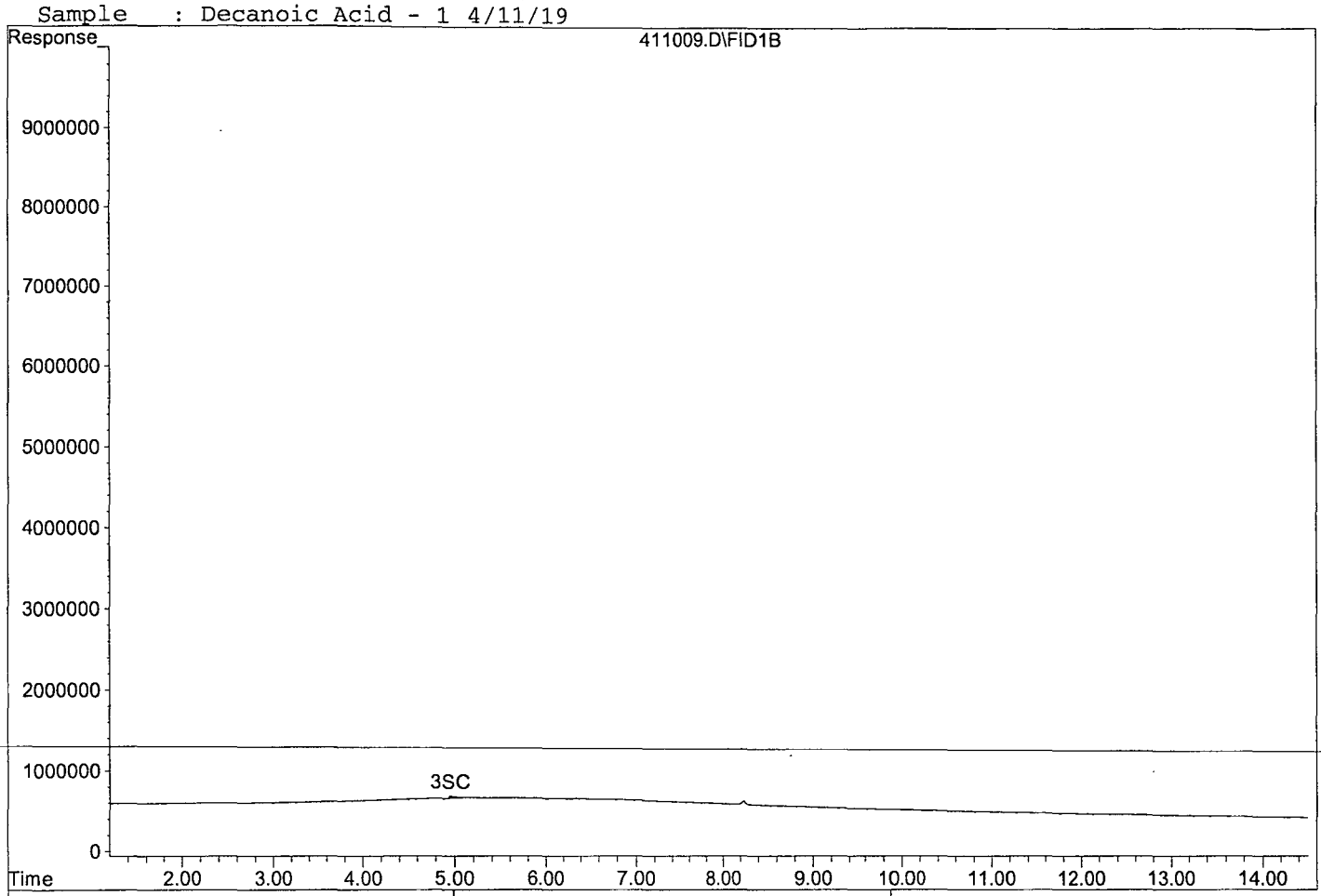
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

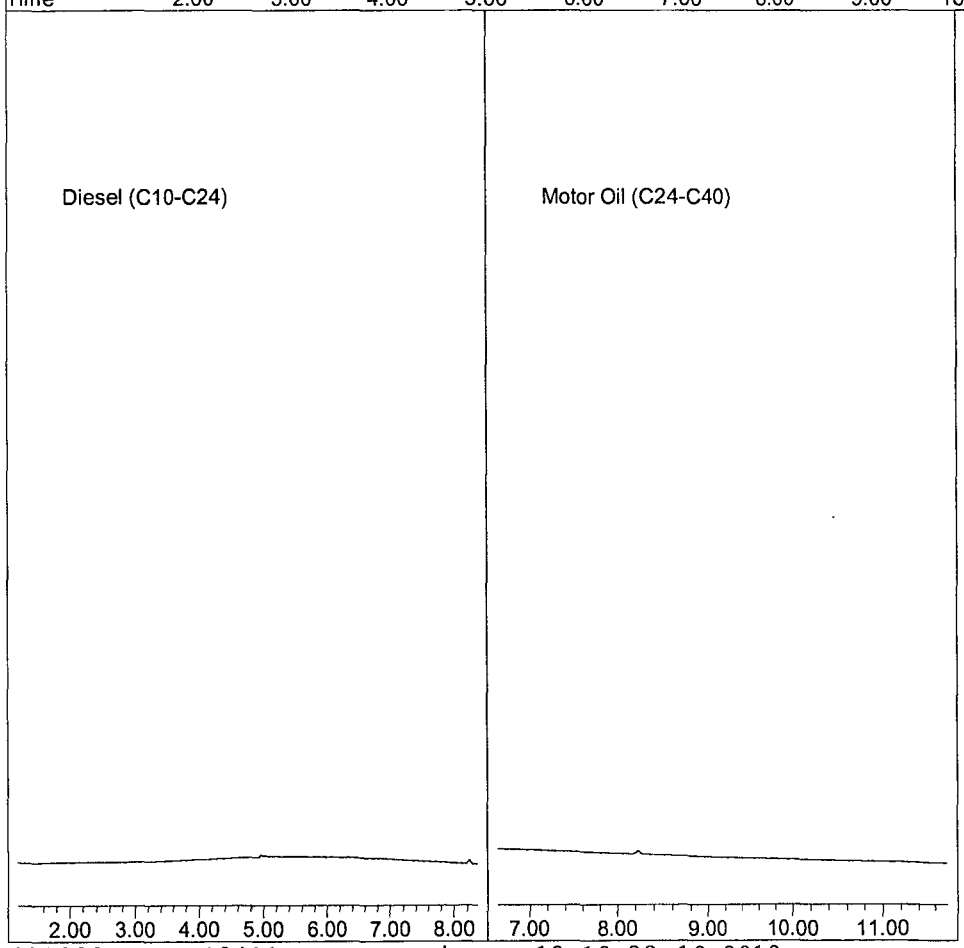
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc	Units	
System Monitoring Compounds					
3) SC Decanoic Acid(S)	4.95	1111571	3.678	ppb	m
Surrogate Spike 24.000	Recovery =		15.33%		
Target Compounds					

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411009.D
Sample : Decanoic Acid - 1 4/11/19

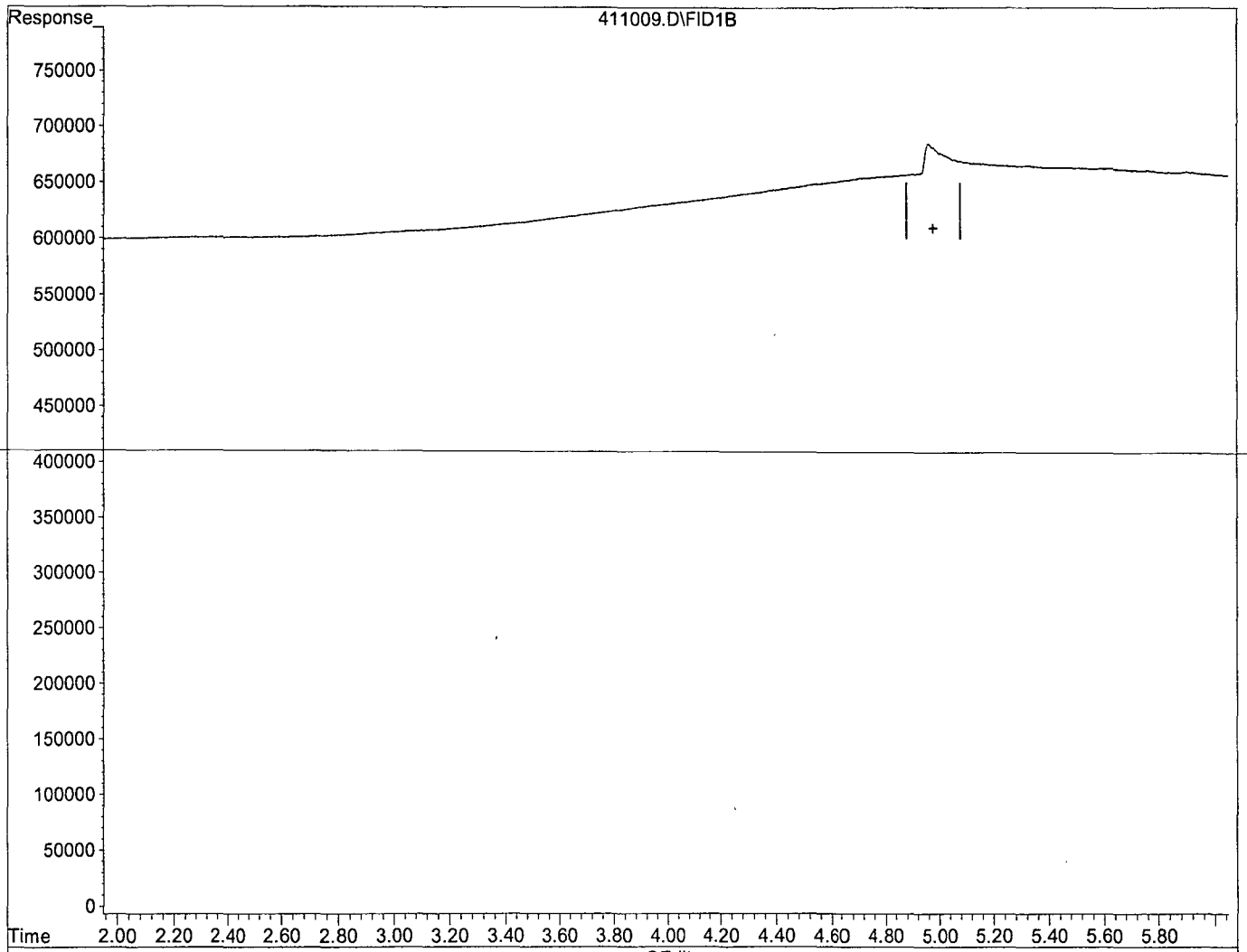




Quantitation Report

Data File : G:\APOLLO\DATA\190411\411009.D Vial: 9
Acq On : 4-11-19 15:57:31 Operator: DP
Sample : Decanoic Acid - 1 4/11/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:30 2019 Quant Results File: DOC0411.RES

Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:30:24 2019
Response via : Multiple Level Calibration



(3) Decanoic Acid(S) (SC)

4.96min -2.749ppb

response -6352807

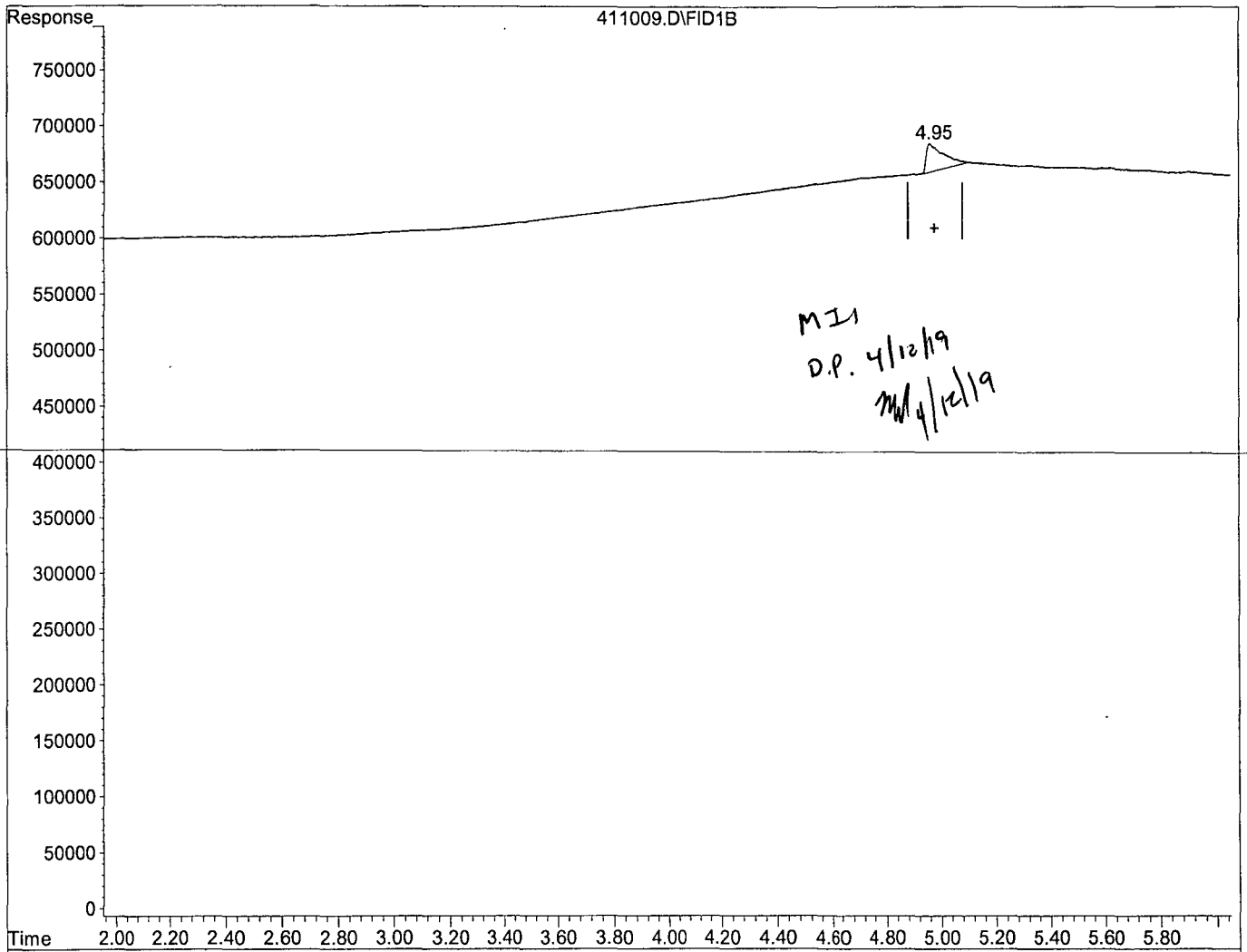
(+) = Expected Retention Time

411009.D DOC0411.M Fri Apr 12 10:31:28 2019

Quantitation Report

Data File : G:\APOLLO\DATA\190411\411009.D Vial: 9
Acq On : 4-11-19 15:57:31 Operator: DP
Sample : Decanoic Acid - 1 4/11/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:30 2019 Quant Results File: DOC0411.RES

Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:30:24 2019
Response via : Multiple Level Calibration



MI
D.P. 4/12/19
4/12/19

(3) Decanoic Acid(S) (SC)

4.95min 3.678ppb m

response 1111571

(+) = Expected Retention Time

411009.D DOC0411.M Fri Apr 12 10:31:34 2019

Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411010.D Vial: 10
Acq On : 4-11-19 16:16:26 Operator: DP
Sample : Decanoic Acid - 2 4/11/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:31 2019 Quant Results File: DOC0411.RES

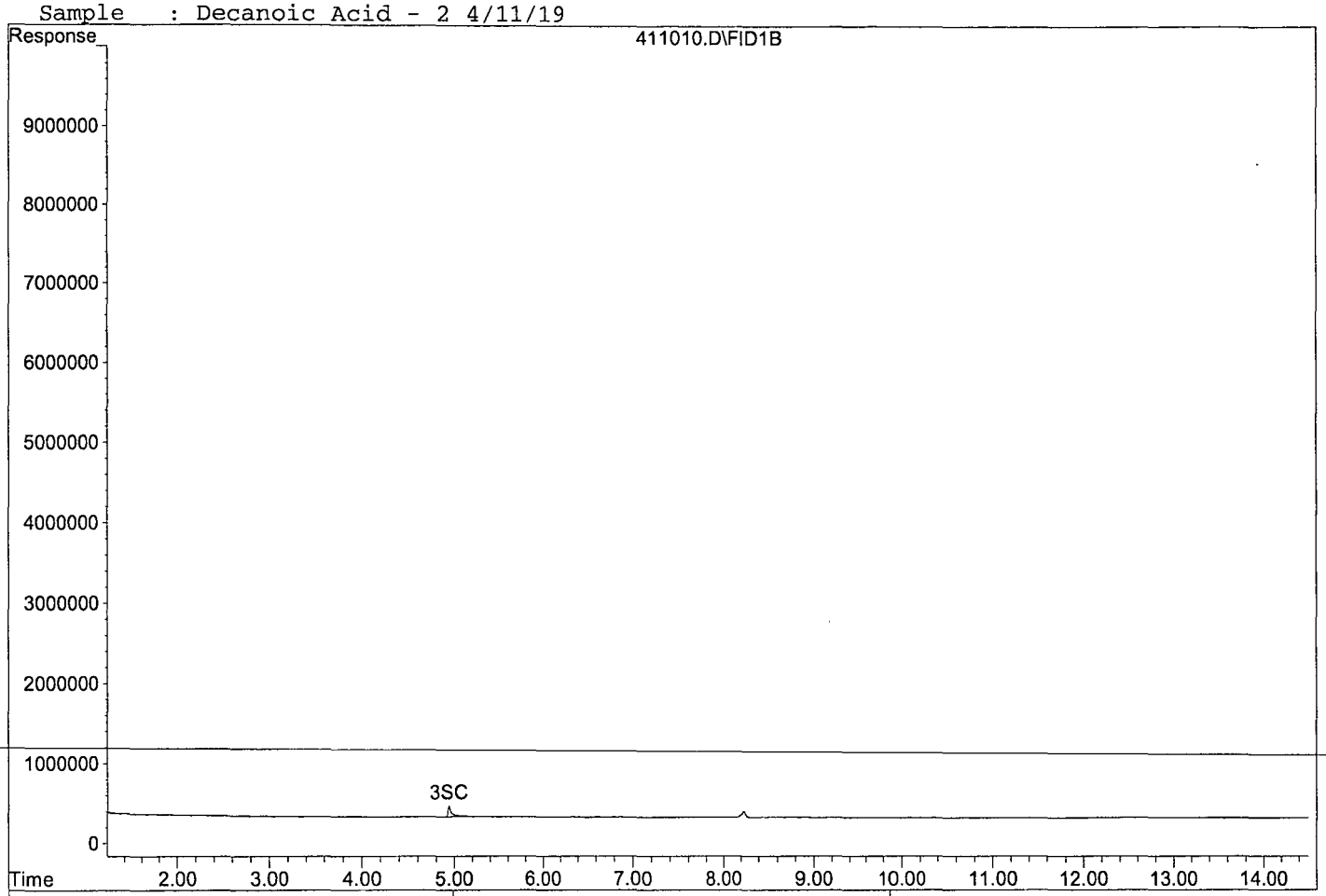
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

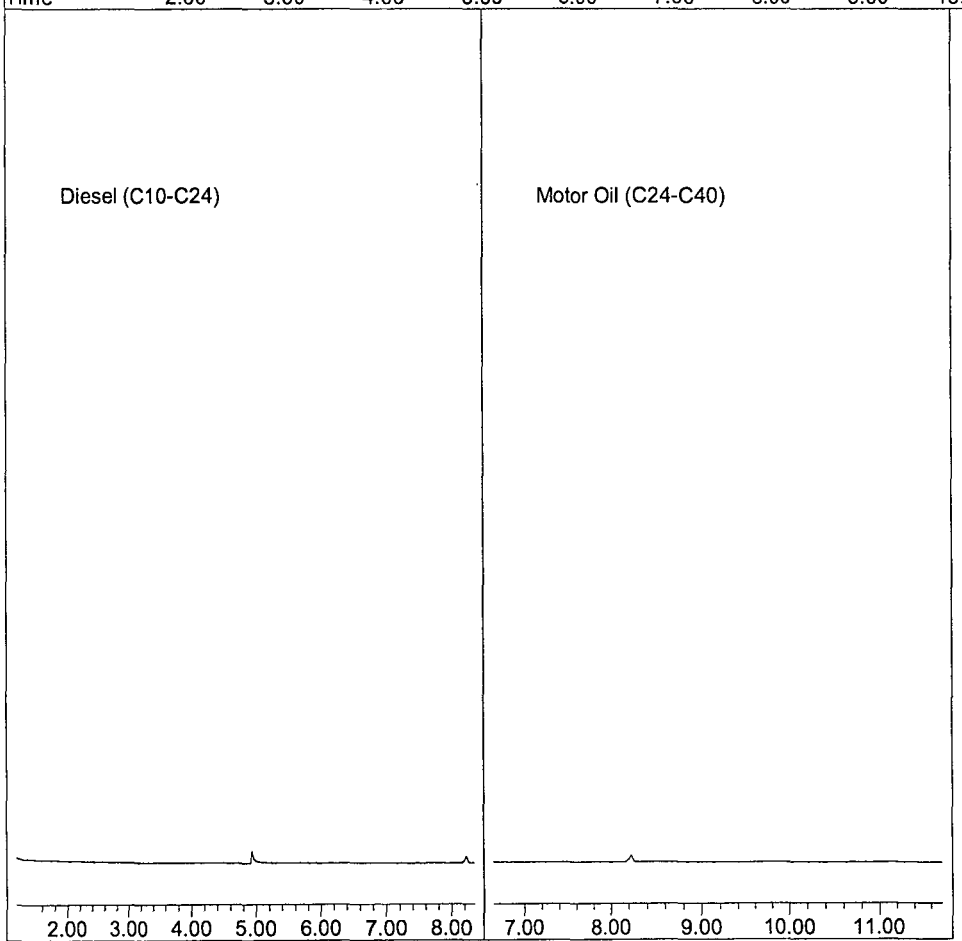
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
3) SC Decanoic Acid(S)	4.94	3775239	5.972 ppb
Surrogate Spike 24.000	Recovery	=	24.88%
Target Compounds			

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411010.D
Sample : Decanoic Acid - 2 4/11/19





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411011.D Vial: 11
Acq On : 4-11-19 16:36:04 Operator: DP
Sample : Decanoic Acid - 3 4/11/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:31 2019 Quant Results File: DOC0411.RES

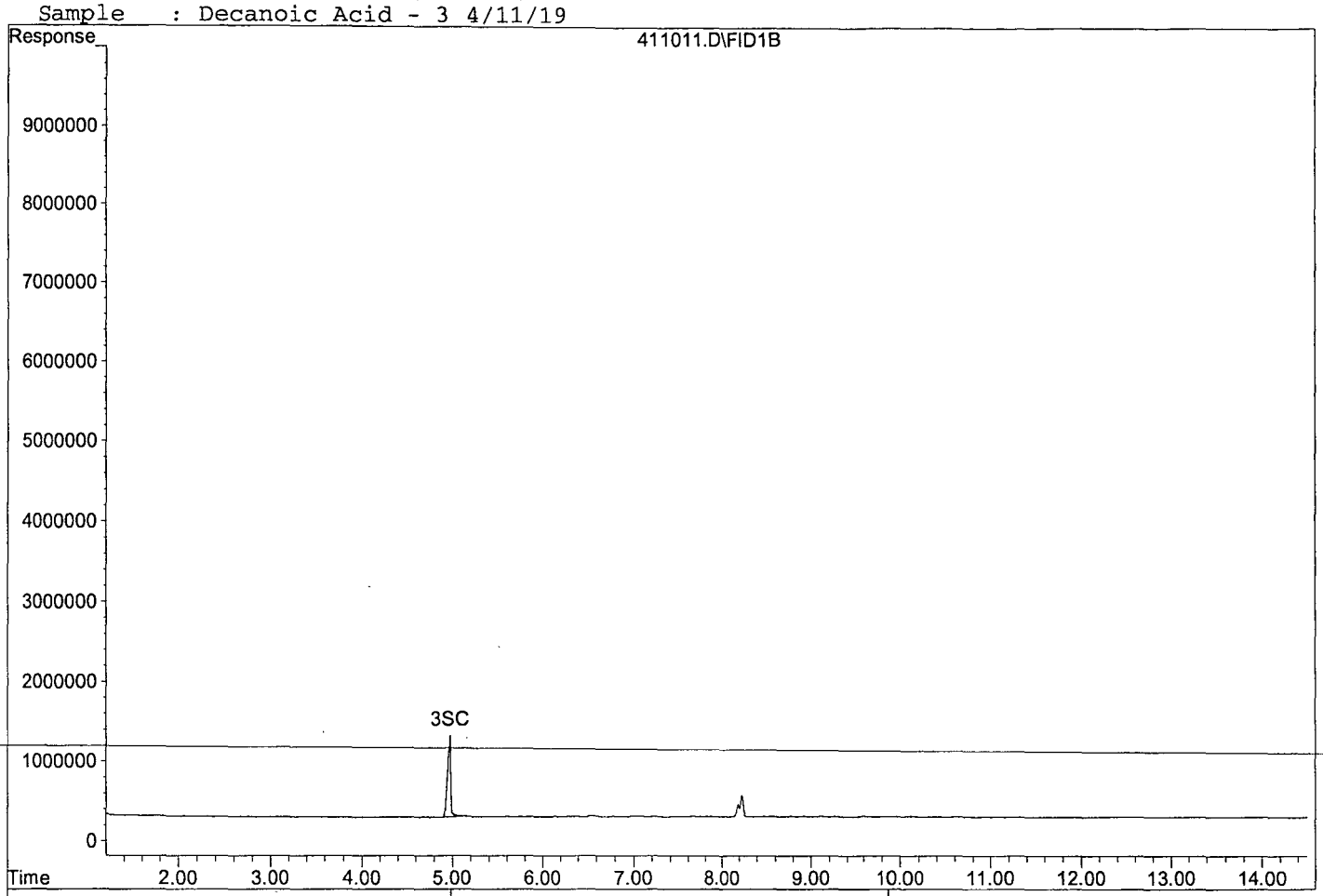
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

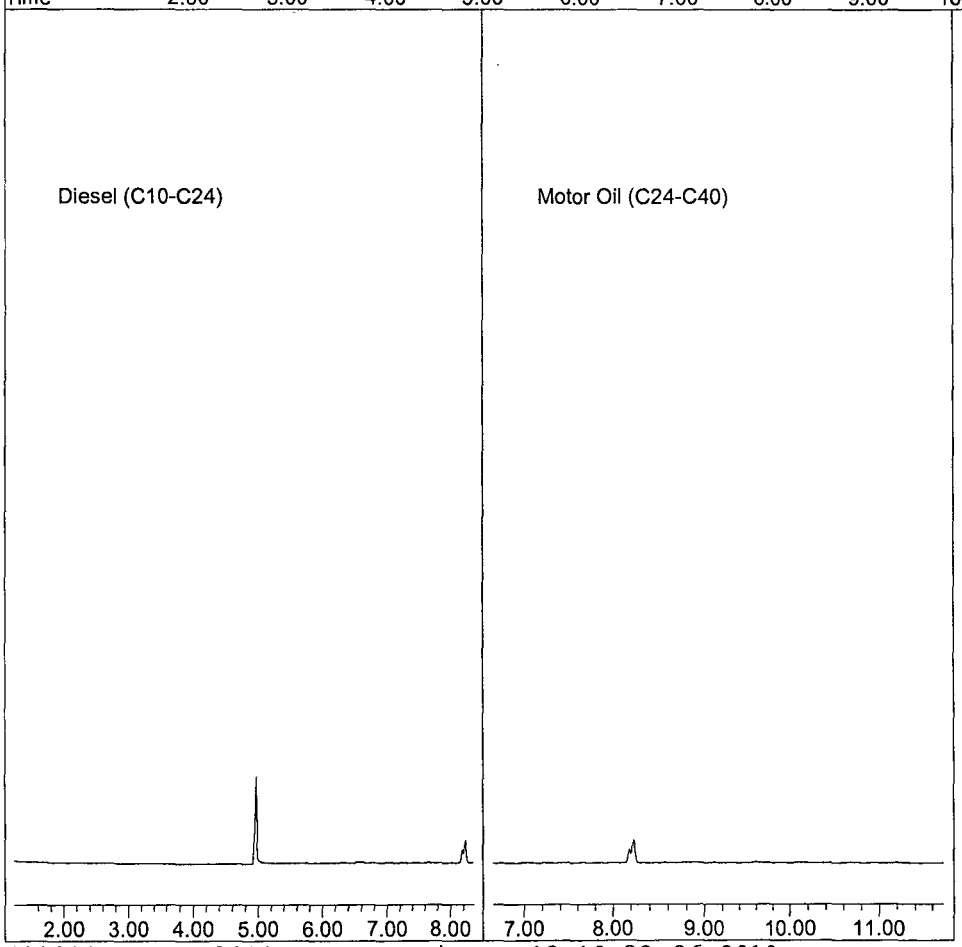
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
3) SC Decanoic Acid(S)	4.97	23638982	23.075 ppb
Surrogate Spike 24.000	Recovery	=	96.15%
Target Compounds			

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411011.D
Sample : Decanoic Acid - 3 4/11/19





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411012.D Vial: 12
Acq On : 4-11-19 16:55:47 Operator: DP
Sample : Decanoic Acid - 4 4/11/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:31 2019 Quant Results File: DOC0411.RES

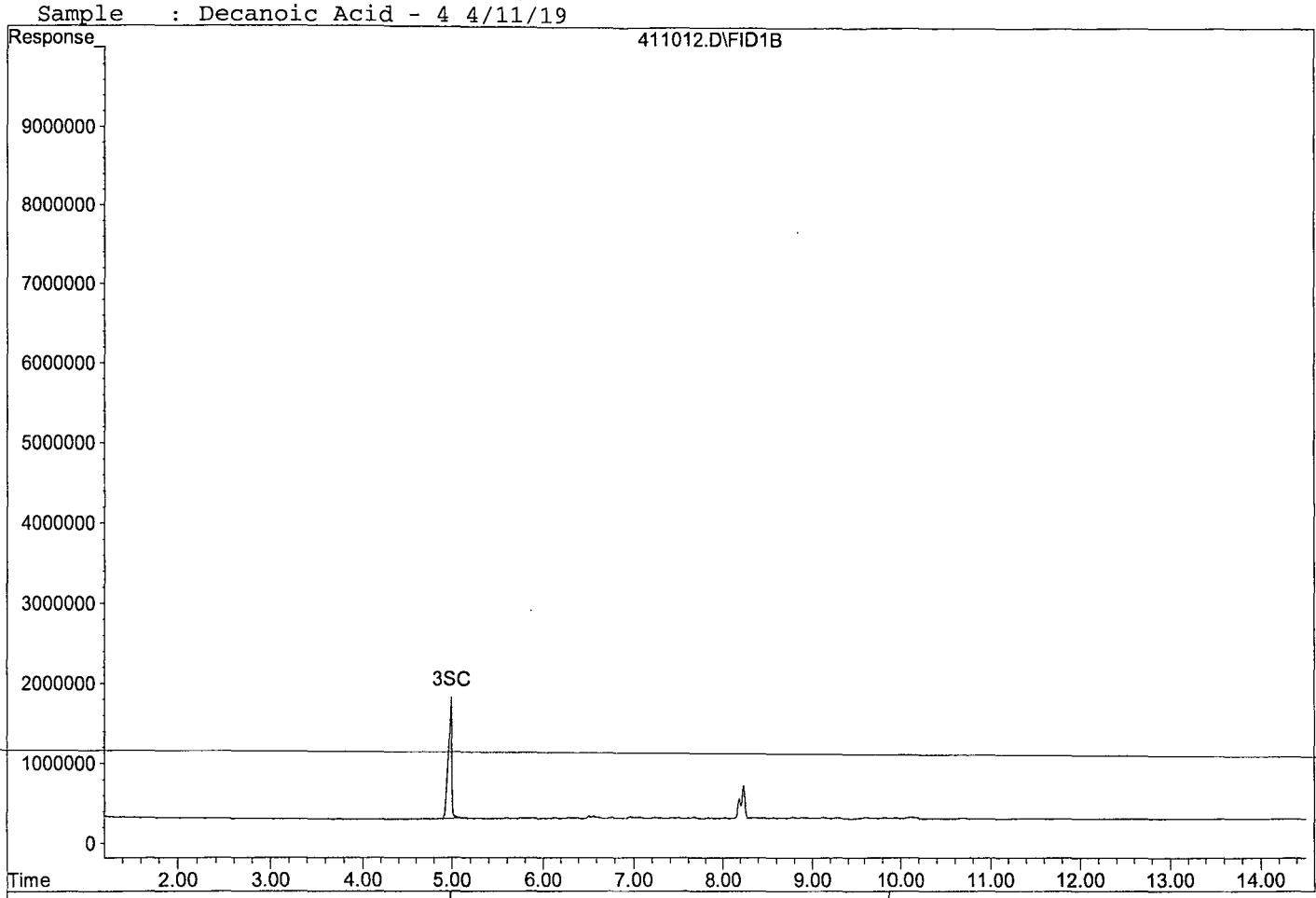
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

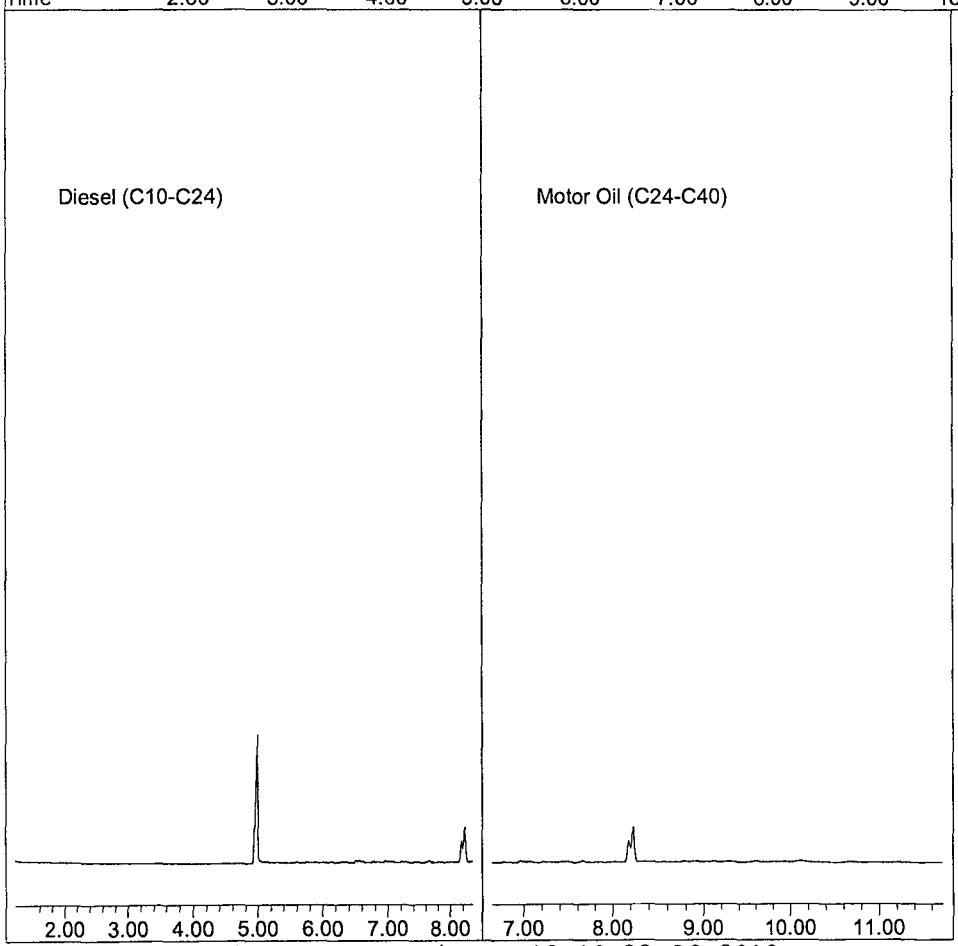
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
3) SC Decanoic Acid(S)	4.99	38673628	36.020 ppb
Surrogate Spike 24.000	Recovery =		150.08%
Target Compounds			

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411012.D
Sample : Decanoic Acid - 4 4/11/19





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411013.D Vial: 13
Acq On : 4-11-19 17:15:26 Operator: DP
Sample : Decanoic Acid - 5 4/11/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:31 2019 Quant Results File: DOC0411.RES

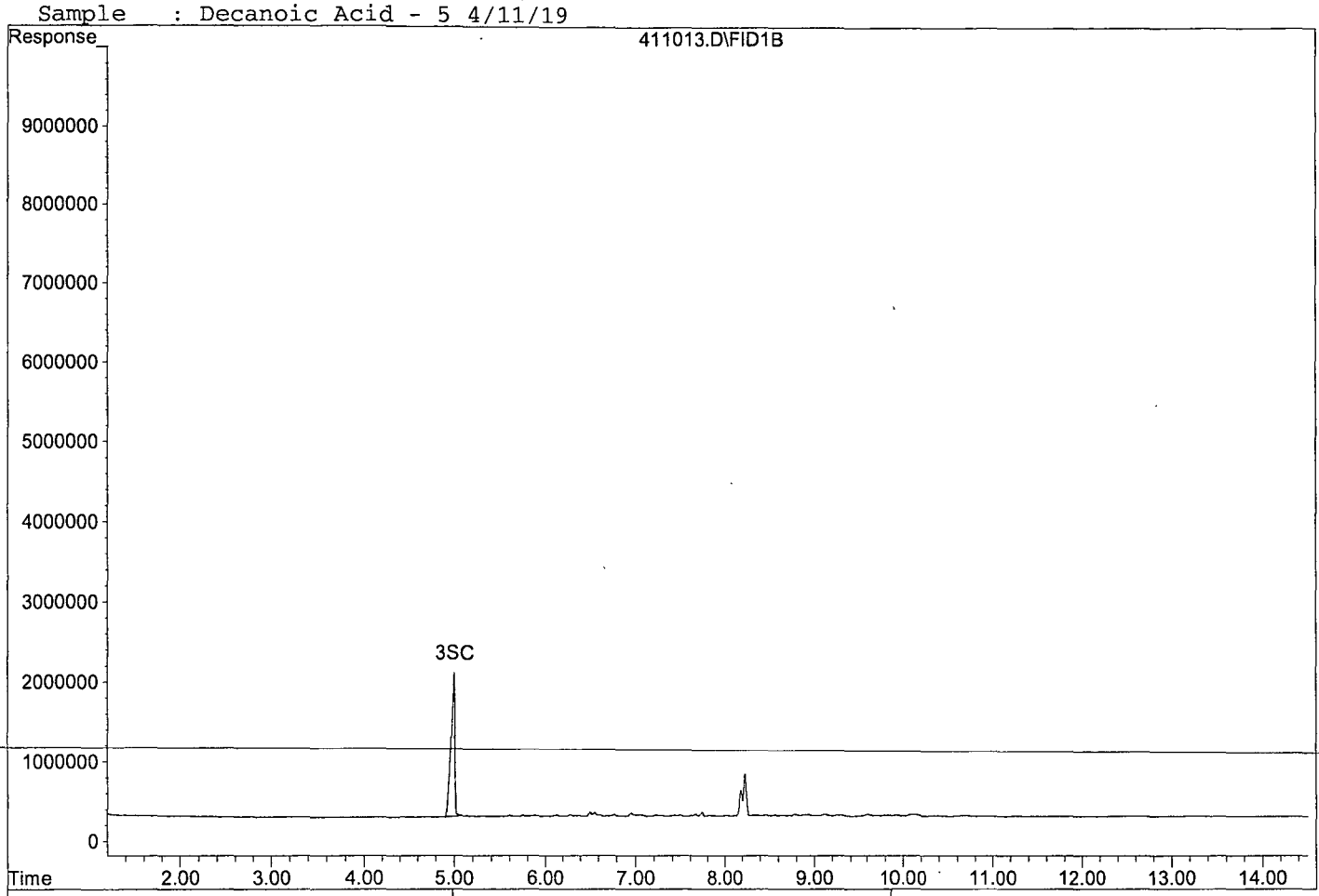
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

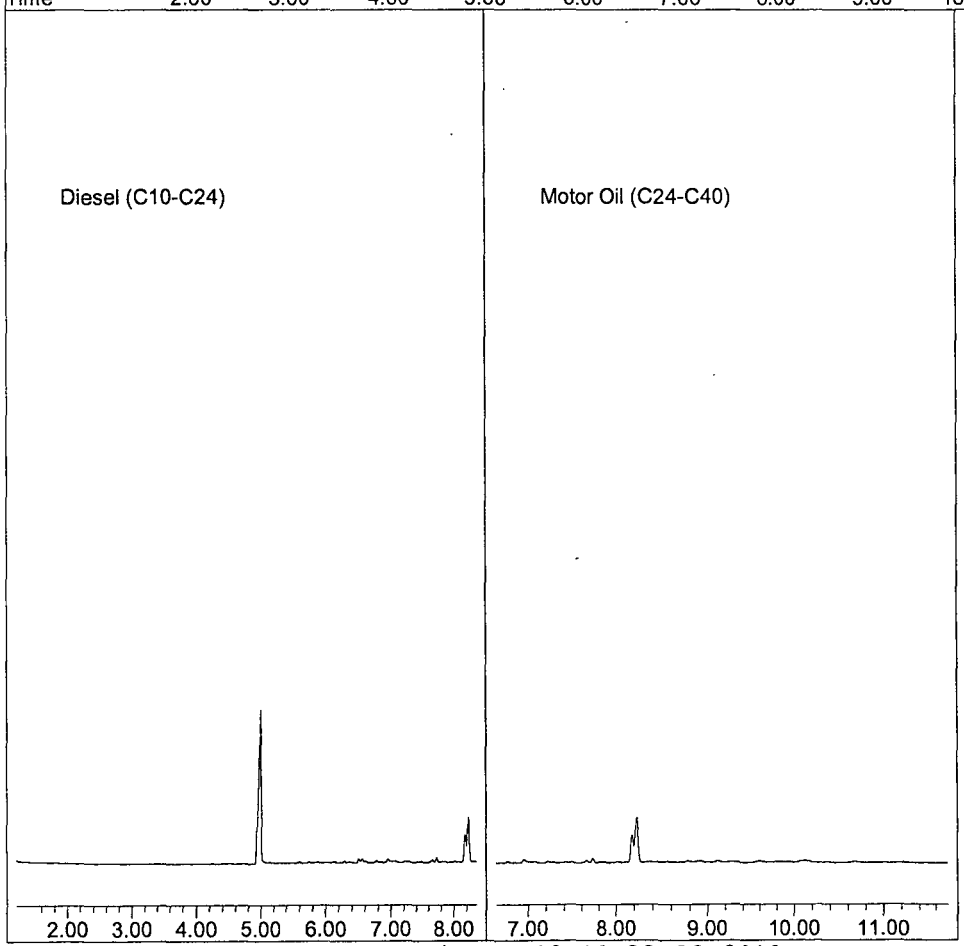
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
3) SC Decanoic Acid(S)	5.00	52115206	47.594 ppb
Surrogate Spike 24.000	Recovery =		198.31%
Target Compounds			

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411013.D
Sample : Decanoic Acid - 5 4/11/19





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411014.D Vial: 14
Acq On : 4-11-19 17:35:11 Operator: DP
Sample : Decanoic Acid - 6 4/11/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:31 2019 Quant Results File: DOC0411.RES

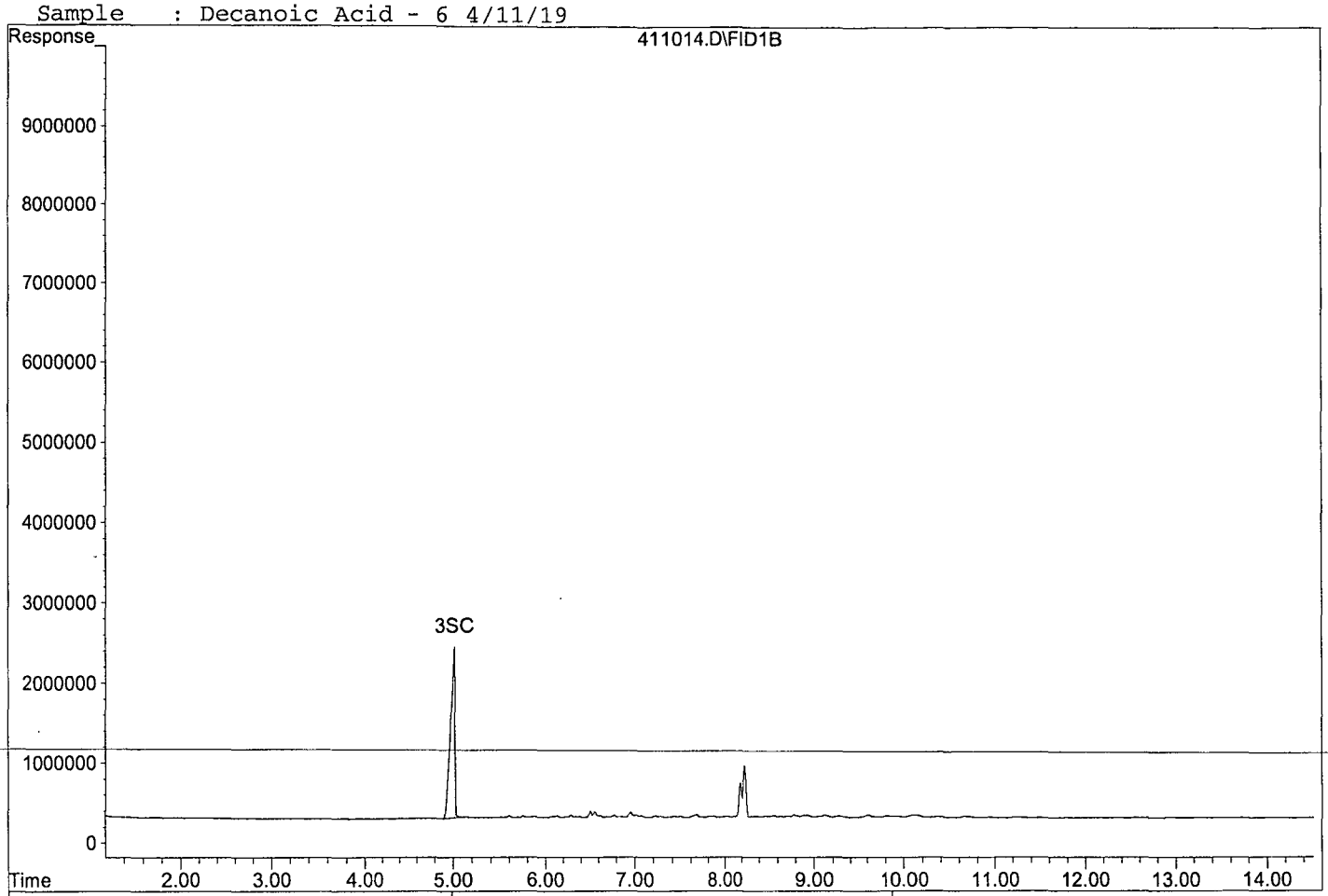
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

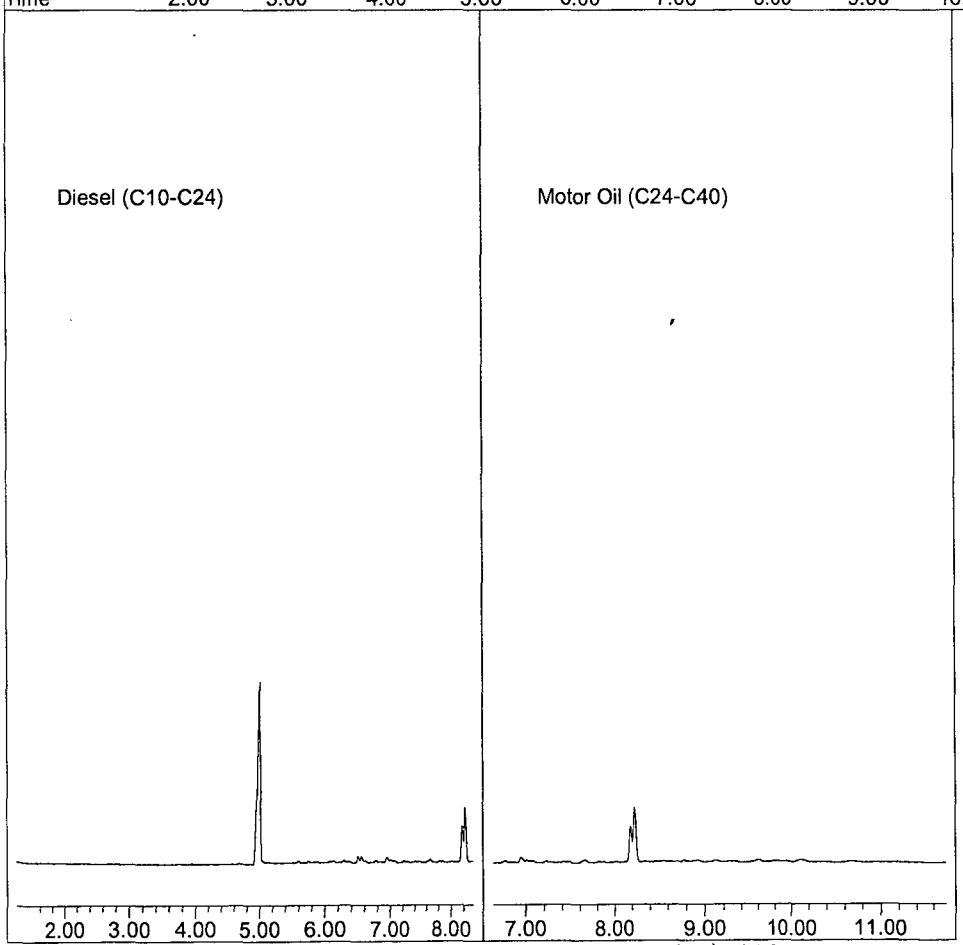
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
3) SC Decanoic Acid(S)	5.02	67279572	60.651 ppb
Surrogate Spike 24.000	Recovery	=	252.71%
Target Compounds			

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411014.D
Sample : Decanoic Acid - 6 4/11/19





TPH Extractables
DOC0411

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: Water

SDG No:
Date Analyzed: 05/06/19
Instrument: Apollo
Initial Cal. Date: 04/11/19
Data File: 506002.D

		Compound	MEAN	CCRF	%D	%Drift	
1	HATM	Diesel (C10-C24)	1192620	1189150	0.29	HATM	
2	HBTM	Motor Oil (C24-C40)	951760	1039930	9.3	HBTM	
3	SA	Ortho-Terphenyl(S)	2023750	2093620	3.5	SA	
4	SA	Octacosane(S)	1892140	1954310	3.3	SA	
5							
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36							
37							
38							
39							
40							
		Average			4.1		

Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190506\506002.D Vial: 2
Acq On : 5-6-19 17:10:08 Operator: DP
Sample : Diesel/Motor Oil 3 4/16/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: May 6 17:24 2019 Quant Results File: DOC0411.RES

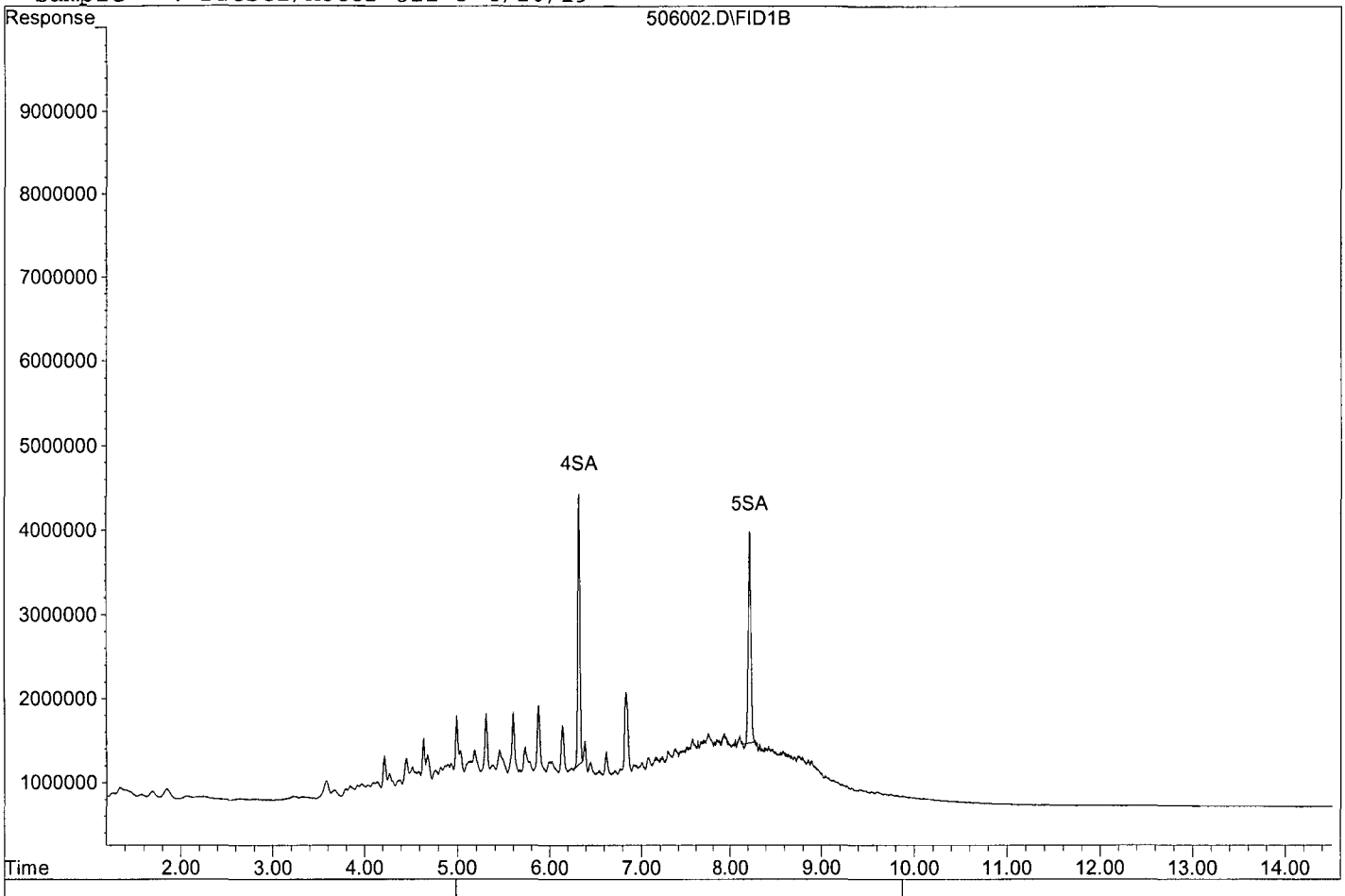
Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

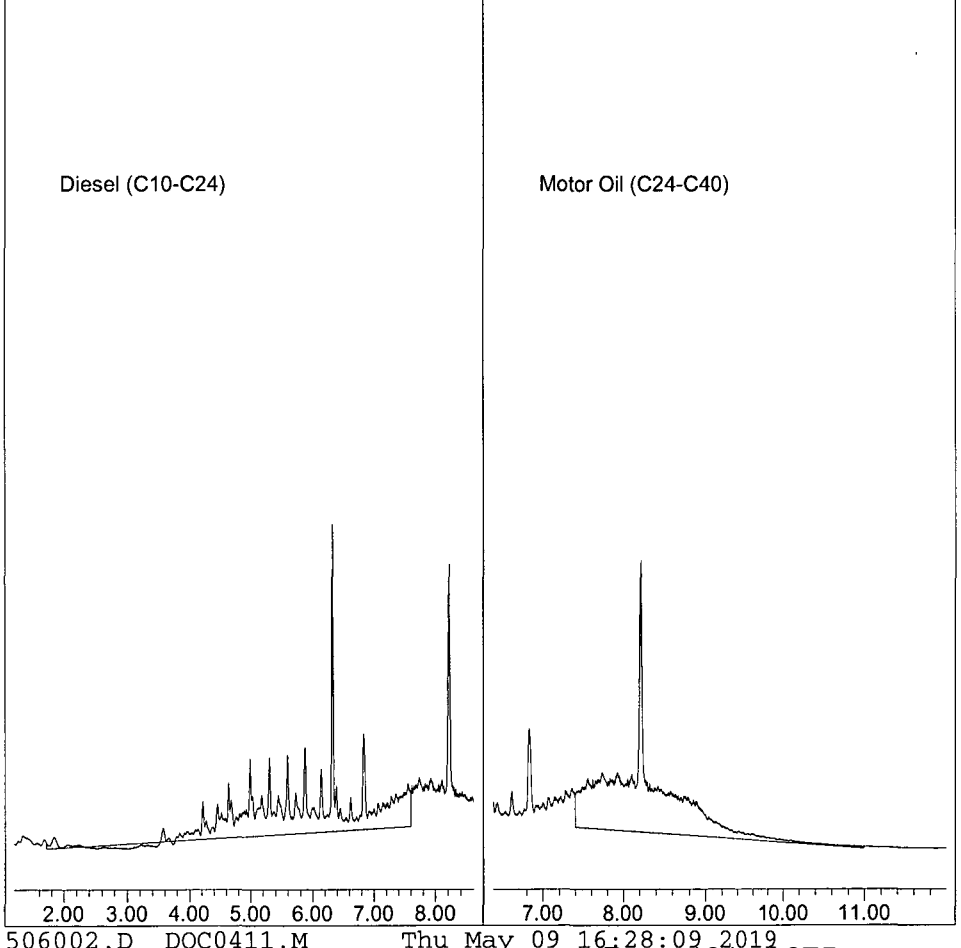
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.32	52340610	12.932 ppb
Surrogate Spike 30.000	Recovery =		43.11%
5) SA Octacosane(S)	8.22	48857718	12.911 ppb
Surrogate Spike 30.000	Recovery =		43.04%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	594574599	249.273 ppb
2) HBTM Motor Oil (C24-C40)	9.20	519962705	273.159 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190506\506002.D
Sample : Diesel/Motor Oil 3 4/16/19





TPH Extractables
DOC0411

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: Water

SDG No:
Date Analyzed: 05/06/19
Instrument: Apollo
Initial Cal. Date: 04/11/19
Data File: 506016.D

		Compound	MEAN	CCRF	%D	%Drift	
1	HATM	Diesel (C10-C24)	1192620	1231640	3.3	HATM	
2	HBTM	Motor Oil (C24-C40)	951760	1057410	11	HBTM	
3	SA	Ortho-Terphenyl(S)	2023750	2197200	8.6	SA	
4	SA	Octacosane(S)	1892140	2145190	13	SA	
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		Average			9.0		

Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190506\506016.D Vial: 16
Acq On : 5-6-19 21:49:32 Operator: DP
Sample : Diesel/Motor Oil 3 4/16/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: May 8 8:26 2019 Quant Results File: DOC0411.RES

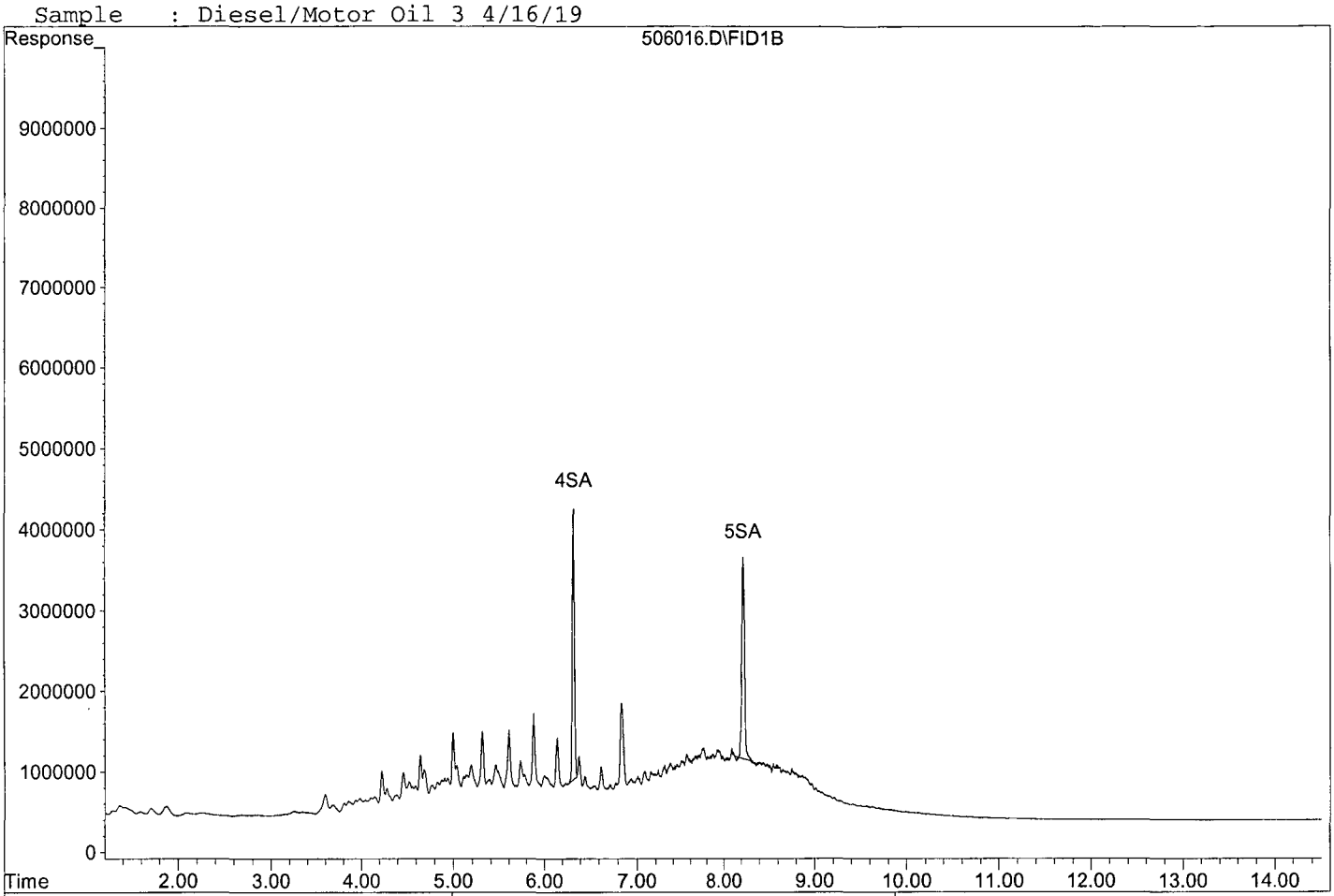
Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

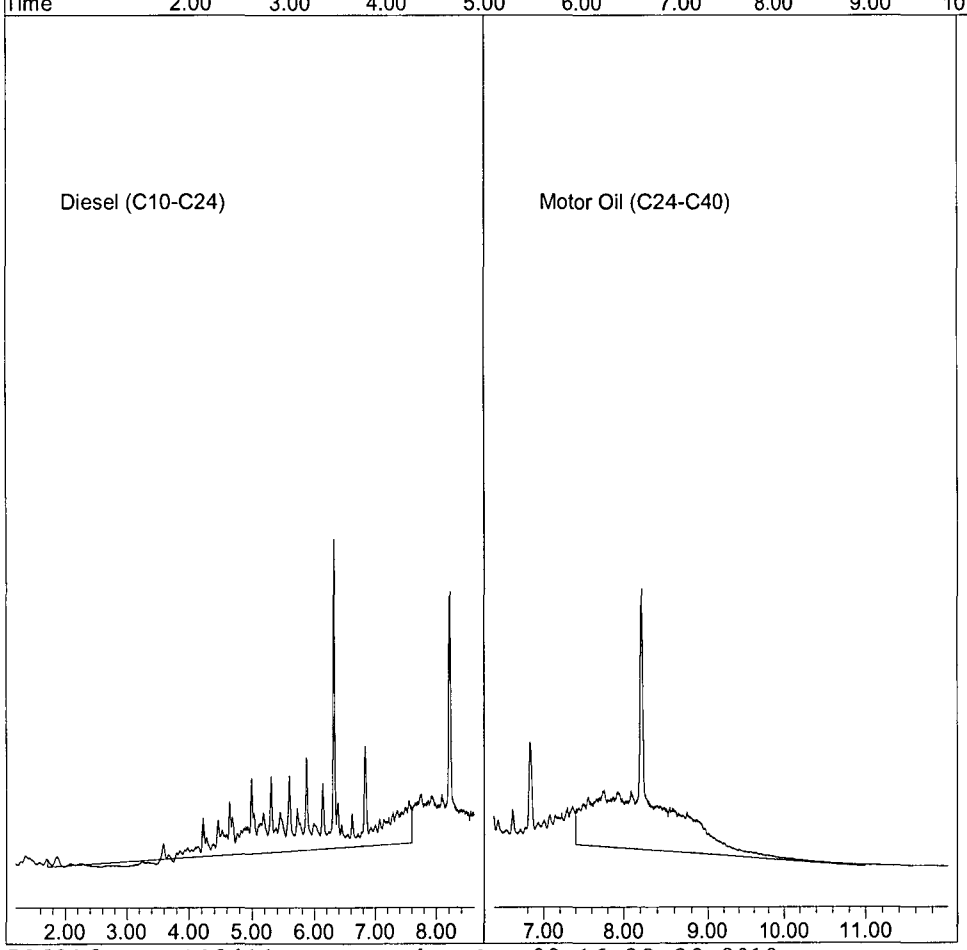
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.32	54930035	13.571 ppb
Surrogate Spike 30.000	Recovery =		45.24%
5) SA Octacosane(S)	8.22	53629644	14.172 ppb
Surrogate Spike 30.000	Recovery =		47.24%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	615821869	258.181 ppb
2) HBTM Motor Oil (C24-C40)	9.20	528706645	277.752 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190506\506016.D
Sample : Diesel/Motor Oil 3 4/16/19





TPH Extractables
DOC0411

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: Water

SDG No:
Date Analyzed: 05/06/19
Instrument: Apollo
Initial Cal. Date: 04/11/19
Data File: 506021.D

		Compound	MEAN	CCRF	%D	%Drift	
1	HATM	Diesel (C10-C24)	1192620	1291940	8.3	HATM	
2	HBTM	Motor Oil (C24-C40)	951760	1092120	15	HBTM	
3	SA	Ortho-Terphenyl(S)	2023750	2318430	15	SA	
4	SA	Octacosane(S)	1892140	2236170	18	SA	
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		Average			14.1		

Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190506\506021.D Vial: 21
Acq On : 5-6-19 23:28:29 Operator: DP
Sample : Diesel/Motor Oil 3 4/16/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: May 8 8:28 2019 Quant Results File: DOC0411.RES

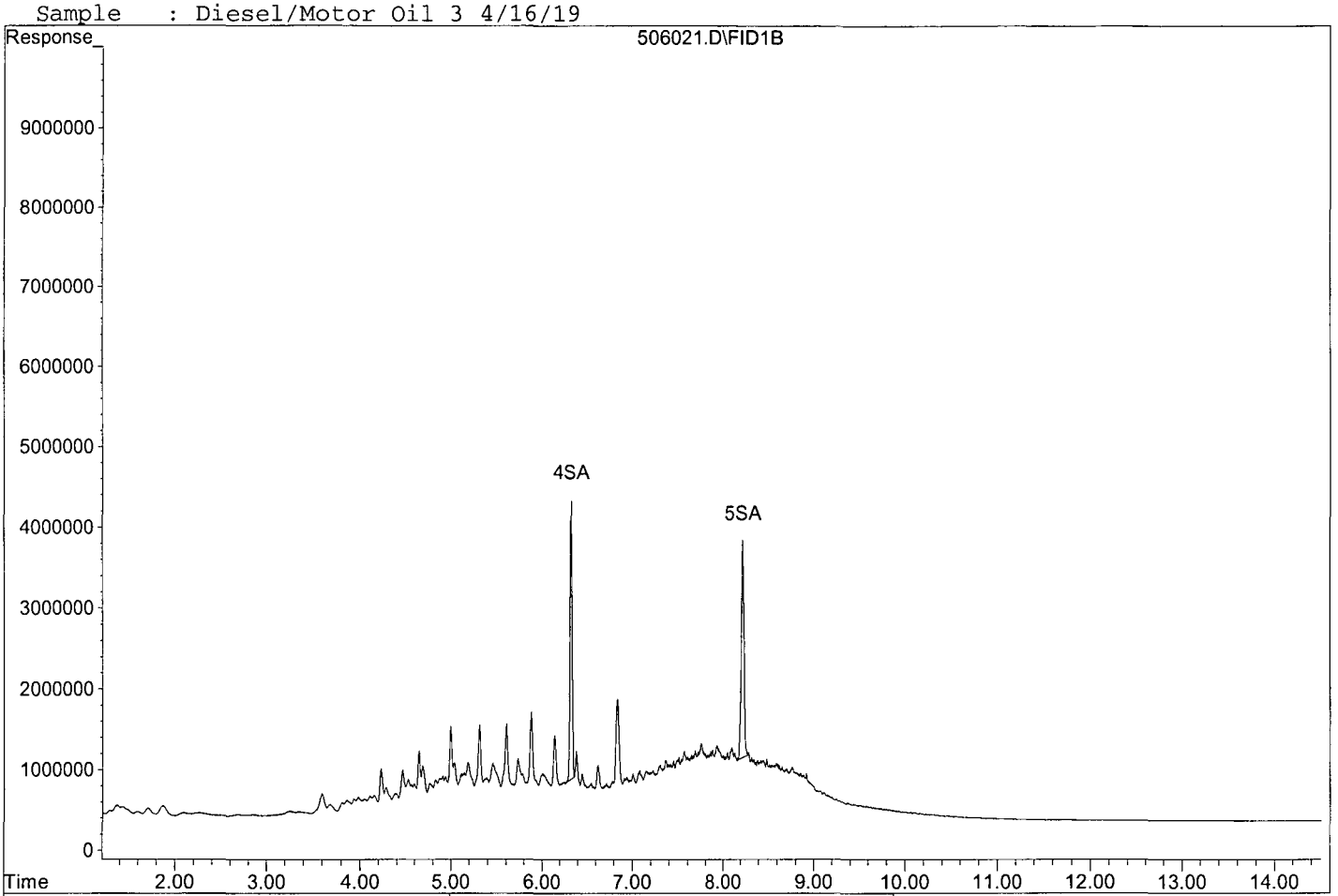
Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

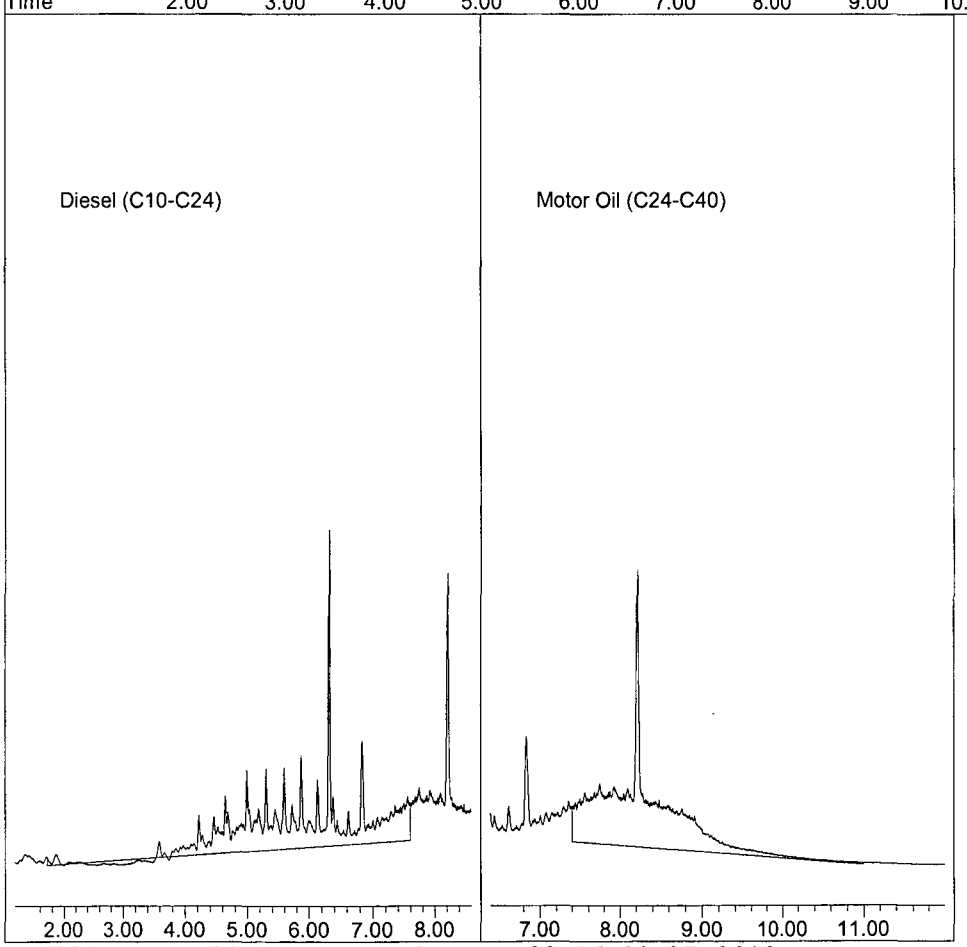
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.32	57960764	14.320 ppb
Surrogate Spike 30.000		Recovery =	47.73%
5) SA Octacosane(S)	8.22	55904366	14.773 ppb
Surrogate Spike 30.000		Recovery =	49.24%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	645970791	270.820 ppb
2) HBTM Motor Oil (C24-C40)	9.20	546058298	286.868 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190506\506021.D
Sample : Diesel/Motor Oil 3 4/16/19





506021.D DOC0411.M Thu May 09 16:28:37 2019 Page 2

ORGANICS
Raw Data

Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190506\506015.D Vial: 15
Acq On : 5-6-19 21:29:38 Operator: DP
Sample : AZ90213W18 2/800 Inst : Apollo
Misc : water Multiplr: 2.50
IntFile : events.e
Quant Time: May 9 14:43 2019 Quant Results File: DOC0411.RES

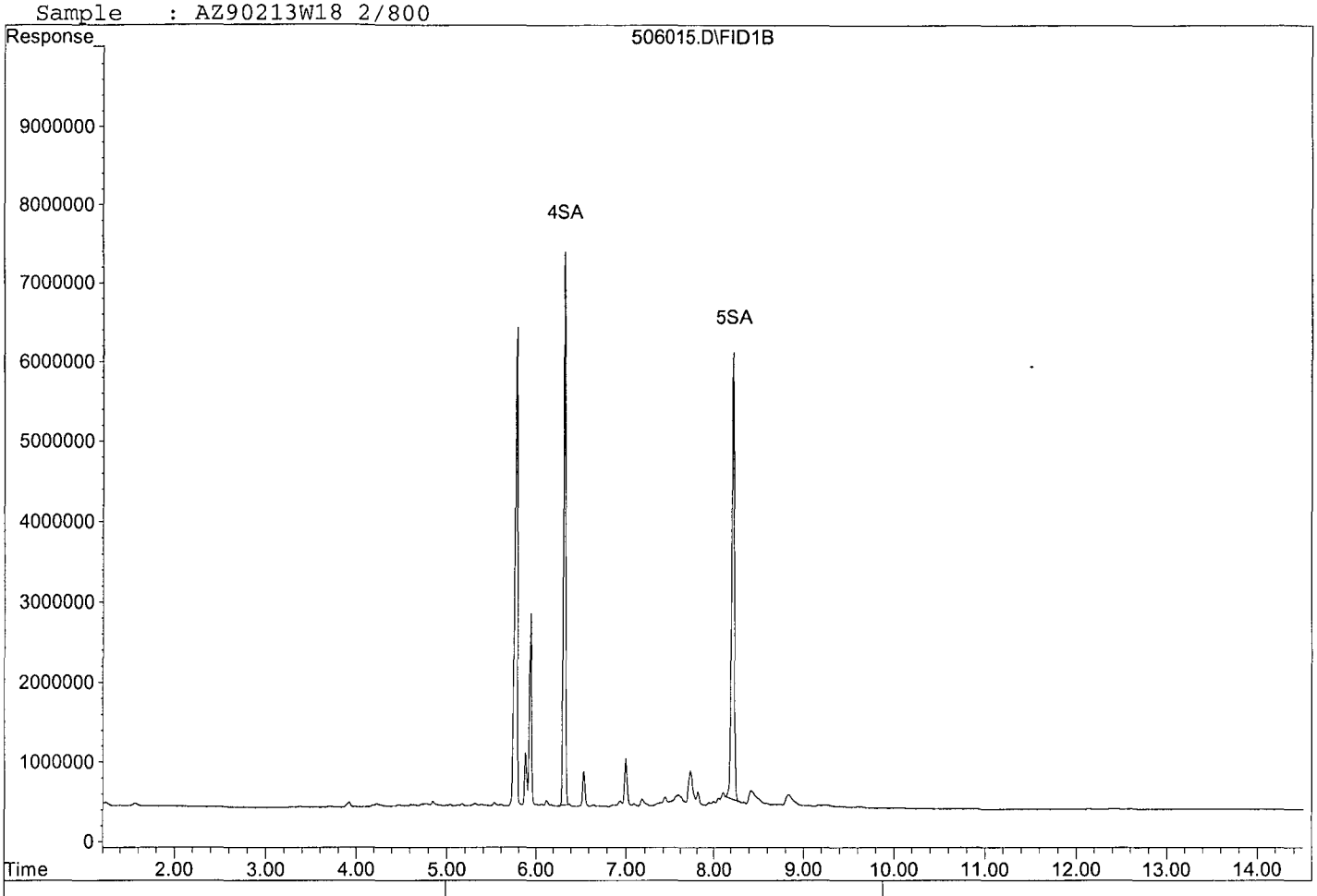
Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

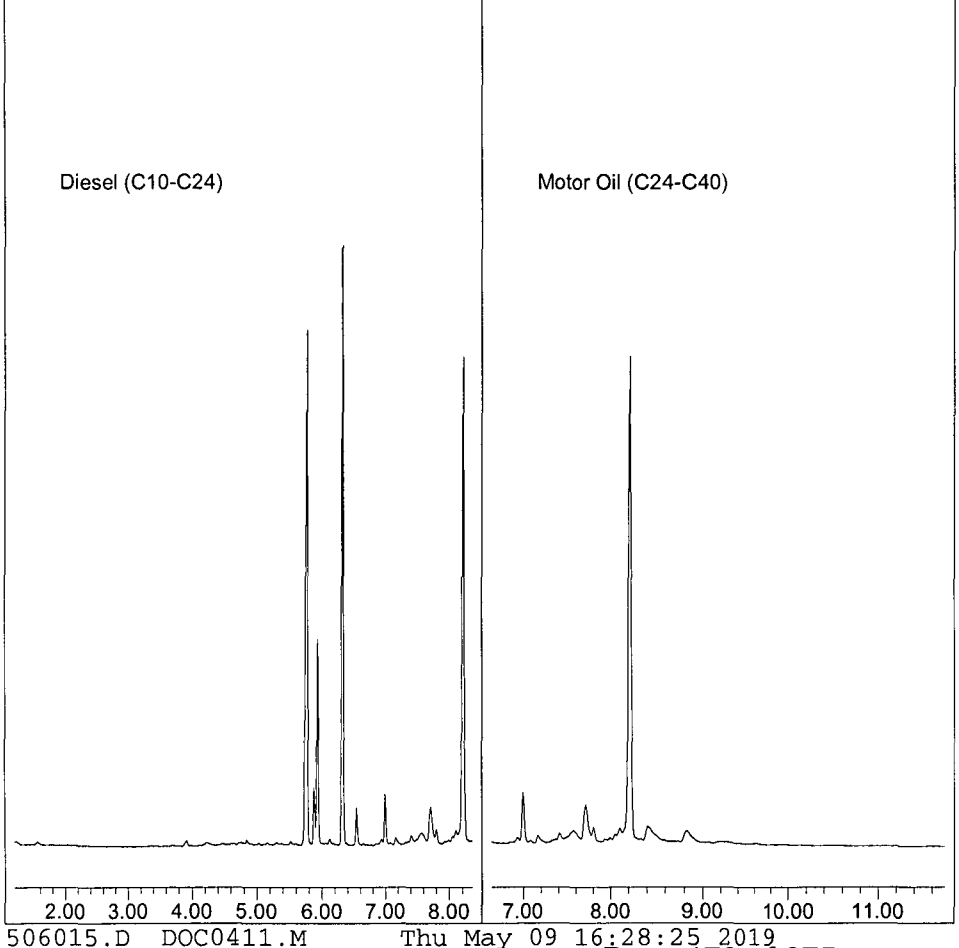
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc	Units
System Monitoring Compounds				
4) SA Ortho-Terphenyl(S)	6.33	117949018	72.853	ppb
Surrogate Spike 75.000	Recovery =		97.14%	
5) SA Octacosane(S)	8.22	116156692	76.736	ppb
Surrogate Spike 75.000	Recovery =		102.31%	
Target Compounds				

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190506\506015.D
Sample : AZ90213W18 2/800





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190506\506017.D Vial: 17
Acq On : 5-6-19 22:09:21 Operator: DP
Sample : AZ90215W21 2/800 Inst : Apollo
Misc : water Multiplr: 2.50
IntFile : events.e
Quant Time: May 9 14:45 2019 Quant Results File: DOC0411.RES

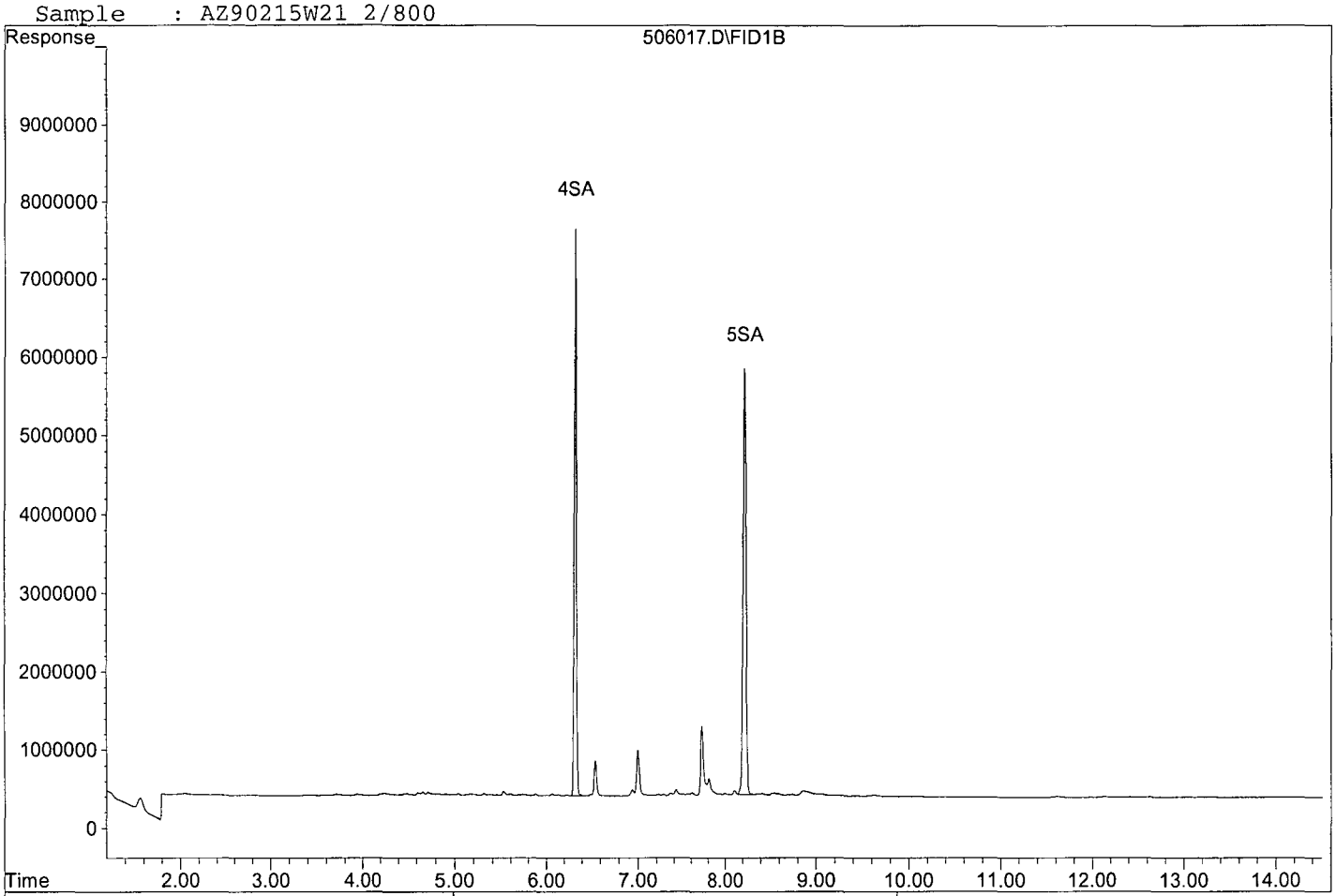
Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

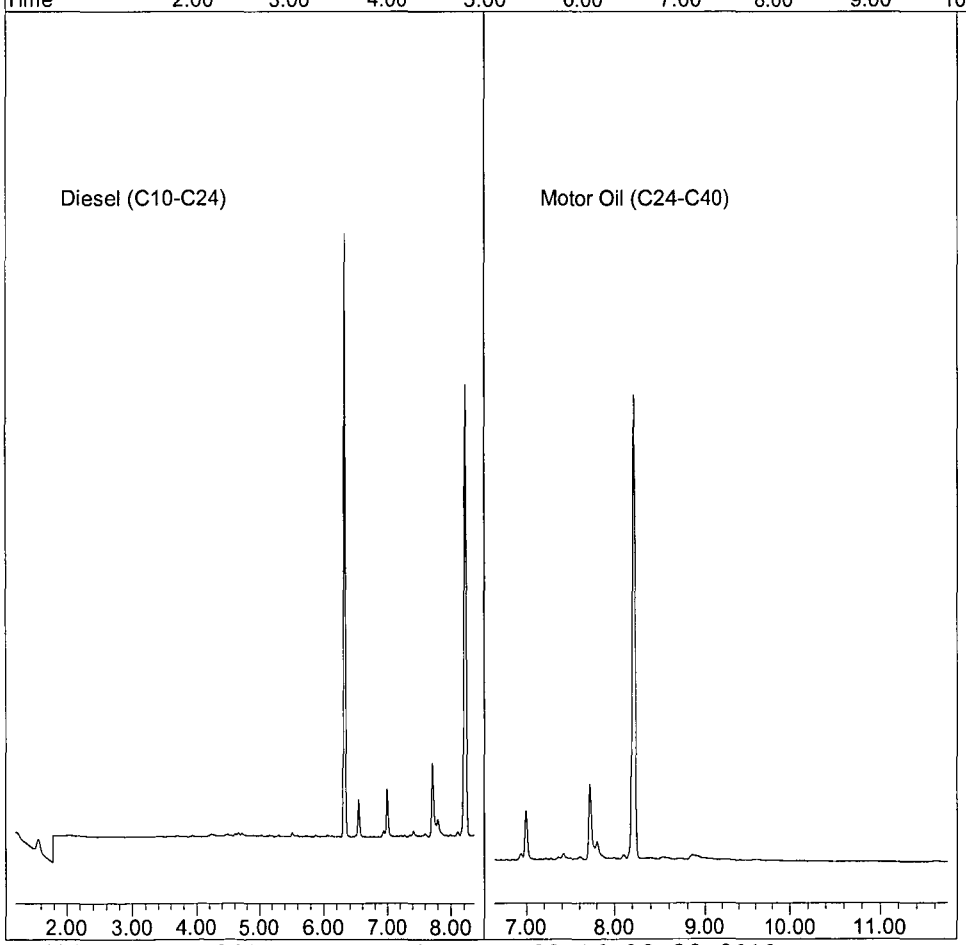
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc	Units
System Monitoring Compounds				
4) SA Ortho-Terphenyl(S)	6.33	121582738	75.098	ppb
Surrogate Spike 75.000	Recovery =		100.13%	
5) SA Octacosane(S)	8.22	119637974	79.036	ppb
Surrogate Spike 75.000	Recovery =		105.38%	
Target Compounds				

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190506\506017.D
Sample : AZ90215W21 2/800





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190506\506003.D Vial: 3
Acq On : 5-6-19 17:30:03 Operator: DP
Sample : 190502A BLK 2/800 Inst : Apollo
Misc : water Multiplr: 2.50
IntFile : events.e
Quant Time: May 9 14:39 2019 Quant Results File: DOC0411.RES

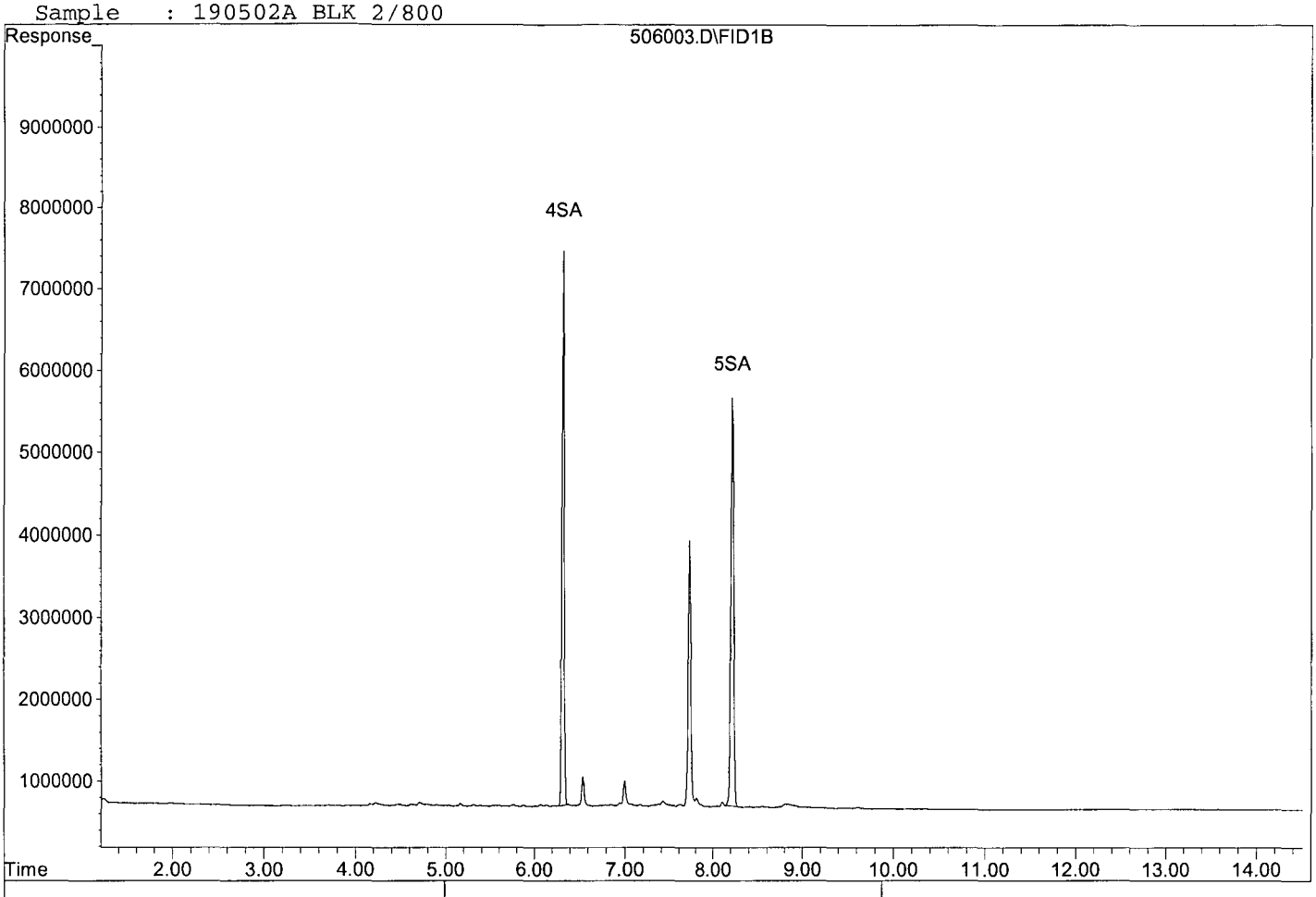
Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

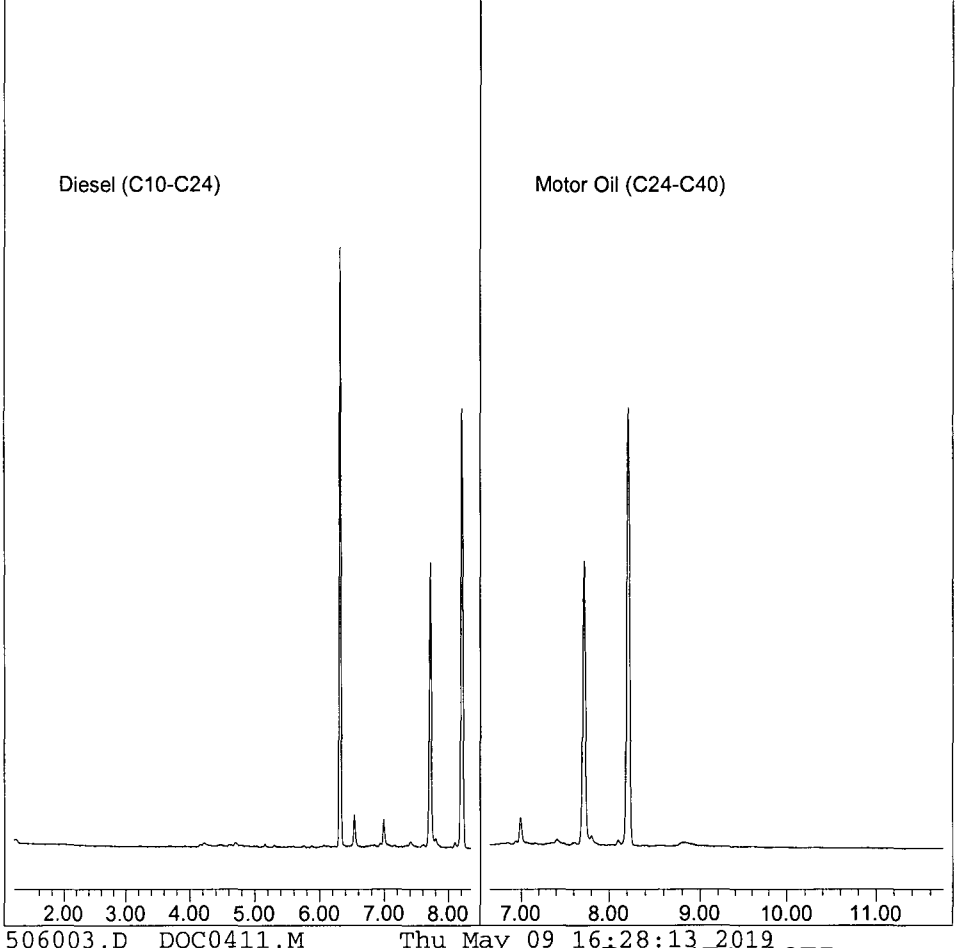
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc	Units
System Monitoring Compounds				
4) SA Ortho-Terphenyl(S)	6.32	113486320	70.097	ppb
Surrogate Spike 75.000	Recovery =		93.46%	
5) SA Octacosane(S)	8.22	110426276	72.950	ppb
Surrogate Spike 75.000	Recovery =		97.27%	
Target Compounds				

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190506\506003.D
Sample : 190502A BLK 2/800





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190506\506004.D Vial: 4
Acq On : 5-6-19 17:50:07 Operator: DP
Sample : 190502A LCS-1 2/800 Inst : Apollo
Misc : water Multiplr: 2.50
IntFile : events.e
Quant Time: May 8 8:44 2019 Quant Results File: DOC0411.RES

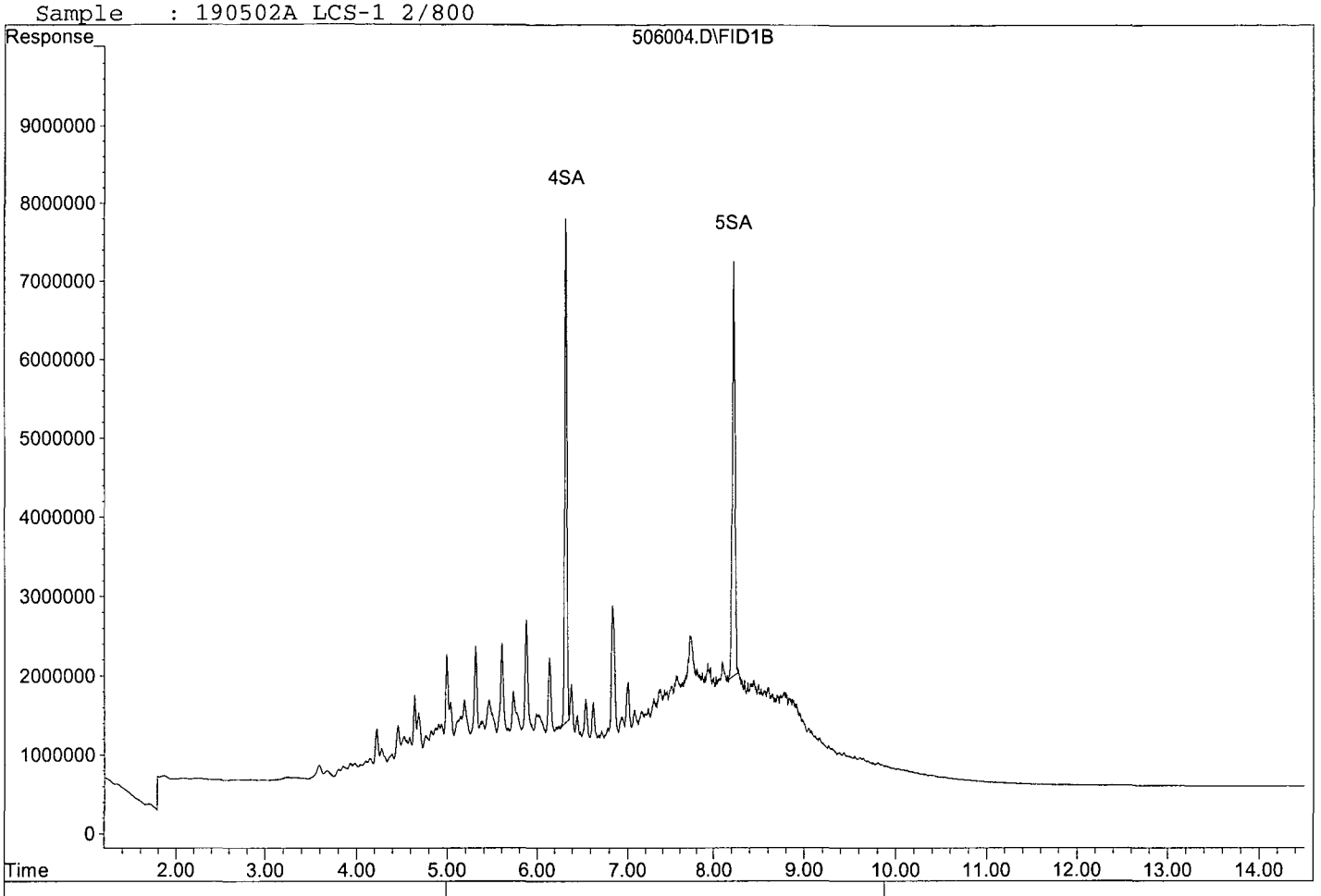
Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

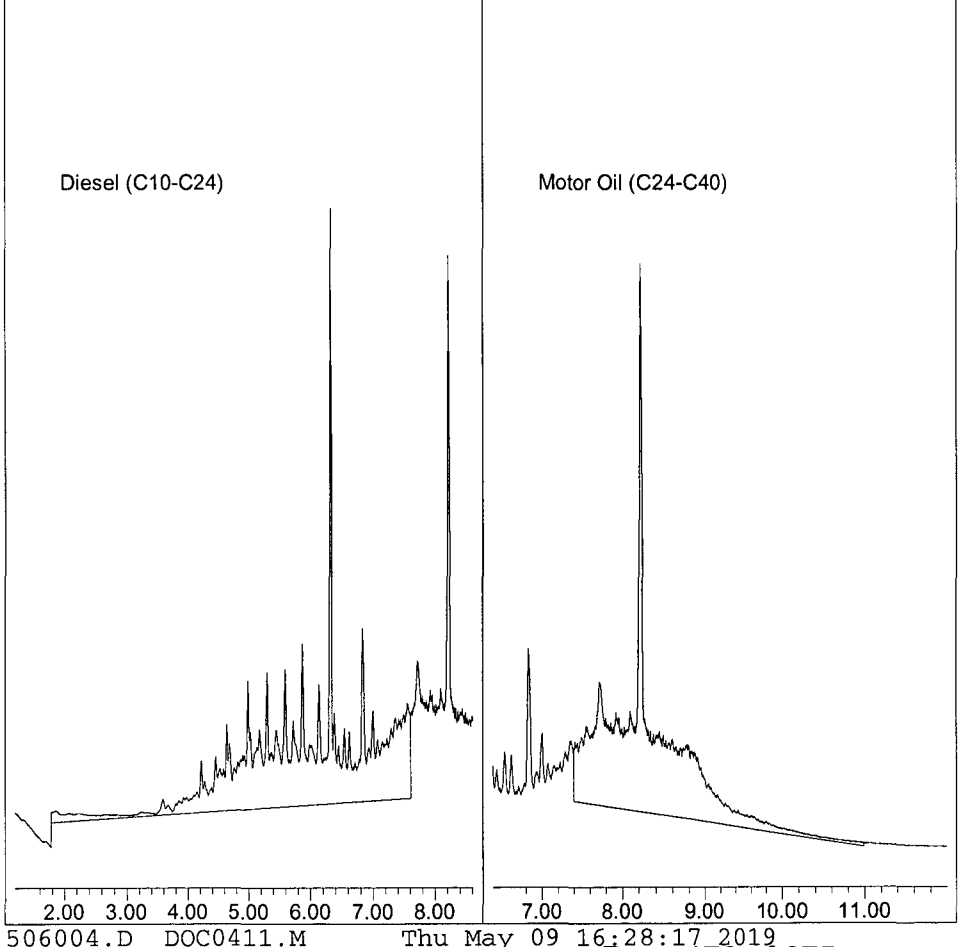
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.32	108692501	67.136 ppb
Surrogate Spike 75.000		Recovery =	89.51%
5) SA Octacosane(S)	8.22	102955317	68.015 ppb
Surrogate Spike 75.000		Recovery =	90.69%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	1477713726	1548.812 ppb
2) HBTM Motor Oil (C24-C40)	9.20	944760089	1240.807 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190506\506004.D
Sample : 190502A LCS-1 2/800





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190506\506005.D Vial: 5
Acq On : 5-6-19 18:10:08 Operator: DP
Sample : 190502A LCSD-1 2/800 Inst : Apollo
Misc : water Multiplr: 2.50
IntFile : events.e
Quant Time: May 9 14:57 2019 Quant Results File: DOC0411.RES

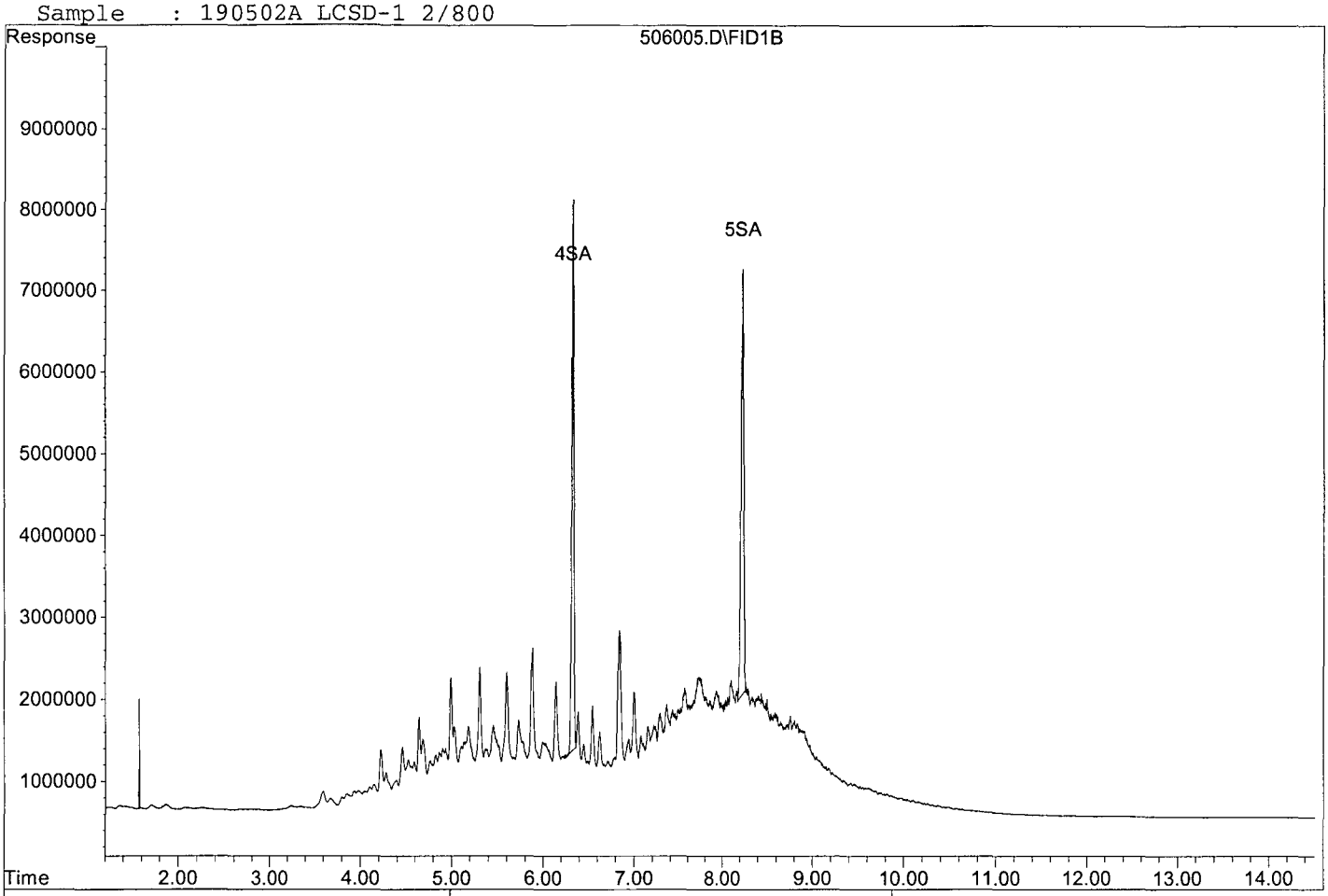
Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

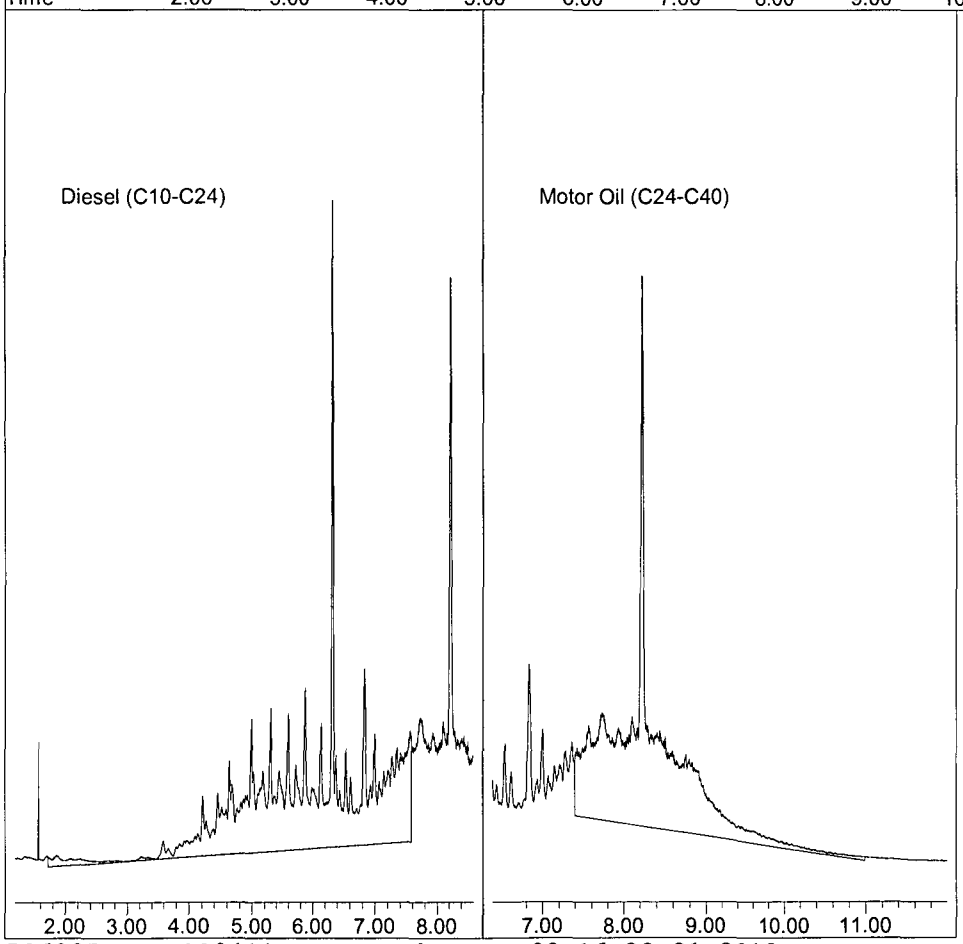
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.33	107765211	66.563 ppb
Surrogate Spike 75.000		Recovery =	88.75%
5) SA Octacosane(S)	8.23	103354341	68.279 ppb
Surrogate Spike 75.000		Recovery =	91.04%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	1460025559	1530.273 ppb
2) HBTM Motor Oil (C24-C40)	9.20	1000358478	1313.828 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190506\506005.D
Sample : 190502A LCSD-1 2/800

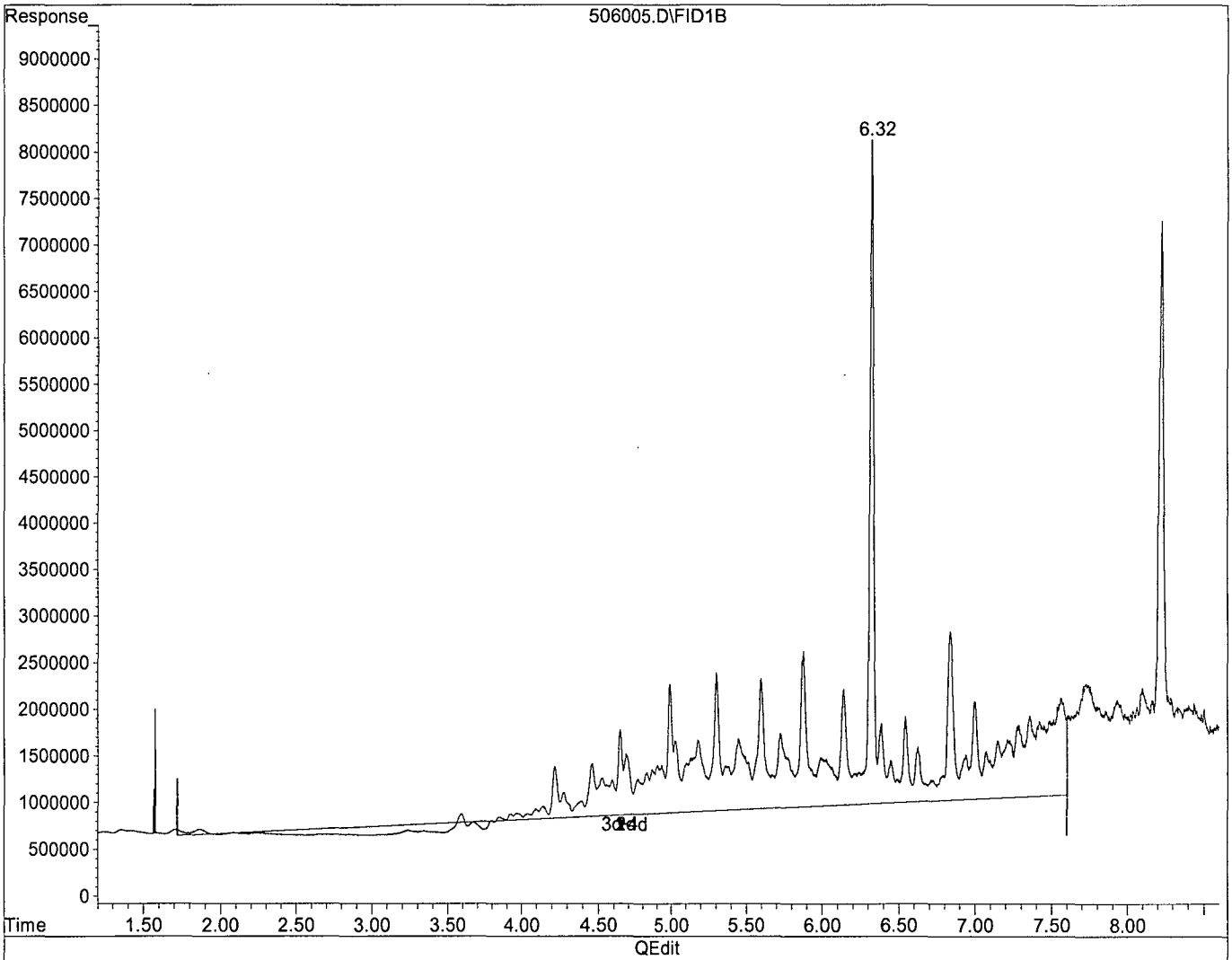




Quantitation Report

Data File : G:\APOLLO\DATA\190506\506005.D Vial: 5
Acq On : 5-6-19 18:10:08 Operator: DP
Sample : 190502A LCSD-1 2/800 Inst : Apollo
Misc : water Multiplr: 2.50
IntFile : events.e
Quant Time: May 8 8:32 2019 Quant Results File: DOC0411.RES

Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration



(1) Diesel (C10-C24) (HATM)

4.66min 1080.007ppb m

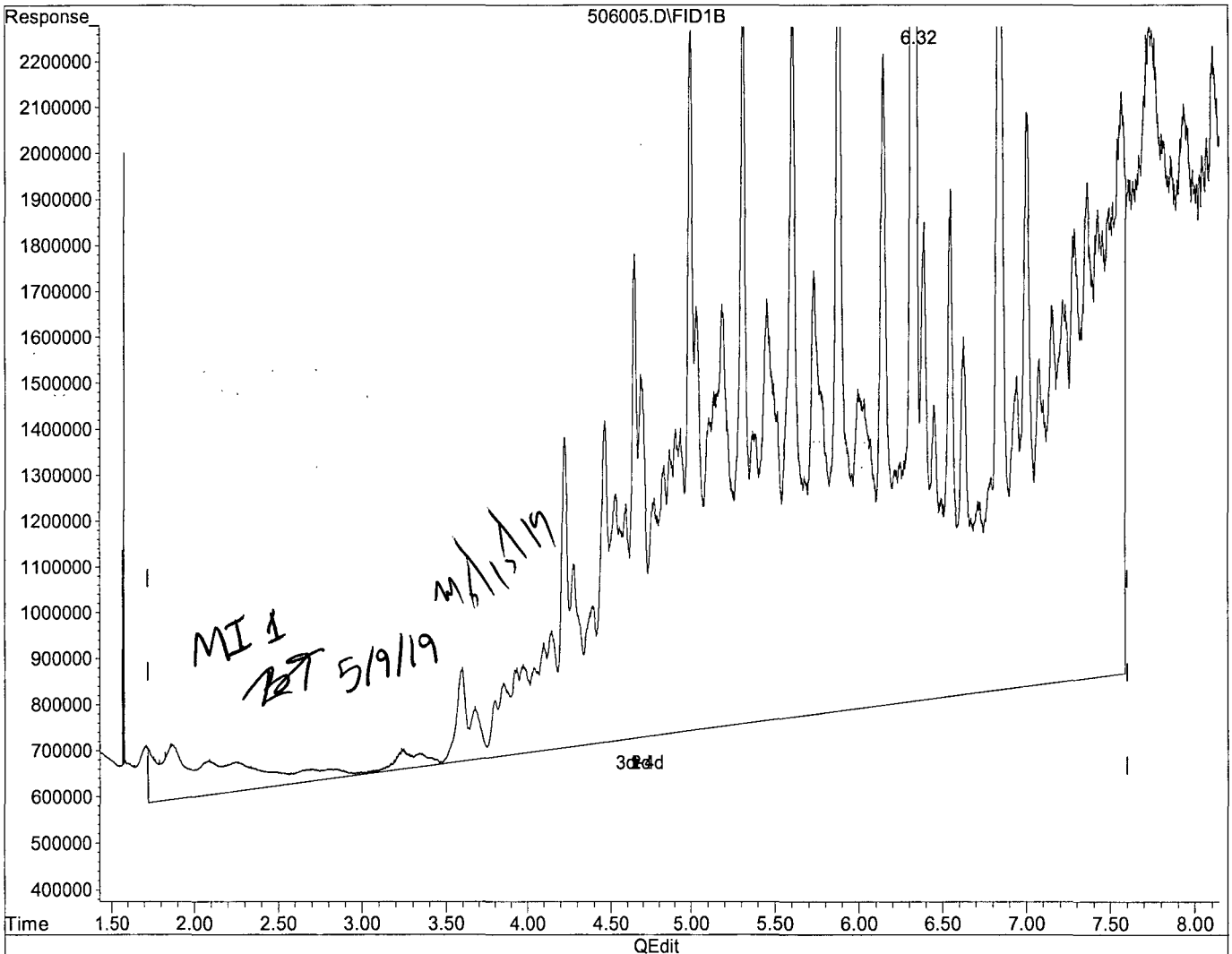
response 1030429392

(+) = Expected Retention Time

Quantitation Report

Data File : G:\APOLLO\DATA\190506\506005.D Vial: 5
Acq On : 5-6-19 18:10:08 Operator: DP
Sample : 190502A LCSD-1 2/800 Inst : Apollo
Misc : water Multiplr: 2.50
IntFile : events.e
Quant Time: May 8 8:32 2019 Quant Results File: DOC0411.RES

Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration



(1) Diesel (C10-C24) (HATM)

4.66min 1530.273ppb m

response 1460025559

(+) = Expected Retention Time

506005.D DOC0411.M Thu May 09 14:58:01 2019

Diesel / Motor Oil Calibration Standard

Prepared: 01/15/19

Expires: 01/15/20

Prepared By (Initials): DP

Methylene Chloride Lot No. 56278

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturer)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Diesel Fuel #2	Restek	31258	50,000	**A0135614-39409**	**01/15/20**	**03/31/25**	400uL	10mL	MC	2000
Motor Oil	Restek	31464	50,000	**A0135245-39351**	**01/15/20**	**03/31/25**	400uL			2000
THC Surrogate	Phenova	ALO-130161	600	**CL12572-39691**	**08/13/19**	**06/30/23**	1666uL			100

Diesel / Motor Oil Second Source (SS)

Prepared: 01/15/19

Expires: 01/15/20

Prepared By (Initials): DP

Methylene Chloride Lot No. 56278

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturer)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Diesel Fuel #2	O2SI	G34-011598-03	50,000	**G34-319187-38958**	**08/02/19**	**09/29/21**	50uL	10mL	MC	250
Motor Oil Second Source	O2SI	116390-02-SS	50,000	**301142-37652**	**07/13/19**	**03/05/22**	50uL			

Diesel / Motor Oil Calibration Curve

Prepared: 04/11/19

Expires: 10/11/19

Prepared By (Initials): BT

Methylene Chloride Lot No. 57278

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference to APPL Prep Date	Exp. Date	Exp. Date (Manufacturer)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Diesel / Motor Oil Calibration STD	APPL	Diesel / Motor Oil - 1	2,000	Prepared 04/11/19	01/15/20	N/A	5uL	1mL	MC	10
Diesel / Motor Oil Calibration STD	APPL	Diesel / Motor Oil -2	2,000	Prepared 04/11/19	01/15/20	N/A	25uL	1mL	MC	50
Diesel / Motor Oil Calibration STD	APPL	Diesel / Motor Oil - 3	2,000	Prepared 04/11/19	01/15/20	N/A	125uL	1mL	MC	250
Diesel / Motor Oil Calibration STD	APPL	Diesel / Motor Oil - 4	2,000	Prepared 04/11/19	01/15/20	N/A	500uL	1mL	MC	1000
Diesel / Motor Oil Calibration STD	APPL	Diesel / Motor Oil - 5	2,000	Prepared 04/11/19	01/15/20	N/A	750uL	1mL	MC	1500
Diesel / Motor Oil Calibration STD	APPL	Diesel / Motor Oil - 6	2,000	Prepared 04/11/19	01/15/20	N/A	100uL	100uL	N/A	2,000

Diesel / Motor Oil CCV

Prepared: 04/16/19

Expires: 10/16/19

Prepared By (Initials): BT

Methylene Chloride Lot No. 58059

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference to APPL Prep Date	Exp. Date	Exp. Date (Manufacturer)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Diesel / Motor Oil STD	APPL	Diesel / Motor Oil CCV	2,000	Prepared 01/15/19	01/15/20	N/A	1250uL	10mL	MC	250

Diesel Spike

Prepared: 04/26/19 **Prepared By (Initials): DP**

Expires: 04/25/20

Initial Standard Information							Final Standard Information			
(QAU Label)	Supplier	No.	(ug/mL)	Number	(1 yr.)	(Manufacturer)	From	Volume	Solvent	Conc. (ug/mL)
Diesel Fuel #2	Restek	31258	50,000	**A0135614-39408**	**04/26/20**	**03/31/25**	N/A	N/A	N/A	50,000

Motor Oil Spike

Prepared: 04/08/19 **Prepared By (Initials): DP**

Expires: 04/07/20

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturer)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Motor Oil Composite	Restek	31464	50,000	**A0141636-40470**	**04/09/20**	**10/20/25**	N/A	N/A	N/A	50,000

THC Surrogate

Prepared: 04/17/19 **Prepared By (Initials): BT**

Expires: 04/16/20

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturer)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
O-terphenyl / Octacosane Mix	Phenova	ALO-130161	600	**CL13256-40363**	**04/17/20**	**02/28/24**	N/A	N/A	N/A	600

_LIQ005SGC

Organic Extraction Worksheet

Method	Continuous Liq/Liq TPH- 3520C w/SGC	Extraction Set	190502A	Extraction Method	LIQ005SGC	Units	mL

Spiked ID 1	Diesel Spike 4-26-19 exp 4-26-20		Surrogate ID 1	THC Surrogate 4-17-19 exp 4-17-20	
Spiked ID 2	Motor Oil Spike 4-8-19 exp 4-8-20		Surrogate ID 2		
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	YES	
Spiked ID 7			Ext. Start Time:	05/02/19 14:00	
Spiked ID 8			Ext. End Time:	05/03/19 8:30 , 05/03/19 11:55	
			GC Requires Extract By:	04/30/19 0:00	

pH1	2	5/02/19 11:19:00 AM	Water Bath Temp Criteria	35,35,35 °
pH2				
pH3				

Spiked By: DL **Date** 05/02/19 **Witnessed By:** YL **Date** 05/02/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
1	190502A Blk				0.100	1	800	2	2	05/02/19 11:30	
						equip	e-hp51 e-wb1				
2	190502A LCS-1		0.020	1,2	0.100	1	800	2	2	05/02/19 11:30	
						equip	E-HP50 E-WB2				
3	190502A LCSD-1		0.020	1,2	0.100	1	800	2	2	05/02/19 11:30	
						equip	E-HP49 E-WB3				
4	AZ89958 MS-1	AZ89958W39	0.020	1,2	0.100	1	800	2	2	05/02/19 11:30	88687
						equip	E-HP47 E-WB1				
5	AZ89958 MSD-1	AZ89958W38	0.020	1,2	0.100	1	800	2	2	05/02/19 11:30	88687
						equip	E-HP25 E-WB2				
6	AZ89958	AZ89958W40			0.100	1	800	2	2	05/02/19 11:30	88687
						equip	E-HP48 E-WB3				
7	AZ89959	AZ89959W08			0.100	1	790	2	2	05/02/19 11:30	88687
						equip	E-HP26 E-WB1				
8	AZ89961	AZ89961W21			0.100	1	800	2	2	05/02/19 11:30	88687
						equip	E-HP27 E-WB2				
9	AZ90051 MS-1	AZ90051W32	0.020	1,2	0.100	1	800	2	2	05/02/19 11:30	88701
						equip	E-HP29 E-WB3				
10	AZ90051 MSD-1	AZ90051W28	0.020	1,2	0.100	1	800	2	2	05/02/19 11:30	88701
						equip	E-HP30 E-WB1				
11	AZ90051	AZ90051W34			0.100	1	810	2	2	05/02/19 11:30	88701
						equip	E-HP28 E-WB2				
12	AZ90052	AZ90052W08			0.100	1	790	2	2	05/02/19 11:30	88701
						equip	E-HP17 E-WB3				
13	AZ90213	AZ90213W18			0.100	1	800	2	2	05/02/19 11:30	88736
						equip	E-HP16 E-WB1				
14	AZ90215	AZ90215W21			0.100	1	800	2	2	05/02/19 11:30	88736
						equip	E-HP15 E-WB2				
15	AZ90447	AZ90447W11			0.100	1	800	2	2	05/02/19 11:30	88764
						equip	E-HP14 E-WB3				
16	AZ90448	AZ90448W08			0.100	1	800	2	2	05/02/19 11:30	88764
						equip	E-HP13 E-WB1				

Solvent and Lot#	
1+1 HCL (5mLs)	3-1-19
PH Strips	HC 601354
Filter Paper	400148
B. Sodium Sulfate	18D105205

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	BT
Date	5/3/19
Time	13:08
Refrigerator	Hubard

	Technician's Initials
Scanned By	DL,FM
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	05/06/19 9:28:41 AM

Reviewed By: KW Date 5/6/19

05/06/19 9:28:49 AM Ext_ID 62690

Organic Extraction Worksheet

Method	Continuous Liq/Liq TPH- 3520C w/SGC	Extraction Set	190502A	Extraction Method	LIQ005SGC	Units	mL

Spiked ID 1	Diesel Spike 4-26-19 exp 4-26-20		Surrogate ID 1	THC Surrogate 4-17-19 exp 4-17-20	
Spiked ID 2	Motor Oil Spike 4-8-19 exp 4-8-20		Surrogate ID 2		
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	YES	
Spiked ID 7			Ext. Start Time:	05/02/19 14:00	
Spiked ID 8			Ext. End Time:	05/03/19 8:30 ,05/03/19 11:55	
			GC Requires Extract By:	04/30/19 0:00	

pH1	2	5/02/19 11:19:00 AM	Water Bath Temp Criteria	35,35,35 °
pH2				
pH3				

Spiked By: DL **Date** 05/02/19 **Witnessed By:** YL **Date** 05/02/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
17	AZ90450	AZ90450W21			0.100	1	800	2	2	05/02/19 11:30	88764
						equip	E-HP12 E-WB2				

KY 5/6/19

Solvent and Lot#	
1+1 HCL (5mLs)	3-1-19
PH Strips	HC 601354
Filter Paper	400148
B. Sodium Sulfate	18D105205

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	
Date	
Time	
Refrigerator	

	Technician's Initials
Scanned By	DL,FM
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	05/06/19 9:28:41 AM

Reviewed By: KY **Date** 5/6/19

Injection Log

Directory: G:\APOLLO\DATA\190411\

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	2	411002.D	1	Diesel / Motor Oil - 1 1/15/19	water	4-11-19 12:41:17
2	3	411003.D	1	Diesel / Motor Oil - 2 4/11/19	water	4-11-19 13:00:16
3	4	411004.D	1	Diesel / Motor Oil - 3 4/11/19	water	4-11-19 13:19:58
4	5	411005.D	1	Diesel / Motor Oil - 4 4/11/19	water	4-11-19 13:39:40
5	6	411006.D	1	Diesel / Motor Oil - 5 4/11/19	water	4-11-19 13:59:26
6	7	411007.D	1	Diesel / Motor Oil - 6 4/11/19	water	4-11-19 14:19:10
7	8	411008.D	1	Diesel / Motor Oil - 2nd Source 1/15/19	water	4-11-19 14:39:01
8	2	506002.D	1	Diesel/Motor Oil 3 4/16/19	water	5-6-19 17:10:08
9	3	506003.D	2.5	190502A BLK 2/800	water	5-6-19 17:30:03
10	4	506004.D	2.5	190502A LCS-1 2/800	water	5-6-19 17:50:07
11	5	506005.D	2.5	190502A LCSD-1 2/800	water	5-6-19 18:10:08
12	15	506015.D	2.5	AZ90213W18 2/800	water	5-6-19 21:29:38
13	16	506016.D	1	Diesel/Motor Oil 3 4/16/19	water	5-6-19 21:49:32
14	17	506017.D	2.5	AZ90215W21 2/800	water	5-6-19 22:09:21
15	21	506021.D	1	Diesel/Motor Oil 3 4/16/19	water	5-6-19 23:28:29

ORGANICS
Calibration Data

PAH by GCMS SIM
EPA 8270 SIM

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/26/19
Matrix: Instrument: Linus
Initials: MA/JAY

		Compound	0326L013.D 0.1	0326L012.D 0.2	0326L005.D 0.5	0326L006 D 1	0326L007.D 5	0326L008.D 10	0326L009.D 50	0326L010.D 100			Avg	%RSD	Type	r^2	Q	MRF
1	I	Napthalene-D8(IS)																
2	S	Surrogate Recovery (NBZ)		0.3927	0.5340	0.4444	0.4714	0.4510	0.4089	0.4199			0.45	11	S			
3	TM	Naphthalene	1.529	1.407	1.448	1.163	1.400	1.287	1.154	1.122			1.3	12	TM			0.700
4	S	2-Methylnaphthalene-D10 (2M	1.387	1.168	1.650	1.306	1.518	1.400	1.203	1.197			1.4	13	S			
5	TM	2-Methylnaphthalene	0.7306	0.7642	0.8355	0.6668	0.8429	0.7635	0.6758	0.6477			0.74	10	TM			0.400
6	TM	1-Methylnaphthalene	0.9900	0.8580	0.9185	0.7134	0.8390	0.7536	0.6593				0.82	14	TM			
7	I	Acenaphthene-D10(IS)																
8	S	Surrogate Recovery (FBP)	1.722	1.658	2.258	1.803	2.110	1.951	1.630	1.592			1.8	13	S			
9	TM	Acenaphthylene	5.900	5.710	6.401	5.037	6.465	5.885	4.974	4.865			5.7	11	TM			0.900
10	*TM	Acenaphthene	1.794	1.633	1.703	1.318	1.581	1.463	1.266	1.170			1.5	15	*TM			0.900
11	TM	Fluorene	2.218	1.880	2.093	1.632	2.029	1.885	1.631	1.570			1.9	13	TM			0.900
12	I	Phenanthrene-D10(IS)																
13	TM	Phenanthrene	1.607	1.544	1.673	1.305	1.635	1.484	1.218	1.160			1.5	14	TM			0.700
14	TM	Anthracene	1.486	1.420	1.591	1.220	1.624	1.473	1.238	1.116			1.4	13	TM			0.700
15	S	Fluoranthene-D10 (FRT)	1.901	1.831	2.624	2.092	2.484	2.311	1.987	1.872			2.1	14	S			
16	*TM	Fluoranthene	2.537	2.471	2.787	2.228	2.784	2.506	2.112	1.908			2.4	13	*TM			0.600
17	I	Chrysene-D12(IS)																
18	TM	Pyrene	1.899	1.728	1.916	1.501	1.868	1.718	1.481	1.425			1.7	12	TM			0.600
19	S	Surrogate Recovery (TPH)	0.8126	0.7648	1.100	0.8569	0.9951	0.9476	0.8279	0.7820			0.89	13	S			
20	TM	Benz (a) anthracene	1.413	1.328	1.559	1.165	1.523	1.457	1.326	1.311			1.4	9.3	TM			0.800
21	TM	Chrysene	1.693	1.584	1.532	1.291	1.505	1.343	1.166	1.155			1.4	14	TM			0.700
22	TM	Indeno (1,2,3-cd) pyrene	1.684	1.533	1.535	1.269	1.597	1.490	1.366	1.338			1.5	9.5	TM			0.500
23	I	Perylene-D12(IS)																
24	TM	Benzo (b) fluoranthene	1.158	1.272	1.365	1.090	1.474	1.408	1.281	1.294			1.3	9.8	TM			0.700
25	TM	Benzo (k) fluoranthene	1.676	1.496	1.659	1.361	1.632	1.459	1.255	1.199			1.5	13	TM			0.700
26	*TM	Benzo (a) pyrene	1.243	1.369	1.446	1.176	1.471	1.369	1.224	1.197			1.3	8.8	*TM			0.700
27	TM	Dibenz (a,h) anthracene	1.391	1.269	1.295	1.077	1.349	1.244	1.099	1.054			1.2	11	TM			0.400
28	TM	Benzo (g,h,i) perylene	1.468	1.326	1.320	1.090	1.361	1.265	1.118	1.085			1.3	11	TM			0.500
29																		
30																		
31																		
32																		
33																		
34																		
35																		

Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190326\0326L005.D Vial: 5
Acq On : 26 Mar 19 10:39 Operator: MA
Sample : 0.5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 11:52 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Tue Mar 26 11:51:40 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	29983	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.98	164	14175	2.50000 ppb		0.00
12) Phenanthrene-D10(IS)	7.70	188	23888	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.79	240	35718	2.50000 ppb		0.00
23) Perylene-D12(IS)	13.16	264	34636	2.50000 ppb		0.00
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.14	82	1601	0.30171 ppb		0.01
Spiked Amount 5.000			Recovery =	6.040%		
4) 2-Methylnaphthalene-D10 (2	4.75	152	4947	0.35041 ppb		0.01
Spiked Amount 5.000			Recovery =	7.000%		
8) Surrogate Recovery (FBP)	5.23	172	3201	0.31519 ppb		0.01
Spiked Amount 5.000			Recovery =	6.300%		
15) Fluoranthene-D10 (FRT)	9.09	212	6268	0.36113 ppb		0.00
Spiked Amount 5.000			Recovery =	7.220%		
19) Surrogate Recovery (TPH)	9.58	244	3930	0.33442 ppb		0.00
Spiked Amount 5.000			Recovery =	6.680%		
Target Compounds						Qvalue
3) Naphthalene	3.96	128	8684	0.57398 ppb		98
5) 2-Methylnaphthalene	4.78	142	5010	0.55092 ppb		99
6) 1-Methylnaphthalene	4.89	142	5508	0.59694 ppb		95
9) Acenaphthylene	5.82	152	18147	0.56976 ppb		100
10) Acenaphthene	6.01	154	4827	0.52888 ppb		97
11) Fluorene	6.63	166	5934	0.55241 ppb		99
13) Phenanthrene	7.73	178	7991	0.59247 ppb		99
14) Anthracene	7.80	178	7601	0.57039 ppb		99
16) Fluoranthene	9.11	202	13317	0.62414 ppb	#	89
18) Pyrene	9.37	202	13684	0.61385 ppb		98
20) Benz (a) anthracene	10.78	228	11134	0.56445 ppb		99
21) Chrysene	10.84	228	10947	0.57620 ppb		98
22) Indeno (1,2,3-cd) pyrene	14.70	276	10967	0.55654 ppb	#	98
24) Benzo (b) fluoranthene	12.50	252	9458	0.50818 ppb		99
25) Benzo (k) fluoranthene	12.54	252	11491	0.59936 ppb		96
26) Benzo (a) pyrene	13.08	252	10016	0.55876 ppb		99
27) Dibenz (a,h) anthracene	14.72	278	8973	0.54057 ppb		99
28) Benzo (g,h,i) perylene	15.04	276	9141	0.54410 ppb		98

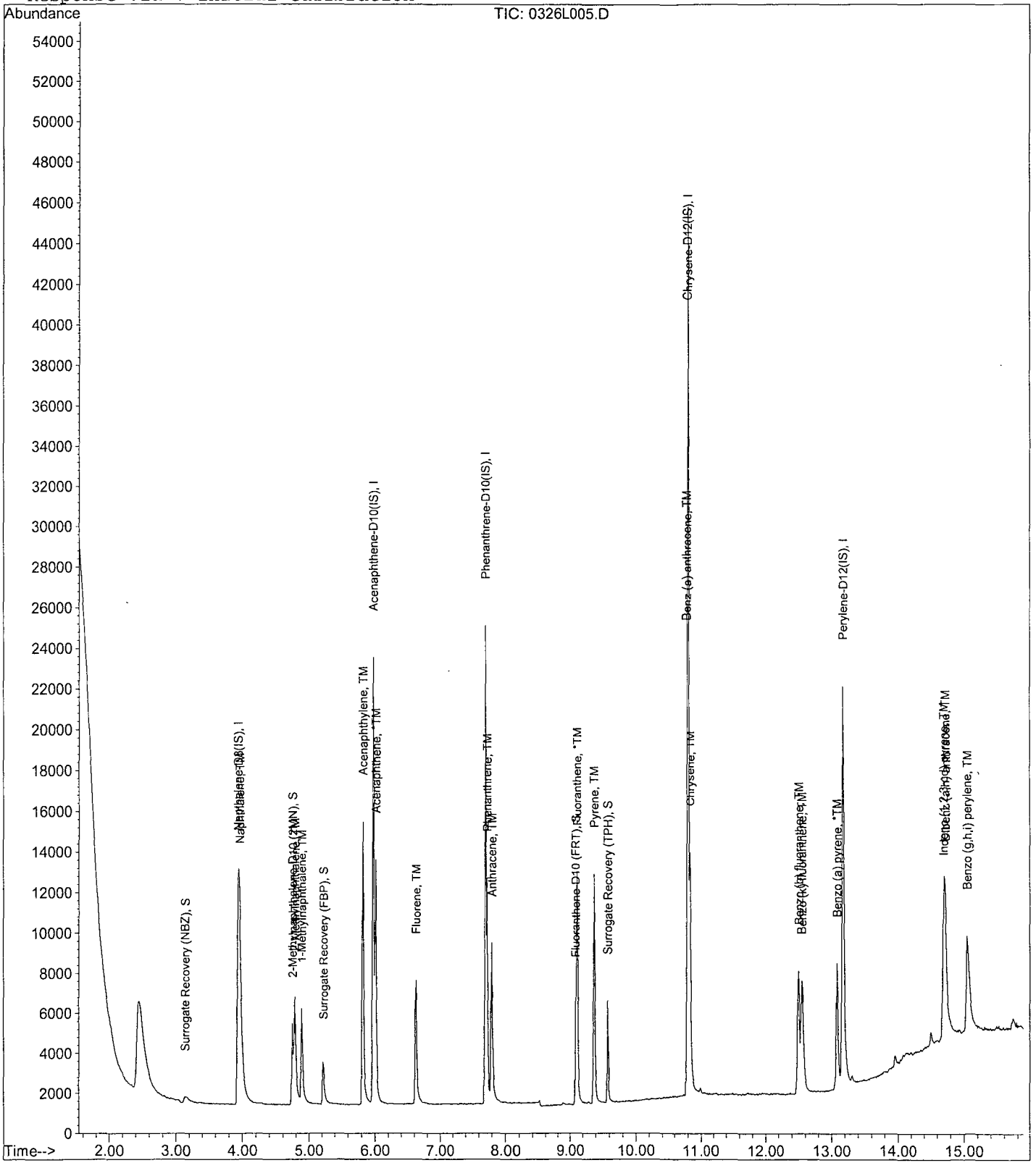
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190326\0326L005.D Vial: 5
Acq On : 26 Mar 19 10:39 Operator: MA
Sample : 0.5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 11:52 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190326\0326L006.D Vial: 6
Acq On : 26 Mar 19 11:01 Operator: MA
Sample : 1 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 11:52 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Tue Mar 26 11:51:40 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	35893	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.98	164	17165	2.50000 ppb		0.00
12) Phenanthrene-D10(IS)	7.70	188	29866	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.79	240	43804	2.50000 ppb		0.00
23) Perylene-D12(IS)	13.16	264	41942	2.50000 ppb		0.00
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.15	82	3190	0.50218 ppb		0.02
Spiked Amount 5.000			Recovery = 10.040%			
4) 2-Methylnaphthalene-D10 (2	4.74	152	9372	0.55454 ppb		0.01
Spiked Amount 5.000			Recovery = 11.100%			
8) Surrogate Recovery (FBP)	5.22	172	6188	0.50317 ppb		0.00
Spiked Amount 5.000			Recovery = 10.060%			
15) Fluoranthene-D10 (FRT)	9.09	212	12497	0.57589 ppb		0.00
Spiked Amount 5.000			Recovery = 11.520%			
19) Surrogate Recovery (TPH)	9.58	244	7507	0.52088 ppb		0.00
Spiked Amount 5.000			Recovery = 10.420%			
Target Compounds						Qvalue
3) Naphthalene	3.96	128	16693	0.92168 ppb		100
5) 2-Methylnaphthalene	4.78	142	9573	0.87935 ppb		98
6) 1-Methylnaphthalene	4.89	142	10243	0.92731 ppb		95
9) Acenaphthylene	5.82	152	34586	0.89675 ppb		99
10) Acenaphthene	6.01	154	9052	0.81904 ppb		96
11) Fluorene	6.62	166	11205	0.86141 ppb		93
13) Phenanthrene	7.73	178	15588	0.92440 ppb		98
14) Anthracene	7.80	178	14573	0.87468 ppb		99
16) Fluoranthene	9.11	202	26618	0.99782 ppb	#	93
18) Pyrene	9.37	202	26304	0.96215 ppb		95
20) Benz (a) anthracene	10.78	228	20420	0.84412 ppb		98
21) Chrysene	10.84	228	22628	0.97118 ppb		98
22) Indeno (1,2,3-cd) pyrene	14.68	276	22236	0.92011 ppb		98
24) Benzo (b) fluoranthene	12.49	252	18288	0.81146 ppb		99
25) Benzo (k) fluoranthene	12.54	252	22834	0.98354 ppb		98
26) Benzo (a) pyrene	13.07	252	19723	0.90862 ppb	#	95
27) Dibenz (a,h) anthracene	14.71	278	18076	0.89928 ppb		98
28) Benzo (g,h,i) perylene	15.03	276	18288	0.89893 ppb		98

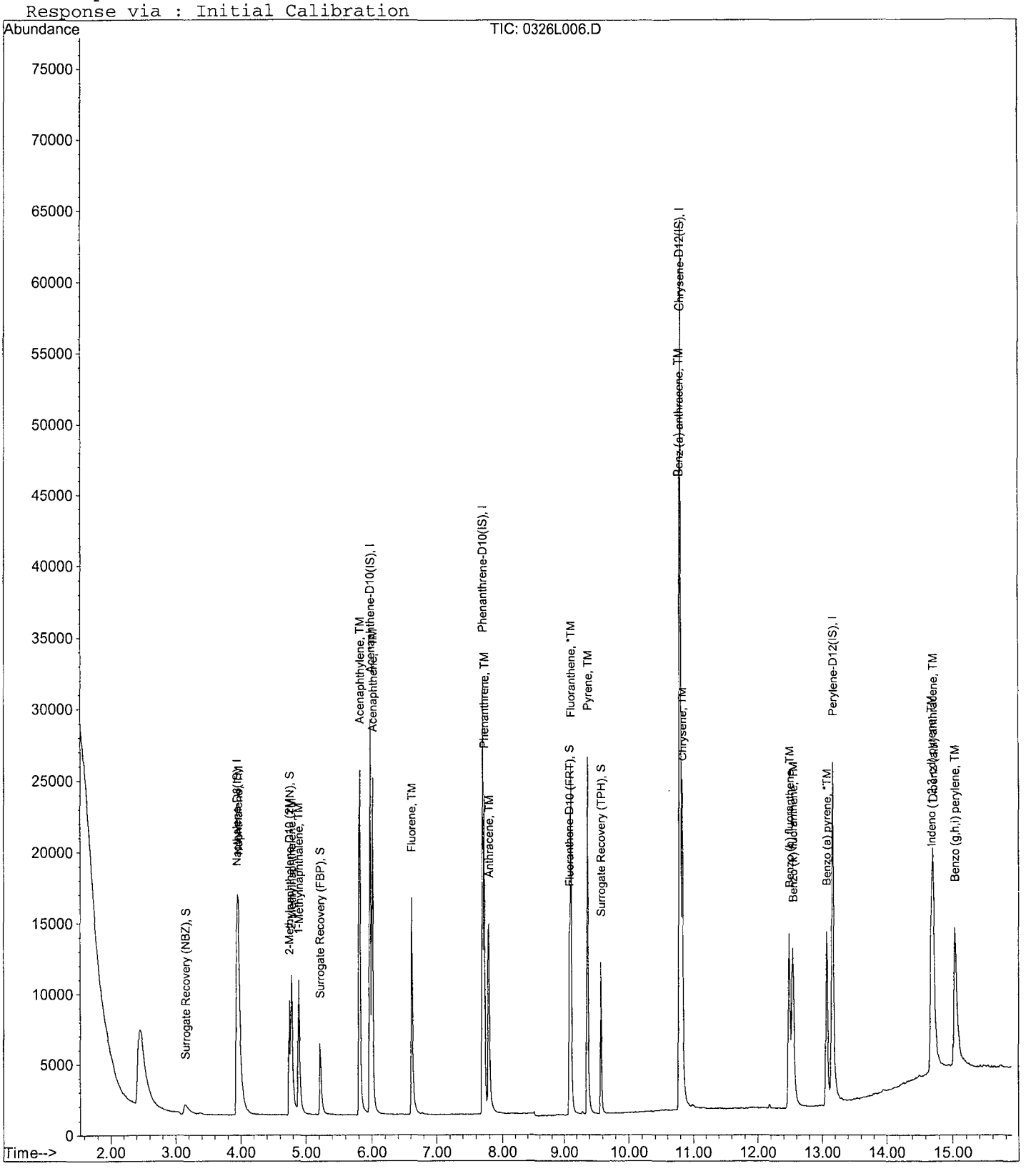
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190326\0326L006.D Vial: 6
Acq On : 26 Mar 19 11:01 Operator: MA
Sample : 1 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 11:52 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190326\0326L007.D Vial: 7
Acq On : 26 Mar 19 11:23 Operator: MA
Sample : 5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 11:55 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Tue Mar 26 11:52:44 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	31036	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.98	164	14429	2.50000 ppb		0.00
12) Phenanthrene-D10(IS)	7.70	188	24630	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.79	240	36703	2.50000 ppb		0.00
23) Perylene-D12(IS)	13.16	264	35401	2.50000 ppb		0.00
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.13	82	14629	2.66335 ppb		0.00
Spiked Amount 5.000			Recovery	= 53.260%		
4) 2-Methylnaphthalene-D10 (2	4.73	152	47125	3.22473 ppb		0.00
Spiked Amount 5.000			Recovery	= 64.500%		
8) Surrogate Recovery (FBP)	5.22	172	30446	2.94510 ppb		0.00
Spiked Amount 5.000			Recovery	= 58.900%		
15) Fluoranthene-D10 (FRT)	9.09	212	61183	3.41884 ppb		0.00
Spiked Amount 5.000			Recovery	= 68.380%		
19) Surrogate Recovery (TPH)	9.58	244	36522	3.02438 ppb		0.00
Spiked Amount 5.000			Recovery	= 60.480%		
Target Compounds						Qvalue
3) Naphthalene	3.96	128	86912	5.54970 ppb		100
5) 2-Methylnaphthalene	4.77	142	52323	5.55839 ppb		100
6) 1-Methylnaphthalene	4.88	142	52078	5.45251 ppb		100
9) Acenaphthylene	5.81	152	186553	5.75411 ppb		100
10) Acenaphthene	6.01	154	45619	4.91037 ppb		100
11) Fluorene	6.62	166	58567	5.35620 ppb		100
13) Phenanthrene	7.73	178	80559	5.79291 ppb		100
14) Anthracene	7.79	178	80019	5.82381 ppb		100
16) Fluoranthene	9.11	202	137128	6.23327 ppb		100
18) Pyrene	9.36	202	137146	5.98710 ppb		100
20) Benz (a) anthracene	10.78	228	111765	5.51397 ppb		100
21) Chrysene	10.83	228	110485	5.65939 ppb		100
22) Indeno (1,2,3-cd) pyrene	14.66	276	117203	5.78805 ppb	#	100
24) Benzo (b) fluoranthene	12.48	252	104380	5.48718 ppb		100
25) Benzo (k) fluoranthene	12.53	252	115527	5.89556 ppb	#	82
26) Benzo (a) pyrene	13.07	252	104139	5.68402 ppb		100
27) Dibenz (a,h) anthracene	14.70	278	95496	5.62874 ppb		100
28) Benzo (g,h,i) perylene	15.01	276	96360	5.61166 ppb		100

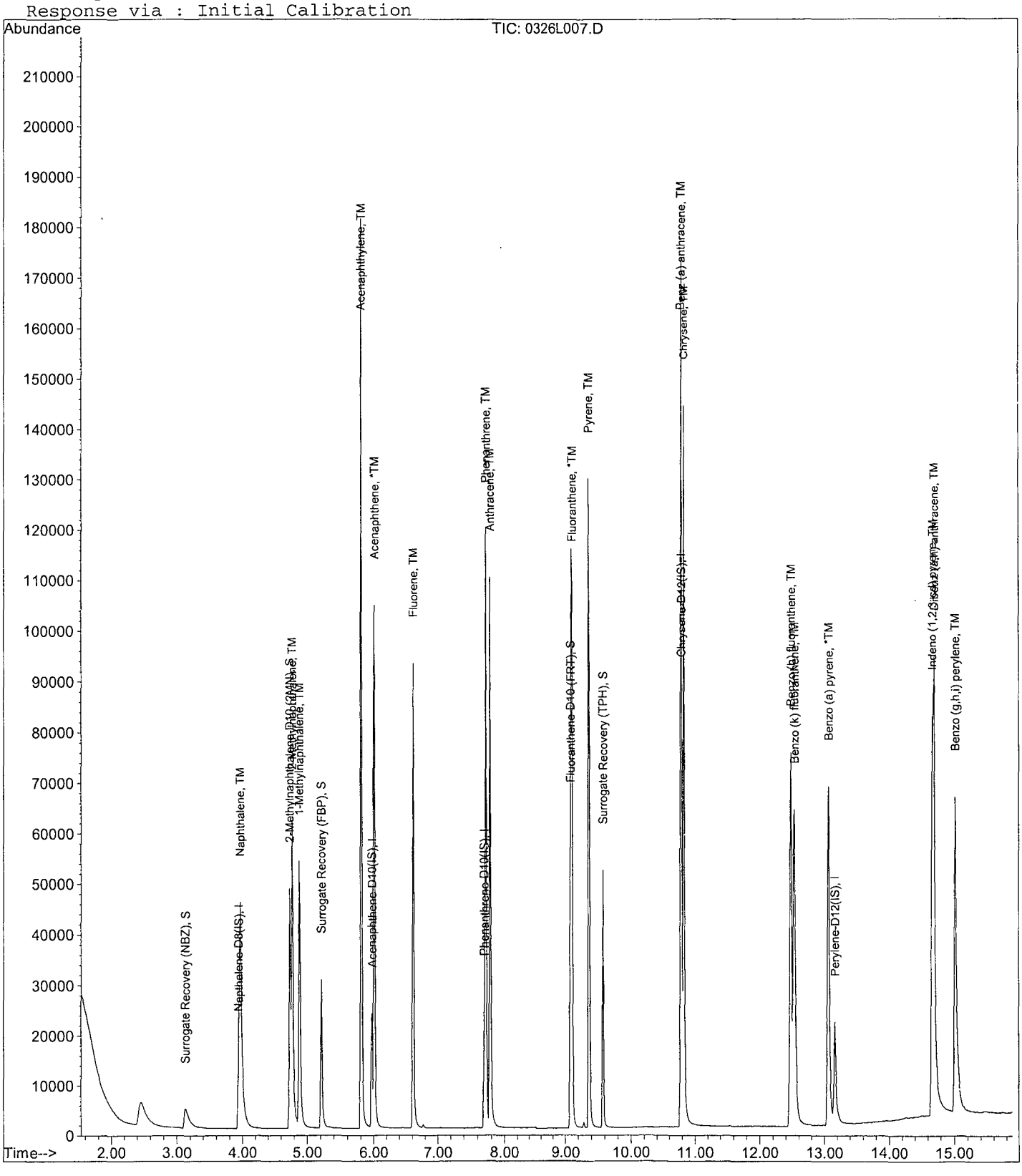
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190326\0326L007.D Vial: 7
Acq On : 26 Mar 19 11:23 Operator: MA
Sample : 5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 11:55 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190326\0326L008.D Vial: 8
Acq On : 26 Mar 19 11:45 Operator: MA
Sample : 10 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 12:03 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Tue Mar 26 11:52:44 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	35838	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.98	164	16640	2.50000 ppb		0.00
12) Phenanthrene-D10(IS)	7.70	188	28622	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.79	240	41948	2.50000 ppb		0.00
23) Perylene-D12(IS)	13.16	264	40987	2.50000 ppb		0.00
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.13	82	32326	5.09668 ppb		0.00
Spiked Amount 5.000			Recovery	= 101.940%		
4) 2-Methylnaphthalene-D10 (2	4.73	152	100381	5.94861 ppb		0.00
Spiked Amount 5.000			Recovery	= 118.980%		
8) Surrogate Recovery (FBP)	5.22	172	64921	5.44551 ppb		0.00
Spiked Amount 5.000			Recovery	= 108.920%		
15) Fluoranthene-D10 (FRT)	9.08	212	132302	6.36178 ppb		-0.01
Spiked Amount 5.000			Recovery	= 127.240%		
19) Surrogate Recovery (TPH)	9.58	244	79496	5.75993 ppb		0.00
Spiked Amount 5.000			Recovery	= 115.200%		
Target Compounds						Qvalue
3) Naphthalene	3.96	128	184477	10.20127 ppb		100
5) 2-Methylnaphthalene	4.77	142	109454	10.06955 ppb		99
6) 1-Methylnaphthalene	4.88	142	108031	9.79519 ppb		98
9) Acenaphthylene	5.81	152	391698	10.47636 ppb		100
10) Acenaphthene	6.01	154	97387	9.08975 ppb		99
11) Fluorene	6.62	166	125480	9.95086 ppb		99
13) Phenanthrene	7.73	178	169913	10.51414 ppb		100
14) Anthracene	7.79	178	168680	10.56433 ppb		100
16) Fluoranthene	9.10	202	286894	11.22214 ppb	#	86
18) Pyrene	9.36	202	288195	11.00804 ppb		99
20) Benz (a) anthracene	10.78	228	244430	10.55125 ppb		100
21) Chrysene	10.83	228	225305	10.09781 ppb		99
22) Indeno (1,2,3-cd) pyrene	14.66	276	249983	10.80176 ppb		99
24) Benzo (b) fluoranthene	12.48	252	230916	10.48469 ppb		99
25) Benzo (k) fluoranthene	12.53	252	239205	10.54342 ppb	#	81
26) Benzo (a) pyrene	13.05	252	224453	10.58124 ppb	#	96
27) Dibenz (a,h) anthracene	14.70	278	203908	10.38077 ppb		96
28) Benzo (g,h,i) perylene	15.01	276	207384	10.43132 ppb		94

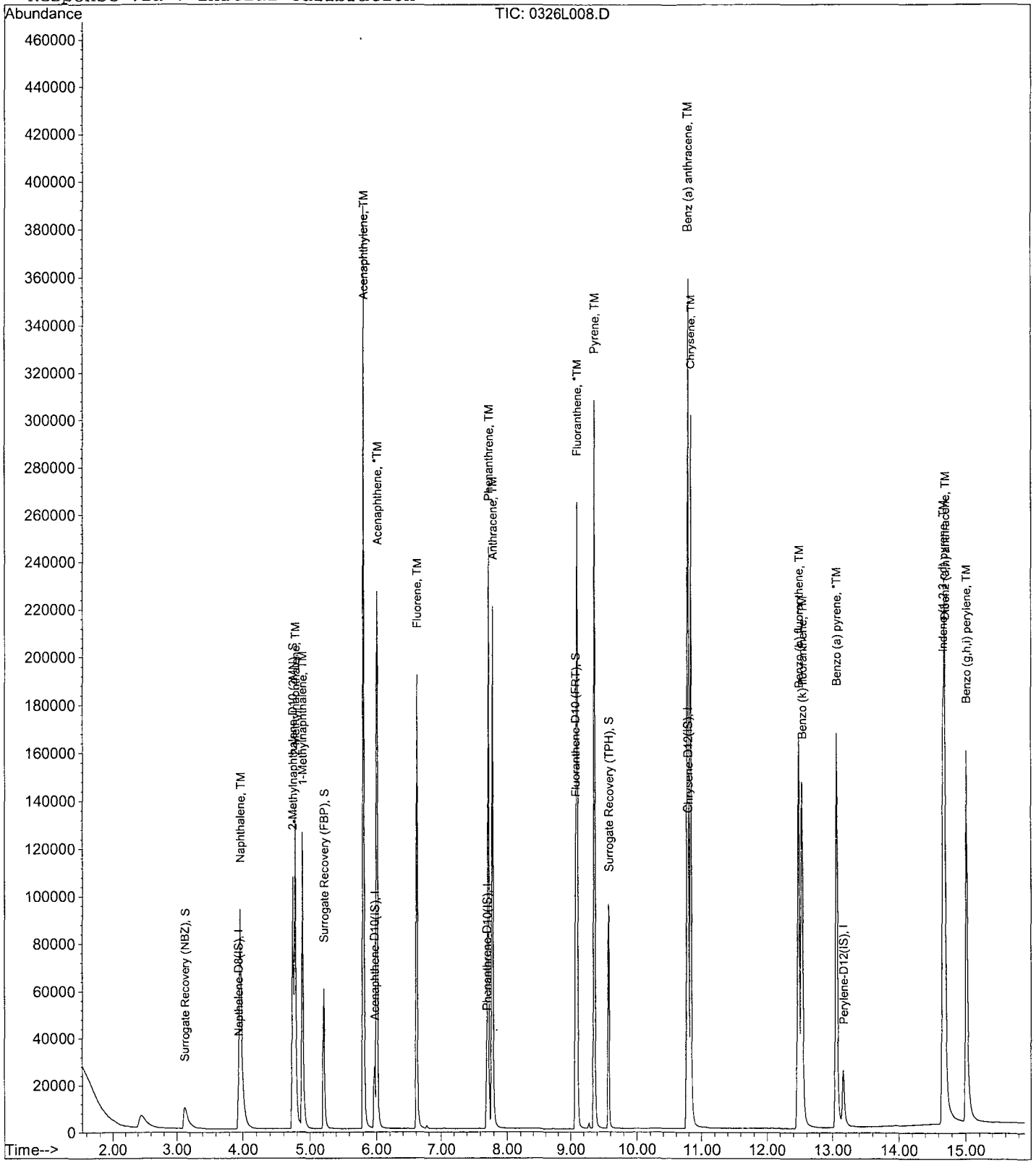
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190326\0326L008.D Vial: 8
Acq On : 26 Mar 19 11:45 Operator: MA
Sample : 10 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 12:03 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190326\0326L009.D Vial: 9
Acq On : 26 Mar 19 12:08 Operator: MA
Sample : 50 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 12:40 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Tue Mar 26 11:52:44 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	34439	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.98	164	16178	2.50000 ppb		0.00
12) Phenanthrene-D10(IS)	7.70	188	28297	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.80	240	40379	2.50000 ppb		0.01
23) Perylene-D12(IS)	13.16	264	41022	2.50000 ppb		0.00
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.12	82	140833	21.64154 ppb		-0.01
Spiked Amount 5.000			Recovery	= 432.840%		
4) 2-Methylnaphthalene-D10 (2	4.73	152	414181	23.25797 ppb		0.00
Spiked Amount 5.000			Recovery	= 465.160%		
8) Surrogate Recovery (FBP)	5.20	172	263684	21.46228 ppb		-0.01
Spiked Amount 5.000			Recovery	= 429.240%		
15) Fluoranthene-D10 (FRT)	9.09	212	562390	24.48515 ppb		0.00
Spiked Amount 5.000			Recovery	= 489.700%		
19) Surrogate Recovery (TPH)	9.58	244	334289	23.27858 ppb		0.00
Spiked Amount 5.000			Recovery	= 465.580%		
Target Compounds						Qvalue
3) Naphthalene	3.96	128	794731	44.68961 ppb		100
5) 2-Methylnaphthalene	4.77	142	465489	44.02234 ppb		99
6) 1-Methylnaphthalene	4.88	142	454120	41.81636 ppb		98
9) Acenaphthylene	5.81	152	1609229	43.19390 ppb		100
10) Acenaphthene	6.01	154	409705	39.67961 ppb		97
11) Fluorene	6.62	166	527629	42.63457 ppb		99
13) Phenanthrene	7.73	178	689088	41.97703 ppb		99
14) Anthracene	7.79	178	700455	43.39211 ppb		99
16) Fluoranthene	9.11	202	1195144	44.94761 ppb	#	89
18) Pyrene	9.37	202	1195645	45.32840 ppb		94
20) Benz (a) anthracene	10.79	228	1070977	46.57534 ppb		99
21) Chrysene	10.84	228	941256	42.83259 ppb		98
22) Indeno (1,2,3-cd) pyrene	14.68	276	1103036	48.39365 ppb		100
24) Benzo (b) fluoranthene	12.50	252	1050669	47.36694 ppb		99
25) Benzo (k) fluoranthene	12.55	252	1029810	43.39875 ppb	#	85
26) Benzo (a) pyrene	13.09	252	1003811	46.19453 ppb	#	97
27) Dibenz (a,h) anthracene	14.72	278	901711	45.25262 ppb		96
28) Benzo (g,h,i) perylene	15.04	276	917218	45.43228 ppb		95

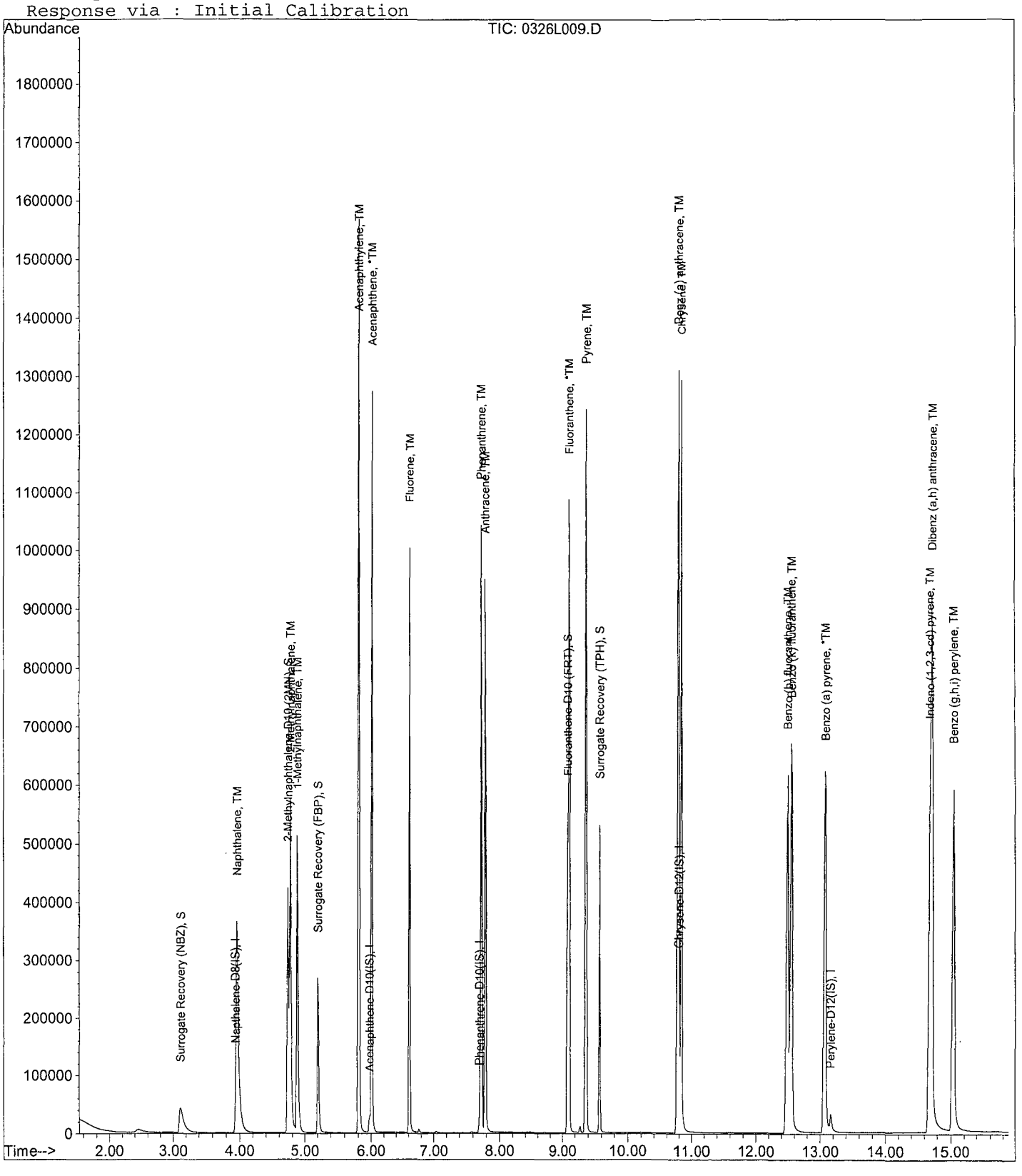
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190326\0326L009.D Vial: 9
Acq On : 26 Mar 19 12:08 Operator: MA
Sample : 50 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 12:40 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190326\0326L010.D Vial: 10
Acq On : 26 Mar 19 12:30 Operator: MA
Sample : 100 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 13:47 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Tue Mar 26 11:52:44 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	32479	2.50000	ppb		0.00
7) Acenaphthene-D10(IS)	5.98	164	15565	2.50000	ppb		0.00
12) Phenanthrene-D10(IS)	7.70	188	27637	2.50000	ppb		0.00
17) Chrysene-D12(IS)	10.82	240	38239	2.50000	ppb		0.02
23) Perylene-D12(IS)	13.17	264	38545	2.50000	ppb		0.01
System Monitoring Compounds							
2) Surrogate Recovery (NBZ)	3.10	82	272771	44.44570	ppb		-0.02
Spiked Amount 5.000			Recovery = 888.920%				
4) 2-Methylnaphthalene-D10 (2	4.73	152	777276	46.28122	ppb		0.00
Spiked Amount 5.000			Recovery = 925.620%				
8) Surrogate Recovery (FBP)	5.20	172	495434	41.91347	ppb		-0.01
Spiked Amount 5.000			Recovery = 838.260%				
15) Fluoranthene-D10 (FRT)	9.09	212	1034959	46.13577	ppb		0.00
Spiked Amount 5.000			Recovery = 922.720%				
19) Surrogate Recovery (TPH)	9.58	244	598059	43.97719	ppb		0.00
Spiked Amount 5.000			Recovery = 879.540%				
Target Compounds							Qvalue
3) Naphthalene	3.96	128	1458290	86.95172	ppb		99
5) 2-Methylnaphthalene	4.77	142	841432	84.37826	ppb		100
6) 1-Methylnaphthalene	4.89	142	836950	81.71899	ppb		93
9) Acenaphthylene	5.81	152	3029044	84.50567	ppb		99
10) Acenaphthene	6.01	154	728333	73.31651	ppb		92
11) Fluorene	6.62	166	977411	82.08923	ppb		98
13) Phenanthrene	7.74	178	1281823	79.94928	ppb		99
14) Anthracene	7.80	178	1233503	78.23844	ppb		99
16) Fluoranthene	9.12	202	2109540	81.23134	ppb	#	89
18) Pyrene	9.38	202	2180307	87.28404	ppb		96
20) Benz (a) anthracene	10.80	228	2005960	92.11857	ppb		98
21) Chrysene	10.86	228	1765953	84.85838	ppb	#	96
22) Indeno (1,2,3-cd) pyrene	14.73	276	2046970	94.83293	ppb	#	92
24) Benzo (b) fluoranthene	12.52	252	1994752	95.70774	ppb		99
25) Benzo (k) fluoranthene	12.59	252	1848388	82.90143	ppb	#	85
26) Benzo (a) pyrene	13.11	252	1845710	90.39635	ppb		98
27) Dibenz (a,h) anthracene	14.75	278	1624819	86.78209	ppb		100
28) Benzo (g,h,i) perylene	15.08	276	1672824	88.18424	ppb	#	87

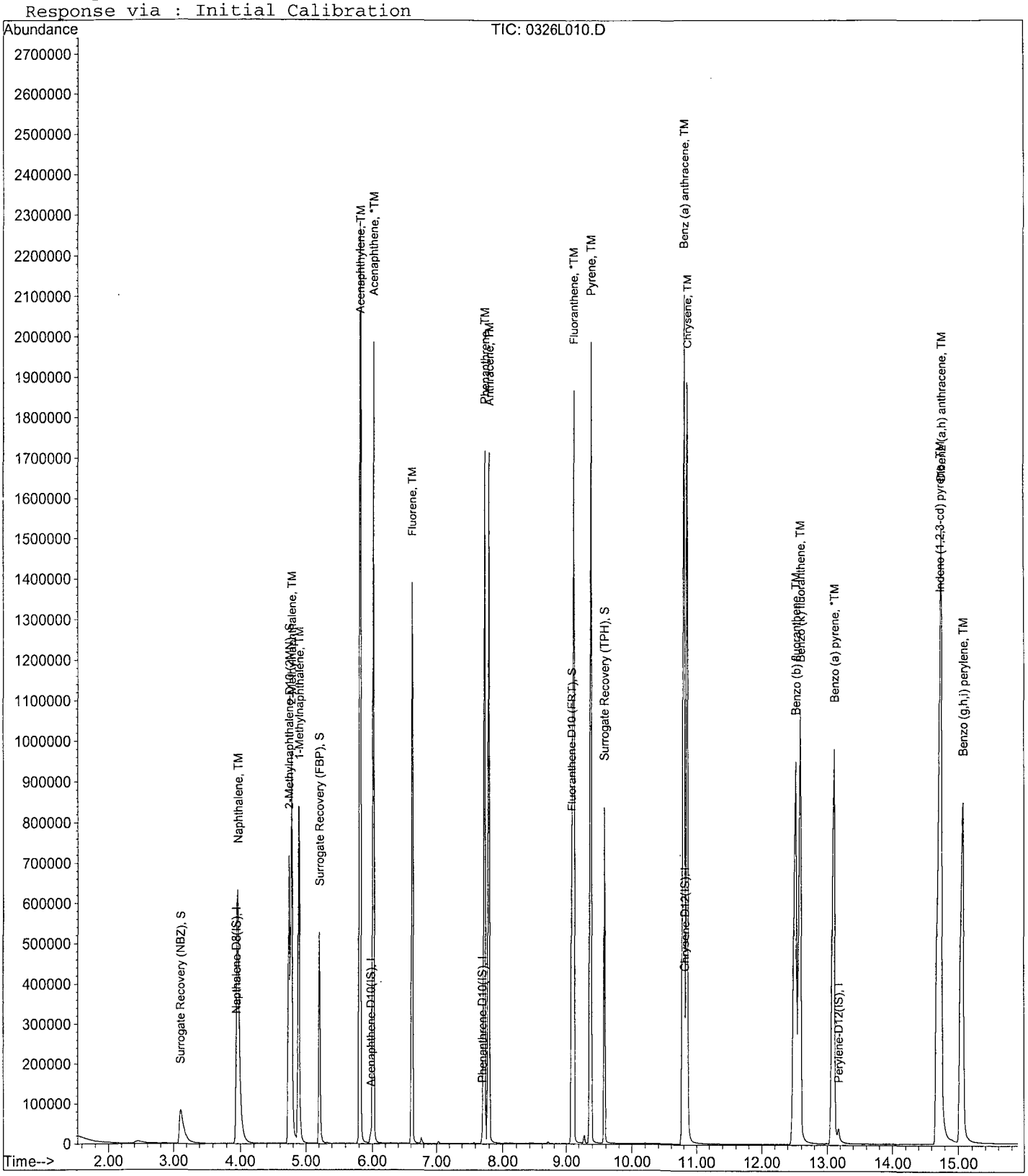
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190326\0326L010.D Vial: 10
Acq On : 26 Mar 19 12:30 Operator: MA
Sample : 100 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 13:47 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190326\0326L012.D Vial: 12
Acq On : 26 Mar 19 15:55 Operator: MA
Sample : 0.2 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 16:21 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Tue Mar 26 11:52:44 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	48893	2.50000	ppb		0.00
7) Acenaphthene-D10(IS)	5.98	164	22990	2.50000	ppb		0.00
12) Phenanthrene-D10(IS)	7.70	188	39076	2.50000	ppb		0.00
17) Chrysene-D12(IS)	10.79	240	57596	2.50000	ppb		0.00
23) Perylene-D12(IS)	13.16	264	55456	2.50000	ppb		0.00
System Monitoring Compounds							
2) Surrogate Recovery (NBZ)	3.16	82	768	0.08673	ppb		0.04
Spiked Amount 5.000			Recovery =	1.740%			
4) 2-Methylnaphthalene-D10 (2	4.76	152	2284	0.08927	ppb		0.02
Spiked Amount 5.000			Recovery =	1.780%			
8) Surrogate Recovery (FBP)	5.23	172	1525	0.08934	ppb		0.01
Spiked Amount 5.000			Recovery =	1.780%			
15) Fluoranthene-D10 (FRT)	9.10	212	2862	0.08813	ppb		0.01
Spiked Amount 5.000			Recovery =	1.760%			
19) Surrogate Recovery (TPH)	9.59	244	1762	0.08457	ppb		0.01
Spiked Amount 5.000			Recovery =	1.700%			
Target Compounds							Qvalue
3) Naphthalene	3.96	128	5503	0.21825	ppb		98
5) 2-Methylnaphthalene	4.78	142	2989	0.19863	ppb		98
6) 1-Methylnaphthalene	4.89	142	3356	0.21862	ppb		97
9) Acenaphthylene	5.82	152	10502	0.19841	ppb		100
10) Acenaphthene	6.01	154	3004	0.20647	ppb		96
11) Fluorene	6.63	166	3457	0.19696	ppb		96
13) Phenanthrene	7.73	178	4828	0.20973	ppb		97
14) Anthracene	7.80	178	4438	0.19743	ppb		98
16) Fluoranthene	9.12	202	7726	0.20526	ppb	#	95
18) Pyrene	9.38	202	7961	0.20588	ppb		93
20) Benz (a) anthracene	10.78	228	6119	0.18540	ppb		97
21) Chrysene	10.84	228	7299	0.22752	ppb		99
22) Indeno (1,2,3-cd) pyrene	14.70	276	7062	0.17330	ppb	#	92
24) Benzo (b) fluoranthene	12.51	252	5643	0.19039	ppb		99
25) Benzo (k) fluoranthene	12.55	252	6638	0.19712	ppb	#	84
26) Benzo (a) pyrene	13.08	252	6073	0.18974	ppb	#	94
27) Dibenz (a,h) anthracene	14.72	278	5632	0.16786	ppb	#	91
28) Benzo (g,h,i) perylene	15.05	276	5883	0.17144	ppb		99

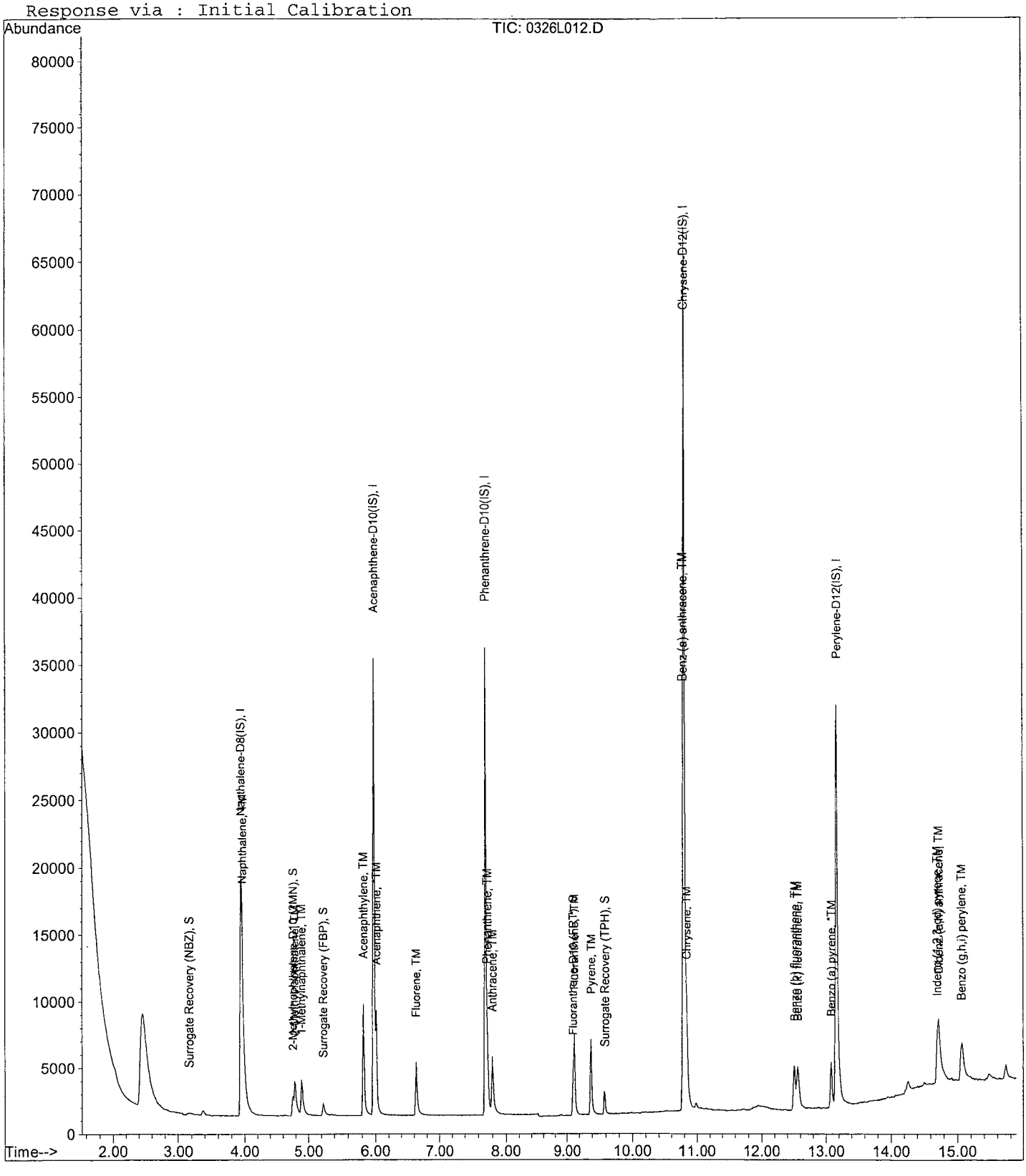
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190326\0326L012.D Vial: 12
Acq On : 26 Mar 19 15:55 Operator: MA
Sample : 0.2 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 16:21 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190326\0326L013.D Vial: 13
Acq On : 26 Mar 19 17:05 Operator: MA
Sample : 0.1 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 17:22 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Tue Mar 26 11:52:44 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.95	136	33055	2.50000 ppb		0.01
7) Acenaphthene-D10(IS)	5.98	164	15242	2.50000 ppb		0.00
12) Phenanthrene-D10(IS)	7.70	188	26118	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.79	240	37102	2.50000 ppb		0.00
23) Perylene-D12(IS)	13.16	264	35689	2.50000 ppb		0.00
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.16	82	174	0.02974 ppb		0.04
Spiked Amount 5.000			Recovery	= 0.600%		
4) 2-Methylnaphthalene-D10 (2	4.77	152	917	0.05892 ppb		0.04
Spiked Amount 5.000			Recovery	= 1.180%		
8) Surrogate Recovery (FBP)	5.24	172	525	0.04808 ppb		0.02
Spiked Amount 5.000			Recovery	= 0.960%		
15) Fluoranthene-D10 (FRT)	9.11	212	993	0.05233 ppb		0.02
Spiked Amount 5.000			Recovery	= 1.040%		
19) Surrogate Recovery (TPH)	9.59	244	603	0.04940 ppb		0.01
Spiked Amount 5.000			Recovery	= 0.980%		
Target Compounds						Qvalue
3) Naphthalene	3.97	128	2021	0.12117 ppb		98
5) 2-Methylnaphthalene	4.79	142	966	0.09635 ppb		93
6) 1-Methylnaphthalene	4.90	142	1309	0.12868 ppb		97
9) Acenaphthylene	5.83	152	3597	0.10503 ppb		100
10) Acenaphthene	6.01	154	1094	0.11148 ppb		97
11) Fluorene	6.64	166	1352	0.11705 ppb		98
13) Phenanthrene	7.74	178	1679	0.11386 ppb		98
14) Anthracene	7.81	178	1552	0.10652 ppb		99
16) Fluoranthene	9.13	202	2650	0.11360 ppb	#	94
18) Pyrene	9.39	202	2818	0.12170 ppb	#	94
20) Benz (a) anthracene	10.79	228	2097	0.10234 ppb		97
21) Chrysene	10.84	228	2513	0.12734 ppb		98
22) Indeno (1,2,3-cd) pyrene	14.73	276	2499	0.12209 ppb	#	81
24) Benzo (b) fluoranthene	12.52	252	1653	0.08620 ppb		97
25) Benzo (k) fluoranthene	12.58	252	2393	0.12113 ppb	#	82
26) Benzo (a) pyrene	13.09	252	1774	0.09605 ppb		98
27) Dibenz (a,h) anthracene	14.74	278	1986	0.11611 ppb	#	91
28) Benzo (g,h,i) perylene	15.09	276	2096	0.12108 ppb		92

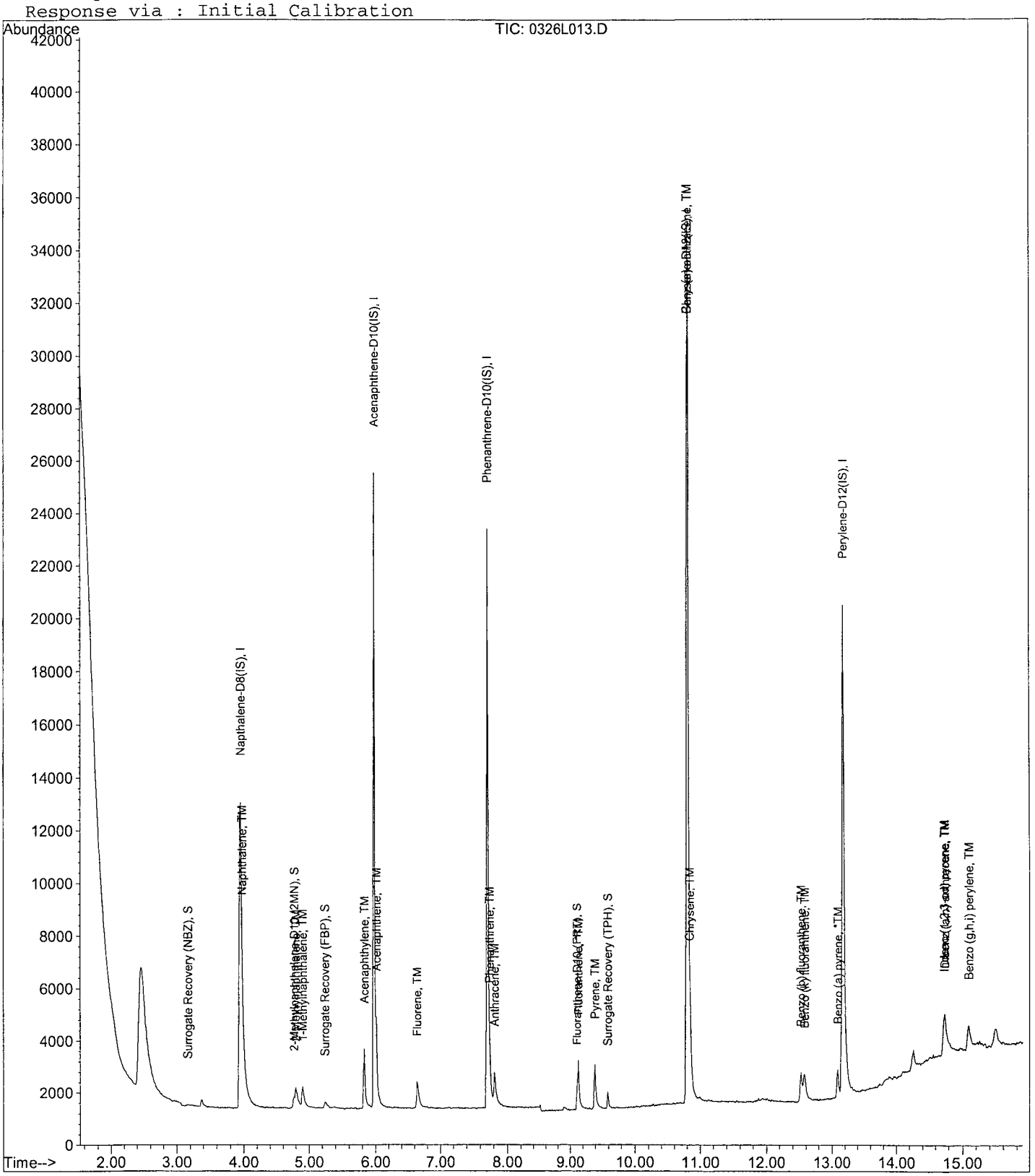
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190326\0326L013.D Vial: 13
Acq On : 26 Mar 19 17:05 Operator: MA
Sample : 0.1 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 17:22 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration



PAH by GCMS SIM
EPA 8270 SIM

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 03/26/19
Instrument: Linus
Initial Cal. Date: 03/26/19
Data File: 0326L014.D

		Compound	MEAN	CCRF	%D		%Drift
1	TM	Naphthalene	1.314	1.344	2.3	TM	
2	TM	2-Methylnaphthalene	0.7409	0.8066	8.9	TM	
3	TM	1-Methylnaphthalene	0.8188	0.8287	1.2	TM	
4	TM	Acenaphthylene	5.655	5.927	4.8	TM	
5	*TM	Acenaphthene	1.491	1.500	0.63	*TM	
6	TM	Fluorene	1.867	1.894	1.4	TM	
7	TM	Phenanthrene	1.453	1.496	2.9	TM	
8	TM	Anthracene	1.396	1.451	4.0	TM	
9	*TM	Fluoranthene	2.417	2.498	3.4	*TM	
10	TM	Pyrene	1.692	1.717	1.5	TM	
11	TM	Benz (a) anthracene	1.385	1.403	1.3	TM	
12	TM	Chrysene	1.409	1.442	2.3	TM	
13	TM	Indeno (1,2,3-cd) pyrene	1.476	1.465	0.75	TM	
14	TM	Benzo (b) fluoranthene	1.293	1.413	9.3	TM	
15	TM	Benzo (k) fluoranthene	1.467	1.533	4.5	TM	
16	*TM	Benzo (a) pyrene	1.312	1.326	1.1	*TM	
17	TM	Dibenz (a,h) anthracene	1.222	1.285	5.1	TM	
18	TM	Benzo (g,h,i) perylene	1.254	1.309	4.4	TM	
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
		Average			3.3		

PAH by GCMS SIM
EPA 8270 SIM

Form 7

Second Source Calibration

Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190326\0326L014.D Vial: 14
Acq On : 26 Mar 19 17:27 Operator: MA
Sample : SS SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 27 9:04 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	37593	2.50000	ppb		0.00
7) Acenaphthene-D10(IS)	5.98	164	17018	2.50000	ppb		0.00
12) Phenanthrene-D10(IS)	7.70	188	29145	2.50000	ppb		0.00
17) Chrysene-D12(IS)	10.79	240	42587	2.50000	ppb		0.00
23) Perylene-D12(IS)	13.16	264	40320	2.50000	ppb		0.00
System Monitoring Compounds							
2) Surrogate Recovery (NBZ)	3.15	82	89	0.01327	ppb		0.02
Spiked Amount 5.000			Recovery	= 0.260%			
4) 2-Methylnaphthalene-D10 (2	4.74	152	61	0.00300	ppb		0.01
Spiked Amount 5.000			Recovery	= 0.060%			
8) Surrogate Recovery (FBP)	5.26	172	21	0.00168	ppb		0.05
Spiked Amount 5.000			Recovery	= 0.040%			
15) Fluoranthene-D10 (FRT)	9.09	212	62	0.00249	ppb		0.00
Spiked Amount 5.000			Recovery	= 0.040%			
19) Surrogate Recovery (TPH)	9.60	244	51	0.00338	ppb		0.02
Spiked Amount 5.000			Recovery	= 0.060%			
Target Compounds							Qvalue
3) Naphthalene	3.96	128	101084	5.11703	ppb		100
5) 2-Methylnaphthalene	4.77	142	60648	5.44385	ppb		98
6) 1-Methylnaphthalene	4.88	142	62305	5.06007	ppb		99
9) Acenaphthylene	5.81	152	201720	5.24063	ppb		99
10) Acenaphthene	6.01	154	51069	5.03134	ppb		100
11) Fluorene	6.62	166	64459	5.07138	ppb		99
13) Phenanthrene	7.73	178	87187	5.14639	ppb		100
14) Anthracene	7.79	178	84584	5.19763	ppb		100
16) Fluoranthene	9.11	202	145598	5.16794	ppb		98
18) Pyrene	9.36	202	146253	5.07448	ppb		99
20) Benz (a) anthracene	10.78	228	119541	5.06587	ppb		98
21) Chrysene	10.83	228	122783	5.11679	ppb		99
22) Indeno (1,2,3-cd) pyrene	14.66	276	124805	4.96230	ppb		98
24) Benzo (b) fluoranthene	12.47	252	113984	5.46678	ppb	#	96
25) Benzo (k) fluoranthene	12.52	252	123617	5.22426	ppb	#	84
26) Benzo (a) pyrene	13.05	252	106932	5.05468	ppb	#	94
27) Dibenz (a,h) anthracene	14.70	278	103583	5.25425	ppb		99
28) Benzo (g,h,i) perylene	15.01	276	105592	5.22057	ppb		99

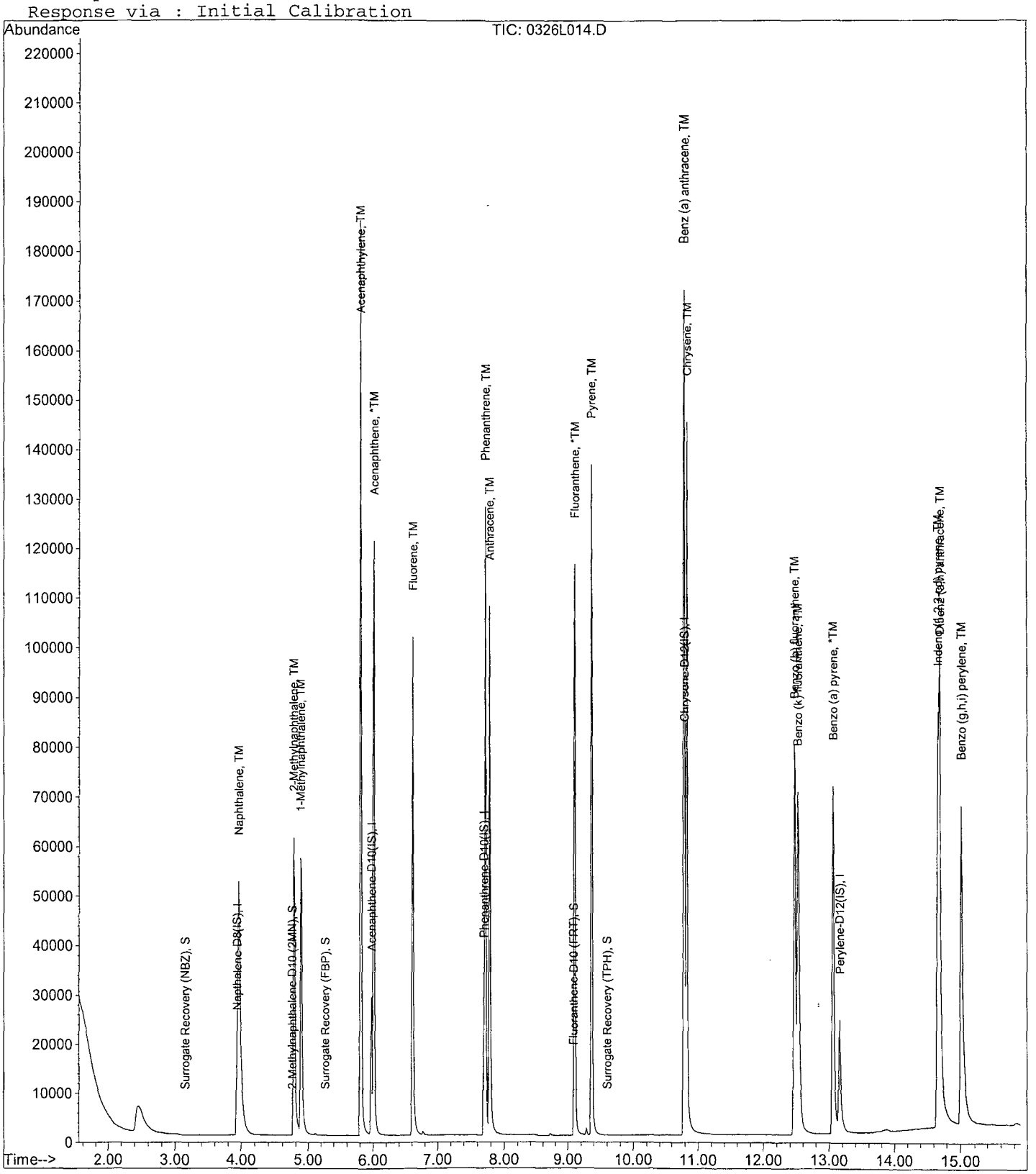
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190326\0326L014.D Vial: 14
Acq On : 26 Mar 19 17:27 Operator: MA
Sample : SS SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 27 9:04 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration



PAH by GCMS SIM
EPA 8270 SIM

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 2 May 19 10:54
Instrument: Linus
Initial Cal. Date: 03/26/19
Data File: 0426L030.D

		Compound	MEAN	CCRF	%D		%Drift	
1	I	Napthalene-D8(IS)	ISTD			I		
2	S	Surrogate Recovery (NBZ)	0.4460	0.4371	2.0	S		
3	TM	Naphthalene	1.314	1.250	4.9	TM		
4	S	2-Methylnaphthalene-D10 (2MN)	1.354	1.222	9.7	S		
5	TM	2-Methylnaphthalene	0.7409	0.6941	6.3	TM		
6	TM	1-Methylnaphthalene	0.8188	0.7371	10.0	TM		
7	I	Acenaphthene-D10(IS)	ISTD			I		
8	S	Surrogate Recovery (FBP)	1.840	1.923	4.5	S		
9	TM	Acenaphthylene	5.655	5.281	6.6	TM		
10	*TM	Acenaphthene	1.491	1.527	2.4	*TM		
11	TM	Fluorene	1.867	1.917	2.6	TM		
12	I	Phenanthrene-D10(IS)	ISTD			I		
13	TM	Phenanthrene	1.453	1.470	1.2	TM		
14	TM	Anthracene	1.396	1.517	8.6	TM		
15	S	Fluoranthene-D10 (FRT)	2.138	2.178	1.9	S		
16	*TM	Fluoranthene	2.417	2.499	3.4	*TM		
17	I	Chrysene-D12(IS)	ISTD			I		
18	TM	Pyrene	1.692	1.690	0.11	TM		
19	S	Surrogate Recovery (TPH)	0.8859	0.8568	3.3	S		
20	TM	Benz (a) anthracene	1.385	1.189	14	TM		
21	TM	Chrysene	1.409	1.473	4.6	TM		
22	TM	Indeno (1,2,3-cd) pyrene	1.476	1.396	5.4	TM		
23	I	Perylene-D12(IS)	ISTD			I		
24	TM	Benzo (b) fluoranthene	1.293	1.336	3.3	TM		
25	TM	Benzo (k) fluoranthene	1.467	1.808	23	TM		*
26	*TM	Benzo (a) pyrene	1.312	1.325	1.0	*TM		
27	TM	Dibenz (a,h) anthracene	1.222	1.364	12	TM		
28	TM	Benzo (g,h,i) perylene	1.254	1.329	6.0	TM		
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								
		Average			5.9			

Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L030.D Vial: 30
Acq On : 2 May 19 10:54 Operator: MA
Sample : 5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: May 2 11:23 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	45570	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.96	164	18053	2.50000 ppb		-0.01
12) Phenanthrene-D10(IS)	7.70	188	28703	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.79	240	43875	2.50000 ppb		0.00
23) Perylene-D12(IS)	13.18	264	36594	2.50000 ppb		0.02
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.15	82	19917	2.44971 ppb		0.02
Spiked Amount 5.000			Recovery	= 49.000%		
4) 2-Methylnaphthalene-D10 (2	4.73	152	55699	2.25750 ppb		0.00
Spiked Amount 5.000			Recovery	= 45.160%		
8) Surrogate Recovery (FBP)	5.22	172	34715	2.61209 ppb		0.00
Spiked Amount 5.000			Recovery	= 52.240%		
15) Fluoranthene-D10 (FRT)	9.08	212	62519	2.54704 ppb		-0.01
Spiked Amount 5.000			Recovery	= 50.940%		
19) Surrogate Recovery (TPH)	9.57	244	37591	2.41784 ppb		-0.01
Spiked Amount 5.000			Recovery	= 48.360%		
Target Compounds						Qvalue
3) Naphthalene	3.96	128	113888	4.75600 ppb		100
5) 2-Methylnaphthalene	4.77	142	63260	4.68432 ppb		100
6) 1-Methylnaphthalene	4.88	142	67181	4.50099 ppb		96
9) Acenaphthylene	5.81	152	190681	4.66983 ppb		99
10) Acenaphthene	6.00	154	55140	5.12097 ppb		96
11) Fluorene	6.62	166	69199	5.13217 ppb		98
13) Phenanthrene	7.73	178	84389	5.05794 ppb		99
14) Anthracene	7.79	178	87065	5.43247 ppb		99
16) Fluoranthene	9.10	202	143463	5.17057 ppb	#	79
18) Pyrene	9.36	202	148298	4.99438 ppb		91
20) Benz (a) anthracene	10.78	228	104301	4.29028 ppb		99
21) Chrysene	10.83	228	129286	5.22963 ppb		98
22) Indeno (1,2,3-cd) pyrene	14.68	276	122536	4.72906 ppb	#	77
24) Benzo (b) fluoranthene	12.48	252	97766	5.16638 ppb		97
25) Benzo (k) fluoranthene	12.53	252	132349	6.16280 ppb		98
26) Benzo (a) pyrene	13.09	252	96988	5.05143 ppb	#	95
27) Dibenz (a,h) anthracene	14.71	278	99841	5.58009 ppb	#	92
28) Benzo (g,h,i) perylene	15.04	276	97275	5.29906 ppb		93

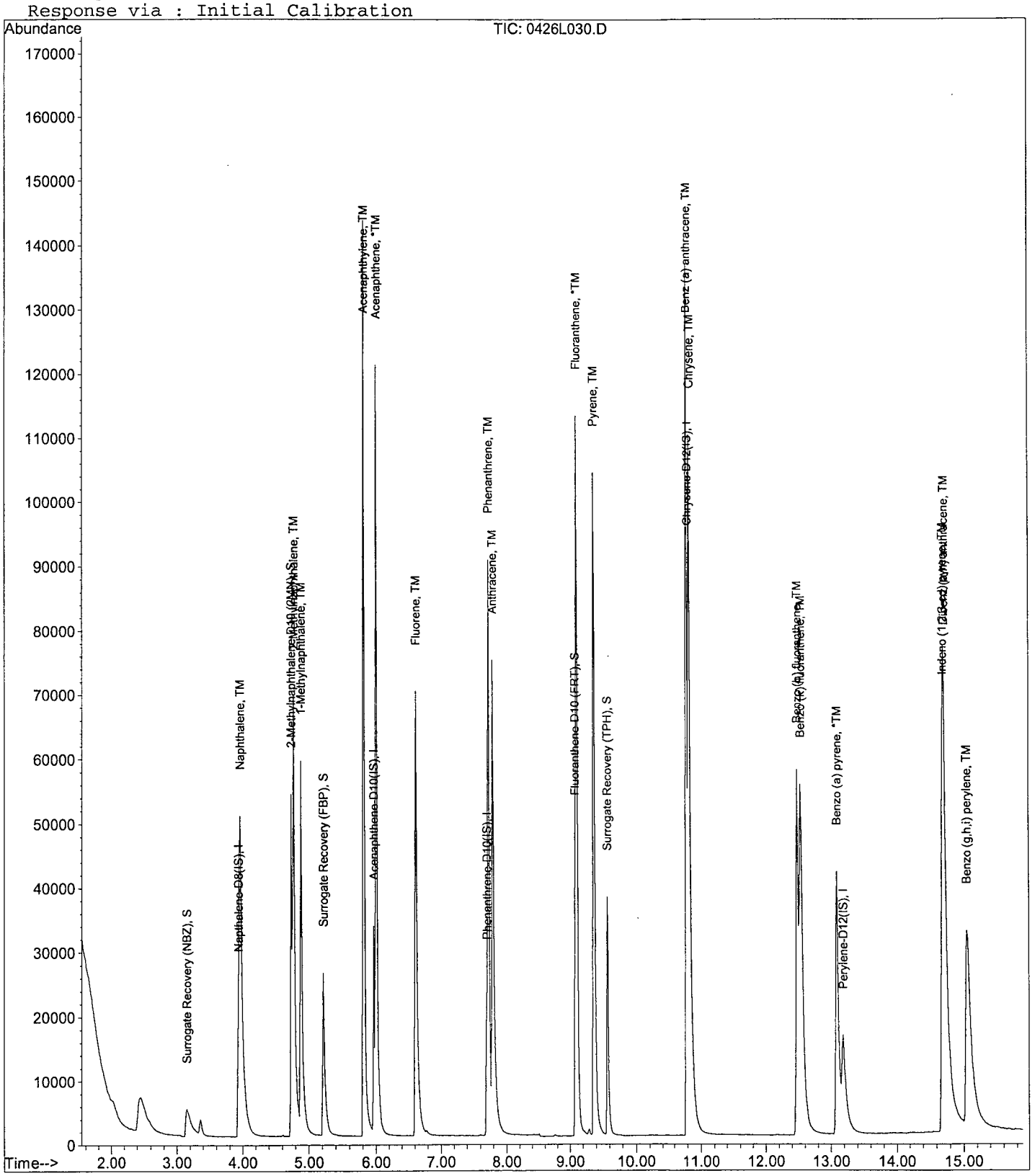
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L030.D Vial: 30
Acq On : 2 May 19 10:54 Operator: MA
Sample : 5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: May 2 11:23 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



PAH by GCMS SIM
EPA 8270 SIM

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 2 May 19 21:03
Instrument: Linus
Initial Cal. Date: 03/26/19
Data File: 0426L054.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	Napthalene-D8(IS)	ISTD			I	
2	S	Surrogate Recovery (NBZ)	0.4460	0.4597	3.1	S	
3	TM	Naphthalene	1.314	1.439	9.5	TM	
4	S	2-Methylnaphthalene-D10 (2MN)	1.354	1.222	9.7	S	
5	TM	2-Methylnaphthalene	0.7409	0.7872	6.3	TM	
6	TM	1-Methylnaphthalene	0.8188	0.8347	1.9	TM	
7	I	Acenaphthene-D10(IS)	ISTD			I	
8	S	Surrogate Recovery (FBP)	1.840	1.818	1.2	S	
9	TM	Acenaphthylene	5.655	6.733	19	TM	
10	*TM	Acenaphthene	1.491	1.730	16	*TM	
11	TM	Fluorene	1.867	2.205	18	TM	
12	I	Phenanthrene-D10(IS)	ISTD			I	
13	TM	Phenanthrene	1.453	1.635	13	TM	
14	TM	Anthracene	1.396	1.764	26	TM	
15	S	Fluoranthene-D10 (FRT)	2.138	2.514	18	S	
16	*TM	Fluoranthene	2.417	3.180	32	*TM	
17	I	Chrysene-D12(IS)	ISTD			I	
18	TM	Pyrene	1.692	1.947	15	TM	
19	S	Surrogate Recovery (TPH)	0.8859	0.8608	2.8	S	
20	TM	Benz (a) anthracene	1.385	1.462	5.5	TM	
21	TM	Chrysene	1.409	1.648	17	TM	
22	TM	Indeno (1,2,3-cd) pyrene	1.476	1.672	13	TM	
23	I	Perylene-D12(IS)	ISTD			I	
24	TM	Benzo (b) fluoranthene	1.293	1.244	3.8	TM	
25	TM	Benzo (k) fluoranthene	1.467	1.939	32	TM	
26	*TM	Benzo (a) pyrene	1.312	1.502	15	*TM	
27	TM	Dibenz (a,h) anthracene	1.222	1.378	13	TM	
28	TM	Benzo (g,h,i) perylene	1.254	1.358	8.3	TM	
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			13.0		

Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L054.D Vial: 54
Acq On : 2 May 19 21:03 Operator: MA,SS
Sample : 5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: May 3 8:50 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	52891	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.96	164	22558	2.50000 ppb		-0.01
12) Phenanthrene-D10(IS)	7.70	188	34382	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.79	240	56026	2.50000 ppb		0.00
23) Perylene-D12(IS)	13.18	264	55890	2.50000 ppb		0.02
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.15	82	24315	2.57669 ppb		0.02
Spiked Amount 5.000			Recovery	= 51.540%		
4) 2-Methylnaphthalene-D10 (2	4.73	152	64641	2.25729 ppb		0.00
Spiked Amount 5.000			Recovery	= 45.140%		
8) Surrogate Recovery (FBP)	5.22	172	41010	2.46950 ppb		0.00
Spiked Amount 5.000			Recovery	= 49.400%		
15) Fluoranthene-D10 (FRT)	9.08	212	86432	2.93964 ppb		-0.01
Spiked Amount 5.000			Recovery	= 58.800%		
19) Surrogate Recovery (TPH)	9.58	244	48225	2.42909 ppb		0.00
Spiked Amount 5.000			Recovery	= 48.580%		
Target Compounds						Qvalue
3) Naphthalene	3.96	128	152208	5.47644 ppb		100
5) 2-Methylnaphthalene	4.77	142	83276	5.31294 ppb		99
6) 1-Methylnaphthalene	4.88	142	88293	5.09665 ppb		99
9) Acenaphthylene	5.81	152	303788	5.95405 ppb		99
10) Acenaphthene	6.00	154	78043	5.80054 ppb		91
11) Fluorene	6.62	166	99460	5.90335 ppb		99
13) Phenanthrene	7.73	178	112442	5.62616 ppb		99
14) Anthracene	7.79	178	121315	6.31923 ppb		99
16) Fluoranthene	9.10	202	218682	6.57972 ppb	#	81
18) Pyrene	9.36	202	218147	5.75338 ppb		96
20) Benz (a) anthracene	10.78	228	163787	5.27599 ppb		100
21) Chrysene	10.83	228	184673	5.84992 ppb		98
22) Indeno (1,2,3-cd) pyrene	14.69	276	187350	5.66229 ppb	#	80
24) Benzo (b) fluoranthene	12.48	252	139073	4.81190 ppb		99
25) Benzo (k) fluoranthene	12.53	252	216697	6.60672 ppb		99
26) Benzo (a) pyrene	13.08	252	167895	5.72546 ppb	#	94
27) Dibenz (a,h) anthracene	14.71	278	154047	5.63718 ppb	#	94
28) Benzo (g,h,i) perylene	15.04	276	151766	5.41312 ppb		97

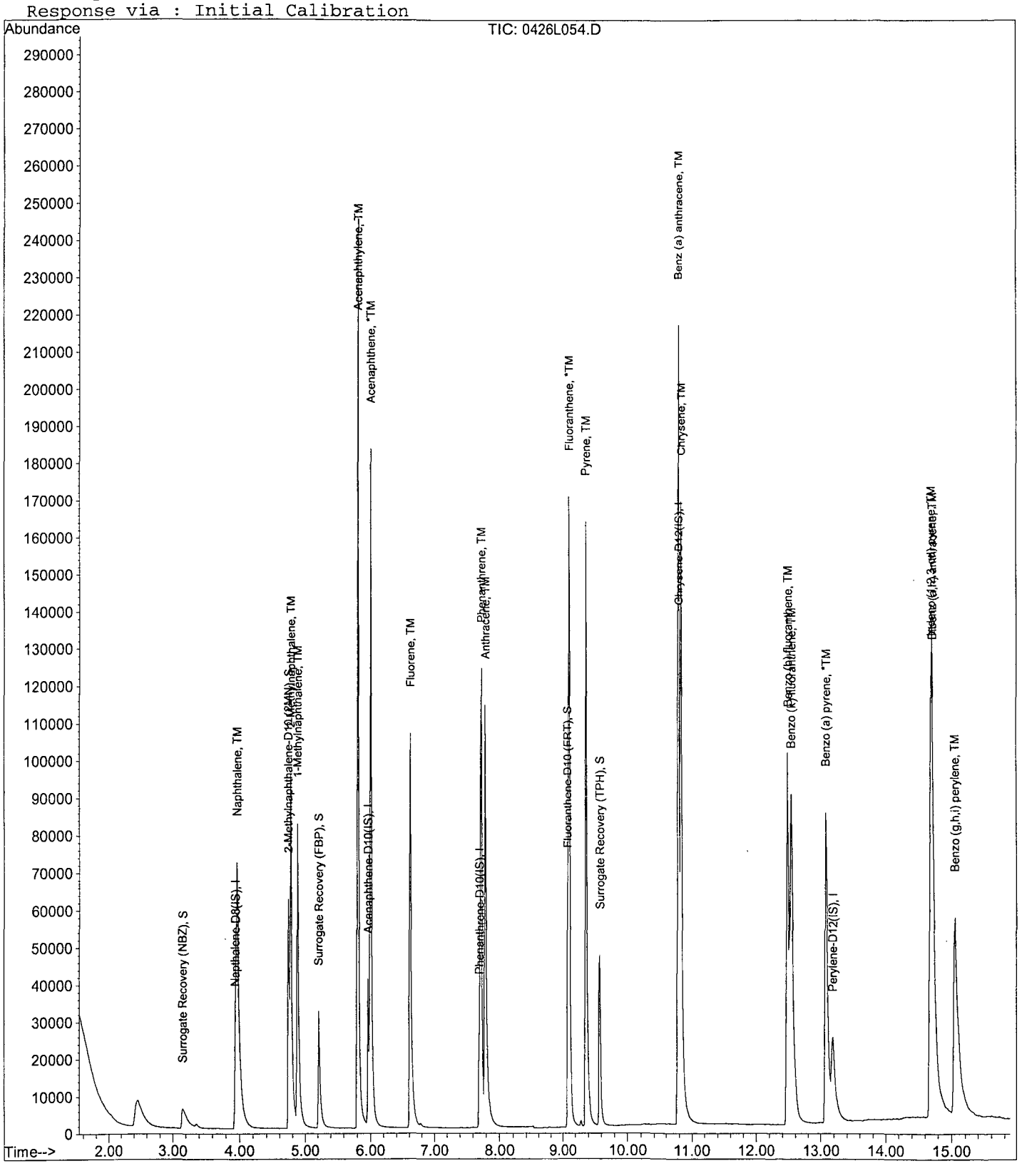
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L054.D Vial: 54
Acq On : 2 May 19 21:03 Operator: MA,SS
Sample : 5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: May 3 8:50 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



PAH by GCMS SIM
EPA 8270 SIM

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 8 May 19 8:58
Instrument: Linus
Initial Cal. Date: 03/26/19
Data File: 0426L056.D

		Compound	MEAN	CCRF	%D		%Drift	
1	I	Napthalene-D8(IS)	ISTD			I		
2	S	Surrogate Recovery (NBZ)	0.4460	0.4346	2.6	S		
3	TM	Naphthalene	1.314	1.242	5.4	TM		
4	S	2-Methylnaphthalene-D10 (2MN)	1.354	1.221	9.8	S		
5	TM	2-Methylnaphthalene	0.7409	0.6917	6.6	TM		
6	TM	1-Methylnaphthalene	0.8188	0.7431	9.3	TM		
7	I	Acenaphthene-D10(IS)	ISTD			I		
8	S	Surrogate Recovery (FBP)	1.840	1.912	3.9	S		
9	TM	Acenaphthylene	5.655	5.034	11	TM		
10	*TM	Acenaphthene	1.491	1.511	1.3	*TM		
11	TM	Fluorene	1.867	1.898	1.6	TM		
12	I	Phenanthrene-D10(IS)	ISTD			I		
13	TM	Phenanthrene	1.453	1.453	0.01	TM		
14	TM	Anthracene	1.396	1.402	0.46	TM		
15	S	Fluoranthene-D10 (FRT)	2.138	2.253	5.4	S		
16	*TM	Fluoranthene	2.417	2.527	4.6	*TM		
17	I	Chrysene-D12(IS)	ISTD			I		
18	TM	Pyrene	1.692	1.693	0.04	TM		
19	S	Surrogate Recovery (TPH)	0.8859	0.8591	3.0	S		
20	TM	Benz (a) anthracene	1.385	1.245	10	TM		
21	TM	Chrysene	1.409	1.469	4.3	TM		
22	TM	Indeno (1,2,3-cd) pyrene	1.476	1.338	9.3	TM		
23	I	Perylene-D12(IS)	ISTD			I		
24	TM	Benzo (b) fluoranthene	1.293	1.331	3.0	TM		
25	TM	Benzo (k) fluoranthene	1.467	1.812	24	TM		*NT
26	*TM	Benzo (a) pyrene	1.312	1.322	0.78	*TM		
27	TM	Dibenz (a,h) anthracene	1.222	1.286	5.2	TM		
28	TM	Benzo (g,h,i) perylene	1.254	1.236	1.4	TM		
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								
		Average			5.3			

Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L056.D Vial: 56
Acq On : 8 May 19 8:58 Operator: MA,SS
Sample : 5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: May 8 9:21 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	42798	2.50000	ppb		0.00
7) Acenaphthene-D10(IS)	5.96	164	17066	2.50000	ppb		-0.01
12) Phenanthrene-D10(IS)	7.69	188	27637	2.50000	ppb		-0.01
17) Chrysene-D12(IS)	10.79	240	41172	2.50000	ppb		0.00
23) Perylene-D12(IS)	13.18	264	34456	2.50000	ppb		0.02
System Monitoring Compounds							
2) Surrogate Recovery (NBZ)	3.15	82	18600	2.43590	ppb		0.02
Spiked Amount 5.000			Recovery = 48.720%				
4) 2-Methylnaphthalene-D10 (2	4.73	152	52236	2.25427	ppb		0.00
Spiked Amount 5.000			Recovery = 45.080%				
8) Surrogate Recovery (FBP)	5.22	172	32635	2.59760	ppb		0.00
Spiked Amount 5.000			Recovery = 51.960%				
15) Fluoranthene-D10 (FRT)	9.08	212	62272	2.63483	ppb		-0.01
Spiked Amount 5.000			Recovery = 52.700%				
19) Surrogate Recovery (TPH)	9.57	244	35369	2.42427	ppb		-0.01
Spiked Amount 5.000			Recovery = 48.480%				
Target Compounds							Qvalue
3) Naphthalene	3.96	128	106333	4.72811	ppb		100
5) 2-Methylnaphthalene	4.77	142	59211	4.66848	ppb		98
6) 1-Methylnaphthalene	4.88	142	63603	4.53727	ppb		95
9) Acenaphthylene	5.81	152	171806	4.45092	ppb		99
10) Acenaphthene	6.00	154	51572	5.06661	ppb		98
11) Fluorene	6.62	166	64771	5.08159	ppb		97
13) Phenanthrene	7.73	178	80320	4.99974	ppb		99
14) Anthracene	7.79	178	77511	5.02289	ppb		99
16) Fluoranthene	9.10	202	139663	5.22777	ppb	#	82
18) Pyrene	9.36	202	139381	5.00225	ppb		95
20) Benz (a) anthracene	10.78	228	102485	4.49234	ppb		100
21) Chrysene	10.83	228	121002	5.21587	ppb		98
22) Indeno (1,2,3-cd) pyrene	14.68	276	110216	4.53284	ppb	#	73
24) Benzo (b) fluoranthene	12.48	252	91731	5.14825	ppb		97
25) Benzo (k) fluoranthene	12.53	252	124866	6.17514	ppb		98
26) Benzo (a) pyrene	13.09	252	91101	5.03924	ppb	#	95
27) Dibenz (a,h) anthracene	14.71	278	88633	5.26106	ppb	#	90
28) Benzo (g,h,i) perylene	15.04	276	85194	4.92892	ppb		92

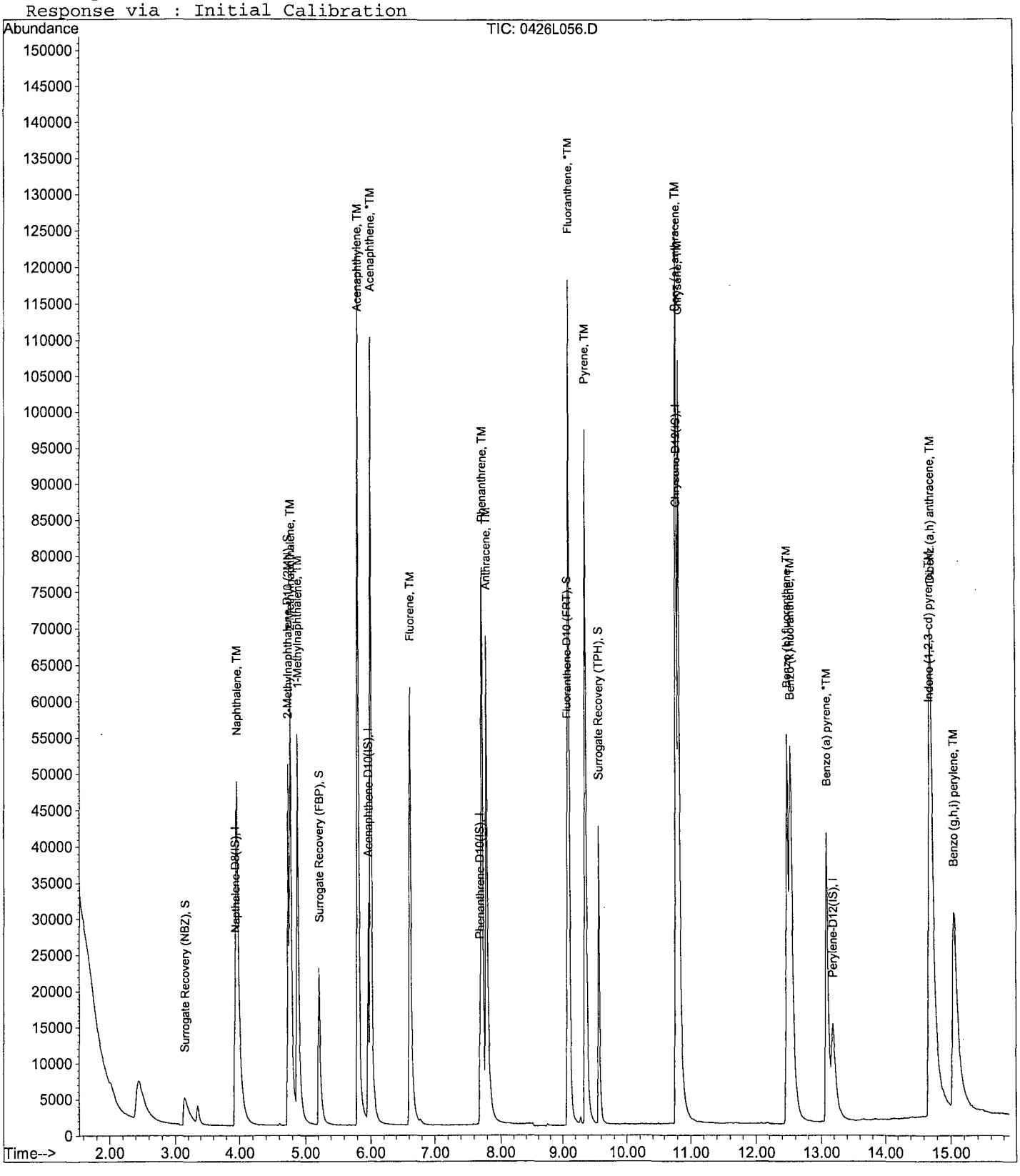
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L056.D Vial: 56
Acq On : 8 May 19 8:58 Operator: MA,SS
Sample : 5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: May 8 9:21 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



PAH by GCMS SIM
EPA 8270 SIM

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 8 May 19 13:07
Instrument: Linus
Initial Cal. Date: 03/26/19
Data File: 0426L065.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	Napthalene-D8(IS)	ISTD			I	
2	S	Surrogate Recovery (NBZ)	0.4460	0.4533	1.6	S	
3	TM	Naphthalene	1.314	1.447	10	TM	
4	S	2-Methylnaphthalene-D10 (2MN)	1.354	1.250	7.6	S	
5	TM	2-Methylnaphthalene	0.7409	0.8115	9.5	TM	
6	TM	1-Methylnaphthalene	0.8188	0.8520	4.0	TM	
7	I	Acenaphthene-D10(IS)	ISTD			I	
8	S	Surrogate Recovery (FBP)	1.840	1.910	3.8	S	
9	TM	Acenaphthylene	5.655	6.636	17	TM	
10	*TM	Acenaphthene	1.491	1.743	17	*TM	
11	TM	Fluorene	1.867	2.204	18	TM	
12	I	Phenanthrene-D10(IS)	ISTD			I	
13	TM	Phenanthrene	1.453	1.625	12	TM	
14	TM	Anthracene	1.396	1.768	27	TM	
15	S	Fluoranthene-D10 (FRT)	2.138	2.174	1.7	S	
16	*TM	Fluoranthene	2.417	2.818	17	*TM	
17	I	Chrysene-D12(IS)	ISTD			I	
18	TM	Pyrene	1.692	2.034	20	TM	
19	S	Surrogate Recovery (TPH)	0.8859	0.8737	1.4	S	
20	TM	Benz (a) anthracene	1.385	1.481	6.9	TM	
21	TM	Chrysene	1.409	1.622	15	TM	
22	TM	Indeno (1,2,3-cd) pyrene	1.476	1.667	13	TM	
23	I	Perylene-D12(IS)	ISTD			I	
24	TM	Benzo (b) fluoranthene	1.293	1.400	8.3	TM	
25	TM	Benzo (k) fluoranthene	1.467	1.871	28	TM	
26	*TM	Benzo (a) pyrene	1.312	1.500	14	*TM	
27	TM	Dibenz (a,h) anthracene	1.222	1.395	14	TM	
28	TM	Benzo (g,h,i) perylene	1.254	1.344	7.2	TM	
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			11.9		

Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L065.D Vial: 65
Acq On : 8 May 19 13:07 Operator: MA,SS
Sample : 5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: May 8 13:36 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	57479	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.96	164	23233	2.50000 ppb		-0.01
12) Phenanthrene-D10(IS)	7.70	188	38452	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.78	240	55097	2.50000 ppb		-0.01
23) Perylene-D12(IS)	13.17	264	53471	2.50000 ppb		0.01
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.15	82	26056	2.54079 ppb		0.02
Spiked Amount 5.000			Recovery	= 50.820%		
4) 2-Methylnaphthalene-D10 (2	4.73	152	71865	2.30924 ppb		0.00
Spiked Amount 5.000			Recovery	= 46.180%		
8) Surrogate Recovery (FBP)	5.22	172	44379	2.59473 ppb		0.00
Spiked Amount 5.000			Recovery	= 51.900%		
15) Fluoranthene-D10 (FRT)	9.08	212	83613	2.54276 ppb		-0.01
Spiked Amount 5.000			Recovery	= 50.860%		
19) Surrogate Recovery (TPH)	9.57	244	48140	2.46569 ppb		-0.01
Spiked Amount 5.000			Recovery	= 49.320%		
Target Compounds						Qvalue
3) Naphthalene	3.96	128	166347	5.50742 ppb		100
5) 2-Methylnaphthalene	4.77	142	93285	5.47645 ppb		99
6) 1-Methylnaphthalene	4.88	142	97940	5.20225 ppb		95
9) Acenaphthylene	5.81	152	308337	5.86764 ppb		100
10) Acenaphthene	6.00	154	80988	5.84454 ppb		95
11) Fluorene	6.62	166	102405	5.90156 ppb		98
13) Phenanthrene	7.73	178	124941	5.58986 ppb		99
14) Anthracene	7.79	178	135949	6.33196 ppb		99
16) Fluoranthene	9.10	202	216714	5.83034 ppb	#	85
18) Pyrene	9.36	202	224148	6.01133 ppb		100
20) Benz (a) anthracene	10.77	228	163145	5.34392 ppb		97
21) Chrysene	10.83	228	178767	5.75832 ppb		99
22) Indeno (1,2,3-cd) pyrene	14.67	276	183667	5.64457 ppb	#	78
24) Benzo (b) fluoranthene	12.47	252	149691	5.41359 ppb		97
25) Benzo (k) fluoranthene	12.52	252	200114	6.37715 ppb		98
26) Benzo (a) pyrene	13.08	252	160451	5.71914 ppb	#	96
27) Dibenz (a,h) anthracene	14.70	278	149199	5.70677 ppb	#	90
28) Benzo (g,h,i) perylene	15.04	276	143707	5.35756 ppb		96

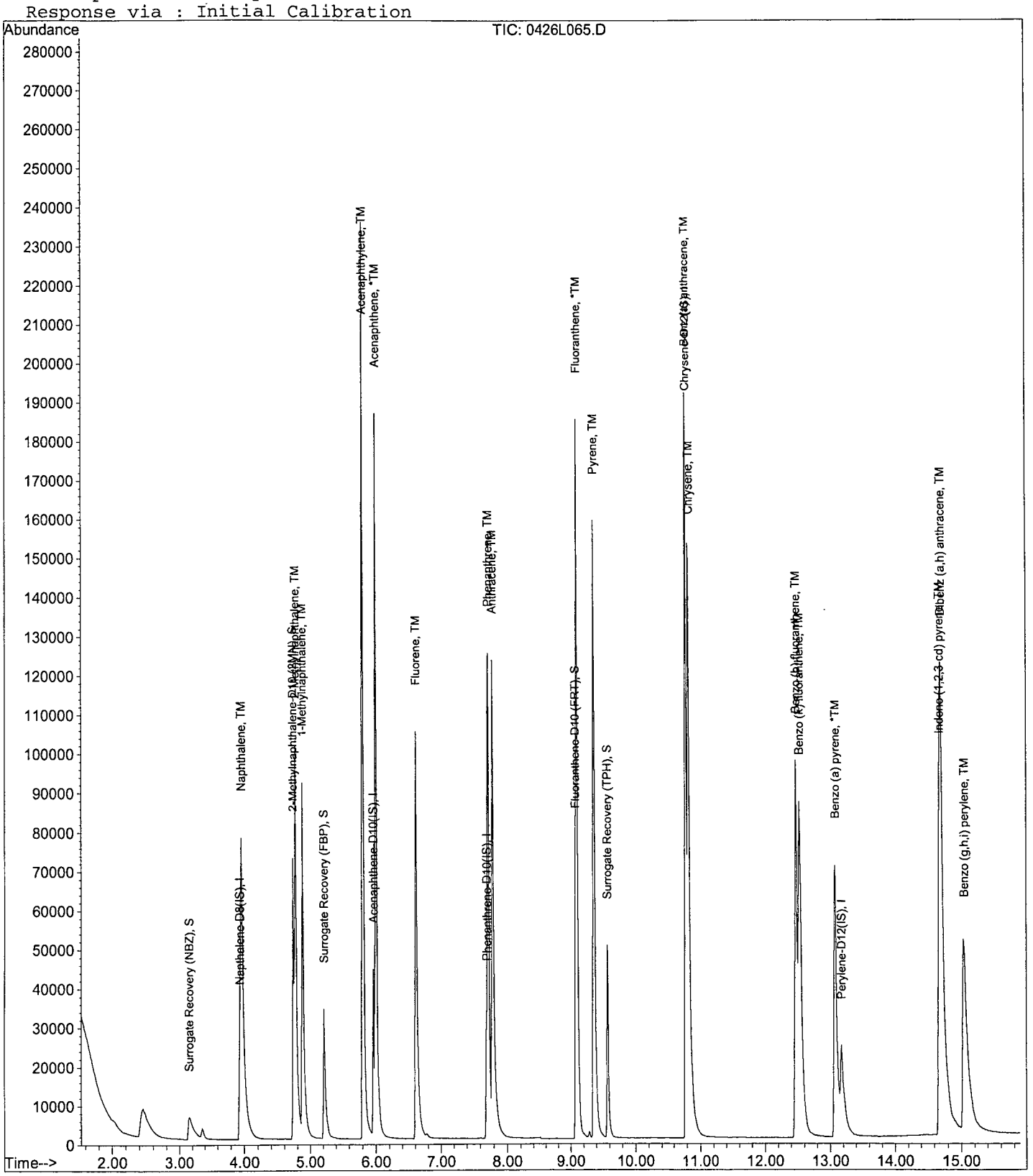
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L065.D Vial: 65
Acq On : 8 May 19 13:07 Operator: MA,SS
Sample : 5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: May 8 13:36 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



ORGANICS
Raw Data

Quantitation Report (QT Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L044.D Vial: 44
Acq On : 2 May 19 17:19 Operator: MA,SS
Sample : AZ90213W21 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 3 10:55 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Napthalene-D8(IS)	3.94	136	39058	2.50000 ppb	0.00
7) Acenaphthene-D10(IS)	5.96	164	17215	2.50000 ppb	-0.01
12) Phenanthrene-D10(IS)	7.70	188	31896	2.50000 ppb	0.00
17) Chrysene-D12(IS)	10.80	240	47241	2.50000 ppb	0.01
23) Perylene-D12(IS)	13.18	264	41917	2.50000 ppb	0.02
System Monitoring Compounds					
2) Surrogate Recovery (NBZ)	3.10	82	683810	122.66077 ppb	-0.02
Spiked Amount 6.250			Recovery	= 1962.576%	
4) 2-Methylnaphthalene-D10 (2	4.73	152	104270	6.16339 ppb	0.00
Spiked Amount 6.250			Recovery	= 98.608%	
8) Surrogate Recovery (FBP)	5.20	172	1044100	102.98298 ppb	-0.01
Spiked Amount 6.250			Recovery	= 1647.728%	
15) Fluoranthene-D10 (FRT)	9.08	212	128691	5.89756 ppb	-0.01
Spiked Amount 6.250			Recovery	= 94.368%	
19) Surrogate Recovery (TPH)	9.57	244	1139972	85.12283 ppb	-0.01
Spiked Amount 6.250			Recovery	= 1361.968%	

Target Compounds Qvalue

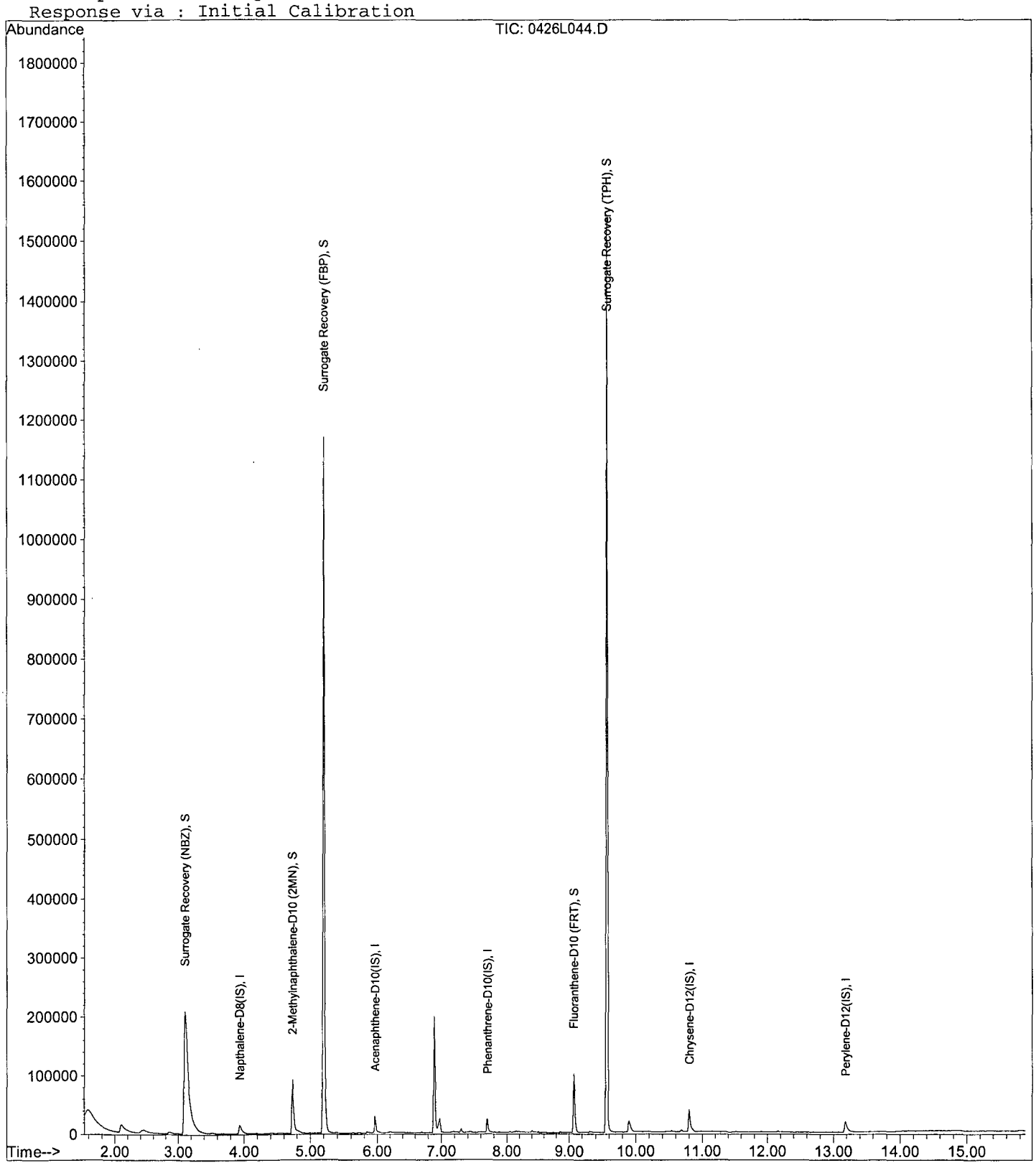
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L044.D Vial: 44
Acq On : 2 May 19 17:19 Operator: MA,SS
Sample : AZ90213W21 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 3 10:55 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L045.D Vial: 45
Acq On : 2 May 19 17:42 Operator: MA,SS
Sample : AZ90215W18 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 3 10:55 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Napthalene-D8(IS)	3.95	136	41401	2.50000 ppb	0.01
7) Acenaphthene-D10(IS)	5.98	164	18623	2.50000 ppb	0.00
12) Phenanthrene-D10(IS)	7.71	188	34468	2.50000 ppb	0.01
17) Chrysene-D12(IS)	10.82	240	52944	2.50000 ppb	0.02
23) Perylene-D12(IS)	13.20	264	51744	2.50000 ppb	0.03
System Monitoring Compounds					
2) Surrogate Recovery (NBZ)	3.13	82	101535	17.18245 ppb	0.00
Spiked Amount 6.250			Recovery	= 274.912%	
4) 2-Methylnaphthalene-D10 (2	4.76	152	15307	0.85359 ppb	0.02
Spiked Amount 6.250			Recovery	= 13.664%	
8) Surrogate Recovery (FBP)	5.20	172	171700	15.65493 ppb	-0.01
Spiked Amount 6.250			Recovery	= 250.480%	
15) Fluoranthene-D10 (FRT)	9.11	212	20218	0.85740 ppb	0.02
Spiked Amount 6.250			Recovery	= 13.712%	
19) Surrogate Recovery (TPH)	9.57	244	184532	12.29493 ppb	-0.01
Spiked Amount 6.250			Recovery	= 196.720%	

Target Compounds Qvalue

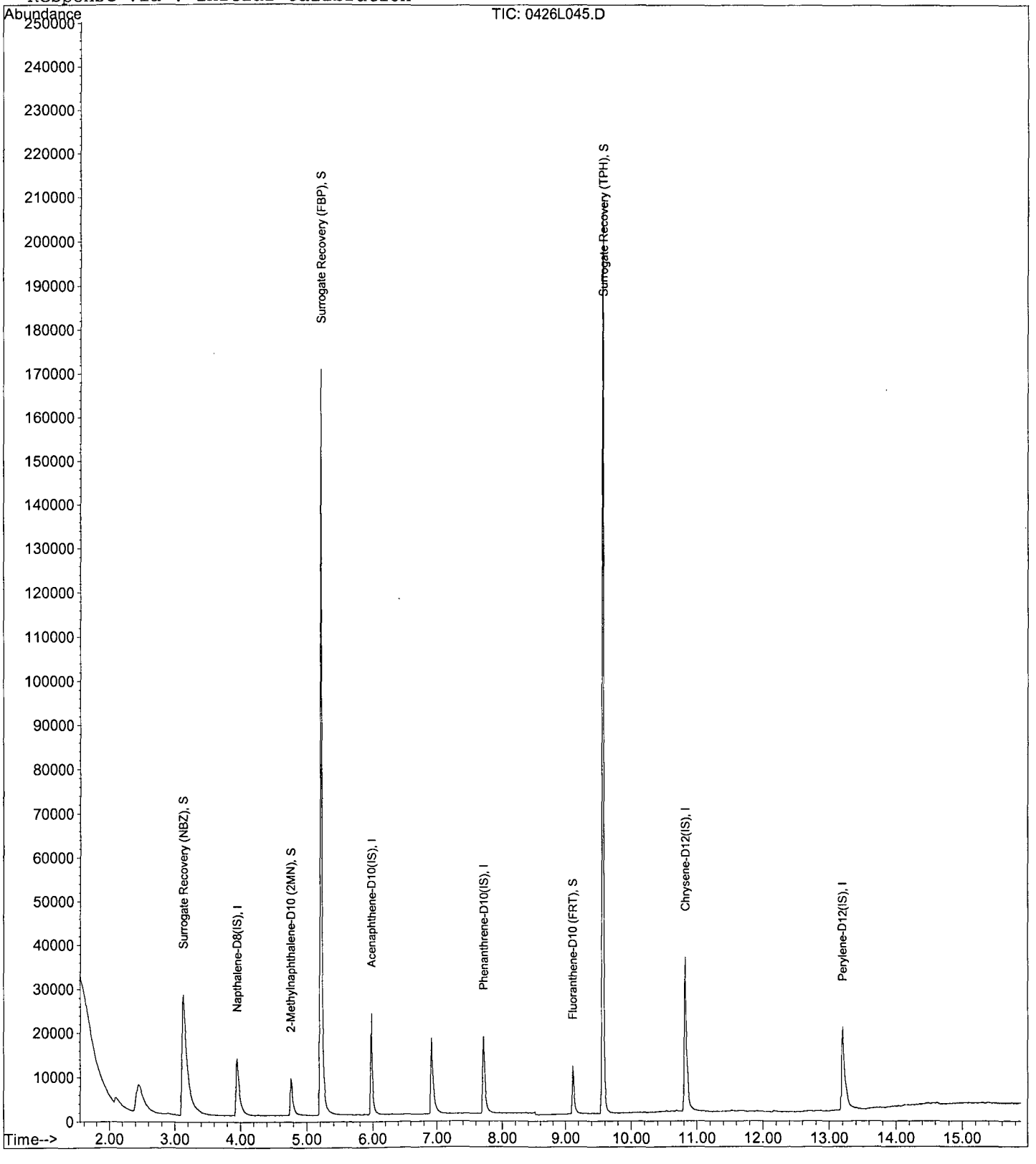
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L045.D Vial: 45
Acq On : 2 May 19 17:42 Operator: MA,SS
Sample : AZ90215W18 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 3 10:55 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L063.D Vial: 63
Acq On : 8 May 19 12:23 Operator: MA,SS
Sample : AZ90215W19 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 8 12:44 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Napthalene-D8(IS)	3.94	136	45863	2.50000 ppb	0.00
7) Acenaphthene-D10(IS)	5.96	164	20020	2.50000 ppb	-0.01
12) Phenanthrene-D10(IS)	7.70	188	33557	2.50000 ppb	0.00
17) Chrysene-D12(IS)	10.80	240	44685	2.50000 ppb	0.01
23) Perylene-D12(IS)	13.20	264	42473	2.50000 ppb	0.03
System Monitoring Compounds					
2) Surrogate Recovery (NBZ)	3.10	82	716781	109.49751 ppb	-0.02
Spiked Amount 6.250			Recovery	= 1751.968%	
4) 2-Methylnaphthalene-D10 (2	4.73	152	99138	4.99055 ppb	0.00
Spiked Amount 6.250			Recovery	= 79.856%	
8) Surrogate Recovery (FBP)	5.20	172	1091096	92.53996 ppb	-0.01
Spiked Amount 6.250			Recovery	= 1480.640%	
15) Fluoranthene-D10 (FRT)	9.09	212	124506	5.42335 ppb	0.00
Spiked Amount 6.250			Recovery	= 86.768%	
19) Surrogate Recovery (TPH)	9.57	244	1202624	94.93778 ppb	-0.01
Spiked Amount 6.250			Recovery	= 1519.008%	

Target Compounds Qvalue

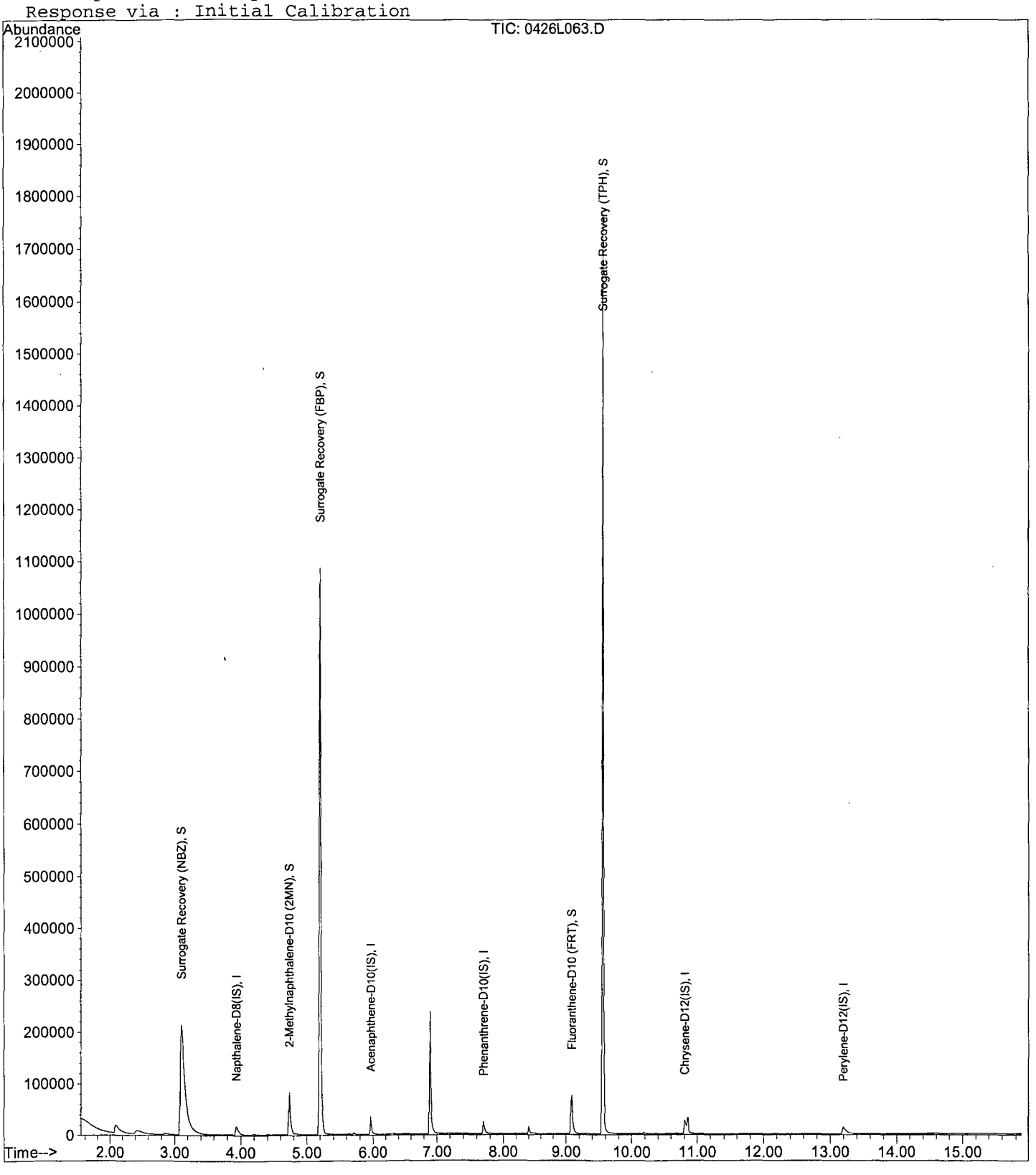
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L063.D Vial: 63
Acq On : 8 May 19 12:23 Operator: MA,SS
Sample : AZ90215W19 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 8 12:44 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L031.D Vial: 31
Acq On : 2 May 19 12:16 Operator: MA
Sample : 190430A BLK 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 2 14:20 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Napthalene-D8(IS)	3.94	136	66235	2.50000 ppb	0.00
7) Acenaphthene-D10(IS)	5.96	164	26500	2.50000 ppb	-0.01
12) Phenanthrene-D10(IS)	7.70	188	46178	2.50000 ppb	0.00
17) Chrysene-D12(IS)	10.80	240	70364	2.50000 ppb	0.01
23) Perylene-D12(IS)	13.20	264	60724	2.50000 ppb	0.03
System Monitoring Compounds					
2) Surrogate Recovery (NBZ)	3.10	82	775785	82.06048 ppb	-0.02
Spiked Amount 6.250			Recovery	= 1312.960%	
4) 2-Methylnaphthalene-D10 (2	4.73	152	110144	3.83923 ppb	0.00
Spiked Amount 6.250			Recovery	= 61.424%	
8) Surrogate Recovery (FBP)	5.20	172	1108583	71.03179 ppb	-0.01
Spiked Amount 6.250			Recovery	= 1136.512%	
15) Fluoranthene-D10 (FRT)	9.09	212	153492	4.85860 ppb	0.00
Spiked Amount 6.250			Recovery	= 77.744%	
19) Surrogate Recovery (TPH)	9.57	244	1282491	64.29464 ppb	-0.01
Spiked Amount 6.250			Recovery	= 1028.720%	

Target Compounds Qvalue

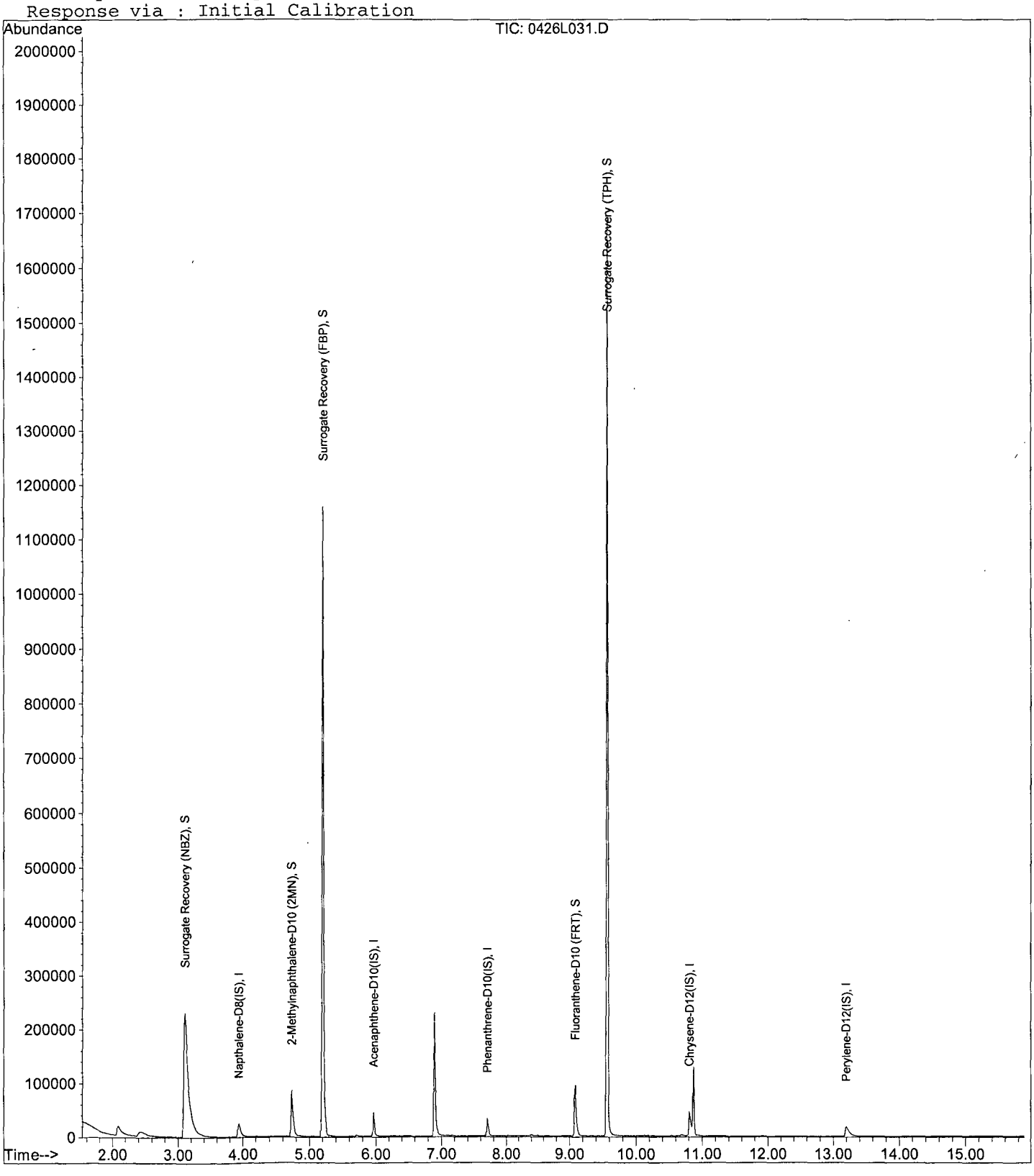
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L031.D Vial: 31
Acq On : 2 May 19 12:16 Operator: MA
Sample : 190430A BLK 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 2 14:20 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L057.D Vial: 57
Acq On : 8 May 19 10:09 Operator: MA,SS
Sample : 190506A BLK 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 8 10:59 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Napthalene-D8(IS)	3.94	136	52108	2.50000 ppb	0.00
7) Acenaphthene-D10(IS)	5.96	164	20864	2.50000 ppb	-0.01
12) Phenanthrene-D10(IS)	7.70	188	35674	2.50000 ppb	0.00
17) Chrysene-D12(IS)	10.82	240	48821	2.50000 ppb	0.02
23) Perylene-D12(IS)	13.21	264	45724	2.50000 ppb	0.04
System Monitoring Compounds					
2) Surrogate Recovery (NBZ)	3.10	82	782278	105.18092 ppb	-0.02
Spiked Amount 6.250			Recovery	= 1682.896%	
4) 2-Methylnaphthalene-D10 (2	4.73	152	100740	4.46342 ppb	0.00
Spiked Amount 6.250			Recovery	= 71.408%	
8) Surrogate Recovery (FBP)	5.19	172	1077009	87.65005 ppb	-0.02
Spiked Amount 6.250			Recovery	= 1402.400%	
15) Fluoranthene-D10 (FRT)	9.08	212	123948	5.07865 ppb	-0.01
Spiked Amount 6.250			Recovery	= 81.264%	
19) Surrogate Recovery (TPH)	9.57	244	1181806	85.39068 ppb	-0.01
Spiked Amount 6.250			Recovery	= 1366.256%	

Target Compounds Qvalue

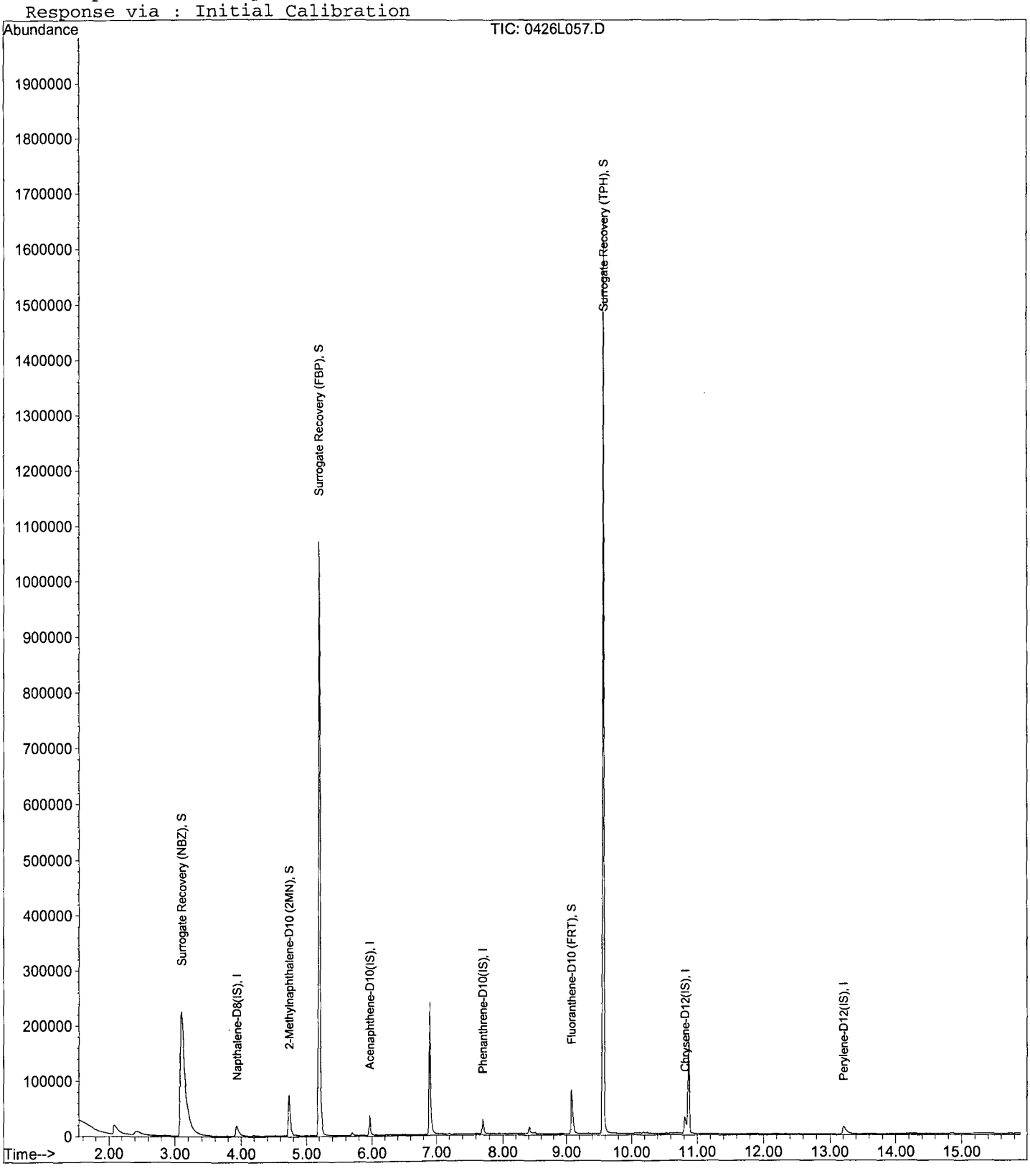
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L057.D Vial: 57
Acq On : 8 May 19 10:09 Operator: MA,SS
Sample : 190506A BLK 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 8 10:59 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L032.D Vial: 32
Acq On : 2 May 19 12:39 Operator: MA
Sample : 190430A LCS-2 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 2 16:03 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	66824	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.96	164	27543	2.50000 ppb		-0.01
12) Phenanthrene-D10(IS)	7.69	188	47183	2.50000 ppb		-0.01
17) Chrysene-D12(IS)	10.78	240	69956	2.50000 ppb		-0.01
23) Perylene-D12(IS)	13.17	264	64347	2.50000 ppb		0.01
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	0.00	82	0	0.00000 ppb		
Spiked Amount 6.250			Recovery	= 0.000%		
4) 2-Methylnaphthalene-D10 (2	4.73	152	109489	3.78276 ppb		0.00
Spiked Amount 6.250			Recovery	= 60.528%		
8) Surrogate Recovery (FBP)	5.23	172	1645	0.10141 ppb		0.01
Spiked Amount 6.250			Recovery	= 1.616%		
15) Fluoranthene-D10 (FRT)	9.08	212	147601	4.57261 ppb		-0.01
Spiked Amount 6.250			Recovery	= 73.168%		
19) Surrogate Recovery (TPH)	9.58	244	2975	0.15001 ppb		0.00
Spiked Amount 6.250			Recovery	= 2.400%		
Target Compounds						Qvalue
3) Naphthalene	3.96	128	108791	3.87269 ppb		99
5) 2-Methylnaphthalene	4.77	142	64535	4.07352 ppb		99
6) 1-Methylnaphthalene	4.88	142	65794	3.75755 ppb		97
9) Acenaphthylene	5.81	152	210541	4.22453 ppb		100
10) Acenaphthene	6.00	154	58172	4.42637 ppb		99
11) Fluorene	6.60	166	75364	4.57945 ppb		94
13) Phenanthrene	7.71	178	95481	4.35167 ppb		97
14) Anthracene	7.79	178	89280	4.23604 ppb		99
16) Fluoranthene	9.10	202	160222	4.39109 ppb	#	89
18) Pyrene	9.36	202	161544	4.26520 ppb		98
20) Benz (a) anthracene	10.77	228	124931	4.02874 ppb		98
21) Chrysene	10.83	228	130832	4.14892 ppb		99
22) Indeno (1,2,3-cd) pyrene	14.69	276	130097	3.93623 ppb	#	78
24) Benzo (b) fluoranthene	12.48	252	98710	3.70810 ppb		99
25) Benzo (k) fluoranthene	12.53	252	154328	5.10850 ppb		99
26) Benzo (a) pyrene	13.08	252	108546	4.01885 ppb	#	95
27) Dibenz (a,h) anthracene	14.71	278	106593	4.23500 ppb	#	93
28) Benzo (g,h,i) perylene	15.04	276	106789	4.13538 ppb		95

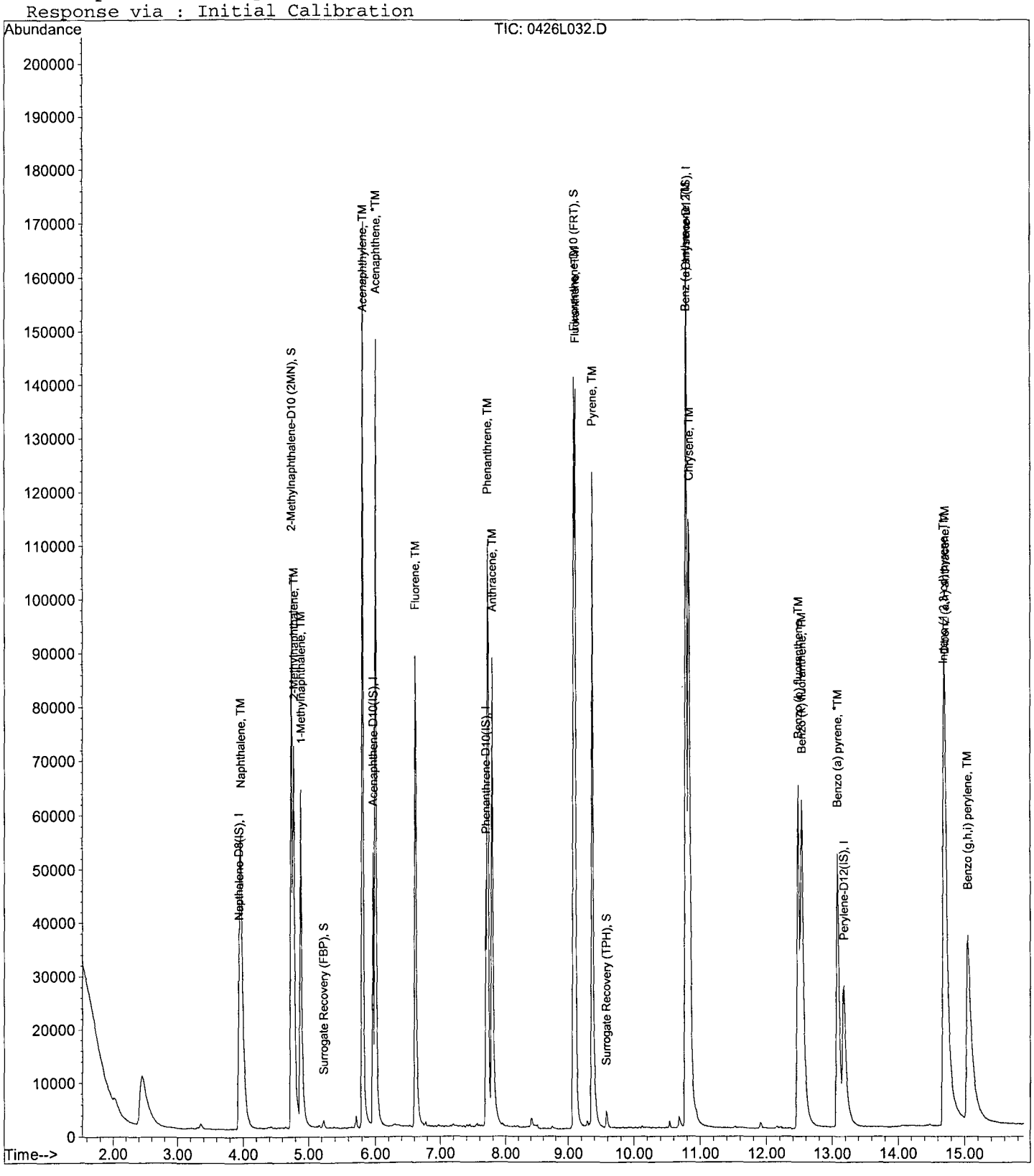
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L032.D Vial: 32
Acq On : 2 May 19 12:39 Operator: MA
Sample : 190430A LCS-2 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 2 16:03 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L033.D Vial: 33
Acq On : 2 May 19 13:01 Operator: MA
Sample : 190430A LCSD-2 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 2 16:03 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	62257	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.96	164	24694	2.50000 ppb		-0.01
12) Phenanthrene-D10(IS)	7.69	188	47014	2.50000 ppb		-0.01
17) Chrysene-D12(IS)	10.78	240	67213	2.50000 ppb		-0.01
23) Perylene-D12(IS)	13.17	264	65915	2.50000 ppb		0.01
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.10	82	21	0.00236 ppb		-0.02
Spiked Amount 6.250			Recovery	= 0.032%		
4) 2-Methylnaphthalene-D10 (2	4.73	152	108869	4.03726 ppb		0.00
Spiked Amount 6.250			Recovery	= 64.592%		
8) Surrogate Recovery (FBP)	5.22	172	57	0.00392 ppb		0.00
Spiked Amount 6.250			Recovery	= 0.064%		
15) Fluoranthene-D10 (FRT)	9.08	212	145464	4.52261 ppb		-0.01
Spiked Amount 6.250			Recovery	= 72.368%		
19) Surrogate Recovery (TPH)	9.60	244	183	0.00960 ppb		0.02
Spiked Amount 6.250			Recovery	= 0.160%		
Target Compounds						Qvalue
3) Naphthalene	3.96	128	111857	4.27393 ppb		99
5) 2-Methylnaphthalene	4.77	142	63946	4.33243 ppb		97
6) 1-Methylnaphthalene	4.88	142	64789	3.97158 ppb		95
9) Acenaphthylene	5.81	152	200847	4.49497 ppb		99
10) Acenaphthene	6.00	154	53185	4.51380 ppb		97
11) Fluorene	6.60	166	72947	4.94398 ppb		95
13) Phenanthrene	7.71	178	93925	4.29614 ppb		98
14) Anthracene	7.79	178	89089	4.24217 ppb		100
16) Fluoranthene	9.10	202	157943	4.34419 ppb	#	89
18) Pyrene	9.36	202	159554	4.38458 ppb		99
20) Benz (a) anthracene	10.77	228	126136	4.23360 ppb		98
21) Chrysene	10.83	228	125427	4.13984 ppb		99
22) Indeno (1,2,3-cd) pyrene	14.68	276	129675	4.08358 ppb	#	77
24) Benzo (b) fluoranthene	12.48	252	101021	3.70464 ppb		100
25) Benzo (k) fluoranthene	12.53	252	148368	4.79439 ppb		98
26) Benzo (a) pyrene	13.08	252	108084	3.90655 ppb	#	95
27) Dibenz (a,h) anthracene	14.71	278	105877	4.10648 ppb	#	93
28) Benzo (g,h,i) perylene	15.04	276	105799	3.99959 ppb		95

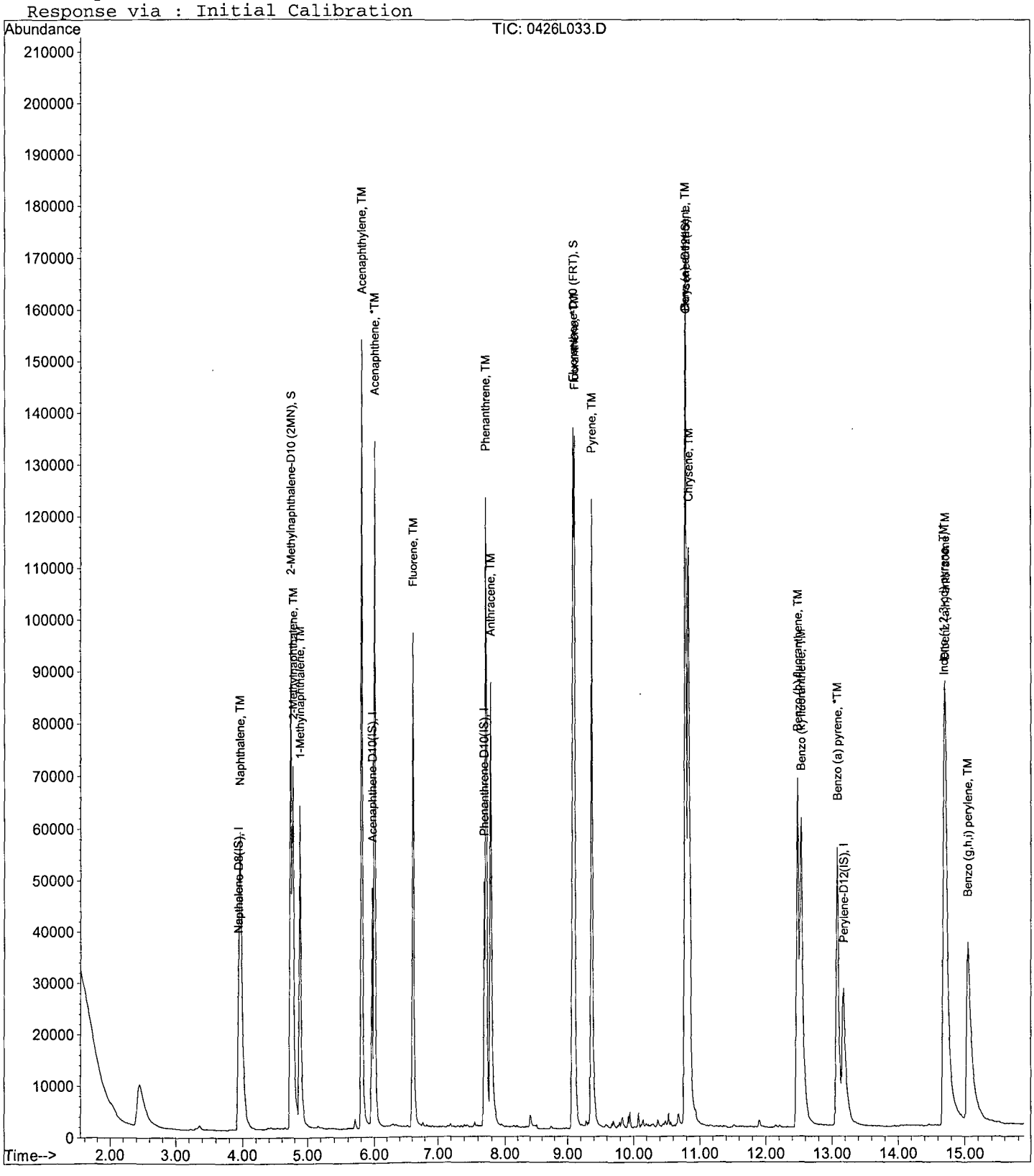
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L033.D Vial: 33
Acq On : 2 May 19 13:01 Operator: MA
Sample : 190430A LCSD-2 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 2 16:03 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L058.D Vial: 58
Acq On : 8 May 19 10:31 Operator: MA,SS
Sample : 190506A LCS-2 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 8 11:00 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	53850	2.50000	ppb		0.00
7) Acenaphthene-D10(IS)	5.96	164	21067	2.50000	ppb		-0.01
12) Phenanthrene-D10(IS)	7.69	188	36440	2.50000	ppb		-0.01
17) Chrysene-D12(IS)	10.78	240	52874	2.50000	ppb		-0.01
23) Perylene-D12(IS)	13.17	264	28992	2.50000	ppb		0.01
System Monitoring Compounds							
2) Surrogate Recovery (NBZ)	0.00	82	0	0.00000	ppb		
Spiked Amount 6.250			Recovery = 0.000%				
4) 2-Methylnaphthalene-D10 (2	4.73	152	98461	4.22133	ppb		0.00
Spiked Amount 6.250			Recovery = 67.536%				
8) Surrogate Recovery (FBP)	5.23	172	71	0.00572	ppb		0.01
Spiked Amount 6.250			Recovery = 0.096%				
15) Fluoranthene-D10 (FRT)	9.07	212	126896	5.09015	ppb		-0.02
Spiked Amount 6.250			Recovery = 81.440%				
19) Surrogate Recovery (TPH)	9.58	244	655	0.04370	ppb		0.00
Spiked Amount 6.250			Recovery = 0.704%				
Target Compounds							Qvalue
3) Naphthalene	3.95	128	157405	6.95321	ppb		99
5) 2-Methylnaphthalene	4.76	142	89549	7.01426	ppb		98
6) 1-Methylnaphthalene	4.87	142	90759	6.43213	ppb		99
9) Acenaphthylene	5.79	152	241010	6.32245	ppb		99
10) Acenaphthene	6.00	154	77496	7.70942	ppb		98
11) Fluorene	6.60	166	104730	8.32011	ppb		99
13) Phenanthrene	7.71	178	133727	7.89161	ppb		99
14) Anthracene	7.79	178	88651	5.44623	ppb		100
16) Fluoranthene	9.09	202	219799	7.79979	ppb	#	80
18) Pyrene	9.36	202	207566	7.25083	ppb		97
20) Benz (a) anthracene	10.77	228	163571	6.97893	ppb		99
21) Chrysene	10.82	228	183302	7.69080	ppb	#	97
22) Indeno (1,2,3-cd) pyrene	14.67	276	173482	6.94465	ppb	#	80
24) Benzo (b) fluoranthene	12.47	252	148949	12.41874	ppb		100
25) Benzo (k) fluoranthene	12.51	252	198345	14.57204	ppb		96
26) Benzo (a) pyrene	13.08	252	111591	9.16996	ppb	#	96
27) Dibenz (a,h) anthracene	14.70	278	143804	12.68076	ppb	#	94
28) Benzo (g,h,i) perylene	15.03	276	134413	11.55263	ppb		94

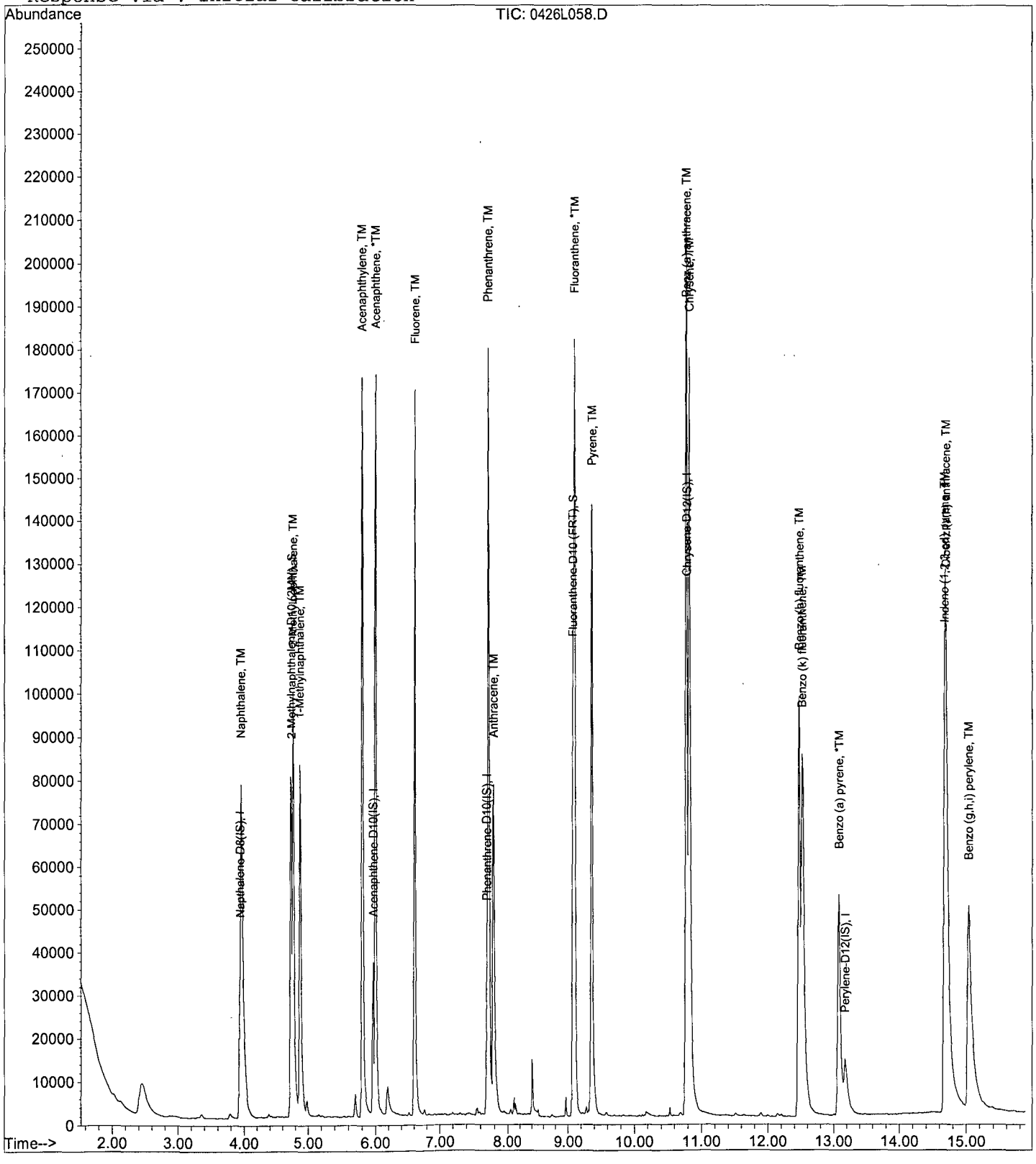
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L058.D Vial: 58
Acq On : 8 May 19 10:31 Operator: MA,SS
Sample : 190506A LCS-2 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 8 11:00 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L064.D Vial: 64
Acq On : 8 May 19 12:45 Operator: MA,SS
Sample : 190506A LCSD-2 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 8 13:17 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	58118	2.50000	ppb		0.00
7) Acenaphthene-D10(IS)	5.96	164	23779	2.50000	ppb		-0.01
12) Phenanthrene-D10(IS)	7.69	188	38671	2.50000	ppb		-0.01
17) Chrysene-D12(IS)	10.78	240	58538	2.50000	ppb		-0.01
23) Perylene-D12(IS)	13.17	264	55506	2.50000	ppb		0.01
System Monitoring Compounds							
2) Surrogate Recovery (NBZ)	3.12	82	73	0.00880	ppb		-0.01
Spiked Amount 6.250			Recovery	= 0.144%			
4) 2-Methylnaphthalene-D10 (2	4.73	152	100080	3.97564	ppb		0.00
Spiked Amount 6.250			Recovery	= 63.616%			
8) Surrogate Recovery (FBP)	5.22	172	187	0.01335	ppb		0.00
Spiked Amount 6.250			Recovery	= 0.208%			
15) Fluoranthene-D10 (FRT)	9.08	212	129289	4.88694	ppb		-0.01
Spiked Amount 6.250			Recovery	= 78.192%			
19) Surrogate Recovery (TPH)	9.59	244	691	0.04164	ppb		0.01
Spiked Amount 6.250			Recovery	= 0.672%			
Target Compounds							Qvalue
3) Naphthalene	3.96	128	159050	6.50992	ppb		100
5) 2-Methylnaphthalene	4.77	142	91413	6.63443	ppb		97
6) 1-Methylnaphthalene	4.88	142	92865	6.09807	ppb		97
9) Acenaphthylene	5.81	152	306066	7.11335	ppb		99
10) Acenaphthene	6.00	154	80847	7.12550	ppb		99
11) Fluorene	6.60	166	106224	7.47635	ppb		95
13) Phenanthrene	7.71	178	124981	6.94998	ppb		97
14) Anthracene	7.79	178	122134	7.07037	ppb		100
16) Fluoranthene	9.10	202	225905	7.55399	ppb	#	91
18) Pyrene	9.36	202	227034	7.16352	ppb		97
20) Benz (a) anthracene	10.77	228	167622	6.45978	ppb		99
21) Chrysene	10.82	228	189438	7.17919	ppb	#	96
22) Indeno (1,2,3-cd) pyrene	14.67	276	185146	6.69444	ppb	#	79
24) Benzo (b) fluoranthene	12.47	252	158728	6.91245	ppb		98
25) Benzo (k) fluoranthene	12.52	252	193377	7.42065	ppb		98
26) Benzo (a) pyrene	13.08	252	152874	6.56160	ppb	#	96
27) Dibenz (a,h) anthracene	14.70	278	152238	7.01190	ppb	#	92
28) Benzo (g,h,i) perylene	15.04	276	145769	6.54399	ppb		96

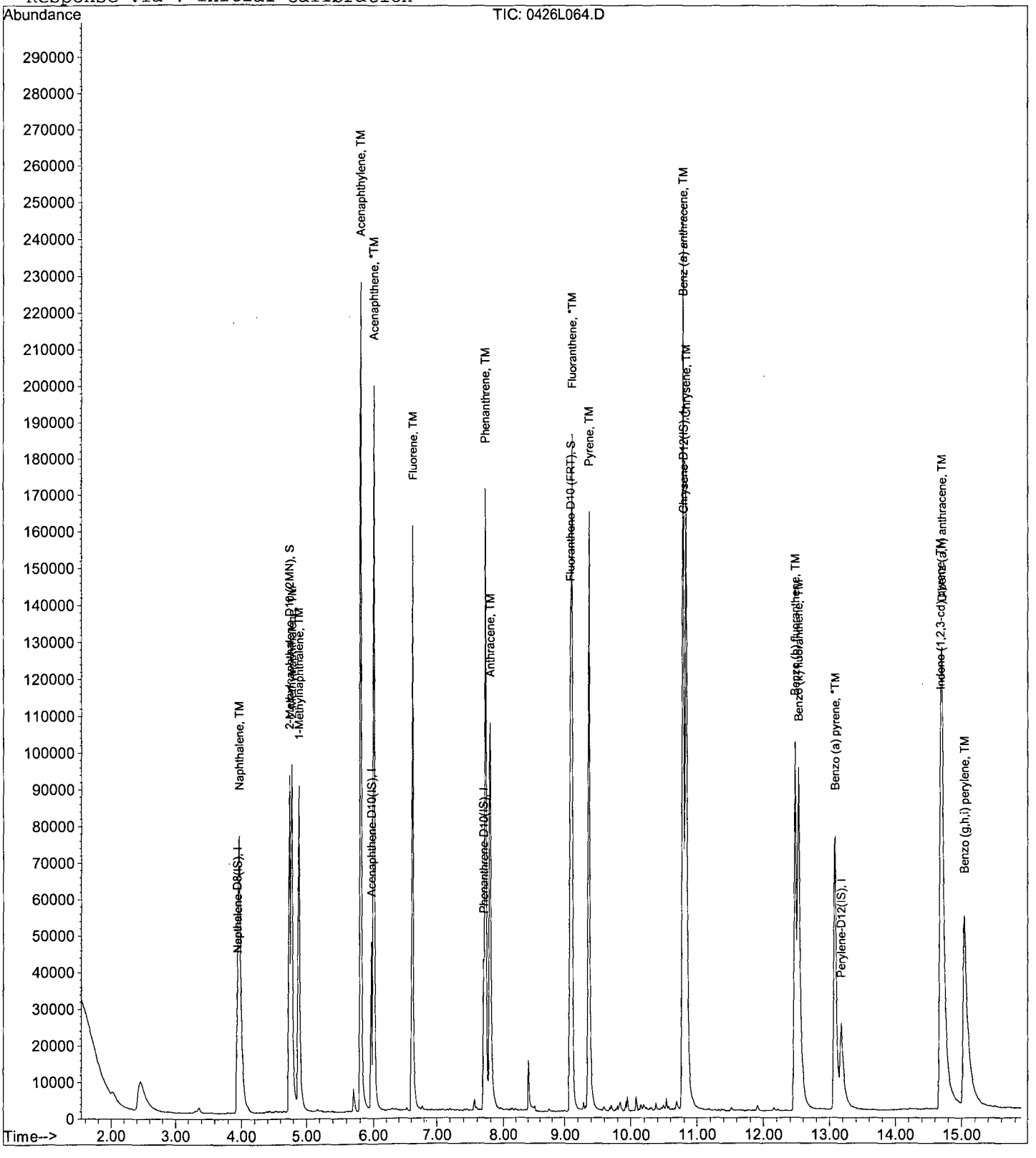
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L064.D Vial: 64
Acq On : 8 May 19 12:45 Operator: MA,SS
Sample : 190506A LCSD-2 1/800 Inst : Linus
Misc : Multiplr: 1.25

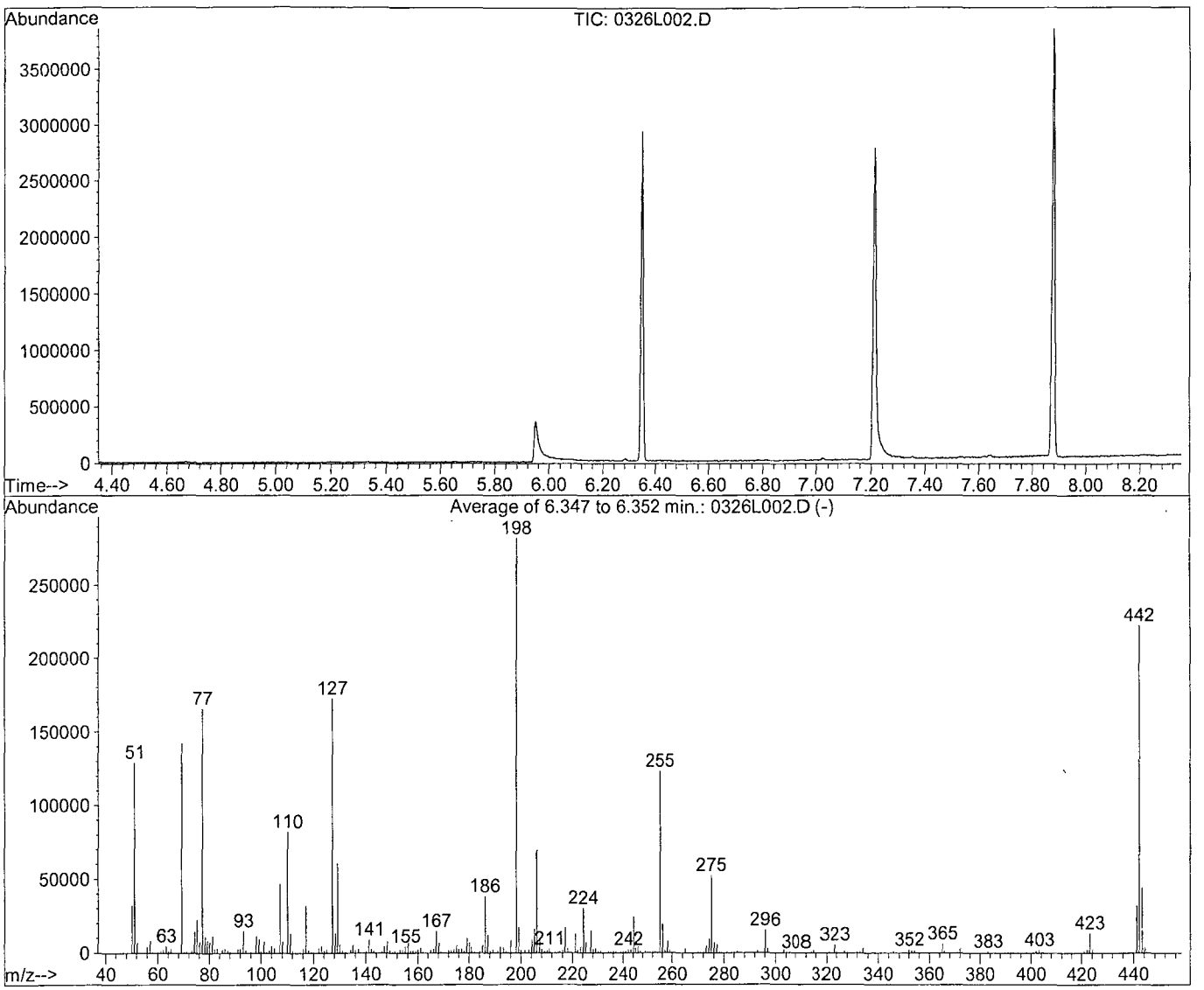
Quant Time: May 8 13:17 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



Data File : M:\LINUS\DATA\L190326\0326L002.D Vial: 2
Acq On : 26 Mar 19 9:39 Operator: MA
Sample : SV Tune 10/11/18 Inst : Linus
Misc : Multiplr: 1.00

Method : M:\LINUS\DATA\L190326\L0122.M (RTE Integrator)
Title : EPA 8270



AutoFind: Scans 1511, 1512, 1513; Background Corrected with Scan 1501

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	45.8	129276	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.4	622	PASS
127	198	10	80	61.0	172437	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	282517	PASS
199	198	5	9	6.0	17040	PASS
275	198	10	60	18.6	52443	PASS
365	198	1	100	2.2	6254	PASS
441	442	0.01	24	14.3	31867	PASS
442	198	50	150	78.8	222613	PASS
443	442	15	24	19.8	44029	PASS

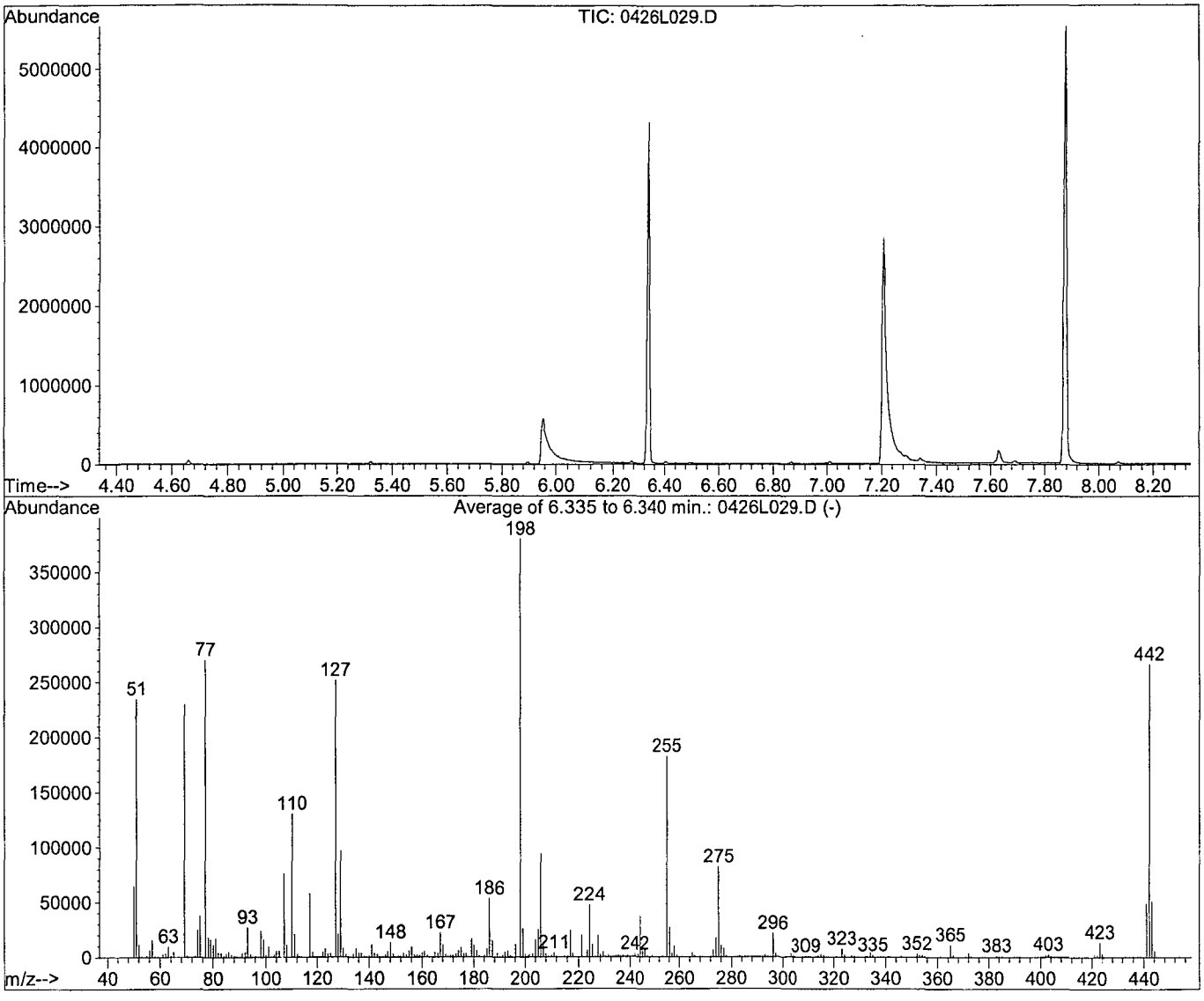
Data File Name:	**0326L002.D**
Data File Path:	**M:\LINUS\DATA\L190326**
Operator:	**MA**
Date Acquired:	**26 Mar 2019 09:39**
Method File:	**DFTPP2.M**
Sample Name:	**SV Tune 10/11/18**
Vial Number:	**2**
Instrument Name:	**Linus**

#	Name	Ret Time	Target Response
1)	DDT	7.88	26061300
2)	DDD	7.65	254374
3)	DDE	7.70	0

Breakdown **0.97**

Data File : M:\LINUS\DATA\L190426\0426L029.D Vial: 29
Acq On : 2 May 19 10:38 Operator: MA
Sample : SV Tune 10/11/18 Inst : Linus
Misc : Multiplr: 1.00

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270



AutoFind: Scans 1506, 1507, 1508; Background Corrected with Scan 1497

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	61.6	234562	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.5	1224	PASS
127	198	10	80	66.1	251541	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	380693	PASS
199	198	5	9	6.8	25973	PASS
275	198	10	60	21.5	82029	PASS
365	198	1	100	2.9	10974	PASS
441	442	0.01	24	18.3	48709	PASS
442	198	50	150	70.0	266389	PASS
443	442	15	24	19.0	50637	PASS

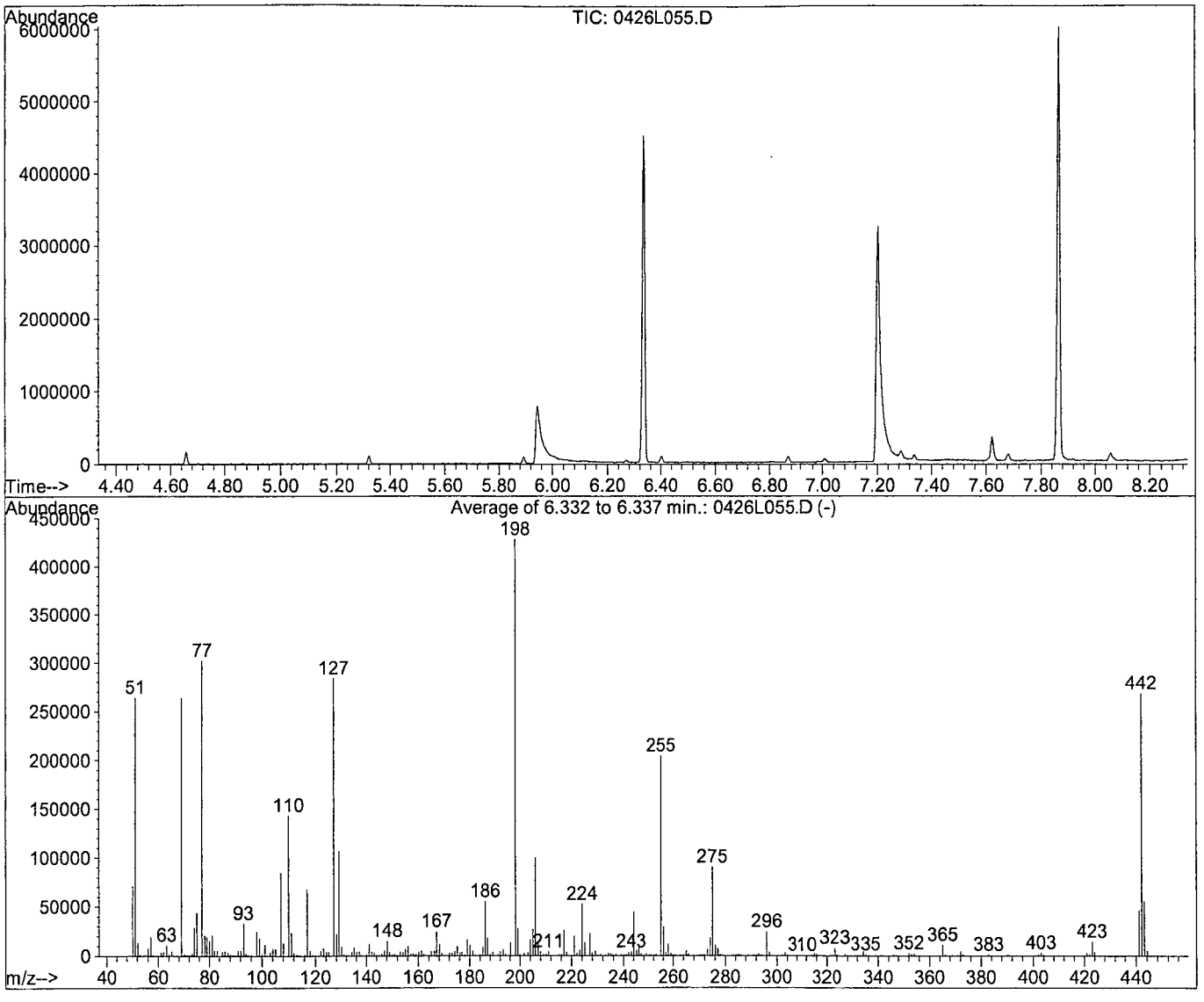
Data File Name:	**0426L029.D**
Data File Path:	**M:\LINUS\DATA\L190426**
Operator:	**MA**
Date Acquired:	**2 May 19 10:38**
Method File:	**DFTPP2.M**
Sample Name:	**SV Tune 10/11/18**
Vial Number:	**29**
Instrument Name:	**Linus**

#	Name	Ret Time	Target Response
1)	DDT	7.88	38039600
2)	DDD	7.65	1827910
3)	DDE	7.70	156818

Breakdown **4.96**

Data File : M:\LINUS\DATA\L190426\0426L055.D Vial: 55
Acq On : 8 May 19 8:42 Operator: MA,SS
Sample : SV Tune 10/11/18 Inst : Linus
Misc : Multiplr: 1.00

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270



AutoFind: Scans 1505, 1506, 1507; Background Corrected with Scan 1496

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	61.6	263916	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.6	1541	PASS
127	198	10	80	66.2	283949	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	428672	PASS
199	198	5	9	6.4	27480	PASS
275	198	10	60	21.0	89923	PASS
365	198	1	100	2.5	10876	PASS
441	442	0.01	24	17.1	45787	PASS
442	198	50	150	62.6	268437	PASS
443	442	15	24	20.6	55371	PASS

Data File Name:	**0426L055.D**
Data File Path:	**M:\LINUS\DATA\L190426**
Operator:	**MA,SS**
Date Acquired:	**8 May 19 8:42**
Method File:	**DFTPP2.M**
Sample Name:	**SV Tune 10/11/18**
Vial Number:	**55**
Instrument Name:	**Linus**

#	Name	Ret Time	Target Response
1)	DDT	7.88	42261900
2)	DDD	7.65	2939610
3)	DDE	7.70	807031

Breakdown **8.14**

Name of Final Standard	Semivolatile (SV) Tuning Solution	Prep'd By (Initials)	GA
Prep Date	10/11/18		
Exp Date	09/30/19		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Semivolatile GC/MS Tuning Standard	Ultra Scientific	GCM-150-1	1,000 ug/mL	CR3789-38879	**09/30/19**	1,250 uL	25 mL	**MC #56258**	50 ug/mL

Name of Final Standard: SIM Curve
Prep'd By (Initials): GA
Prep Date: 03/06/19
Exp Date: 06/01/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
1.0 ug/mL SIM	Phenova	1.0 ug/mL SIM	1.0 ug/mL	03/06/19	06/01/19	10 uL	100uL	MC 56258 90uL	0.1 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL
1.0 ug/mL SIM	Phenova	1.0 ug/mL SIM	1.0 ug/mL	03/06/19	06/01/19	20 uL	100uL	MC 56258 80uL	0.2 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL
5.0 ug/mL SIM	Phenova	5.0 ug/mL SIM	5.0 ug/mL	03/06/19	06/01/19	10 uL	100uL	MC 56258 90uL	0.5 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL
5.0 ug/mL SIM	APPL	5.0 ug/mL SIM	5.0 ug/mL	03/06/19	06/01/19	20 uL	100uL	MC 56258 80 uL	1.0 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL
PAH SIM STOCK	Phenova	PAH SIM STOCK	200 ug/mL	12/28/18	12/28/19	5 uL	200uL	MC 56258 190 uL	5.0 ug/mL
Sim 2S Surrogate	Restek	SIM 2S SURR	100 ug/mL	06/07/18	06/01/19	5 uL	*	*	2.5 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	4 uL	*	*	2.5ug/mL
PAH SIM STOCK	Phenova	PAH SIM STOCK	200 ug/mL	12/28/18	12/28/19	5 uL	100 uL	MC 56258 90 uL	10 ug/mL
Sim 2S Surrogate	APPL	SIM 2S SURROGATE	100 ug/mL	06/07/18	06/01/19	5 uL	*	*	5 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL
PAH SIM STOCK	Phenova	PAH SIM STOCK	200 ug/mL	12/28/18	12/28/19	25 uL	100uL	MC 56258 50 uL	50 ug/mL
Sim 2S Surrogate	Restek	SIM 2S SURROGATE	100 ug/mL	06/07/18	06/01/19	25 uL	*	*	25 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL
PAH SIM STOCK	Phenova	PAH SIM STOCK	200 ug/mL	12/28/18	12/28/19	50 uL	100uL	na	100 ug/mL
Sim 2S Surrogate	Restek	SIM 2S SURROGATE	100 ug/mL	06/07/18	06/01/19	50 uL	*	*	50 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL

Name of Final Standard: 8270 PAH SIM Second Source
Prep'd By (Initials): GA
Prep Date: 03/06/19
Exp Date: 11/06/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
PAH SIM SS Stock	Phenova	AL0-130490	200 ug/mL	12/28/18	12/28/19	5 uL	200uL	MC 56258 195uL	5 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	4 uL	*	*	2.5ug/mL

Name of Final Standard: **SIM Curve** Prep'd By (Initials): GA

Prep Date: 01/18/19

Exp Date: 06/01/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
1.0 ug/mL SIM	Phenova	1.0 ug/mL SIM	1.0 ug/mL	01/18/19	06/01/19	10 uL	100uL	MC 56258 90uL	0.1 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL
1.0 ug/mL SIM	Phenova	1.0 ug/mL SIM	1.0 ug/mL	01/18/19	06/01/19	20 uL	100uL	MC 56258 80uL	0.2 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL
5.0 ug/mL SIM	Phenova	5.0 ug/mL SIM	5.0 ug/mL	01/18/19	06/01/19	10 uL	100uL	MC 56258 90uL	0.5 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL
5.0 ug/mL SIM	APPL	5.0 ug/mL SIM	5.0 ug/mL	01/18/19	06/01/19	20 uL	100uL	MC 56258 80 uL	1.0 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL
PAH SIM STOCK	Phenova	PAH SIM STOCK	200 ug/mL	CL13117-40078	12/28/19	5 uL	200uL	MC 56258 190 uL	5.0 ug/mL
SIM 2S SURROGATE	Restek	SIM 2S SURR	100 ug/mL	06/07/18	06/01/19	5 uL	*	*	5.0 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	4 uL	*	*	2.5ug/mL
PAH SIM STOCK	Phenova	PAH SIM STOCK	200 ug/mL	CL13117-40078	12/28/19	5 uL	100 uL	MC 56258 90 uL	10 ug/mL
SIM 2S SURROGATE	APPL	SIM 2S SURROGATE	100 ug/mL	06/07/18	06/01/19	5 uL	*	*	10 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL
PAH SIM STOCK	Phenova	PAH SIM STOCK	200	CL13117-40078	12/28/19	25 uL	100uL	MC 56258 50 uL	50 ug/mL
SIM 2S SURROGATE	Restek	SIM 2S SURROGATE	100 ug/mL	06/07/18	06/01/19	25 uL	*	*	50 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL
PAH SIM STOCK	Phenova	PAH SIM STOCK	200 ug/mL	CL13117-40078	12/28/19	50 uL	100uL	na	100 ug/mL
SIM 2S SURROGATE	Restek	SIM 2S SURROGATE	100 ug/mL	06/07/18	06/01/19	50 uL	*	*	100 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL

Name of Final Standard: **8270 PAH SIM Second Source** Prep'd By (Initials): GA

Prep Date: 01/18/19

Exp Date: 06/01/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
PAH SIM SS Stock	Phenova	AL0-130490	200 ug/mL	CL13121 - 40082	12/28/19	5 uL	200uL	MC 56258 195uL	5 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	4 uL	*	*	2.5ug/mL

Name of Final Standard **SIM 2S Surrogate** **Prep'd By (Initials)** **GA**

Prep Date **06/07/18**
Exp Date **06/01/19**

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
SIM Surrogate Mix	Restek	33913	2000 ug/mL	**A0131716-38553 & 38554**	**06/01/19 06/07/19**	250 uL	5 mL	**Acetone #030817A**	100 ug/mL
8270 B/N surrog mix	Restek	31086	5000 ug/mL	**A0135243-39162**	**06/04/19**	100 uL	*	*	*

Name of Final Standard 8270 SIM PAH Internal Standard **Prep'd By (Initials)** GA

Prep Date 11/06/18

Exp Date 11/06/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
SV Internal Standard	Restek	31206	2000 ug/mL	**A0130603-38560**	**11/06/19**	350 uL	5,600 uL	**MC 56258 5,250 uL**	125 ug/mL

Name of Final Standard PAH SIM Spike (Ampules) **Prep'd By (Initials)** OA

Prep Date 12/17/18

Exp Date 12/17/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
8270D PAH SIM	O2SI	110780-01	200 ug/mL	**353450-39730**	**12/17/19**	1 mL	1 mL	**NA**	200ug/mL

Name of Final Standard **SIM Surrogate** **Prep'd By (Initials)**

Prep Date **03/25/19**
Exp Date **01/24/20**

Initial Standard Information						Final Standard		
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Sim Surrogate Deuterated	Restek	33913	2000 ug/mL	**A0131716 - 38554 A0137718 - 39318**	**06/07/19 01/24/20**	1250 uL	**Acetone #101717I**	100 ug/mL

Name of Final Standard **PAH SIM Spike (Ampules)** **Prep'd By (Initials)** **OA**

Prep Date **02/22/19**
Exp Date **02/22/20**

Initial Standard Information						Final Standard		
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Standard Conc (range)
8270D PAH SIM	O2SI	110780-01	200 ug/mL	**355613-39771**	**02/22/20**	1 mL	1 mL	200ug/mL

Organic Extraction Worksheet

Method	Continuous Liquid/Liquid SVOC 3520C	Extraction Set	190430A	Extraction Method	LIQ003	Units	mL

Spiked ID 1	8270T Spike 4-12-19 exp 10-20-19		Surrogate ID 1	8270 Surrogate 4-10-19 exp 3-15-20	
Spiked ID 2	Sim Spike 3-20-19 exp 3-20-20		Surrogate ID 2	SIM Surrogate 3-25-19 exp 3-25-20	
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	YES	
Spiked ID 7			Ext. Start Time:	04/30/19 13:10, 05/01/19 11:30	
Spiked ID 8			Ext. End Time:	05/01/19 7:45, 05/02/19 05:45, 11:10	
			GC Requires Extract By:	05/02/19 0:00	

pH1	2	4/30/19 10:35:00 AM	Water Bath Temp Criteria	71,70 °C
pH2	14	5/01/19 11:10:00 AM		
pH3				

Spiked By: KY **Date** 04/30/19 **Witnessed By:** DL **Date** 04/30/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
1	190430A Blk				1,0.050	1,2	800	1	2/1	04/30/19 10:25	
						equip	e-hp51 E-WB6				
2	190430A LCS-1		0.250	1	1	1	800	1	2/1	04/30/19 10:25	
						equip	e-hp50 E-WB6				
3	190430A LCS-2		0.0250	2	0.050	2	800	1	2/1	04/30/19 10:25	
						equip	E-HP48 E-WB6				
4	190430A LCSD-1		0.250	1	1	1	800	1	2/1	04/30/19 10:25	
						equip	E-HP49 E-WB6				
5	190430A LCSD-2		0.0250	2	0.050	2	800	1	2/1	04/30/19 10:25	
						equip	E-HP47 E-WB6				
6	AZ90100	AZ90100W21			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88714
						equip	E-HP25 E-WB6				
7	AZ90102	AZ90102W22			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88714
						equip	E-HP26 E-WB5				
8	AZ90103	AZ90103W08			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88714
						equip	E-HP27 E-WB5				
9	AZ90105	AZ90105W21			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88714
						equip	E-HP28 E-WB5				
10	AZ90107	AZ90107W18			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88714
						equip	E-HP29 E-WB5				
11	AZ90109	AZ90109W21			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88714
						equip	E-HP30 E-WB5				
12	AZ90121 MS-1	AZ90121W22	0.250	1	1	1	800	1	2/1	04/30/19 10:25	88712
						equip	E-HP16 E-WB6				
13	AZ90121 MSD-1	AZ90121W19	0.250	1	1	1	800	1	2/1	04/30/19 10:25	88712
						equip	E-HP15 E-WB6				
14	AZ90121 MS-2	AZ90121W23	0.0250	2	0.050	2	800	1	2/1	04/30/19 10:25	88712
						equip	E-HP14 E-WB6				
15	AZ90121 MSD-2	AZ90121W20	0.0250	2	0.050	2	800	1	2/1	04/30/19 10:25	88712
						equip	E-HP13 E-WB6				
16	AZ90121	AZ90121W24			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88712
						equip	E-HP17 E-WB6				

Solvent and Lot#	
PH Strips	HC857466
Dichloromethane (DCM)	58240
1+1 H2SO4	4-22-19
10N NaOH	4-22-19
Filter Paper	400148
Acidified Na2SO4	2-28-19
B. Na2SO4	18D105205

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	SS
Date	5/2/19
Time	11:40
Refrigerator	GC-C

	Technician's Initials
Scanned By	DL
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	05/02/19 12:10:32 PM

Reviewed By: KY **Date** 5/2/19

Organic Extraction Worksheet

Method	Continuous Liquid/Liquid SVOC 3520C	Extraction Set	190430A	Extraction Method	LIQ003	Units	mL

Spiked ID 1	8270T Spike 4-12-19 exp 10-20-19		Surrogate ID 1	8270 Surrogate 4-10-19 exp 3-15-20	
Spiked ID 2	Sim Spike 3-20-19 exp 3-20-20		Surrogate ID 2	SIM Surrogate 3-25-19 exp 3-25-20	
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	YES	
Spiked ID 7			Ext. Start Time:	04/30/19 13:10 , 05/01/19 11:30	
Spiked ID 8			Ext. End Time:	05/01/19 7:45 , 05/02/19 05:45 , 11:10	
			GC Requires Extract By:	05/02/19 0:00	

pH1	2	4/30/19 10:35:00 AM	Water Bath Temp Criteria	71,70 °C
pH2	14	5/01/19 11:10:00 AM		
pH3				

Spiked By: KY **Date** 04/30/19 **Witnessed By:** DL **Date** 04/30/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
17	AZ90122	AZ90122W07			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88712
						equip	E-HP12 E-WB6				
18	AZ90213	AZ90213W21			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88736
						equip	E-HP11 E-WB6				
19	AZ90215	AZ90215W18			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88736
						equip	E-HP10 E-WB5				

Ker 5/2/19

Solvent and Lot#	
PH Strips	HC857466
Dichloromethane (DCM)	58240
1+1 H2SO4	4-22-19
10N NaOH	4-22-19
Filter Paper	400148
Acidified Na2SO4	2-28-19
B. Na2SO4	18D105205

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	
Date	
Time	
Refrigerator	

	Technician's Initials
Scanned By	DL
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	05/02/19 12:10:32 PM

Reviewed By: Ker **Date** 5/2/19

_LIQ003

Organic Extraction Worksheet

Method	Continuous Liquid/Liquid SVOC 3520C	Extraction Set	190506A	Extraction Method	LIQ003	Units	mL

Spiked ID 1	8270T Spike 4-12-19 EXP 10-20-19		Surrogate ID 1	8270 Surrogate 4-10-19 EXP 3-15-20	
Spiked ID 2	Sim Spike 3-20-19 EXP 3-20-20		Surrogate ID 2	SIM Surrogate 5-1-19 EXP 5-1-20	
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	no	
Spiked ID 7			Ext. Start Time:	05/06/19 11:00 ,05/07/19 08:35	
Spiked ID 8			Ext. End Time:	05/07/19 6:30 ,05/08/19 05:30, 9:50	
			GC Requires Extract By:	05/02/19 0:00	

pH1	2	5/06/19 10:00:00 AM	Water Bath Temp Criteria	75 °C
pH2	14	05/07/19 8:30:00 AM		
pH3				

Spiked By: DL **Date** 05/06/19 **Witnessed By:** KY **Date** 05/06/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
1	190506A Blk				1,0.050	1,2	800	1	2/1	05/06/19 9:50	
						equip	E-HP51 E-WB6				
2	190506A LCS-1		0.250	1	1	1	800	1	2/1	05/06/19 9:50	
						equip	E-HP50 E-WB6				
3	190506A LCS-2		0.0250	2	0.050	2	800	1	2/1	05/06/19 9:50	
						equip	E-HP48 E-WB6				
4	190506A LCSD-1		0.250	1	1	1	800	1	2/1	05/06/19 9:50	
						equip	E-HP49 E-WB6				
5	190506A LCSD-2		0.0250	2	0.050	2	800	1	2/1	05/06/19 9:50	
						equip	E-HP47 E-WB6				
6	AZ90215	AZ90215W19			1,0.050	1,2	800	1	2/1	05/06/19 9:50	88736 RE-EXTRACT
						equip	E-HP25 E-WB6				
7	AZ90447	AZ90447W07			1,0.050	1,2	800	1	2/1	05/06/19 9:50	88764
						equip	E-HP26 E-WB6				
8	AZ90448	AZ90448W10			1,0.050	1,2	800	1	2/1	05/06/19 9:50	88764
						equip	E-HP27 E-WB6				
9	AZ90450	AZ90450W22			1,0.050	1,2	800	1	2/1	05/06/19 9:50	88764
						equip	E-HP28 E-WB6				

Ky 5/8/19

Solvent and Lot#	
PH Strips	HC 857466
Dichloromethane (DCM)	58240
1+1 H2SO4	4-22-19
10N NaOH	4-22-19
Filter Paper	400148
Acidified Na2SO4	2-28-19
B.Na2SO4	18D105205

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	MA
Date	5/8/19
Time	0950
Refrigerator	GC-C

	Technician's Initials
Scanned By	DL
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	05/08/19 8:42:43 AM

Reviewed By: Ky **Date** 5/8/19

05/08/19 12:30:48 PM Ext_ID 62732 Page 1 of 1

Injection Log

Directory: M:\LINUS\DATA\L190326\

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	2	0326L002.D	1	SV Tune 10/11/18		26 Mar 19 9:39
2	5	0326L005.D	1	0.5 SIM 03/06/19		26 Mar 19 10:39
3	6	0326L006.D	1	1 SIM 03/06/19		26 Mar 19 11:01
4	7	0326L007.D	1	5 SIM 03/06/19		26 Mar 19 11:23
5	8	0326L008.D	1	10 SIM 03/06/19		26 Mar 19 11:45
6	9	0326L009.D	1	50 SIM 03/06/19		26 Mar 19 12:08
7	10	0326L010.D	1	100 SIM 03/06/19		26 Mar 19 12:30
8	12	0326L012.D	1	0.2 SIM 01/18/19		26 Mar 19 15:55
9	13	0326L013.D	1	0.1 SIM 01/18/19		26 Mar 19 17:05
10	14	0326L014.D	1	SS SIM 03/06/19		26 Mar 19 17:27
11	29	0426L029.D	1	SV Tune 10/11/18		2 May 19 10:38
12	30	0426L030.D	1	5 SIM 03/06/19		2 May 19 10:54
13	31	0426L031.D	1.25	190430A BLK 1/800		2 May 19 12:16
14	32	0426L032.D	1.25	190430A LCS-2 1/800		2 May 19 12:39
15	33	0426L033.D	1.25	190430A LCSD-2 1/800		2 May 19 13:01
16	44	0426L044.D	1.25	AZ90213W21 1/800		2 May 19 17:19
17	45	0426L045.D	1.25	AZ90215W18 1/800		2 May 19 17:42
18	54	0426L054.D	1	5 SIM 03/06/19		2 May 19 21:03
19	55	0426L055.D	1	SV Tune 10/11/18		8 May 19 8:42
20	56	0426L056.D	1	5 SIM 03/06/19		8 May 19 8:58
21	57	0426L057.D	1.25	190506A BLK 1/800		8 May 19 10:09
22	58	0426L058.D	1.25	190506A LCS-2 1/800		8 May 19 10:31
23	63	0426L063.D	1.25	AZ90215W19 1/800		8 May 19 12:23
24	64	0426L064.D	1.25	190506A LCSD-2 1/800		8 May 19 12:45
25	65	0426L065.D	1	5 SIM 03/06/19		8 May 19 13:07

ORGANICS
Calibration Data

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/19/19
Matrix: Instrument: Yoda
Initials: MA/JMP

			0319Y004 D	0319Y005.D	0319Y006.D	0319Y007.D	0319Y008.D	0319Y003.D	0319Y009 D	0319Y010.D	0319Y011.D							
		Compound	4	5	10	20	40	50	60	80	100		Avg	%RSD	Type	r^2	Q	MRF
1	I	1,4-dichlorobenzene-D4(IS)	ISTD															
2		1,4-Dioxane		0.2083	0.2289	0.2577	0.2765	0.3092	0.3137	0.3004	0.2718		0.27	14				
3	TM	n-Nitrosodimethylamine		0.6432	0.5399	0.5100	0.4462	0.5113	0.4873	0.4661	0.4623		0.51	12	TM			
4	TM	Pyridine		1.255	1.395	1.213	1.241	1.247	1.229	1.101	1.098		1.2	7.7	TM			
5	S	2-Fluorophenol (S)		1.375	1.526	1.553	1.455	1.536	1.549	1.482	1.487		1.5	4.0	S			
6	S	Phenol-D6 (S)		1.849	2.006	2.053	1.890	2.013	2.009	1.900	1.917		2.0	3.8	S			
7	*TM	Phenol		2.418	2.403	2.277	2.046	2.081	2.107	2.009	1.961		2.2	8.3	*TM			0.800
8	TM	Aniline		2.284	2.346	2.196	2.060	2.006	2.081	1.961	1.933		2.1	7.2	TM			
9	TM	Bis (2-chloroethyl) ether		1.068	1.038	0.9839	0.9400	0.9369	0.9481	0.8915	0.8834		0.96	6.8	TM			0.700
10	TM	2-Chlorophenol		1.699	1.735	1.606	1.517	1.552	1.559	1.477	1.441		1.6	6.5	TM			0.800
11	TM	1,3-DCB		1.869	1.829	1.683	1.591	1.607	1.620	1.523	1.490		1.7	8.2	TM			
12	*TM	1,4-DCB		1.996	1.861	1.738	1.623	1.664	1.647	1.546	1.513		1.7	9.5	*TM			
13	TM	Benzyl alcohol		0.9401	0.9733	0.9065	0.8909	0.9247	0.9210	0.8902	0.8725		0.91	3.5	TM			
14	TM	1,2-DCB		1.824	1.731	1.617	1.495	1.541	1.517	1.451	1.417		1.6	9.0	TM			
15	TM	2-Methylphenol		1.623	1.481	1.389	1.309	1.330	1.329	1.261	1.243		1.4	9.2	TM			0.700
16	TM	Bis (2-chloroisopropyl) ether		1.614	1.589	1.448	1.349	1.383	1.381	1.296	1.267		1.4	9.0	TM			0.010
17	TM	Acetophenone		2.397	2.321	2.123	2.020	2.056	2.039	1.942	1.896		2.1	8.4	TM			0.010
18	TM	3&4-Methylphenol		1.847	1.780	1.676	1.580	1.620	1.613	1.541	1.506		1.6	7.1	TM			0.600
19	**TM	n-Nitrosodi-n-propylamine		1.325	1.288	1.159	1.114	1.129	1.116	1.050	1.037		1.2	9.0	**TM			0.500
20	TM	Hexachloroethane		0.7326	0.7189	0.6438	0.6187	0.6212	0.6148	0.5862	0.5788		0.64	8.9	TM			0.300
21	I	Napthalene-D8(IS)	ISTD															
22	S	Nitrobenzene-D5(S)		0.4036	0.4481	0.4428	0.4092	0.4401	0.4199	0.4120	0.4051		0.42	4.3	S			
23	TM	Nitrobenzene		0.4636	0.4541	0.4209	0.3913	0.4042	0.3893	0.3799	0.3626		0.41	8.7	TM			0.200
24	TM	Isophorone		0.7995	0.7871	0.7264	0.6740	0.7092	0.6839	0.6638	0.6355		0.71	8.2	TM			0.400
25	*TM	2-Nitrophenol		0.2130	0.2243	0.2061	0.2032	0.2140	0.2031	0.1972	0.1946		0.21	4.7	*TM			0.100
26	TM	2,4-Dimethylphenol		0.3719	0.3513	0.3249	0.3195	0.3247	0.3133	0.3054	0.2986		0.33	7.4	TM			0.200
27	TM	Benzoic acid			0.1610	0.2025	0.2286	0.2242	0.2467	0.2499	0.2474		0.22	14	TM			
28	TM	Bis (2-chloroethoxy) methane		0.4841	0.4859	0.4404	0.4136	0.4319	0.4182	0.4019	0.3931		0.43	8.1	TM			0.300
29	*TM	2,4-Dichlorophenol		0.2934	0.2985	0.2811	0.2683	0.2800	0.2689	0.2659	0.2569		0.28	5.2	*TM			0.200
30	TM	1,2,4-Trichlorobenzene		0.3367	0.3392	0.3144	0.2936	0.3050	0.2892	0.2812	0.2699		0.30	8.3	TM			
31	TM	3,4-Dimethylphenol		0.5587	0.5474	0.4891	0.4564	0.4760	0.4559	0.4449	0.4308		0.48	9.8	TM			
32	TM	Naphthalene		1.237	1.222	1.100	1.039	1.078	1.023	0.9927	0.9676		1.1	9.3	TM			0.700
33	TM	4-Chloroaniline		0.4513	0.4768	0.4305	0.3918	0.3933	0.3784	0.3518	0.3185		0.40	13	TM			0.010
34	TM	2,6-Dichlorophenol		0.3085	0.3065	0.2861	0.2670	0.2807	0.2665	0.2580	0.2515		0.28	7.7	TM			
35	TM	Hexachloropropene		0.1687	0.1744	0.1722	0.1660	0.1739	0.1681	0.1639	0.1625		0.17	2.7	TM			

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/19/19
Matrix: Instrument: Yoda Initials:

		Compound	4	5	10	20	40	50	60	80	100		Avg	%RSD	Type		Q	
36	*TM	Hexachlorobutadiene		0.1694	0.1661	0.1534	0.1428	0.1491	0.1420	0.1371	0.1317		0.15	9.0	*TM			0.010
37	TM	Caprolactum		0.1478	0.1541	0.1397	0.1352	0.1418	0.1370	0.1308	0.1287		0.14	6.1	TM			0.010
38	*TM	4-Chloro-3-methylphenol		0.3629	0.3613	0.3391	0.3259	0.3411	0.3277	0.3136	0.3108		0.34	5.9	*TM			0.200
39	TM	2-Methylnaphthalene		0.7804	0.7657	0.7030	0.6569	0.6856	0.6652	0.6437	0.6212		0.69	8.2	TM			0.400
40	TM	1-Methylnaphthalene		0.8230	0.8014	0.7233	0.6897	0.6992	0.6841	0.6613	0.6407		0.72	9.1	TM			
41	I	Acenaphthene-D10(IS)	ISTD															
42	**TMQ	Hexachlorocyclopentadiene				0.0301	0.0672	0.0885	0.1000	0.1257	0.1432		0.09	44	**TMQ	0.999		0.050
43	TM	1,2,4,5-Tetrachlorobenzene		0.5827	0.5952	0.5304	0.5097	0.5190	0.4978	0.4794	0.4637		0.52	8.9	TM			0.010
44	*TM	2,4,6-Trichlorophenol		0.3548	0.3607	0.3334	0.3325	0.3415	0.3279	0.3212	0.3146		0.34	4.7	*TM			0.200
45	TM	2,4,5-Trichlorophenol		0.3961	0.4059	0.3592	0.3559	0.3567	0.3419	0.3391	0.3327		0.36	7.4	TM			0.200
46	S	2-Fluorobiphenyl(S)		1.491	1.616	1.556	1.423	1.484	1.458	1.405	1.382		1.5	5.3	S			
47	TM	1,1'-Biphenyl		1.864	1.851	1.700	1.616	1.634	1.564	1.518	1.480		1.7	8.7	TM			0.010
48	TM	2-Chloronaphthalene		1.393	1.437	1.279	1.200	1.220	1.182	1.129	1.109		1.2	9.5	TM			0.800
49	TM	2-Nitroaniline		0.4278	0.4515	0.4195	0.4009	0.4153	0.3909	0.3810	0.3738		0.41	6.4	TM			0.010
50	TM	Dimethyl phthalate		1.618	1.625	1.487	1.404	1.413	1.384	1.328	1.306		1.4	8.4	TM			0.010
51	TM	2,6-DNT		0.3572	0.3611	0.3439	0.3373	0.3359	0.3312	0.3188	0.3185		0.34	4.7	TM			0.200
52	TM	Acenaphthylene		2.241	2.183	2.017	1.915	1.932	1.881	1.811	1.765		2.0	8.6	TM			0.900
53	TM	3-Nitroaniline		0.3751	0.4164	0.3837	0.3767	0.3749	0.3636	0.3469	0.3348		0.37	6.6	TM			0.010
54	*TM	Acenaphthene		1.477	1.436	1.295	1.236	1.235	1.192	1.154	1.118		1.3	10	*TM			0.900
55	**TML	2,4-Dinitrophenol			0.0629	0.0984	0.1325	0.1407	0.1477	0.1554	0.1622		0.13	28	**TML	0.998		0.010
56	**TMQ	4-Nitrophenol				0.0399	0.2038	0.2264	0.2092	0.2146	0.2178		0.19	39	**TMQ	0.993		0.010
57	TM	Dibenzofuran		2.010	1.948	1.757	1.676	1.685	1.610	1.564	1.514		1.7	10	TM			0.800
58	TM	2,4-DNT		0.4665	0.4994	0.4758	0.4552	0.4666	0.4495	0.4242	0.4174		0.46	5.9	TM			0.200
59	TM	2,3,4,6-Tetrachlorophenol		0.1873	0.2274	0.2275	0.2353	0.2494	0.2360	0.2358	0.2348		0.23	8.0	TM			0.010
60	TM	Diethyl phthalate		1.622	1.615	1.470	1.404	1.397	1.359	1.303	1.243		1.4	9.6	TM			0.010
61	TM	4-Chlorophenyl phenyl ether		0.7793	0.7448	0.6754	0.6269	0.6475	0.6168	0.5875	0.5816		0.66	11	TM			0.400
62	TM	Fluorene		1.649	1.624	1.484	1.408	1.404	1.348	1.297	1.268		1.4	9.9	TM			0.900
63	TM	4-Nitroaniline		0.4183	0.4299	0.3988	0.3690	0.3701	0.3531	0.3384	0.3290		0.38	9.8	TM			0.010
64	S	2,4,6-Tribromophenol(S)		0.1108	0.1312	0.1374	0.1314	0.1423	0.1391	0.1326	0.1359		0.13	7.3	S			
65	I	Phenanthrene-D10(IS)	ISTD															
66	TM	4,6-Dinitro-2-methylphenol		0.1114	0.1353	0.1511	0.1561	0.1630	0.1612	0.1567	0.1592		0.15	12	TM			0.010
67	TM	Diphenyl amine		0.7664	0.7653	0.6881	0.6527	0.6549	0.6478	0.6004	0.5930		0.67	9.8	TM			
68	*TM	n-Nitrosodiphenylamine		0.7664	0.7653	0.6881	0.6527	0.6549	0.6478	0.6004	0.5930		0.67	9.8	*TM			0.010
69	TM	1,2-Diphenylhydrazine		1.063	1.009	0.9258	0.8681	0.8924	0.8755	0.9545	0.9253		0.94	7.2	TM			
70	TM	4-Bromophenyl phenyl ether		0.2299	0.2348	0.2119	0.2034	0.2080	0.2040	0.1924	0.1907		0.21	7.6	TM			0.100

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/19/19
Matrix: Instrument: Yoda Initials:

		Compound	4	5	10	20	40	50	60	80	100		Avg	%RSD	Type		Q	
71	TM	Hexachlorobenzene		0.2203	0.2151	0.1979	0.1863	0.1927	0.1876	0.1800	0.1758		0.19	8.2	TM			0.100
72	TM	Atrazine		0.2516	0.2617	0.2290	0.2249	0.2273	0.2233	0.2103	0.2067		0.23	8.2	TM			0.010
73	*TML	Pentachlorophenol			0.0405	0.0499	0.0629	0.0766	0.0666	0.0749	0.0786		0.06	22	*TML	0.992		0.050
74	TM	Phenanthrene		1.407	1.374	1.246	1.173	1.199	1.179	1.110	1.091		1.2	9.4	TM			0.700
75	TM	Anthracene		1.450	1.477	1.323	1.248	1.258	1.248	1.175	1.149		1.3	9.2	TM			0.700
76	TM	Carbazol		1.339	1.327	1.220	1.149	1.156	1.154	1.094	1.073		1.2	8.3	TM			0.010
77	TM	Di-n-butylphthalate		1.692	1.656	1.541	1.434	1.489	1.439	1.338	1.322		1.5	9.1	TM			0.010
78	*TM	Fluoranthene		1.452	1.418	1.303	1.222	1.251	1.241	1.173	1.163		1.3	8.4	*TM			0.600
79	I	Chrysene-D12(IS)	ISTD															
80	TM	Benzidine			0.3883	0.3450	0.3138	0.2584	0.2922	0.2852	0.2777		0.31	14	TM			
81	TM	Pyrene		1.688	1.628	1.498	1.401	1.432	1.421	1.381	1.349		1.5	8.3	TM			0.600
82	S	Terphenyl-D14(S)		0.9769	1.028	1.015	0.9194	1.003	0.9914	0.9548	0.9326		0.98	4.0	S			
83	TM	Butyl benzylphthalate		0.8445	0.8254	0.7609	0.7102	0.7295	0.7236	0.6958	0.6822		0.75	8.0	TM			0.010
84	TM	3,3'-Dichlorobenzidine		0.4221	0.4411	0.3868	0.3566	0.3523	0.3532	0.3364	0.3177		0.37	11	TM			0.010
85	TM	Benz (a) anthracene		1.494	1.457	1.322	1.242	1.268	1.253	1.228	1.169		1.3	8.8	TM			0.800
86	TM	Bis (2-ethylhexyl) phthalate		1.282	1.208	1.089	1.013	1.026	1.009	0.9879	0.9390		1.1	11	TM			0.010
87	TM	Chrysene		1.439	1.441	1.255	1.188	1.232	1.198	1.174	1.132		1.3	9.4	TM			0.700
88	*TM	Di-n-octylphthalate		2.085	2.047	1.847	1.759	1.816	1.786	1.722	1.688		1.8	7.9	*TM			0.010
89	I	Perylene-D12(IS)	ISTD															
90	TM	Benzo (b) fluoranthene		1.414	1.260	1.197	1.198	1.062	1.197	1.065	1.130		1.2	9.6	TM			0.700
91	TM	Benzo (k) fluoranthene		1.414	1.260	1.197	1.198	1.062	1.197	1.065	1.130		1.2	9.6	TM			0.700
92	*TM	Benzo (a) pyrene	1.251	1.297	1.304	1.187	1.138	1.172	1.144	1.099	1.079		1.2	6.9	*TM			0.700
93	TM	Indeno (1,2,3-cd) pyrene		1.420	1.445	1.291	1.214	1.272	1.218	1.182	1.164		1.3	8.3	TM			0.500
94	TM	Dibenz (a,h) anthracene	1.172	1.224	1.230	1.116	1.072	1.115	1.074	1.043	1.019		1.1	6.8	TM			0.400
95	TM	Benzo (g,h,i) perylene		1.143	1.124	1.035	0.9798	1.010	0.9780	0.9425	0.9325		1.0	7.7	TM			0.500
96																		
97																		
98																		
99																		
100																		
101																		
102																		
103																		
104																		
105																		

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y003.D Vial: 3
Acq On : 19 Mar 19 18:31 Operator: MA
Sample : 50ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:46 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Wed Mar 20 09:42:54 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	114637	40.00000	ppb	0.00
21) Napthalene-D8(IS)	6.84	136	472309	40.00000	ppb	0.00
41) Acenaphthene-D10(IS)	8.86	164	256108	40.00000	ppb	0.00
65) Phenanthrene-D10(IS)	10.60	188	425827	40.00000	ppb	0.00
79) Chrysene-D12(IS)	13.69	240	388787	40.00000	ppb	0.00
89) Perylene-D12(IS)	15.55	264	380454	40.00000	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.84	112	440131	102.72345	ppb	0.00
Spiked Amount 200.000			Recovery = 51.362%			
6) Phenol-D6 (S)	5.01	99	576782	102.96746	ppb	0.00
Spiked Amount 200.000			Recovery = 51.484%			
22) Nitrobenzene-D5(S)	6.03	82	259817	52.06712	ppb	0.00
Spiked Amount 100.000			Recovery = 52.067%			
46) 2-Fluorobiphenyl(S)	8.08	172	475108	50.24297	ppb	0.00
Spiked Amount 100.000			Recovery = 50.243%			
64) 2,4,6-Tribromophenol(S)	9.79	330	91088	107.31607	ppb	0.00
Spiked Amount 200.000			Recovery = 53.658%			
82) Terphenyl-D14(S)	12.46	244	487603	51.30654	ppb	0.00
Spiked Amount 100.000			Recovery = 51.307%			
Target Compounds						Qvalue
2) 1,4-Dioxane	1.71	58	4430	5.70818		100
3) n-Nitrosodimethylamine	1.94	42	73272	50.29680	ppb	100
4) Pyridine	1.95	79	178684	51.00094	ppb	100
7) Phenol	5.03	94	298210	48.11297	ppb	100
8) Aniline	5.03	93	287448	47.57204	ppb	100
9) Bis (2-chloroethyl) ether	5.10	63	134256	48.73577	ppb	100
10) 2-Chlorophenol	5.17	128	222358	49.31260	ppb	100
11) 1,3-DCB	5.33	146	230327	48.65913	ppb	100
12) 1,4-DCB	5.42	146	238399	48.97673	ppb	100
13) Benzyl alcohol	5.57	108	132506	50.53539	ppb	100
14) 1,2-DCB	5.59	146	220888	48.96362	ppb	100
15) 2-Methylphenol	5.71	107	190581	48.51630	ppb	100
16) Bis (2-chloroisopropyl) et	5.70	45	198207	48.84754	ppb	100
17) Acetophenone	5.87	105	294577	48.96670	ppb	100
18) 3&4-Methylphenol	5.88	107	464156	98.43562	ppb	100
19) n-Nitrosodi-n-propylamine	5.87	70	161718	48.97969	ppb	100
20) Hexachloroethane	5.96	117	89016	48.57976	ppb	100
23) Nitrobenzene	6.06	77	238631	49.50538	ppb	100
24) Isophorone	6.32	82	418697	49.94868	ppb	100
25) 2-Nitrophenol	6.41	139	126352	51.70904	ppb	100
26) 2,4-Dimethylphenol	6.46	122	191726	49.77633	ppb	100
27) Benzoic acid	6.61	105	132350	50.34444	ppb	100
28) Bis (2-chloroethoxy) metha	6.56	93	254996	49.79802	ppb	100
29) 2,4-Dichlorophenol	6.69	162	165330	50.62002	ppb	100
30) 1,2,4-Trichlorobenzene	6.78	180	180070	50.22423	ppb	100
31) 3,4-Dimethylphenol	6.80	107	280998	49.33330	ppb	100
32) Naphthalene	6.86	128	636316	49.78667	ppb	100
33) 4-Chloroaniline	6.93	127	232189	49.27866	ppb	100
34) 2,6-Dichlorophenol	6.94	162	165733	50.46907	ppb	100
35) Hexachloropropene	6.95	213	102692	51.54934	ppb	100
36) Hexachlorobutadiene	6.99	225	88022	50.04871	ppb	100
37) Caprolactum	7.37	55	83739	50.88266	ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y003.D Vial: 3
Acq On : 19 Mar 19 18:31 Operator: MA
Sample : 50ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:46 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Wed Mar 20 09:42:54 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

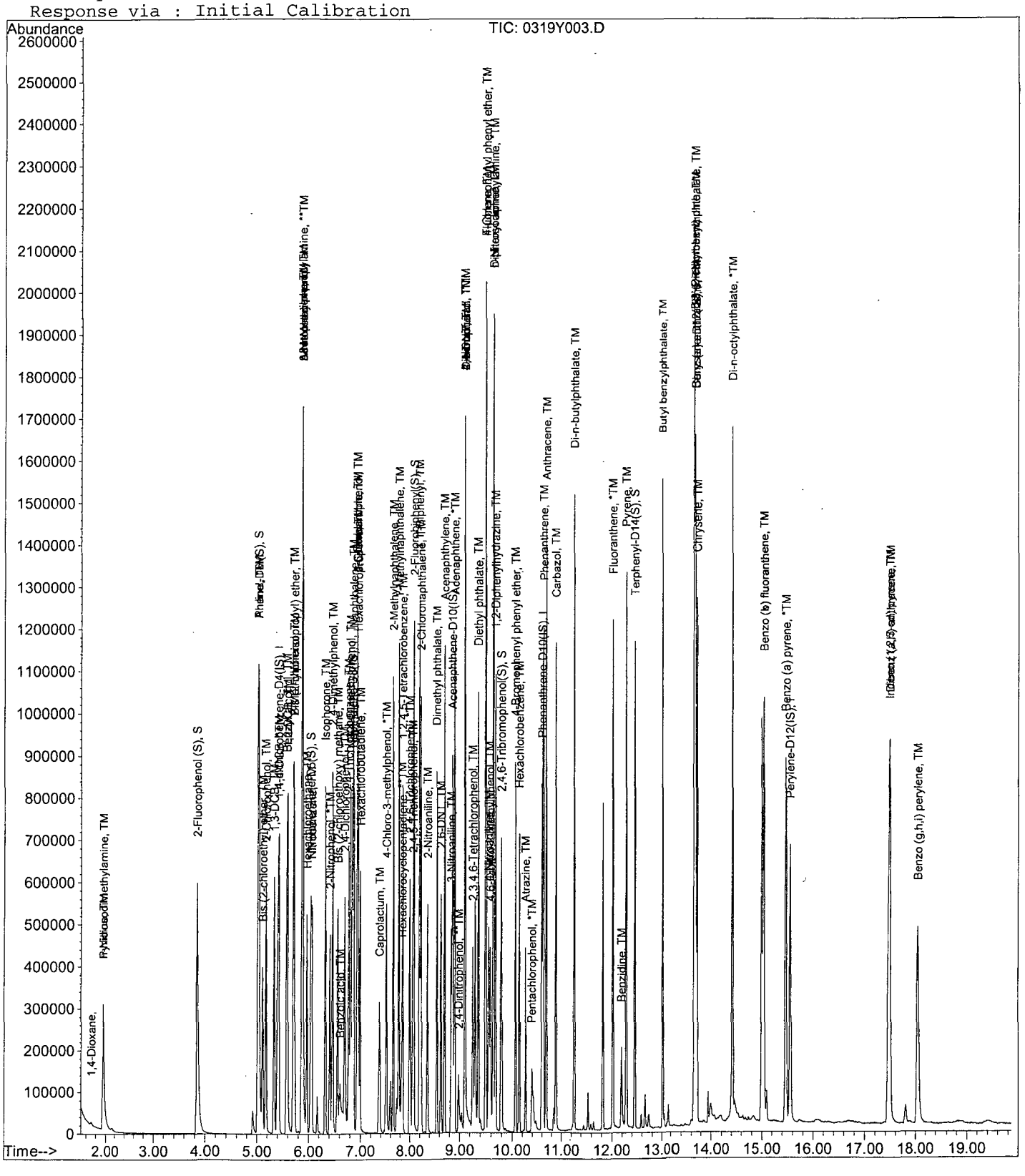
	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
38)	4-Chloro-3-methylphenol	7.51	107	201357	50.85987 ppb	100
39)	2-Methylnaphthalene	7.65	142	404769	49.66629 ppb	100
40)	1-Methylnaphthalene	7.77	142	412817	48.87466 ppb	100
42)	Hexachlorocyclopentadiene	7.82	237	28347	50.32166 ppb	100
43)	1,2,4,5-Tetrachlorobenzene	7.84	216	166150	49.69069 ppb	100
44)	2,4,6-Trichlorophenol	7.99	196	109340	50.84958 ppb	100
45)	2,4,5-Trichlorophenol	8.05	196	114208	49.41944 ppb	100
47)	1,1'-Biphenyl	8.19	154	523036	49.40623 ppb	100
48)	2-Chloronaphthalene	8.21	162	390686	49.06511 ppb	100
49)	2-Nitroaniline	8.35	65	132948	50.94556 ppb	100
50)	Dimethyl phthalate	8.54	163	452410	48.88515 ppb	100
51)	2,6-DNT	8.63	165	107526	49.68734 ppb	100
52)	Acenaphthylene	8.70	152	618641	49.08888 ppb	100
53)	3-Nitroaniline	8.84	138	120032	50.46037 ppb	100
54)	Acenaphthene	8.90	154	395327	48.70090 ppb	100
55)	2,4-Dinitrophenol	8.98	184	45050	48.81434 ppb	96
56)	4-Nitrophenol	9.10	65	72463	52.83268 ppb	100
57)	Dibenzofuran	9.10	168	539583	48.98033 ppb	100
58)	2,4-DNT	9.11	165	149368	51.06896 ppb	100
59)	2,3,4,6-Tetrachlorophenol	9.25	232	79846	54.41028 ppb	100
60)	Diethyl phthalate	9.36	149	447162	48.96183 ppb	100
61)	4-Chlorophenyl phenyl ethe	9.50	204	207297	49.24255 ppb	100
62)	Fluorene	9.50	166	449417	48.90581 ppb	100
63)	4-Nitroaniline	9.55	138	118496	49.24349 ppb	100
66)	4,6-Dinitro-2-methylphenol	9.58	198	86742	54.59940 ppb	100
67)	Diphenyl amine	9.64	169	697220	97.59456 ppb	100
68)	n-Nitrosodiphenylamine	9.64	169	697220	97.59456 ppb	100
69)	1,2-Diphenylhydrazine	9.68	77	474998	47.50747 ppb	100
70)	4-Bromophenyl phenyl ether	10.06	248	110691	49.65994 ppb	100
71)	Hexachlorobenzene	10.14	284	102559	49.54057 ppb	100
72)	Atrazine	10.26	200	60502	24.78178 ppb	100
73)	Pentachlorophenol	10.40	266	40781	53.51964 ppb	100
74)	Phenanthrene	10.63	178	638282	49.05585 ppb	100
75)	Anthracene	10.68	178	669670	48.72190 ppb	100
76)	Carbazol	10.88	167	615499	48.62748 ppb	100
77)	Di-n-butylphthalate	11.26	149	792368	49.99257 ppb	100
78)	Fluoranthene	12.02	202	666118	48.96306 ppb	100
80)	Benzidine	12.19	184	125559	40.87845 ppb	100
81)	Pyrene	12.28	202	695754	48.54023 ppb	100
83)	Butyl benzylphthalate	13.01	149	354521	48.86000 ppb	100
84)	3,3'-Dichlorobenzidine	13.65	252	171204	47.50798 ppb	100
85)	Benz (a) anthracene	13.68	228	616195	48.61545 ppb	100
86)	Bis (2-ethylhexyl) phthala	13.66	149	498649	47.98090 ppb	100
87)	Chrysene	13.73	228	598755	48.99615 ppb	100
88)	Di-n-octylphthalate	14.42	149	882741	49.26053 ppb	100
90)	Benzo (b) fluoranthene	15.04	252	505099	44.60811 ppb	100
91)	Benzo (k) fluoranthene	15.04	252	505099	44.60811 ppb	100
92)	Benzo (a) pyrene	15.46	252	557254	49.41467 ppb	100
93)	Indeno (1,2,3-cd) pyrene	17.47	276	605012	49.86727 ppb	100
94)	Dibenz (a,h) anthracene	17.49	278	530453	49.86829 ppb	100
95)	Benzo (g,h,i) perylene	18.05	276	480148	49.59085 ppb	100

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190319\0319Y003.D Vial: 3
Acq On : 19 Mar 19 18:31 Operator: MA
Sample : 50ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:46 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y004.D Vial: 4
Acq On : 19 Mar 19 18:58 Operator: MA
Sample : 4ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 19 20:40 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 20:39:51 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	114954	40.00000	ppb	0.00
21) Napthalene-D8(IS)	6.83	136	490093	40.00000	ppb	0.00
41) Acenaphthene-D10(IS)	8.86	164	262404	40.00000	ppb	0.00
65) Phenanthrene-D10(IS)	10.59	188	432886	40.00000	ppb	0.00
79) Chrysene-D12(IS)	13.69	240	405658	40.00000	ppb	0.00
89) Perylene-D12(IS)	15.55	264	394479	40.00000	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol (S)	0.00	112	0d	0.00000	ppb	
Spiked Amount 200.000			Recovery =	0.000%		
6) Phenol-D6 (S)	0.00	99	0d	0.00000	ppb	
Spiked Amount 200.000			Recovery =	0.000%		
22) Nitrobenzene-D5(S)	0.00	82	0d	0.00000	ppb	
Spiked Amount 100.000			Recovery =	0.000%		
46) 2-Fluorobiphenyl(S)	0.00	172	0d	0.00000	ppb	
Spiked Amount 100.000			Recovery =	0.000%		
64) 2,4,6-Tribromophenol(S)	0.00	330	0d	0.00000	ppb	
Spiked Amount 200.000			Recovery =	0.000%		
82) Terphenyl-D14(S)	0.00	244	0d	0.00000	ppb	
Spiked Amount 100.000			Recovery =	0.000%		
Target Compounds						Qvalue
92) Benzo (a) pyrene	15.47	252	49367	4.21111	ppb	97
94) Dibenz (a,h) anthracene	17.49	278	46216	4.19356	ppb	97

(#) = qualifier out of range (m) = manual integration

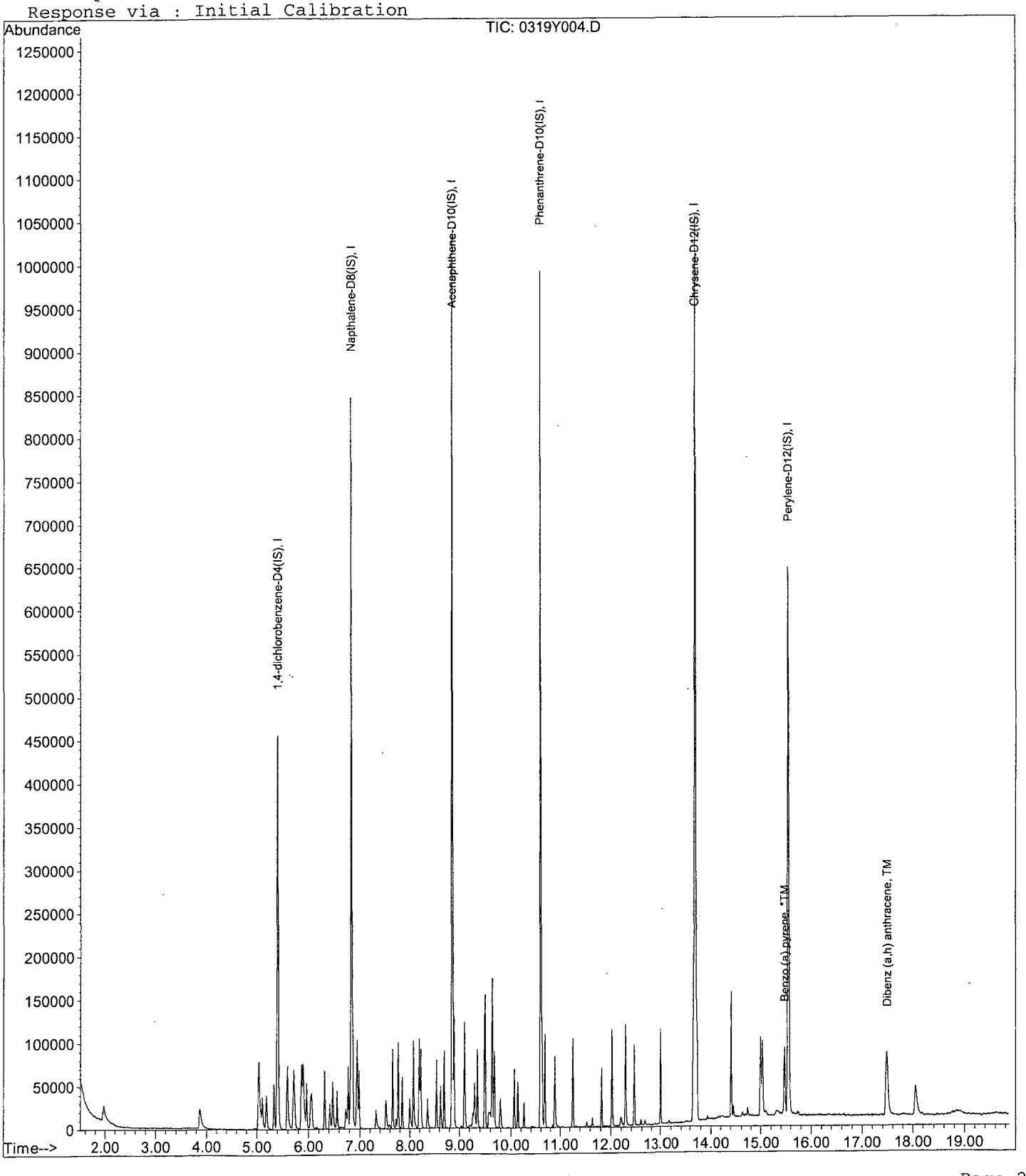
Quantitation Report

Data File : M:\YODA\DATA\Y190319\0319Y004.D
Acq On : 19 Mar 19 18:58
Sample : 4ug/mL 8270 03/13/19
Misc :

Vial: 4
Operator: MA
Inst : Yoda
Multiplr: 1.00

Quant Time: Mar 19 20:40 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y005.D Vial: 5
Acq On : 19 Mar 19 19:26 Operator: MA
Sample : 5ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	115611	40.00000 ppb	0.00
21) Napthalene-D8(IS)	6.84	136	503407	40.00000 ppb	0.00
41) Acenaphthene-D10(IS)	8.85	164	266346	40.00000 ppb	0.00
65) Phenanthrene-D10(IS)	10.60	188	439621	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.69	240	399547	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.55	264	399700	40.00000 ppb	0.00
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.86	112	39728	9.19412 ppb	0.02
Spiked Amount 200.000			Recovery	= 4.597%	
6) Phenol-D6 (S)	5.03	99	53431	9.45817 ppb	0.02
Spiked Amount 200.000			Recovery	= 4.729%	
22) Nitrobenzene-D5(S)	6.03	82	25398	4.77532 ppb	0.00
Spiked Amount 100.000			Recovery	= 4.775%	
46) 2-Fluorobiphenyl(S)	8.07	172	49637	5.04737 ppb	0.00
Spiked Amount 100.000			Recovery	= 5.047%	
64) 2,4,6-Tribromophenol(S)	9.79	330	7376	8.35606 ppb	0.00
Spiked Amount 200.000			Recovery	= 4.178%	
82) Terphenyl-D14(S)	12.45	244	48790	4.99552 ppb	-0.01
Spiked Amount 100.000			Recovery	= 4.996%	
Target Compounds					Qvalue
2) 1,4-Dioxane	1.72	58	301	0.38458	# 1
3) n-Nitrosodimethylamine	1.95	42	9295	6.32670 ppb	67
4) Pyridine	1.98	79	18131	5.13145 ppb	98
7) Phenol	5.05	94	34943	5.59018 ppb	97
8) Aniline	5.04	93	33010	5.41706 ppb	90
9) Bis (2-chloroethyl) ether	5.10	63	15432	5.55472 ppb	98
10) 2-Chlorophenol	5.19	128	24557	5.40015 ppb	97
11) 1,3-DCB	5.34	146	27006	5.65725 ppb	98
12) 1,4-DCB	5.42	146	28848	5.87661 ppb	99
13) Benzyl alcohol	5.58	108	13586	5.13780 ppb	98
14) 1,2-DCB	5.59	146	26355	5.79282 ppb	98
15) 2-Methylphenol	5.71	107	23457	5.92115 ppb	96
16) Bis (2-chloroisopropyl) et	5.71	45	23325	5.69995 ppb	91
17) Acetophenone	5.86	105	34635	5.70877 ppb	78
18) 3&4-Methylphenol	5.88	107	53388	11.22684 ppb	97
19) n-Nitrosodi-n-propylamine	5.86	70	19145	5.74961 ppb	96
20) Hexachloroethane	5.96	117	10587	5.72909 ppb	94
23) Nitrobenzene	6.06	77	29173	5.67824 ppb	94
24) Isophorone	6.32	82	50308	5.63078 ppb	96
25) 2-Nitrophenol	6.42	139	13403	5.14628 ppb	98
26) 2,4-Dimethylphenol	6.47	122	23401	5.70011 ppb	96
27) Benzoic acid	6.63	105	6735	2.38744 ppb	94
28) Bis (2-chloroethoxy) metha	6.56	93	30463	5.58160 ppb	96
29) 2,4-Dichlorophenol	6.73	162	18460	5.30285 ppb	96
30) 1,2,4-Trichlorobenzene	6.77	180	21184	5.54354 ppb	99
31) 3,4-Dimethylphenol	6.81	107	35156	5.79086 ppb	100
32) Naphthalene	6.86	128	77852	5.71501 ppb	98
33) 4-Chloroaniline	6.93	127	28396	5.65433 ppb	97
34) 2,6-Dichlorophenol	6.94	162	19414	5.54675 ppb	98
35) Hexachloropropene	6.95	213	10616	4.99982 ppb	98
36) Hexachlorobutadiene	6.99	225	10662	5.68784 ppb	94
37) Caprolactum	7.32	55	9298	5.30076 ppb	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y005.D Vial: 5
Acq On : 19 Mar 19 19:26 Operator: MA
Sample : 5ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.51	107	22835	5.41149	ppb		95
39)	2-Methylnaphthalene	7.66	142	49109	5.65357	ppb		94
40)	1-Methylnaphthalene	7.77	142	51788	5.75258	ppb		100
43)	1,2,4,5-Tetrachlorobenzene	7.84	216	19399	5.57867	ppb		97
44)	2,4,6-Trichlorophenol	8.00	196	11813	5.28257	ppb		89
45)	2,4,5-Trichlorophenol	8.07	196	13189	5.48770	ppb		93
47)	1,1'-Biphenyl	8.19	154	62061	5.63697	ppb		100
48)	2-Chloronaphthalene	8.21	162	46372	5.59987	ppb		99
49)	2-Nitroaniline	8.35	65	14244	5.24848	ppb		91
50)	Dimethyl phthalate	8.54	163	53870	5.59717	ppb		99
51)	2,6-DNT	8.63	165	11891	5.28357	ppb		97
52)	Acenaphthylene	8.70	152	74622	5.69362	ppb		98
53)	3-Nitroaniline	8.84	138	12488	5.04805	ppb	#	88
54)	Acenaphthene	8.89	154	49162	5.82354	ppb		99
55)	2,4-Dinitrophenol	9.05	184	114	7.13477	ppb	#	33
56)	4-Nitrophenol	9.10	65	1432	17.24815	ppb	#	26
57)	Dibenzofuran	9.10	168	66911	5.84034	ppb		94
58)	2,4-DNT	9.10	165	15531	5.10594	ppb		82
59)	2,3,4,6-Tetrachlorophenol	9.26	232	6236	4.08612	ppb		95
60)	Diethyl phthalate	9.36	149	53987	5.68406	ppb		98
61)	4-Chlorophenyl phenyl ethe	9.49	204	25947	5.92668	ppb		94
62)	Fluorene	9.49	166	54887	5.74325	ppb		97
63)	4-Nitroaniline	9.57	138	13928	5.56559	ppb		86
66)	4,6-Dinitro-2-methylphenol	9.60	198	6121	3.73195	ppb		87
67)	Diphenyl amine	9.63	169	84233	11.42070	ppb		98
68)	n-Nitrosodiphenylamine	9.63	169	84233	11.42070	ppb		98
69)	1,2-Diphenylhydrazine	9.68	77	58429	5.66048	ppb		95
70)	4-Bromophenyl phenyl ether	10.06	248	12632	5.48935	ppb		97
71)	Hexachlorobenzene	10.14	284	12105	5.66379	ppb		92
72)	Atrazine	10.26	200	6913	2.74274	ppb		94
73)	Pentachlorophenol	10.43	266	696	7.10872	ppb	#	57
74)	Phenanthrene	10.62	178	77308	5.75516	ppb		98
75)	Anthracene	10.68	178	79708	5.61720	ppb		99
76)	Carbazol	10.89	167	73559	5.62918	ppb		98
77)	Di-n-butylphthalate	11.26	149	92978	5.68216	ppb		99
78)	Fluoranthene	12.02	202	79788	5.68080	ppb		98
80)	Benzidine	12.20	184	18852	5.94895	ppb		96
81)	Pyrene	12.28	202	84308	5.72346	ppb		100
83)	Butyl benzylphthalate	13.01	149	42179	5.65655	ppb		94
84)	3,3'-Dichlorobenzidine	13.65	252	21081	5.69230	ppb		97
85)	Benz (a) anthracene	13.68	228	74607	5.72769	ppb		98
86)	Bis (2-ethylhexyl) phthala	13.66	149	64037	5.99582	ppb		98
87)	Chrysene	13.72	228	71859	5.72187	ppb		97
88)	Di-n-octylphthalate	14.41	149	104149	5.65542	ppb	#	94
90)	Benzo (b) fluoranthene	15.03	252	70654	5.93939	ppb	#	94
91)	Benzo (k) fluoranthene	15.03	252	70654	5.93939	ppb	#	94
92)	Benzo (a) pyrene	15.46	252	64822	5.47133	ppb		99
93)	Indeno (1,2,3-cd) pyrene	17.47	276	70934	5.56511	ppb		97
94)	Dibenz (a,h) anthracene	17.49	278	61171	5.47383	ppb		98
95)	Benzo (g,h,i) perylene	18.05	276	57086	5.61208	ppb		98

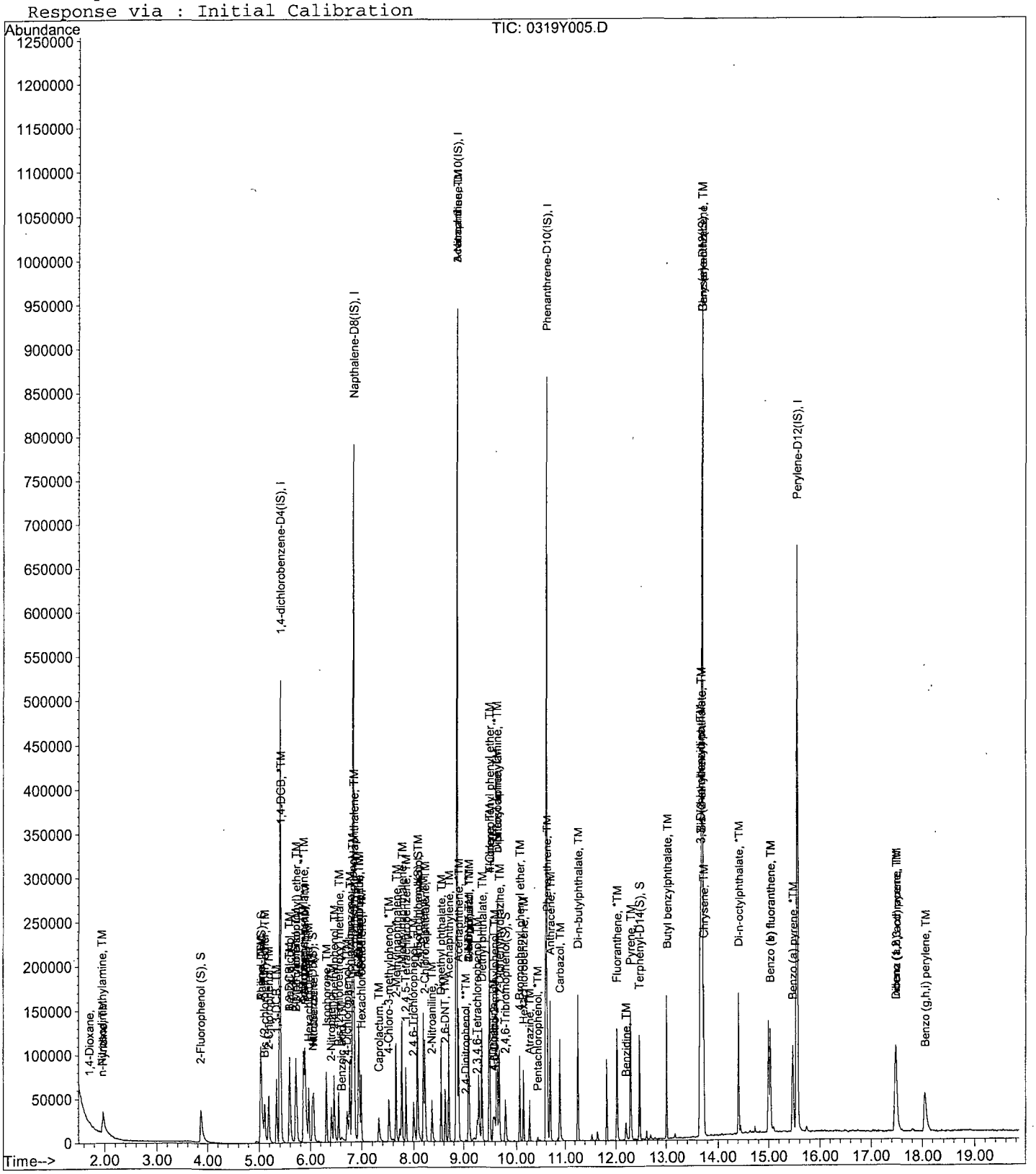
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190319\0319Y005.D Vial: 5
Acq On : 19 Mar 19 19:26 Operator: MA
Sample : 5ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y006.D Vial: 6
Acq On : 19 Mar 19 19:54 Operator: MA
Sample : 10ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:17 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	121984	40.00000 ppb		0.00
21) Napthalene-D8(IS)	6.83	136	512288	40.00000 ppb		0.00
41) Acenaphthene-D10(IS)	8.86	164	269599	40.00000 ppb		0.00
65) Phenanthrene-D10(IS)	10.59	188	449398	40.00000 ppb		0.00
79) Chrysene-D12(IS)	13.69	240	410594	40.00000 ppb		0.00
89) Perylene-D12(IS)	15.55	264	404320	40.00000 ppb		0.00
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.85	112	93067	20.41293 ppb		0.01
Spiked Amount 200.000			Recovery =	10.207%		
6) Phenol-D6 (S)	5.01	99	122377	20.53100 ppb		0.00
Spiked Amount 200.000			Recovery =	10.266%		
22) Nitrobenzene-D5(S)	6.04	82	57383	10.60208 ppb		0.00
Spiked Amount 100.000			Recovery =	10.602%		
46) 2-Fluorobiphenyl(S)	8.07	172	108893	10.93926 ppb		0.00
Spiked Amount 100.000			Recovery =	10.939%		
64) 2,4,6-Tribromophenol(S)	9.79	330	17684	19.79197 ppb		0.00
Spiked Amount 200.000			Recovery =	9.896%		
82) Terphenyl-D14(S)	12.45	244	105565	10.51781 ppb		0.00
Spiked Amount 100.000			Recovery =	10.518%		
Target Compounds						Qvalue
2) 1,4-Dioxane	1.71	58	698	0.84522	#	3
3) n-Nitrosodimethylamine	1.94	42	16466	10.62215 ppb		92
4) Pyridine	1.96	79	42557	11.41525 ppb		95
7) Phenol	5.03	94	73295	11.11313 ppb		86
8) Aniline	5.03	93	71536	11.12600 ppb		91
9) Bis (2-chloroethyl) ether	5.11	63	31653	10.79819 ppb		96
10) 2-Chlorophenol	5.18	128	52907	11.02656 ppb		97
11) 1,3-DCB	5.33	146	55787	11.07578 ppb		99
12) 1,4-DCB	5.42	146	56752	10.95692 ppb		96
13) Benzyl alcohol	5.57	108	29683	10.63873 ppb		98
14) 1,2-DCB	5.59	146	52788	10.99660 ppb		98
15) 2-Methylphenol	5.70	107	45159	10.80374 ppb		93
16) Bis (2-chloroisopropyl) et	5.70	45	48455	11.22236 ppb		96
17) Acetophenone	5.86	105	70767	11.05490 ppb		79
18) 3&4-Methylphenol	5.88	107	108589	21.64194 ppb		99
19) n-Nitrosodi-n-propylamine	5.85	70	39282	11.18081 ppb		94
20) Hexachloroethane	5.96	117	21924	11.24421 ppb		98
23) Nitrobenzene	6.05	77	58158	11.12364 ppb		95
24) Isophorone	6.31	82	100807	11.08733 ppb		100
25) 2-Nitrophenol	6.42	139	28728	10.83931 ppb		96
26) 2,4-Dimethylphenol	6.46	122	44991	10.76910 ppb		99
27) Benzoic acid	6.60	105	20618	7.18201 ppb		90
28) Bis (2-chloroethoxy) metha	6.56	93	62236	11.20553 ppb		98
29) 2,4-Dichlorophenol	6.71	162	38227	10.79078 ppb		94
30) 1,2,4-Trichlorobenzene	6.77	180	43440	11.17053 ppb		97
31) 3,4-Dimethylphenol	6.81	107	70107	11.34776 ppb		98
32) Naphthalene	6.86	128	156443	11.28518 ppb		99
33) 4-Chloroaniline	6.94	127	61067	11.94912 ppb		99
34) 2,6-Dichlorophenol	6.94	162	39255	11.02106 ppb	#	95
35) Hexachloropropene	6.95	213	22334	10.33630 ppb		98
36) Hexachlorobutadiene	6.98	225	21272	11.15121 ppb		98
37) Caprolactum	7.33	55	19734	11.05527 ppb		98

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190319\0319Y006.D Vial: 6
Acq On : 19 Mar 19 19:54 Operator: MA
Sample : 10ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:17 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.50	107	46274	10.77600 ppb		96
39)	2-Methylnaphthalene	7.65	142	98063	11.09358 ppb		100
40)	1-Methylnaphthalene	7.76	142	102639	11.20342 ppb		99
42)	Hexachlorocyclopentadiene	7.82	237	696	15.95530 ppb	#	86
43)	1,2,4,5-Tetrachlorobenzene	7.85	216	40116	11.39717 ppb		99
44)	2,4,6-Trichlorophenol	7.99	196	24311	10.74029 ppb		99
45)	2,4,5-Trichlorophenol	8.06	196	27355	11.24457 ppb		97
47)	1,1'-Biphenyl	8.19	154	124754	11.19462 ppb		97
48)	2-Chloronaphthalene	8.22	162	96857	11.55529 ppb		93
49)	2-Nitroaniline	8.35	65	30428	11.07651 ppb		88
50)	Dimethyl phthalate	8.54	163	109505	11.24045 ppb		98
51)	2,6-DNT	8.63	165	24341	10.68503 ppb		88
52)	Acenaphthylene	8.70	152	147145	11.09161 ppb		100
53)	3-Nitroaniline	8.83	138	28068	11.20907 ppb		90
54)	Acenaphthene	8.89	154	96774	11.32515 ppb		99
55)	2,4-Dinitrophenol	9.02	184	4240	10.29161 ppb	#	33
56)	4-Nitrophenol	9.10	65	2643	17.74907 ppb	#	57
57)	Dibenzofuran	9.10	168	131289	11.32131 ppb		90
58)	2,4-DNT	9.10	165	33662	10.93312 ppb	#	71
59)	2,3,4,6-Tetrachlorophenol	9.26	232	15327	9.92179 ppb		94
60)	Diethyl phthalate	9.35	149	108817	11.31864 ppb		98
61)	4-Chlorophenyl phenyl ethe	9.49	204	50202	11.32853 ppb		91
62)	Fluorene	9.50	166	109490	11.31854 ppb		97
63)	4-Nitroaniline	9.55	138	28975	11.43862 ppb		96
66)	4,6-Dinitro-2-methylphenol	9.58	198	15197	9.06397 ppb		93
67)	Diphenyl amine	9.64	169	171955	22.80723 ppb		98
68)	n-Nitrosodiphenylamine	9.64	169	171955	22.80723 ppb		98
69)	1,2-Diphenylhydrazine	9.67	77	113332	10.74050 ppb		96
70)	4-Bromophenyl phenyl ether	10.06	248	26382	11.21511 ppb		88
71)	Hexachlorobenzene	10.14	284	24168	11.06191 ppb	#	85
72)	Atrazine	10.26	200	14699	5.70496 ppb		97
73)	Pentachlorophenol	10.42	266	4554	11.29771 ppb		96
74)	Phenanthrene	10.62	178	154357	11.24104 ppb		99
75)	Anthracene	10.69	178	165890	11.43630 ppb		99
76)	Carbazol	10.88	167	149122	11.16344 ppb		98
77)	Di-n-butylphthalate	11.26	149	186080	11.12450 ppb		99
78)	Fluoranthene	12.01	202	159257	11.09221 ppb		97
80)	Benzidine	12.19	184	39860	12.23984 ppb		99
81)	Pyrene	12.28	202	167082	11.03761 ppb		98
83)	Butyl benzylphthalate	13.01	149	84725	11.05662 ppb		94
84)	3,3'-Dichlorobenzidine	13.65	252	45275	11.89626 ppb	#	97
85)	Benz (a) anthracene	13.68	228	149542	11.17168 ppb		99
86)	Bis (2-ethylhexyl) phthala	13.66	149	124012	11.29890 ppb	#	97
87)	Chrysene	13.72	228	147918	11.46127 ppb		97
88)	Di-n-octylphthalate	14.41	149	210080	11.10068 ppb		97
90)	Benzo (b) fluoranthene	15.03	252	127409	10.58801 ppb		100
91)	Benzo (k) fluoranthene	15.03	252	127409	10.58801 ppb		100
92)	Benzo (a) pyrene	15.47	252	131774	10.99536 ppb		99
93)	Indeno (1,2,3-cd) pyrene	17.46	276	146088	11.33034 ppb		98
94)	Dibenz (a,h) anthracene	17.48	278	124313	10.99692 ppb		98
95)	Benzo (g,h,i) perylene	18.04	276	113616	11.04188 ppb		99

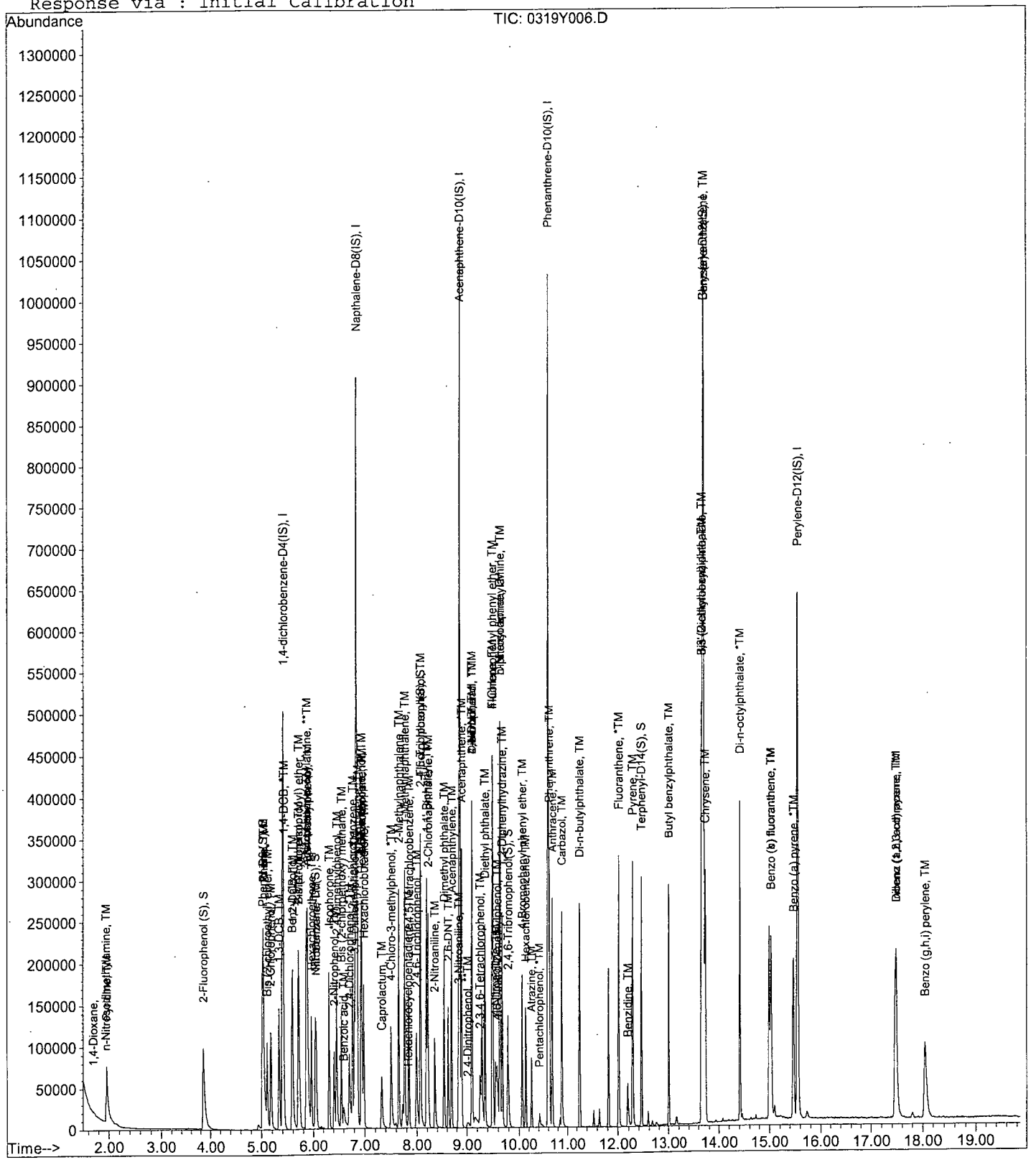
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190319\0319Y006.D Vial: 6
Acq On : 19 Mar 19 19:54 Operator: MA
Sample : 10ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:17 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y007.D Vial: 7
Acq On : 19 Mar 19 20:22 Operator: MA
Sample : 20ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	118806	40.00000 ppb	0.00
21) Napthalene-D8(IS)	6.84	136	501030	40.00000 ppb	0.00
41) Acenaphthene-D10(IS)	8.86	164	264687	40.00000 ppb	0.00
65) Phenanthrene-D10(IS)	10.59	188	443329	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.69	240	402412	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.55	264	394461	40.00000 ppb	0.00
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.84	112	184447	41.53801 ppb	0.00
Spiked Amount 200.000			Recovery =	20.769%	
6) Phenol-D6 (S)	5.01	99	243905	42.01414 ppb	0.00
Spiked Amount 200.000			Recovery =	21.007%	
22) Nitrobenzene-D5(S)	6.03	82	110927	20.95539 ppb	0.00
Spiked Amount 100.000			Recovery =	20.955%	
46) 2-Fluorobiphenyl(S)	8.07	172	205898	21.06811 ppb	0.00
Spiked Amount 100.000			Recovery =	21.068%	
64) 2,4,6-Tribromophenol(S)	9.78	330	36355	41.44368 ppb	0.00
Spiked Amount 200.000			Recovery =	20.722%	
82) Terphenyl-D14(S)	12.45	244	204305	20.76951 ppb	0.00
Spiked Amount 100.000			Recovery =	20.770%	
Target Compounds					Qvalue
2) 1,4-Dioxane	1.71	58	1531	1.90351	# 1
3) n-Nitrosodimethylamine	1.94	42	30296	20.06661 ppb	87
4) Pyridine	1.96	79	72084	19.85262 ppb	93
7) Phenol	5.03	94	135235	21.05307 ppb	90
8) Aniline	5.04	93	130467	20.83433 ppb	83
9) Bis (2-chloroethyl) ether	5.11	63	58445	20.47142 ppb	98
10) 2-Chlorophenol	5.17	128	95389	20.41220 ppb	98
11) 1,3-DCB	5.33	146	99950	20.37458 ppb	99
12) 1,4-DCB	5.42	146	103214	20.46023 ppb	98
13) Benzyl alcohol	5.57	108	53846	19.81527 ppb	99
14) 1,2-DCB	5.59	146	96064	20.54700 ppb	98
15) 2-Methylphenol	5.70	107	82532	20.27295 ppb	98
16) Bis (2-chloroisopropyl) et	5.70	45	86001	20.45096 ppb	96
17) Acetophenone	5.86	105	126134	20.23115 ppb	85
18) 3&4-Methylphenol	5.88	107	199094	40.74112 ppb	98
19) n-Nitrosodi-n-propylamine	5.86	70	68841	20.11830 ppb	98
20) Hexachloroethane	5.96	117	38241	20.13738 ppb	95
23) Nitrobenzene	6.05	77	105433	20.61886 ppb	93
24) Isophorone	6.32	82	181974	20.46426 ppb	96
25) 2-Nitrophenol	6.41	139	51636	19.92046 ppb	96
26) 2,4-Dimethylphenol	6.46	122	81380	19.91691 ppb	98
27) Benzoic acid	6.61	105	50723	18.06571 ppb	94
28) Bis (2-chloroethoxy) metha	6.55	93	110336	20.31227 ppb	98
29) 2,4-Dichlorophenol	6.70	162	70409	20.32176 ppb	98
30) 1,2,4-Trichlorobenzene	6.78	180	78773	20.71151 ppb	95
31) 3,4-Dimethylphenol	6.80	107	122536	20.27977 ppb	99
32) Naphthalene	6.86	128	275604	20.32770 ppb	99
33) 4-Chloroaniline	6.93	127	107839	21.57524 ppb	98
34) 2,6-Dichlorophenol	6.93	162	71676	20.57560 ppb	93
35) Hexachloropropene	6.95	213	43151	20.41925 ppb	96
36) Hexachlorobutadiene	6.99	225	38425	20.59577 ppb	100
37) Caprolactum	7.34	55	35007	20.05208 ppb	96

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y007.D Vial: 7
Acq On : 19 Mar 19 20:22 Operator: MA
Sample : 20ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.50	107	84939	20.22452	ppb		96
39)	2-Methylnaphthalene	7.65	142	176107	20.37012	ppb		100
40)	1-Methylnaphthalene	7.76	142	181203	20.22340	ppb		99
42)	Hexachlorocyclopentadiene	7.83	237	3981	20.96140	ppb		89
43)	1,2,4,5-Tetrachlorobenzene	7.84	216	70192	20.31201	ppb		99
44)	2,4,6-Trichlorophenol	7.99	196	44129	19.85742	ppb		98
45)	2,4,5-Trichlorophenol	8.06	196	47541	19.90491	ppb		92
47)	1,1'-Biphenyl	8.19	154	225012	20.56583	ppb		99
48)	2-Chloronaphthalene	8.22	162	169311	20.57409	ppb		97
49)	2-Nitroaniline	8.35	65	55513	20.58305	ppb		88
50)	Dimethyl phthalate	8.54	163	196774	20.57326	ppb		99
51)	2,6-DNT	8.62	165	45513	20.34971	ppb		86
52)	Acenaphthylene	8.70	152	266936	20.49472	ppb		100
53)	3-Nitroaniline	8.83	138	50779	20.65514	ppb	#	84
54)	Acenaphthene	8.89	154	171432	20.43445	ppb		99
55)	2,4-Dinitrophenol	8.99	184	13024	17.19958	ppb	#	52
56)	4-Nitrophenol	9.10	65	5285	18.90553	ppb	#	65
57)	Dibenzofuran	9.10	168	232569	20.42706	ppb		91
58)	2,4-DNT	9.10	165	62972	20.83231	ppb	#	75
59)	2,3,4,6-Tetrachlorophenol	9.25	232	30114	19.85577	ppb		99
60)	Diethyl phthalate	9.36	149	194484	20.60474	ppb		98
61)	4-Chlorophenyl phenyl ethe	9.49	204	89386	20.54507	ppb		89
62)	Fluorene	9.50	166	196332	20.67248	ppb		98
63)	4-Nitroaniline	9.55	138	52779	21.22251	ppb		95
66)	4,6-Dinitro-2-methylphenol	9.58	198	33489	20.24732	ppb		94
67)	Diphenyl amine	9.64	169	305041	41.01295	ppb		98
68)	n-Nitrosodiphenylamine	9.64	169	305041	41.01295	ppb		98
69)	1,2-Diphenylhydrazine	9.67	77	205211	19.71414	ppb		93
70)	4-Bromophenyl phenyl ether	10.06	248	46973	20.24181	ppb		94
71)	Hexachlorobenzene	10.14	284	43877	20.35782	ppb		93
72)	Atrazine	10.26	200	25376	9.98374	ppb		97
73)	Pentachlorophenol	10.41	266	11068	18.56422	ppb		94
74)	Phenanthrene	10.62	178	276104	20.38252	ppb		99
75)	Anthracene	10.68	178	293214	20.49062	ppb		99
76)	Carbazol	10.88	167	270495	20.52677	ppb		100
77)	Di-n-butylphthalate	11.26	149	341694	20.70728	ppb		99
78)	Fluoranthene	12.01	202	288849	20.39367	ppb	#	95
80)	Benzidine	12.19	184	69416	21.74901	ppb		98
81)	Pyrene	12.28	202	301452	20.31913	ppb		99
83)	Butyl benzylphthalate	13.01	149	153106	20.38659	ppb		90
84)	3,3'-Dichlorobenzidine	13.65	252	77820	20.86338	ppb	#	96
85)	Benz (a) anthracene	13.68	228	266081	20.28200	ppb		98
86)	Bis (2-ethylhexyl) phthala	13.66	149	219023	20.36123	ppb		98
87)	Chrysene	13.72	228	252603	19.97064	ppb		99
88)	Di-n-octylphthalate	14.41	149	371572	20.03317	ppb	#	94
90)	Benzo (b) fluoranthene	15.03	252	236137	20.11405	ppb		99
91)	Benzo (k) fluoranthene	15.03	252	236137	20.11405	ppb		99
92)	Benzo (a) pyrene	15.47	252	234062	20.01851	ppb		99
93)	Indeno (1,2,3-cd) pyrene	17.46	276	254606	20.24037	ppb		98
94)	Dibenz (a,h) anthracene	17.48	278	220046	19.95212	ppb		97
95)	Benzo (g,h,i) perylene	18.04	276	204083	20.32972	ppb		98

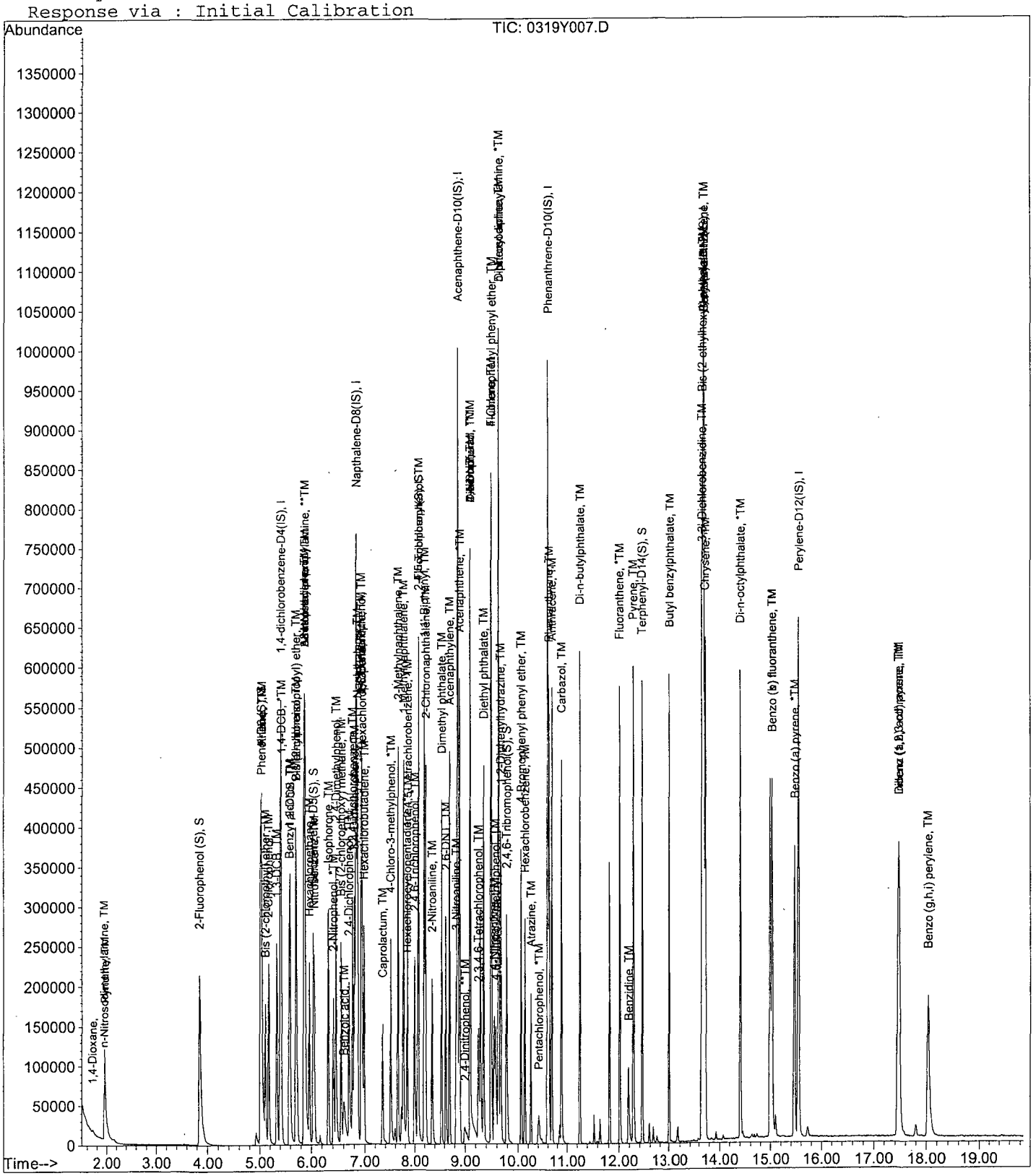
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190319\0319Y007.D Vial: 7
Acq On : 19 Mar 19 20:22 Operator: MA
Sample : 20ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y008.D Vial: 8
Acq On : 19 Mar 19 20:49 Operator: MA
Sample : 40ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	120598	40.00000 ppb	0.00
21) Napthalene-D8(IS)	6.84	136	508253	40.00000 ppb	0.00
41) Acenaphthene-D10(IS)	8.85	164	266643	40.00000 ppb	0.00
65) Phenanthrene-D10(IS)	10.59	188	448301	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.69	240	408816	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.55	264	402433	40.00000 ppb	0.00
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.84	112	350844	77.83705 ppb	0.00
Spiked Amount 200.000			Recovery =	38.919%	
6) Phenol-D6 (S)	5.01	99	455781	77.34446 ppb	0.00
Spiked Amount 200.000			Recovery =	38.672%	
22) Nitrobenzene-D5(S)	6.03	82	208001	38.73536 ppb	0.00
Spiked Amount 100.000			Recovery =	38.735%	
46) 2-Fluorobiphenyl(S)	8.07	172	379372	38.53374 ppb	0.00
Spiked Amount 100.000			Recovery =	38.534%	
64) 2,4,6-Tribromophenol(S)	9.79	330	70048	79.26698 ppb	0.00
Spiked Amount 200.000			Recovery =	39.634%	
82) Terphenyl-D14(S)	12.45	244	375873	37.61243 ppb	0.00
Spiked Amount 100.000			Recovery =	37.612%	
Target Compounds					Qvalue
2) 1,4-Dioxane	1.71	58	3334	4.08361	70
3) n-Nitrosodimethylamine	1.94	42	53816	35.11547 ppb	99
4) Pyridine	1.96	79	149718	40.62106 ppb	94
7) Phenol	5.03	94	246766	37.84513 ppb	93
8) Aniline	5.03	93	248414	39.07988 ppb	97
9) Bis (2-chloroethyl) ether	5.10	63	113368	39.11914 ppb	97
10) 2-Chlorophenol	5.17	128	182996	38.57726 ppb	98
11) 1,3-DCB	5.34	146	191910	38.53912 ppb	99
12) 1,4-DCB	5.42	146	195735	38.22422 ppb	98
13) Benzyl alcohol	5.57	108	107441	38.95066 ppb	97
14) 1,2-DCB	5.59	146	180303	37.99173 ppb	98
15) 2-Methylphenol	5.70	107	157863	38.20086 ppb	97
16) Bis (2-chloroisopropyl) et	5.71	45	162678	38.10985 ppb	95
17) Acetophenone	5.87	105	243630	38.49616 ppb	96
18) 3&4-Methylphenol	5.87	107	381090	76.82465 ppb	98
19) n-Nitrosodi-n-propylamine	5.86	70	134357	38.68144 ppb	96
20) Hexachloroethane	5.96	117	74608	38.70414 ppb	97
23) Nitrobenzene	6.06	77	198863	38.33767 ppb	99
24) Isophorone	6.32	82	342537	37.97327 ppb	98
25) 2-Nitrophenol	6.41	139	103270	39.27397 ppb	99
26) 2,4-Dimethylphenol	6.46	122	162398	39.18039 ppb	95
27) Benzoic acid	6.60	105	116208	40.80091 ppb	97
28) Bis (2-chloroethoxy) metha	6.56	93	210236	38.15330 ppb	99
29) 2,4-Dichlorophenol	6.69	162	136350	38.79467 ppb	97
30) 1,2,4-Trichlorobenzene	6.78	180	149205	38.67244 ppb	98
31) 3,4-Dimethylphenol	6.80	107	231946	37.84165 ppb	100
32) Naphthalene	6.86	128	528234	38.40722 ppb	100
33) 4-Chloroaniline	6.93	127	199123	39.27218 ppb	100
34) 2,6-Dichlorophenol	6.94	162	135706	38.40269 ppb	99
35) Hexachloropropene	6.95	213	84365	39.35456 ppb	99
36) Hexachlorobutadiene	6.99	225	72578	38.34890 ppb	97
37) Caprolactum	7.36	55	68694	38.78887 ppb	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y008.D Vial: 8
Acq On : 19 Mar 19 20:49 Operator: MA
Sample : 40ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.50	107	165627	38.87639	ppb		94
39)	2-Methylnaphthalene	7.65	142	333856	38.06799	ppb		100
40)	1-Methylnaphthalene	7.77	142	350525	38.56483	ppb		98
42)	Hexachlorocyclopentadiene	7.82	237	17908	38.38937	ppb		96
43)	1,2,4,5-Tetrachlorobenzene	7.84	216	135909	39.04054	ppb		100
44)	2,4,6-Trichlorophenol	7.99	196	88646	39.59683	ppb		97
45)	2,4,5-Trichlorophenol	8.05	196	94897	39.44090	ppb		98
47)	1,1'-Biphenyl	8.19	154	430945	39.09893	ppb		98
48)	2-Chloronaphthalene	8.21	162	320001	38.60017	ppb		99
49)	2-Nitroaniline	8.34	65	106898	39.34478	ppb		88
50)	Dimethyl phthalate	8.54	163	374261	38.84296	ppb		99
51)	2,6-DNT	8.63	165	89947	39.92197	ppb		94
52)	Acenaphthylene	8.70	152	510591	38.91442	ppb		99
53)	3-Nitroaniline	8.83	138	100451	40.56025	ppb		86
54)	Acenaphthene	8.90	154	329590	38.99847	ppb		98
55)	2,4-Dinitrophenol	8.98	184	35320	34.37892	ppb		89
56)	4-Nitrophenol	9.10	65	54344	41.65344	ppb		98
57)	Dibenzofuran	9.10	168	447008	38.97371	ppb		95
58)	2,4-DNT	9.10	165	121371	39.85725	ppb	#	63
59)	2,3,4,6-Tetrachlorophenol	9.25	232	62752	41.07223	ppb		95
60)	Diethyl phthalate	9.36	149	374381	39.37309	ppb		99
61)	4-Chlorophenyl phenyl ethe	9.50	204	167169	38.14137	ppb		99
62)	Fluorene	9.50	166	375496	39.24725	ppb		99
63)	4-Nitroaniline	9.55	138	98403	39.27774	ppb		93
66)	4,6-Dinitro-2-methylphenol	9.58	198	69984	41.84279	ppb		97
67)	Diphenyl amine	9.63	169	585175	77.80455	ppb		98
68)	n-Nitrosodiphenylamine	9.63	169	585175	77.80455	ppb		98
69)	1,2-Diphenylhydrazine	9.68	77	389175	36.97247	ppb		98
70)	4-Bromophenyl phenyl ether	10.06	248	91164	38.84908	ppb		98
71)	Hexachlorobenzene	10.14	284	83502	38.31313	ppb		95
72)	Atrazine	10.26	200	50408	19.61218	ppb		98
73)	Pentachlorophenol	10.40	266	28214	37.16629	ppb		95
74)	Phenanthrene	10.63	178	525732	38.38010	ppb		100
75)	Anthracene	10.68	178	559632	38.67492	ppb		99
76)	Carbazol	10.88	167	515005	38.64820	ppb		99
77)	Di-n-butylphthalate	11.26	149	642809	38.52335	ppb		100
78)	Fluoranthene	12.01	202	547930	38.25656	ppb	#	94
80)	Benzidine	12.18	184	128293	39.56635	ppb		99
81)	Pyrene	12.28	202	572657	37.99483	ppb		99
83)	Butyl benzylphthalate	13.01	149	290328	38.05260	ppb		95
84)	3,3'-Dichlorobenzidine	13.65	252	145766	38.46739	ppb	#	96
85)	Benz (a) anthracene	13.68	228	507691	38.09250	ppb		99
86)	Bis (2-ethylhexyl) phthala	13.66	149	413948	37.87940	ppb		99
87)	Chrysene	13.72	228	485669	37.79523	ppb		99
88)	Di-n-octylphthalate	14.42	149	718957	38.15510	ppb		99
90)	Benzo (b) fluoranthene	15.03	252	482020	40.24491	ppb		97
91)	Benzo (k) fluoranthene	15.03	252	482020	40.24491	ppb		97
92)	Benzo (a) pyrene	15.46	252	458006	38.39569	ppb		98
93)	Indeno (1,2,3-cd) pyrene	17.46	276	488450	38.06101	ppb		98
94)	Dibenz (a,h) anthracene	17.48	278	431503	38.35040	ppb		98
95)	Benzo (g,h,i) perylene	18.04	276	394295	38.49960	ppb		99

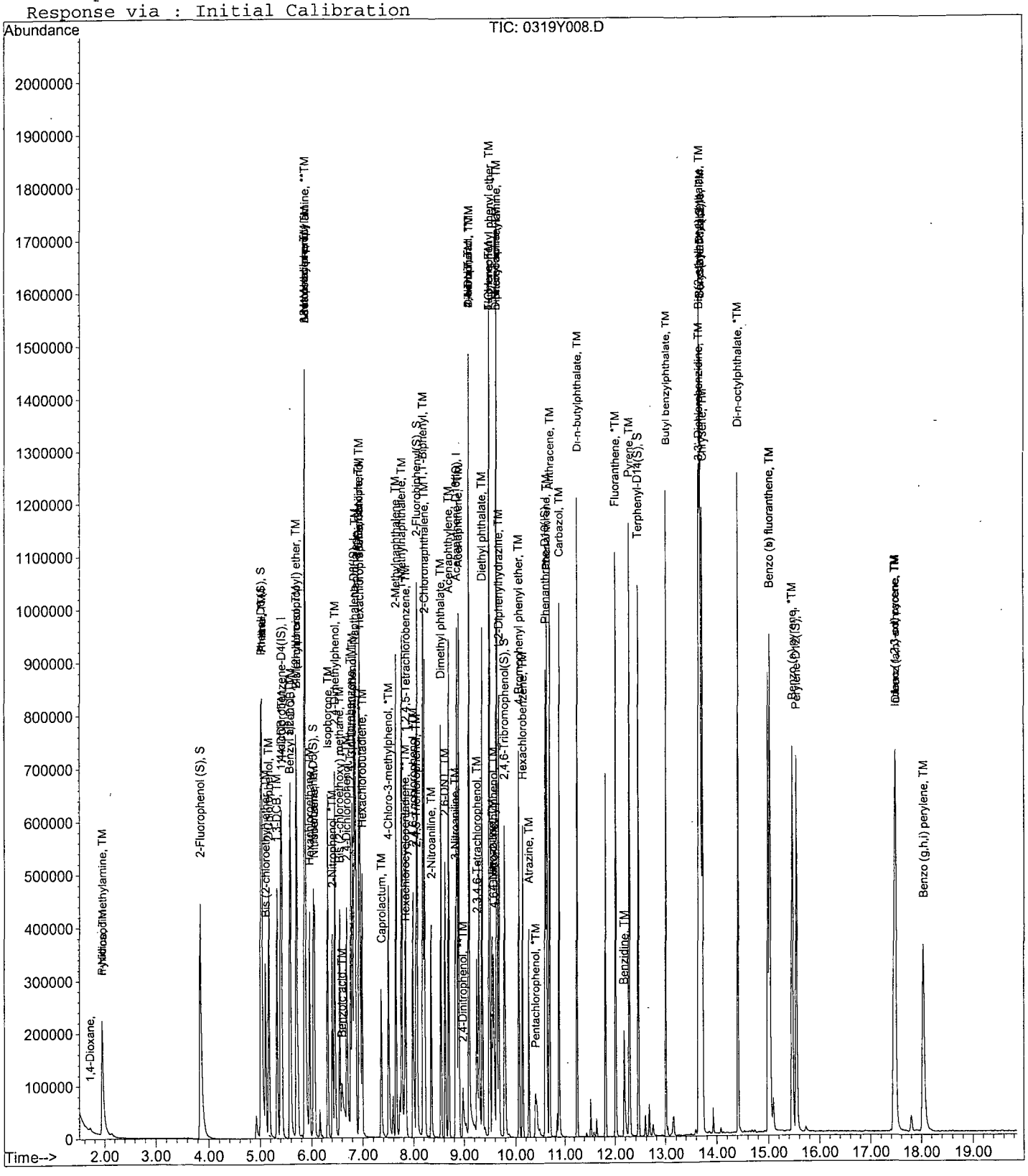
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190319\0319Y008.D Vial: 8
Acq On : 19 Mar 19 20:49 Operator: MA
Sample : 40ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y009.D Vial: 9
Acq On : 19 Mar 19 21:17 Operator: MA
Sample : 60ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	119422	40.00000 ppb	0.00
21) Napthalene-D8(IS)	6.84	136	509759	40.00000 ppb	0.00
41) Acenaphthene-D10(IS)	8.86	164	274152	40.00000 ppb	0.00
65) Phenanthrene-D10(IS)	10.59	188	446170	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.69	240	403300	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.55	264	398594	40.00000 ppb	0.00
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.84	112	554819	124.30237 ppb	0.00
Spiked Amount 200.000			Recovery =	62.151%	
6) Phenol-D6 (S)	5.01	99	719608	123.31751 ppb	0.00
Spiked Amount 200.000			Recovery =	61.659%	
22) Nitrobenzene-D5(S)	6.03	82	321087	59.61836 ppb	0.00
Spiked Amount 100.000			Recovery =	59.618%	
46) 2-Fluorobiphenyl(S)	8.08	172	599687	59.24331 ppb	0.00
Spiked Amount 100.000			Recovery =	59.243%	
64) 2,4,6-Tribromophenol(S)	9.79	330	114414	125.92573 ppb	0.00
Spiked Amount 200.000			Recovery =	62.963%	
82) Terphenyl-D14(S)	12.45	244	599770	60.83796 ppb	0.00
Spiked Amount 100.000			Recovery =	60.838%	
Target Compounds					Qvalue
2) 1,4-Dioxane	1.71	58	5619	6.95014	81
3) n-Nitrosodimethylamine	1.94	42	87300	57.52505 ppb	97
4) Pyridine	1.95	79	220241	60.34360 ppb	99
7) Phenol	5.03	94	377378	58.44629 ppb	98
8) Aniline	5.03	93	372737	59.21550 ppb	99
9) Bis (2-chloroethyl) ether	5.11	63	169839	59.18233 ppb	94
10) 2-Chlorophenol	5.17	128	279330	59.46524 ppb	99
11) 1,3-DCB	5.33	146	290271	58.86587 ppb	98
12) 1,4-DCB	5.42	146	295031	58.18265 ppb	99
13) Benzyl alcohol	5.57	108	164974	60.39709 ppb	99
14) 1,2-DCB	5.59	146	271735	57.82124 ppb	98
15) 2-Methylphenol	5.70	107	238089	58.18189 ppb	98
16) Bis (2-chloroisopropyl) et	5.70	45	247456	58.54127 ppb	93
17) Acetophenone	5.87	105	365171	58.26916 ppb	97
18) 3&4-Methylphenol	5.88	107	577737	117.61399 ppb	99
19) n-Nitrosodi-n-propylamine	5.87	70	199853	58.10437 ppb	98
20) Hexachloroethane	5.96	117	110136	57.69751 ppb	98
23) Nitrobenzene	6.06	77	297656	57.21389 ppb	96
24) Isophorone	6.32	82	522924	57.79950 ppb	99
25) 2-Nitrophenol	6.41	139	155294	58.88441 ppb	98
26) 2,4-Dimethylphenol	6.46	122	239596	57.63452 ppb	98
27) Benzoic acid	6.62	105	188602	66.02299 ppb	96
28) Bis (2-chloroethoxy) metha	6.56	93	319808	57.86678 ppb	99
29) 2,4-Dichlorophenol	6.69	162	205603	58.32590 ppb	97
30) 1,2,4-Trichlorobenzene	6.78	180	221096	57.13656 ppb	99
31) 3,4-Dimethylphenol	6.80	107	348609	56.70702 ppb	97
32) Naphthalene	6.86	128	782266	56.70953 ppb	100
33) 4-Chloroaniline	6.93	127	289331	56.89493 ppb	99
34) 2,6-Dichlorophenol	6.94	162	203765	57.49197 ppb	98
35) Hexachloropropene	6.95	213	128538	59.78323 ppb	98
36) Hexachlorobutadiene	6.99	225	108569	57.19641 ppb	97
37) Caprolactum	7.37	55	104723	58.95836 ppb	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y009.D Vial: 9
Acq On : 19 Mar 19 21:17 Operator: MA
Sample : 60ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.50	107	250598	58.64722	ppb		95
39)	2-Methylnaphthalene	7.65	142	508641	57.82653	ppb		99
40)	1-Methylnaphthalene	7.77	142	523067	57.37792	ppb		100
42)	Hexachlorocyclopentadiene	7.83	237	41106	59.83288	ppb		99
43)	1,2,4,5-Tetrachlorobenzene	7.84	216	204706	57.19222	ppb		98
44)	2,4,6-Trichlorophenol	7.99	196	134842	58.58213	ppb		99
45)	2,4,5-Trichlorophenol	8.05	196	140586	56.82967	ppb		97
47)	1,1'-Biphenyl	8.19	154	643208	56.75881	ppb		99
48)	2-Chloronaphthalene	8.22	162	486021	57.02059	ppb		98
49)	2-Nitroaniline	8.35	65	160739	57.54102	ppb		97
50)	Dimethyl phthalate	8.54	163	568962	57.43277	ppb		99
51)	2,6-DNT	8.63	165	136200	58.79510	ppb		95
52)	Acenaphthylene	8.70	152	773677	57.35032	ppb		99
53)	3-Nitroaniline	8.84	138	149508	58.71506	ppb		99
54)	Acenaphthene	8.90	154	490001	56.39093	ppb		98
55)	2,4-Dinitrophenol	8.98	184	60741	52.76357	ppb		97
56)	4-Nitrophenol	9.10	65	86024	57.49889	ppb		98
57)	Dibenzofuran	9.10	168	661897	56.12878	ppb		99
58)	2,4-DNT	9.11	165	184830	59.03420	ppb		98
59)	2,3,4,6-Tetrachlorophenol	9.26	232	97056	61.78484	ppb		99
60)	Diethyl phthalate	9.36	149	558668	57.14501	ppb		99
61)	4-Chlorophenyl phenyl ethe	9.50	204	253625	56.28224	ppb		98
62)	Fluorene	9.50	166	554278	56.34694	ppb		100
63)	4-Nitroaniline	9.55	138	145202	56.37019	ppb		98
66)	4,6-Dinitro-2-methylphenol	9.58	198	107862	64.79772	ppb		95
67)	Diphenyl amine	9.65	169	867131	115.84393	ppb		99
68)	n-Nitrosodiphenylamine	9.65	169	867131	115.84393	ppb		99
69)	1,2-Diphenylhydrazine	9.68	77	585945	55.93193	ppb		98
70)	4-Bromophenyl phenyl ether	10.06	248	136546	58.46632	ppb		98
71)	Hexachlorobenzene	10.14	284	125566	57.88847	ppb		98
72)	Atrazine	10.26	200	74712	29.20694	ppb		98
73)	Pentachlorophenol	10.39	266	44547	55.24805	ppb		97
74)	Phenanthrene	10.63	178	788815	57.86103	ppb		100
75)	Anthracene	10.69	178	835558	58.01934	ppb		100
76)	Carbazol	10.88	167	772017	58.21221	ppb		99
77)	Di-n-butylphthalate	11.26	149	963212	58.00071	ppb		100
78)	Fluoranthene	12.01	202	830711	58.27740	ppb	#	93
80)	Benzidine	12.18	184	176783	55.26666	ppb		97
81)	Pyrene	12.28	202	859734	57.82208	ppb		100
83)	Butyl benzylphthalate	13.02	149	437718	58.15532	ppb		96
84)	3,3'-Dichlorobenzidine	13.65	252	213681	57.16130	ppb	#	96
85)	Benz (a) anthracene	13.68	228	757726	57.63043	ppb		100
86)	Bis (2-ethylhexyl) phthala	13.67	149	610683	56.64646	ppb		99
87)	Chrysene	13.72	228	724548	57.15621	ppb		99
88)	Di-n-octylphthalate	14.42	149	1080420	58.12218	ppb		99
90)	Benzo (b) fluoranthene	15.04	252	715694	60.33039	ppb		99
91)	Benzo (k) fluoranthene	15.04	252	715694	60.33039	ppb		99
92)	Benzo (a) pyrene	15.47	252	683990	57.89271	ppb		98
93)	Indeno (1,2,3-cd) pyrene	17.47	276	728010	57.27438	ppb		98
94)	Dibenz (a,h) anthracene	17.49	278	642062	57.61372	ppb		99
95)	Benzo (g,h,i) perylene	18.05	276	584721	57.64299	ppb		99

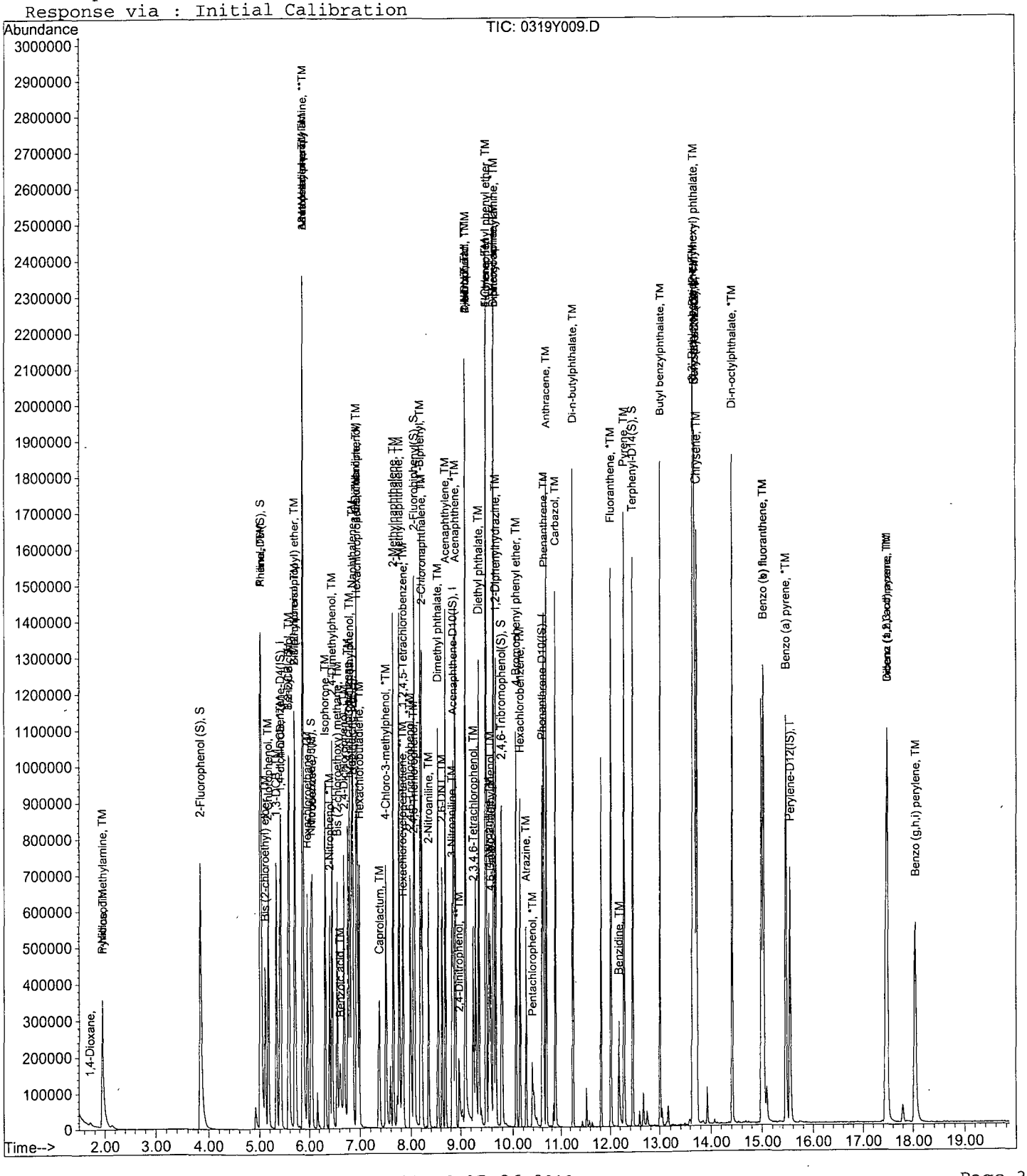
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190319\0319Y009.D Vial: 9
Acq On : 19 Mar 19 21:17 Operator: MA
Sample : 60ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y010.D Vial: 10
Acq On : 19 Mar 19 21:44 Operator: MA
Sample : 80ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	124639	40.00000	ppb	0.00
21) Napthalene-D8(IS)	6.84	136	522881	40.00000	ppb	0.00
41) Acenaphthene-D10(IS)	8.86	164	282109	40.00000	ppb	0.00
65) Phenanthrene-D10(IS)	10.60	188	471351	40.00000	ppb	0.00
79) Chrysene-D12(IS)	13.69	240	412376	40.00000	ppb	0.00
89) Perylene-D12(IS)	15.55	264	411654	40.00000	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.84	112	738693	158.57052	ppb	0.00
Spiked Amount 200.000			Recovery = 79.286%			
6) Phenol-D6 (S)	5.01	99	947457	155.56742	ppb	0.00
Spiked Amount 200.000			Recovery = 77.784%			
22) Nitrobenzene-D5(S)	6.04	82	430884	77.99732	ppb	0.01
Spiked Amount 100.000			Recovery = 77.997%			
46) 2-Fluorobiphenyl(S)	8.08	172	792997	76.13085	ppb	0.00
Spiked Amount 100.000			Recovery = 76.131%			
64) 2,4,6-Tribromophenol(S)	9.79	330	149661	160.07313	ppb	0.00
Spiked Amount 200.000			Recovery = 80.037%			
82) Terphenyl-D14(S)	12.46	244	787455	78.11789	ppb	0.00
Spiked Amount 100.000			Recovery = 78.118%			
Target Compounds						Qvalue
2) 1,4-Dioxane	1.71	58	7489	8.87541		91
3) n-Nitrosodimethylamine	1.94	42	116191	73.35769	ppb	100
4) Pyridine	1.95	79	274406	72.03723	ppb	95
7) Phenol	5.03	94	500767	74.30987	ppb	88
8) Aniline	5.04	93	488876	74.41526	ppb	86
9) Bis (2-chloroethyl) ether	5.12	63	222242	74.20123	ppb	98
10) 2-Chlorophenol	5.17	128	368198	75.10302	ppb	99
11) 1,3-DCB	5.34	146	379628	73.76470	ppb	98
12) 1,4-DCB	5.42	146	385398	72.82252	ppb	99
13) Benzyl alcohol	5.58	108	221913	77.84194	ppb	91
14) 1,2-DCB	5.59	146	361603	73.72321	ppb	99
15) 2-Methylphenol	5.71	107	314233	73.57507	ppb	98
16) Bis (2-chloroisopropyl) et	5.71	45	323030	73.22129	ppb	96
17) Acetophenone	5.87	105	483988	73.99586	ppb	97
18) 3&4-Methylphenol	5.88	107	768184	149.83886	ppb	98
19) n-Nitrosodi-n-propylamine	5.87	70	261635	72.88269	ppb	95
20) Hexachloroethane	5.96	117	146122	73.34555	ppb	97
23) Nitrobenzene	6.06	77	397299	74.45028	ppb	95
24) Isophorone	6.33	82	694207	74.80602	ppb	97
25) 2-Nitrophenol	6.42	139	206201	76.22518	ppb	97
26) 2,4-Dimethylphenol	6.46	122	319334	74.88767	ppb	99
27) Benzoic acid	6.64	105	261327	89.18570	ppb	98
28) Bis (2-chloroethoxy) metha	6.56	93	420280	74.13799	ppb	98
29) 2,4-Dichlorophenol	6.69	162	278019	76.88976	ppb	96
30) 1,2,4-Trichlorobenzene	6.78	180	294061	74.08541	ppb	99
31) 3,4-Dimethylphenol	6.81	107	465258	73.78263	ppb	99
32) Naphthalene	6.86	128	1038095	73.36699	ppb	100
33) 4-Chloroaniline	6.93	127	367949	70.53883	ppb	98
34) 2,6-Dichlorophenol	6.94	162	269825	74.22015	ppb	98
35) Hexachloropropene	6.95	213	171358	77.69879	ppb	99
36) Hexachlorobutadiene	6.99	225	143366	73.63278	ppb	99
37) Caprolactum	7.39	55	136816	75.09349	ppb	94

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190319\0319Y010.D Vial: 10
Acq On : 19 Mar 19 21:44 Operator: MA
Sample : 80ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

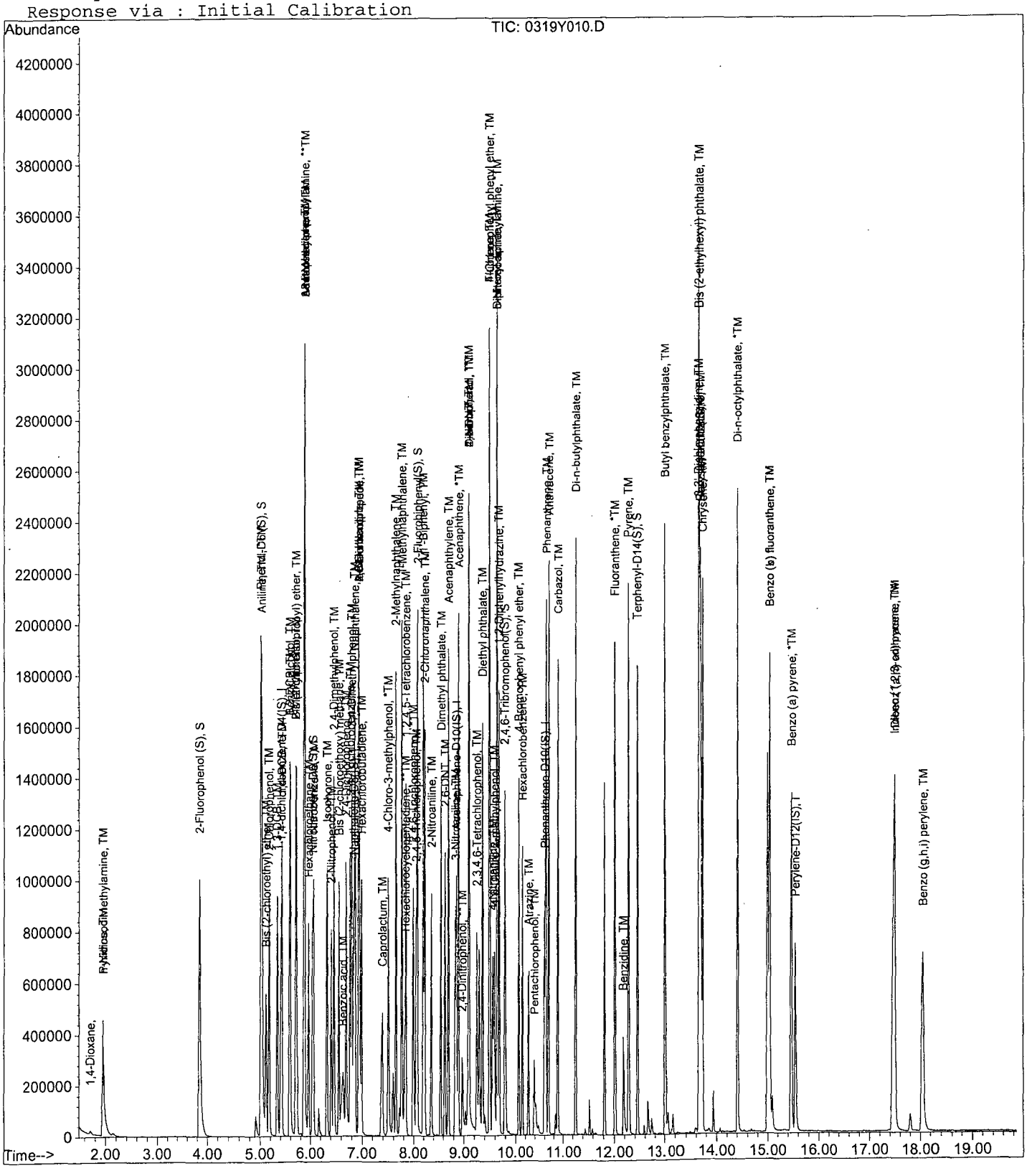
Compound	R.T.	QIon	Response	Conc Unit		Qvalue
38) 4-Chloro-3-methylphenol	7.50	107	327934	74.82010 ppb		96
39) 2-Methylnaphthalene	7.65	142	673129	74.60640 ppb		98
40) 1-Methylnaphthalene	7.77	142	691557	73.95670 ppb		100
42) Hexachlorocyclopentadiene	7.83	237	70940	80.93094 ppb		99
43) 1,2,4,5-Tetrachlorobenzene	7.84	216	270466	73.43339 ppb		100
44) 2,4,6-Trichlorophenol	7.99	196	181249	76.52267 ppb		99
45) 2,4,5-Trichlorophenol	8.05	196	191311	75.15320 ppb		96
47) 1,1'-Biphenyl	8.19	154	856636	73.46029 ppb		100
48) 2-Chloronaphthalene	8.23	162	636805	72.60351 ppb		95
49) 2-Nitroaniline	8.36	65	214971	74.78434 ppb		99
50) Dimethyl phthalate	8.55	163	749146	73.48817 ppb		99
51) 2,6-DNT	8.63	165	179882	75.46163 ppb		92
52) Acenaphthylene	8.70	152	1021819	73.60792 ppb		99
53) 3-Nitroaniline	8.84	138	195736	74.70167 ppb		97
54) Acenaphthene	8.90	154	651107	72.81806 ppb		99
55) 2,4-Dinitrophenol	8.98	184	87654	71.15902 ppb		95
56) 4-Nitrophenol	9.10	65	121095	77.09489 ppb		94
57) Dibenzofuran	9.10	168	882579	72.73162 ppb		98
58) 2,4-DNT	9.11	165	239317	74.28125 ppb		91
59) 2,3,4,6-Tetrachlorophenol	9.26	232	133018	82.28950 ppb		99
60) Diethyl phthalate	9.37	149	735163	73.07732 ppb		98
61) 4-Chlorophenyl phenyl ethe	9.50	204	331462	71.48049 ppb		99
62) Fluorene	9.51	166	731875	72.30262 ppb		99
63) 4-Nitroaniline	9.56	138	190904	72.02220 ppb		96
66) 4,6-Dinitro-2-methylphenol	9.59	198	147764	84.02641 ppb		89
67) Diphenyl amine	9.65	169	1131969	143.14595 ppb		99
68) n-Nitrosodiphenylamine	9.65	169	1131969	143.14595 ppb		99
69) 1,2-Diphenylhydrazine	9.68	77	899802	81.30286 ppb		97
70) 4-Bromophenyl phenyl ether	10.06	248	181349	73.50178 ppb		99
71) Hexachlorobenzene	10.14	284	169696	74.05384 ppb		96
72) Atrazine	10.27	200	99114	36.67639 ppb		95
73) Pentachlorophenol	10.39	266	70646	79.76194 ppb		98
74) Phenanthrene	10.63	178	1046291	72.64729 ppb		100
75) Anthracene	10.69	178	1107324	72.78248 ppb		100
76) Carbazol	10.88	167	1031382	73.61438 ppb		100
77) Di-n-butylphthalate	11.26	149	1261013	71.87650 ppb		99
78) Fluoranthene	12.02	202	1105666	73.42266 ppb		99
80) Benzidine	12.18	184	235199	71.91062 ppb		98
81) Pyrene	12.28	202	1139228	74.93335 ppb		99
83) Butyl benzylphthalate	13.02	149	573895	74.56968 ppb		99
84) 3,3'-Dichlorobenzidine	13.65	252	277452	72.58701 ppb	#	96
85) Benz (a) anthracene	13.68	228	1012545	75.31628 ppb		99
86) Bis (2-ethylhexyl) phthala	13.67	149	814809	73.91756 ppb		99
87) Chrysene	13.73	228	967964	74.67760 ppb		99
88) Di-n-octylphthalate	14.42	149	1420300	74.72471 ppb		98
90) Benzo (b) fluoranthene	15.04	252	876462	71.53857 ppb		97
91) Benzo (k) fluoranthene	15.04	252	876462	71.53857 ppb		97
92) Benzo (a) pyrene	15.48	252	904838	74.15550 ppb		98
93) Indeno (1,2,3-cd) pyrene	17.48	276	972746	74.10046 ppb		96
94) Dibenz (a,h) anthracene	17.50	278	858807	74.61788 ppb		98
95) Benzo (g,h,i) perylene	18.06	276	775963	74.06913 ppb		99

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190319\0319Y010.D Vial: 10
Acq On : 19 Mar 19 21:44 Operator: MA
Sample : 80ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y011.D Vial: 11
Acq On : 19 Mar 19 22:11 Operator: MA
Sample : 100ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	128999	40.00000 ppb	0.00
21) Napthalene-D8(IS)	6.84	136	546463	40.00000 ppb	0.00
41) Acenaphthene-D10(IS)	8.86	164	293849	40.00000 ppb	0.00
65) Phenanthrene-D10(IS)	10.60	188	490122	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.70	240	432203	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.55	264	424247	40.00000 ppb	0.00
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.84	112	958858	198.87509 ppb	0.00
Spiked Amount 200.000			Recovery	= 99.438%	
6) Phenol-D6 (S)	5.02	99	1236542	196.17137 ppb	0.00
Spiked Amount 200.000			Recovery	= 98.086%	
22) Nitrobenzene-D5(S)	6.04	82	553462	95.86260 ppb	0.00
Spiked Amount 100.000			Recovery	= 95.863%	
46) 2-Fluorobiphenyl(S)	8.08	172	1015497	93.59670 ppb	0.00
Spiked Amount 100.000			Recovery	= 93.597%	
64) 2,4,6-Tribromophenol(S)	9.79	330	199616	204.97357 ppb	0.00
Spiked Amount 200.000			Recovery	= 102.487%	
82) Terphenyl-D14(S)	12.46	244	1007645	95.37573 ppb	0.00
Spiked Amount 100.000			Recovery	= 95.376%	
Target Compounds					Qvalue
2) 1,4-Dioxane	1.71	58	8764	10.03540	79
3) n-Nitrosodimethylamine	1.94	42	149106	90.95695 ppb	96
4) Pyridine	1.95	79	353962	89.78167 ppb	96
7) Phenol	5.03	94	632343	90.66321 ppb	92
8) Aniline	5.04	93	623311	91.67179 ppb	97
9) Bis (2-chloroethyl) ether	5.11	63	284907	91.90851 ppb	99
10) 2-Chlorophenol	5.18	128	464858	91.61443 ppb	94
11) 1,3-DCB	5.34	146	480677	90.24254 ppb	99
12) 1,4-DCB	5.42	146	487952	89.08426 ppb	99
13) Benzyl alcohol	5.58	108	281389	95.36865 ppb	95
14) 1,2-DCB	5.59	146	456948	90.01328 ppb	99
15) 2-Methylphenol	5.71	107	400929	90.70140 ppb	99
16) Bis (2-chloroisopropyl) et	5.71	45	408465	89.45755 ppb	93
17) Acetophenone	5.87	105	611533	90.33590 ppb	88
18) 3&4-Methylphenol	5.89	107	971454	183.08343 ppb	100
19) n-Nitrosodi-n-propylamine	5.88	70	334389	90.00116 ppb	99
20) Hexachloroethane	5.96	117	186656	90.52483 ppb	95
23) Nitrobenzene	6.06	77	495416	88.83027 ppb	94
24) Isophorone	6.33	82	868215	89.51935 ppb	99
25) 2-Nitrophenol	6.41	139	265905	94.05379 ppb	94
26) 2,4-Dimethylphenol	6.47	122	407998	91.55147 ppb	95
27) Benzoic acid	6.66	105	338030	110.38455 ppb	97
28) Bis (2-chloroethoxy) metha	6.56	93	537091	90.65506 ppb	99
29) 2,4-Dichlorophenol	6.69	162	350974	92.87762 ppb	99
30) 1,2,4-Trichlorobenzene	6.78	180	368788	88.90253 ppb	99
31) 3,4-Dimethylphenol	6.80	107	588474	89.29551 ppb	100
32) Naphthalene	6.87	128	1321905	89.39350 ppb	99
33) 4-Chloroaniline	6.94	127	435084	79.80973 ppb	96
34) 2,6-Dichlorophenol	6.94	162	343607	90.43650 ppb	98
35) Hexachloropropene	6.95	213	221953	96.29705 ppb	98
36) Hexachlorobutadiene	6.99	225	179910	88.41428 ppb	97
37) Caprolactum	7.40	55	175756	92.30339 ppb	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y011.D Vial: 11
Acq On : 19 Mar 19 22:11 Operator: MA
Sample : 100ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Compound	R.T.	QIon	Response	Conc Unit		Qvalue
38) 4-Chloro-3-methylphenol	7.51	107	424655	92.70650 ppb		99
39) 2-Methylnaphthalene	7.66	142	848678	90.00421 ppb		100
40) 1-Methylnaphthalene	7.77	142	875232	89.56016 ppb		99
42) Hexachlorocyclopentadiene	7.83	237	105184	99.60718 ppb		97
43) 1,2,4,5-Tetrachlorobenzene	7.84	216	340674	88.79992 ppb		97
44) 2,4,6-Trichlorophenol	7.99	196	231114	93.67710 ppb		99
45) 2,4,5-Trichlorophenol	8.05	196	244412	92.17705 ppb		99
47) 1,1'-Biphenyl	8.20	154	1087136	89.50203 ppb		98
48) 2-Chloronaphthalene	8.22	162	814565	89.15991 ppb		97
49) 2-Nitroaniline	8.35	65	274610	91.71489 ppb		94
50) Dimethyl phthalate	8.55	163	959118	90.32661 ppb		99
51) 2,6-DNT	8.63	165	233972	94.23128 ppb		82
52) Acenaphthylene	8.70	152	1296743	89.68034 ppb		99
53) 3-Nitroaniline	8.84	138	245951	90.11579 ppb		92
54) Acenaphthene	8.90	154	821465	88.19999 ppb		98
55) 2,4-Dinitrophenol	8.98	184	119143	90.70931 ppb		96
56) 4-Nitrophenol	9.07	65	159994	102.32682 ppb	#	76
57) Dibenzofuran	9.11	168	1112137	87.98744 ppb		93
58) 2,4-DNT	9.11	165	306608	91.36542 ppb		79
59) 2,3,4,6-Tetrachlorophenol	9.26	232	172487	102.44319 ppb		96
60) Diethyl phthalate	9.37	149	913366	87.16387 ppb		99
61) 4-Chlorophenyl phenyl ethe	9.50	204	427282	88.46288 ppb		95
62) Fluorene	9.51	166	931717	88.36777 ppb		99
63) 4-Nitroaniline	9.57	138	241665	87.53018 ppb		93
66) 4,6-Dinitro-2-methylphenol	9.60	198	195017	106.64976 ppb	#	79
67) Diphenyl amine	9.65	169	1453305	176.74271 ppb		99
68) n-Nitrosodiphenylamine	9.65	169	1453305	176.74271 ppb		99
69) 1,2-Diphenylhydrazine	9.68	77	1133772	98.52009 ppb		94
70) 4-Bromophenyl phenyl ether	10.07	248	233692	91.08917 ppb		86
71) Hexachlorobenzene	10.15	284	215413	90.40410 ppb		86
72) Atrazine	10.27	200	126617	45.05924 ppb		97
73) Pentachlorophenol	10.39	266	96308	102.60104 ppb		98
74) Phenanthrene	10.63	178	1336863	89.26765 ppb		99
75) Anthracene	10.69	178	1408486	89.03175 ppb		99
76) Carbazol	10.89	167	1314585	90.23438 ppb		97
77) Di-n-butylphthalate	11.26	149	1619389	88.76847 ppb		100
78) Fluoranthene	12.02	202	1425227	91.01866 ppb		97
80) Benzidine	12.19	184	300037	87.52618 ppb		98
81) Pyrene	12.29	202	1457256	91.45468 ppb		99
83) Butyl benzylphthalate	13.01	149	737088	91.38077 ppb		96
84) 3,3'-Dichlorobenzidine	13.66	252	343274	85.68751 ppb		99
85) Benz (a) anthracene	13.68	228	1263351	89.66112 ppb		98
86) Bis (2-ethylhexyl) phthala	13.66	149	1014608	87.82046 ppb		98
87) Chrysene	13.73	228	1222782	90.00896 ppb		98
88) Di-n-octylphthalate	14.42	149	1823445	91.53399 ppb		96
90) Benzo (b) fluoranthene	15.05	252	1198995	94.95943 ppb		99
91) Benzo (k) fluoranthene	15.05	252	1198995	94.95943 ppb		99
92) Benzo (a) pyrene	15.47	252	1144046	90.97657 ppb		100
93) Indeno (1,2,3-cd) pyrene	17.49	276	1234147	91.22249 ppb		97
94) Dibenz (a,h) anthracene	17.52	278	1080909	91.12762 ppb		96
95) Benzo (g,h,i) perylene	18.07	276	989000	91.60224 ppb		99

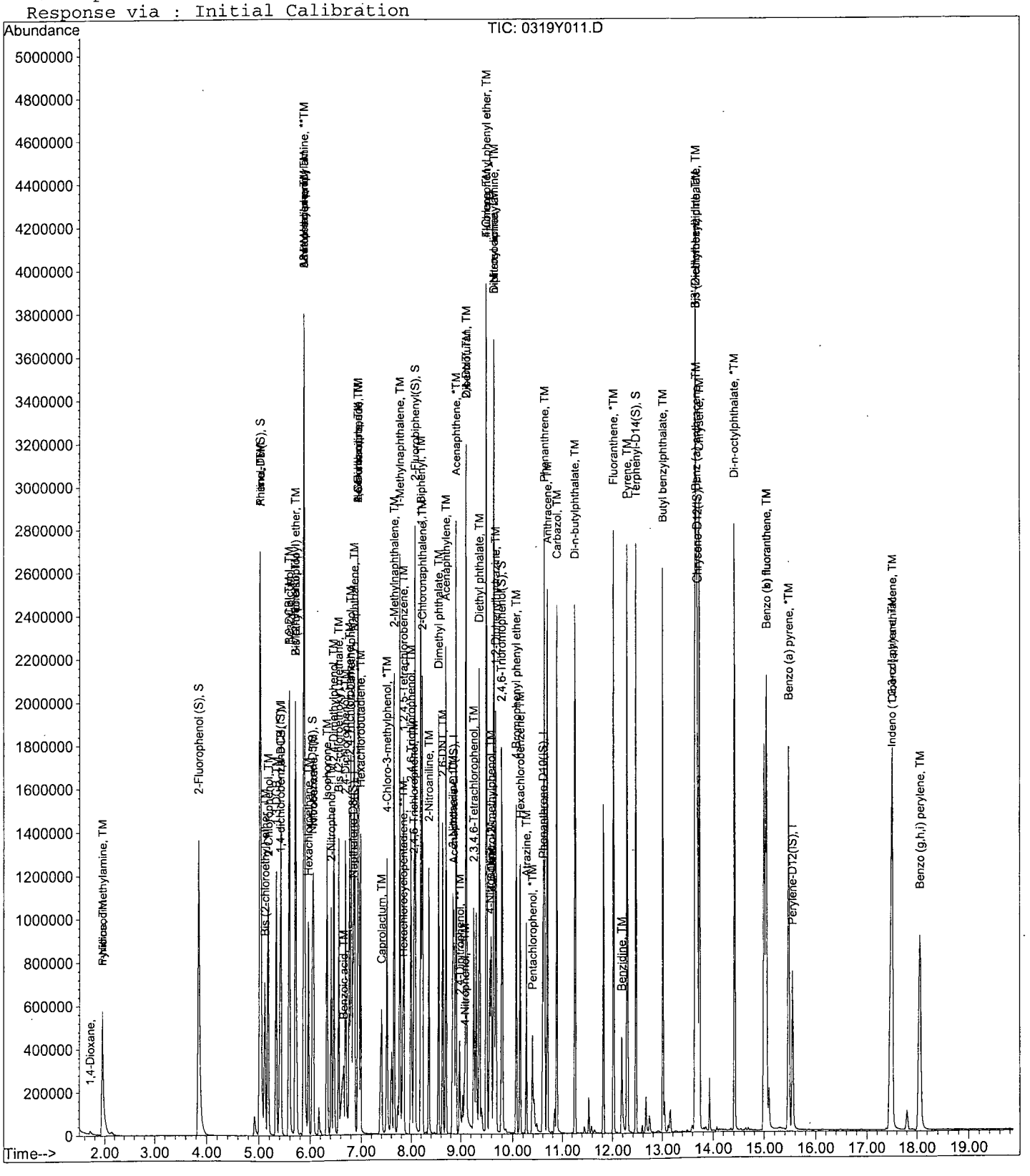
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190319\0319Y011.D Vial: 11
Acq On : 19 Mar 19 22:11 Operator: MA
Sample : 100ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 03/19/19
Instrument: Yoda
Initial Cal. Date: 03/19/19
Data File: 0319Y012.D

		Compound	MEAN	CCRF	%D		%Drift
1		1,4-Dioxane	0.2708	0.2758	1.8		
2	TM	n-Nitrosodimethylamine	0.5083	0.4536	11	TM	
3	TM	Pyridine	1.222	1.245	1.9	TM	
4	*TM	Phenol	2.163	2.182	0.89	*TM	
5	TM	Aniline	2.108	2.063	2.2	TM	
6	TM	Bis (2-chloroethyl) ether	0.9612	0.9227	4.0	TM	
7	TM	2-Chlorophenol	1.573	1.558	1.00	TM	
8	TM	1,3-DCB	1.652	1.633	1.2	TM	
9	*TM	1,4-DCB	1.698	1.688	0.62	*TM	
10	TM	Benzyl alcohol	0.9149	0.9011	1.5	TM	
11	TM	1,2-DCB	1.574	1.577	0.17	TM	
12	TM	2-Methylphenol	1.371	1.313	4.2	TM	
13	TM	Bis (2-chloroisopropyl) ether	1.416	1.347	4.8	TM	
14	TM	Acetophenone	2.099	2.045	2.6	TM	
15	TM	3&4-Methylphenol	1.645	1.624	1.3	TM	
16	**TM	n-Nitrosodi-n-propylamine	1.152	1.099	4.6	**TM	
17	TM	Hexachloroethane	0.6394	0.6376	0.27	TM	
18	TM	Nitrobenzene	0.4082	0.3946	3.3	TM	
19	TM	Isophorone	0.7099	0.7016	1.2	TM	
20	*TM	2-Nitrophenol	0.2069	0.2042	1.3	*TM	
21	TM	2,4-Dimethylphenol	0.3262	0.3125	4.2	TM	
22	TM	Benzoic acid	0.2229	0.2510	13	TM	
23	TM	Bis (2-chloroethoxy) methane	0.4337	0.4143	4.5	TM	
24	*TM	2,4-Dichlorophenol	0.2766	0.2784	0.65	*TM	
25	TM	1,2,4-Trichlorobenzene	0.3036	0.2987	1.6	TM	
26	TM	3,4-Dimethylphenol	0.4824	0.4656	3.5	TM	
27	TM	Naphthalene	1.082	1.057	2.3	TM	
28	TM	4-Chloroaniline	0.3990	0.3874	2.9	TM	
29	TM	2,6-Dichlorophenol	0.2781	0.2704	2.8	TM	
30	TM	Hexachloropropene	0.1687	0.1705	1.1	TM	
31	*TM	Hexachlorobutadiene	0.1489	0.1463	1.8	*TM	
32	TM	Caprolactum	0.1394	0.1341	3.8	TM	
33	*TM	4-Chloro-3-methylphenol	0.3353	0.3256	2.9	*TM	
34	TM	2-Methylnaphthalene	0.6902	0.6654	3.6	TM	
35	TM	1-Methylnaphthalene	0.7153	0.6853	4.2	TM	
36	**TMQ	Hexachlorocyclopentadiene	0.0924	0.0990	7.1	**TMQ	7.2
37	TM	1,2,4,5-Tetrachlorobenzene	0.5222	0.4998	4.3	TM	
38	*TM	2,4,6-Trichlorophenol	0.3358	0.3306	1.5	*TM	
39	TM	2,4,5-Trichlorophenol	0.3609	0.3495	3.2	TM	
40	TM	1,1'-Biphenyl	1.653	1.591	3.7	TM	
		Average			3.1		

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 03/19/19
Instrument: Yoda
Cal. Date: 03/19/19
Data File: 0319Y012.D

		Compound	MEAN	CCRF	%D		%Drift
41	TM	2-Chloronaphthalene	1.244	1.232	0.90	TM	
42	TM	2-Nitroaniline	0.4076	0.3927	3.6	TM	
43	TM	Dimethyl phthalate	1.445	1.387	4.1	TM	
44	TM	2,6-DNT	0.3380	0.3438	1.7	TM	
45	TM	Acenaphthylene	1.968	1.931	1.9	TM	
46	TM	3-Nitroaniline	0.3715	0.3753	1.0	TM	
47	*TM	Acenaphthene	1.268	1.234	2.7	*TM	
48	**TML	2,4-Dinitrophenol	0.1285	0.1399	8.8	**TML	2.8
49	**TMQ	4-Nitrophenol	0.1853	0.2146	16	**TMQ	1.4
50	TM	Dibenzofuran	1.721	1.642	4.6	TM	
51	TM	2,4-DNT	0.4568	0.4638	1.5	TM	
52	TM	2,3,4,6-Tetrachlorophenol	0.2292	0.2538	11	TM	
53	TM	Diethyl phthalate	1.426	1.368	4.1	TM	
54	TM	4-Chlorophenyl phenyl ether	0.6575	0.6283	4.4	TM	
55	TM	Fluorene	1.435	1.405	2.1	TM	
56	TM	4-Nitroaniline	0.3758	0.3660	2.6	TM	
57	TM	4,6-Dinitro-2-methylphenol	0.1492	0.1589	6.5	TM	
58	TM	Diphenyl amine	0.6711	0.6712	0.01	TM	
59	*TM	n-Nitrosodiphenylamine	0.6711	0.6712	0.01	*TM	
60	TM	1,2-Diphenylhydrazine	0.9392	0.9000	4.2	TM	
61	TM	4-Bromophenyl phenyl ether	0.2094	0.2004	4.3	TM	
62	TM	Hexachlorobenzene	0.1945	0.1915	1.5	TM	
63	TM	Atrazine	0.2293	0.2249	1.9	TM	
64	*TML	Pentachlorophenol	0.0643	0.0638	0.80	*TML	8.4
65	TM	Phenanthrene	1.222	1.192	2.5	TM	
66	TM	Anthracene	1.291	1.238	4.1	TM	
67	TM	Carbazol	1.189	1.175	1.2	TM	
68	TM	Di-n-butylphthalate	1.489	1.422	4.5	TM	
69	*TM	Fluoranthene	1.278	1.252	2.0	*TM	
70	TM	Benzidine	0.3087	0.4238	37	TM	
71	TM	Pyrene	1.475	1.477	0.19	TM	
72	TM	Butyl benzylphthalate	0.7465	0.7432	0.45	TM	
73	TM	3,3'-Dichlorobenzidine	0.3708	0.4245	14	TM	
74	TM	Benz (a) anthracene	1.304	1.287	1.3	TM	
75	TM	Bis (2-ethylhexyl) phthalate	1.069	1.047	2.1	TM	
76	TM	Chrysene	1.257	1.249	0.66	TM	
77	*TM	Di-n-octylphthalate	1.844	1.830	0.75	*TM	
78	TM	Benzo (b) fluoranthene	1.190	1.224	2.8	TM	
79	TM	Benzo (k) fluoranthene	1.190	1.224	2.8	TM	
80	*TM	Benzo (a) pyrene	1.186	1.173	1.1	*TM	
		Average			4.2		

*NT HA 5/13/19

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 03/19/19
Instrument: Yoda
Cal. Date: 03/19/19
Data File: 0319Y012.D

		Compound	MEAN	CCRF	%D		%Drift
81	TM	Indeno (1,2,3-cd) pyrene	1.276	1.260	1.2	TM	
82	TM	Dibenz (a,h) anthracene	1.118	1.109	0.80	TM	
83	TM	Benzo (g,h,i) perylene	1.018	1.004	1.4	TM	
84							
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117							
118							
119							
120							
		Average			1.1		

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y012.D Vial: 12
Acq On : 19 Mar 19 22:39 Operator: MA
Sample : SS-8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:51 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Wed Mar 20 09:42:54 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	119662	40.00000 ppb		0.00
21) Napthalene-D8(IS)	6.84	136	503749	40.00000 ppb		0.00
41) Acenaphthene-D10(IS)	8.86	164	265971	40.00000 ppb		0.00
65) Phenanthrene-D10(IS)	10.59	188	441976	40.00000 ppb		0.00
79) Chrysene-D12(IS)	13.69	240	392951	40.00000 ppb		0.00
89) Perylene-D12(IS)	15.55	264	389935	40.00000 ppb		0.00
System Monitoring Compounds						
5) 2-Fluorophenol (S)	0.00	112	0	0.00000 ppb		
Spiked Amount 200.000			Recovery =	0.000%		
6) Phenol-D6 (S)	0.00	99	0	0.00000 ppb		
Spiked Amount 200.000			Recovery =	0.000%		
22) Nitrobenzene-D5(S)	5.96	82	20266	3.80782 ppb		-0.07
Spiked Amount 100.000			Recovery =	3.808%		
46) 2-Fluorobiphenyl(S)	0.00	172	0	0.00000 ppb		
Spiked Amount 100.000			Recovery =	0.000%		
64) 2,4,6-Tribromophenol(S)	0.00	330	0	0.00000 ppb		
Spiked Amount 200.000			Recovery =	0.000%		
82) Terphenyl-D14(S)	12.46	244	154	0.01603 ppb		0.00
Spiked Amount 100.000			Recovery =	0.016%		
Target Compounds						Qvalue
2) 1,4-Dioxane	1.71	58	4125	5.09198		81
3) n-Nitrosodimethylamine	1.94	42	67841	44.61317 ppb		100
4) Pyridine	1.95	79	186260	50.93082 ppb		99
7) Phenol	5.03	94	326371	50.44522 ppb		99
8) Aniline	5.03	93	308538	48.91811 ppb	#	95
9) Bis (2-chloroethyl) ether	5.11	63	138021	47.99852 ppb		100
10) 2-Chlorophenol	5.17	128	232989	49.50044 ppb		99
11) 1,3-DCB	5.33	146	244193	49.42211 ppb		99
12) 1,4-DCB	5.42	146	252474	49.69018 ppb		99
13) Benzyl alcohol	5.57	108	134784	49.24555 ppb		98
14) 1,2-DCB	5.59	146	235856	50.08606 ppb		99
15) 2-Methylphenol	5.70	107	196356	47.88735 ppb		99
16) Bis (2-chloroisopropyl) et	5.70	45	201555	47.58672 ppb		89
17) Acetophenone	5.87	105	305876	48.70976 ppb		91
18) 3&4-Methylphenol	5.88	107	485858	98.71116 ppb		100
19) n-Nitrosodi-n-propylamine	5.86	70	164419	47.70657 ppb		97
20) Hexachloroethane	5.96	117	95375	49.86438 ppb		97
23) Nitrobenzene	6.05	77	248485	48.33233 ppb		93
24) Isophorone	6.32	82	441766	49.41155 ppb		100
25) 2-Nitrophenol	6.41	139	128567	49.33168 ppb		97
26) 2,4-Dimethylphenol	6.46	122	196783	47.90065 ppb		98
27) Benzoic acid	6.61	105	158025	56.29546 ppb		98
28) Bis (2-chloroethoxy) metha	6.55	93	260894	47.76995 ppb		98
29) 2,4-Dichlorophenol	6.69	162	175316	50.32737 ppb		95
30) 1,2,4-Trichlorobenzene	6.77	180	188098	49.18901 ppb		96
31) 3,4-Dimethylphenol	6.80	107	293191	48.26136 ppb		97
32) Naphthalene	6.86	128	665697	48.83474 ppb		100
33) 4-Chloroaniline	6.93	127	243911	48.53563 ppb		100
34) 2,6-Dichlorophenol	6.94	162	170257	48.61086 ppb		98
35) Hexachloropropene	6.95	213	107365	50.53139 ppb		100
36) Hexachlorobutadiene	6.99	225	92116	49.10760 ppb		98
37) Caprolactum	7.37	55	84463	48.11944 ppb		95

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190319\0319Y012.D Vial: 12
Acq On : 19 Mar 19 22:39 Operator: MA
Sample : SS-8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:51 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Wed Mar 20 09:42:54 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.50	107	205002	48.54881 ppb		95
39)	2-Methylnaphthalene	7.65	142	418993	48.20291 ppb		100
40)	1-Methylnaphthalene	7.77	142	431516	47.89996 ppb		99
42)	Hexachlorocyclopentadiene	7.83	237	32915	53.59927 ppb		97
43)	1,2,4,5-Tetrachlorobenzene	7.84	216	166181	47.85694 ppb		98
44)	2,4,6-Trichlorophenol	7.99	196	109924	49.22545 ppb		96
45)	2,4,5-Trichlorophenol	8.05	196	116191	48.41308 ppb		95
47)	1,1'-Biphenyl	8.19	154	529104	48.12603 ppb		99
48)	2-Chloronaphthalene	8.22	162	409749	49.55092 ppb		98
49)	2-Nitroaniline	8.34	65	130571	48.17926 ppb		89
50)	Dimethyl phthalate	8.54	163	461073	47.97371 ppb		100
51)	2,6-DNT	8.63	165	114309	50.86295 ppb		96
52)	Acenaphthylene	8.70	152	641976	49.05147 ppb		99
53)	3-Nitroaniline	8.83	138	124765	50.50507 ppb		89
54)	Acenaphthene	8.89	154	410164	48.65494 ppb		99
55)	2,4-Dinitrophenol	8.98	184	46512	48.57875 ppb		100
56)	4-Nitrophenol	9.10	65	71354	50.68015 ppb		100
57)	Dibenzofuran	9.10	168	545810	47.70829 ppb		98
58)	2,4-DNT	9.11	165	154197	50.76498 ppb		96
59)	2,3,4,6-Tetrachlorophenol	9.25	232	84375	55.36438 ppb		99
60)	Diethyl phthalate	9.36	149	454872	47.95908 ppb		99
61)	4-Chlorophenyl phenyl ethe	9.50	204	208880	47.77858 ppb		97
62)	Fluorene	9.50	166	467270	48.96296 ppb		97
63)	4-Nitroaniline	9.55	138	121690	48.69551 ppb		94
66)	4,6-Dinitro-2-methylphenol	9.58	198	87770	53.22786 ppb		97
67)	Diphenyl amine	9.64	169	741606	100.01462 ppb		98
68)	n-Nitrosodiphenylamine	9.64	169	741606	100.01462 ppb		98
69)	1,2-Diphenylhydrazine	9.68	77	497223	47.91327 ppb		99
70)	4-Bromophenyl phenyl ether	10.06	248	110718	47.85713 ppb		95
71)	Hexachlorobenzene	10.14	284	105782	49.23042 ppb		96
72)	Atrazine	10.26	200	62133	24.51996 ppb		98
73)	Pentachlorophenol	10.39	266	35240	45.78765 ppb		95
74)	Phenanthrene	10.63	178	658612	48.76883 ppb		100
75)	Anthracene	10.68	178	683995	47.94582 ppb		99
76)	Carbazol	10.88	167	649223	49.41773 ppb		98
77)	Di-n-butylphthalate	11.26	149	785841	47.76918 ppb		100
78)	Fluoranthene	12.01	202	691935	49.00238 ppb	#	94
80)	Benzidine	12.18	184	208143	68.64547 ppb		98
81)	Pyrene	12.28	202	725716	50.09405 ppb		99
83)	Butyl benzylphthalate	13.01	149	365037	49.77620 ppb		94
84)	3,3'-Dichlorobenzidine	13.65	252	208493	57.24235 ppb	#	94
85)	Benz (a) anthracene	13.68	228	632354	49.36166 ppb		99
86)	Bis (2-ethylhexyl) phthala	13.66	149	514327	48.96504 ppb		99
87)	Chrysene	13.72	228	613494	49.67026 ppb		99
88)	Di-n-octylphthalate	14.42	149	898831	49.62690 ppb		99
90)	Benzo (b) fluoranthene	15.03	252	596428	51.39316 ppb		97
91)	Benzo (k) fluoranthene	15.03	252	596428	51.39316 ppb		97
92)	Benzo (a) pyrene	15.47	252	571604	49.45474 ppb		99
93)	Indeno (1,2,3-cd) pyrene	17.46	276	613999	49.37752 ppb		99
94)	Dibenz (a,h) anthracene	17.49	278	540732	49.59861 ppb		98
95)	Benzo (g,h,i) perylene	18.04	276	489260	49.30331 ppb		98

(#) = qualifier out of range (m) = manual integration

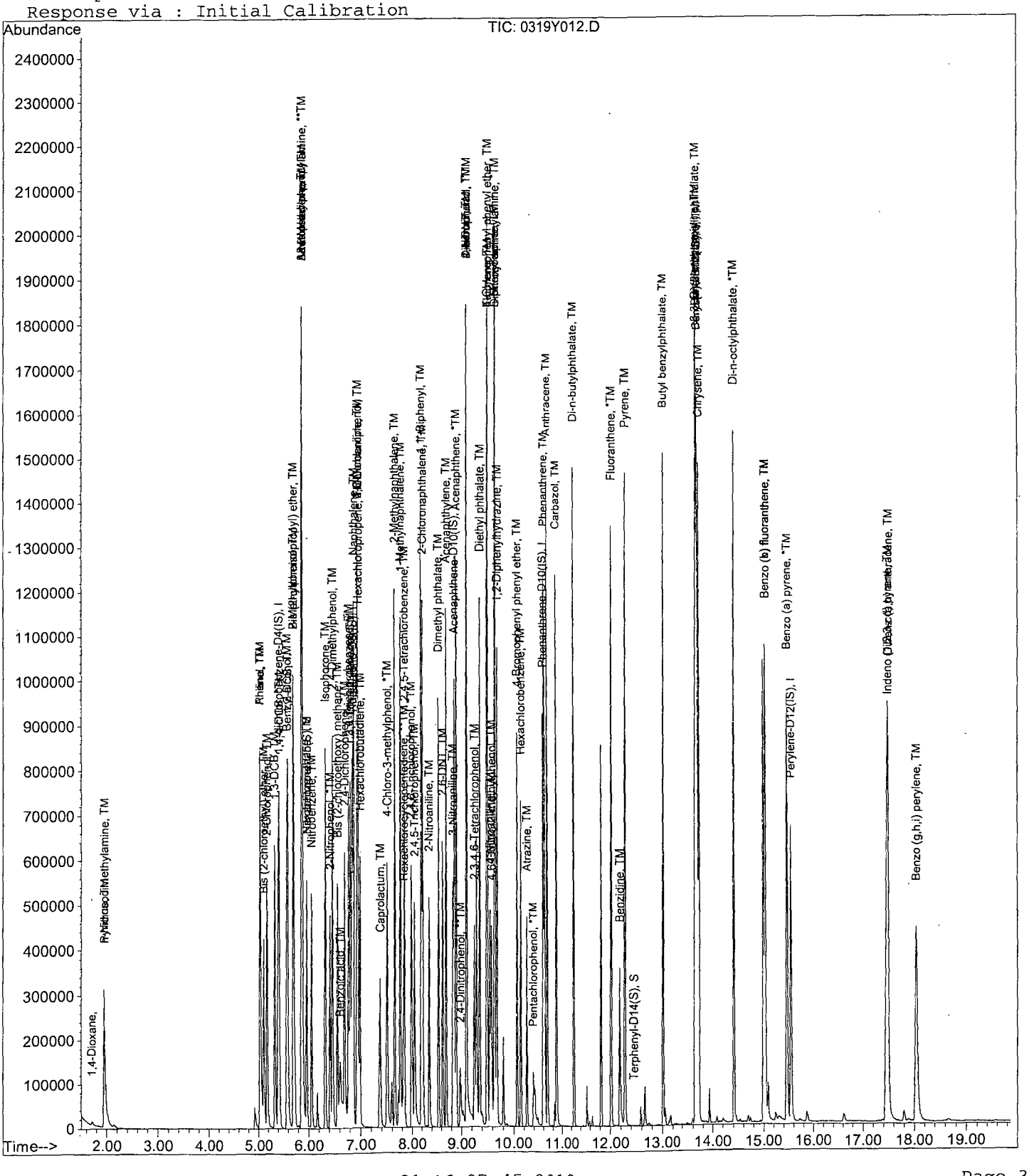
Quantitation Report

Data File : M:\YODA\DATA\Y190319\0319Y012.D
Acq On : 19 Mar 19 22:39
Sample : SS-8270 03/13/19
Misc :

Vial: 12
Operator: MA
Inst : Yoda
Multiplr: 1.00

Quant Time: Mar 20 9:51 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 2 May 19 9:26
Instrument: Yoda
Initial Cal. Date: 03/19/19
Data File: 0411Y264.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	1,4-dichlorobenzene-D4(IS)	ISTD			I	
2		1,4-Dioxane	0.2708	0.2736	1.0		
3	TM	n-Nitrosodimethylamine	0.5083	0.4896	3.7	TM	
4	TM	Pyridine	1.222	1.283	4.9	TM	
5	S	2-Fluorophenol (S)	1.495	1.599	7.0	S	
6	S	Phenol-D6 (S)	1.955	2.139	9.4	S	
7	*TM	Phenol	2.163	2.244	3.8	*TM	
8	TM	Aniline	2.108	2.384	13	TM	
9	TM	Bis (2-chloroethyl) ether	0.9612	0.9829	2.3	TM	
10	TM	2-Chlorophenol	1.573	1.621	3.0	TM	
11	TM	1,3-DCB	1.652	1.604	2.9	TM	
12	*TM	1,4-DCB	1.698	1.638	3.5	*TM	
13	TM	Benzyl alcohol	0.9149	0.9902	8.2	TM	
14	TM	1,2-DCB	1.574	1.546	1.8	TM	
15	TM	2-Methylphenol	1.371	1.402	2.3	TM	
16	TM	Bis (2-chloroisopropyl) ether	1.416	1.461	3.2	TM	
17	TM	Acetophenone	2.099	2.173	3.5	TM	
18	TM	3&4-Methylphenol	1.645	1.731	5.2	TM	
19	**TM	n-Nitrosodi-n-propylamine	1.152	1.213	5.3	**TM	
20	TM	Hexachloroethane	0.6394	0.6171	3.5	TM	
21	I	Napthalene-D8(IS)	ISTD			I	
22	S	Nitrobenzene-D5(S)	0.4226	0.4493	6.3	S	
23	TM	Nitrobenzene	0.4082	0.4009	1.8	TM	
24	TM	Isophorone	0.7099	0.7044	0.77	TM	
25	*TM	2-Nitrophenol	0.2069	0.2088	0.88	*TM	
26	TM	2,4-Dimethylphenol	0.3262	0.3307	1.4	TM	
27	TM	Benzoic acid	0.2242	0.2244	0.11	TM	
28	TM	Bis (2-chloroethoxy) methane	0.4337	0.4287	1.2	TM	
29	*TM	2,4-Dichlorophenol	0.2766	0.2833	2.4	*TM	
30	TM	1,2,4-Trichlorobenzene	0.3036	0.2955	2.7	TM	
31	TM	3,4-Dimethylphenol	0.4824	0.4813	0.22	TM	
32	TM	Naphthalene	1.082	1.065	1.6	TM	
33	TM	4-Chloroaniline	0.3990	0.4239	6.2	TM	
34	TM	2,6-Dichlorophenol	0.2781	0.2789	0.28	TM	
35	TM	Hexachloropropene	0.1687	0.1773	5.1	TM	
36	*TM	Hexachlorobutadiene	0.1489	0.1470	1.3	*TM	
37	TM	Caprolactum	0.1394	0.1423	2.1	TM	
38	*TM	4-Chloro-3-methylphenol	0.3353	0.3466	3.4	*TM	
39	TM	2-Methylnaphthalene	0.6902	0.6768	1.9	TM	
40	TM	1-Methylnaphthalene	0.7153	0.7054	1.4	TM	
		Average			3.4		

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 2 May 19 9:26
Instrument: Yoda
Cal. Date: 03/19/19
Data File: 0411Y264.D

		Compound	MEAN	CCRF	%D		%Drift
41	I	Acenaphthene-D10(IS)	ISTD			I	
42	**TMQ	Hexachlorocyclopentadiene	0.0924	0.0880	4.8	**TMQ	0.27
43	TM	1,2,4,5-Tetrachlorobenzene	0.5222	0.5063	3.0	TM	
44	*TM	2,4,6-Trichlorophenol	0.3358	0.3334	0.72	*TM	
45	TM	2,4,5-Trichlorophenol	0.3609	0.3613	0.11	TM	
46	S	2-Fluorobiphenyl(S)	1.477	1.480	0.20	S	
47	TM	1,1'-Biphenyl	1.653	1.589	3.9	TM	
48	TM	2-Chloronaphthalene	1.244	1.210	2.7	TM	
49	TM	2-Nitroaniline	0.4076	0.4145	1.7	TM	
50	TM	Dimethyl phthalate	1.445	1.442	0.26	TM	
51	TM	2,6-DNT	0.3380	0.3454	2.2	TM	
52	TM	Acenaphthylene	1.968	1.914	2.8	TM	
53	TM	3-Nitroaniline	0.3715	0.3877	4.4	TM	
54	*TM	Acenaphthene	1.268	1.230	3.0	*TM	
55	**TML	2,4-Dinitrophenol	0.1301	0.1444	11	**TML	11
56	**TMQ	4-Nitrophenol	0.1853	0.2546	37	**TMQ	16
57	TM	Dibenzofuran	1.721	1.683	2.2	TM	
58	TM	2,4-DNT	0.4568	0.4600	0.70	TM	
59	TM	2,3,4,6-Tetrachlorophenol	0.2292	0.2618	14	TM	
60	TM	Diethyl phthalate	1.426	1.409	1.3	TM	
61	TM	4-Chlorophenyl phenyl ether	0.6575	0.6478	1.5	TM	
62	TM	Fluorene	1.435	1.418	1.2	TM	
63	TM	4-Nitroaniline	0.3758	0.3654	2.8	TM	
64	S	2,4,6-Tribromophenol(S)	0.1326	0.1487	12	S	
65	I	Phenanthrene-D10(IS)	ISTD			I	
66	TM	4,6-Dinitro-2-methylphenol	0.1492	0.1628	9.1	TM	
67	TM	Diphenyl amine	0.6711	0.6669	0.63	TM	
68	*TM	n-Nitrosodiphenylamine	0.6711	0.6669	0.63	*TM	
69	TM	1,2-Diphenylhydrazine	0.9392	0.8842	5.9	TM	
70	TM	4-Bromophenyl phenyl ether	0.2094	0.2100	0.31	TM	
71	TM	Hexachlorobenzene	0.1945	0.1974	1.5	TM	
72	TM	Atrazine	0.2293	0.2306	0.56	TM	
73	*TML	Pentachlorophenol	0.0578	0.0811	40	*TML	12
74	TM	Phenanthrene	1.222	1.198	2.0	TM	
75	TM	Anthracene	1.291	1.261	2.3	TM	
76	TM	Carbazol	1.189	1.175	1.2	TM	
77	TM	Di-n-butylphthalate	1.489	1.470	1.2	TM	
78	*TM	Fluoranthene	1.278	1.251	2.1	*TM	
79	I	Chrysene-D12(IS)	ISTD			I	
80	TM	Benzidine	0.3173	0.3530	11	TM	
		Average			5.2		

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 2 May 19 9:26
Instrument: Yoda
Cal. Date: 03/19/19
Data File: 0411Y264.D

		Compound	MEAN	CCRF	%D		%Drift
81	TM	Pyrene	1.475	1.449	1.8	TM	
82	S	Terphenyl-D14(S)	0.9778	1.010	3.3	S	
83	TM	Butyl benzylphthalate	0.7465	0.7357	1.4	TM	
84	TM	3,3'-Dichlorobenzidine	0.3708	0.3750	1.1	TM	
85	TM	Benz (a) anthracene	1.304	1.278	2.0	TM	
86	TM	Bis (2-ethylhexyl) phthalate	1.069	1.018	4.8	TM	
87	TM	Chrysene	1.257	1.224	2.7	TM	
88	*TM	Di-n-octylphthalate	1.844	1.795	2.6	*TM	
89	I	Perylene-D12(IS)	ISTD			I	
90	TM	Benzo (b) fluoranthene	1.190	1.339	12	TM	
91	TM	Benzo (k) fluoranthene	1.190	1.110	6.7	TM	
92	*TM	Benzo (a) pyrene	1.186	1.168	1.5	*TM	
93	TM	Indeno (1,2,3-cd) pyrene	1.276	1.243	2.6	TM	
94	TM	Dibenz (a,h) anthracene	1.118	1.087	2.8	TM	
95	TM	Benzo (g,h,i) perylene	1.018	0.9924	2.5	TM	
96							
97							
98							
99							
100							
101							
102							
103							
104							
105							
106							
107							
108							
109							
110							
111							
112							
113							
114							
115							
116							
117							
118							
119							
120							
		Average			3.4		

Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y264.D Vial: 64
Acq On : 2 May 19 9:26 Operator: MA
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: May 2 9:40 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Wed May 01 12:19:54 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	184492	40.00000	ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	808807	40.00000	ppb	-0.03
41) Acenaphthene-D10(IS)	8.78	164	439608	40.00000	ppb	-0.01
65) Phenanthrene-D10(IS)	10.53	188	736697	40.00000	ppb	0.00
79) Chrysene-D12(IS)	13.65	240	671005	40.00000	ppb	0.02
89) Perylene-D12(IS)	15.49	264	660853	40.00000	ppb	0.02
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.67	112	737565	106.96340	ppb	-0.12
Spiked Amount 200.000			Recovery = 53.481%			
6) Phenol-D6 (S)	4.89	99	986662	109.44703	ppb	-0.05
Spiked Amount 200.000			Recovery = 54.724%			
22) Nitrobenzene-D5(S)	5.93	82	454296	53.16382	ppb	-0.04
Spiked Amount 100.000			Recovery = 53.164%			
46) 2-Fluorobiphenyl(S)	7.99	172	813203	50.10020	ppb	-0.03
Spiked Amount 100.000			Recovery = 50.100%			
64) 2,4,6-Tribromophenol(S)	9.72	330	163452	112.18929	ppb	0.00
Spiked Amount 200.000			Recovery = 56.094%			
82) Terphenyl-D14(S)	12.40	244	847306	51.65741	ppb	0.00
Spiked Amount 100.000			Recovery = 51.657%			
Target Compounds						Qvalue
2) 1,4-Dioxane	1.61	58	6310	5.05208		88
3) n-Nitrosodimethylamine	1.85	42	112898	48.15438	ppb	93
4) Pyridine	1.86	79	295789	52.45922	ppb	97
7) Phenol	4.90	94	517513	51.88102	ppb	89
8) Aniline	4.91	93	549900	56.54881	ppb	98
9) Bis (2-chloroethyl) ether	4.99	63	226676	51.12896	ppb	97
10) 2-Chlorophenol	5.05	128	373818	51.51250	ppb	94
11) 1,3-DCB	5.22	146	369793	48.54287	ppb	98
12) 1,4-DCB	5.30	146	377850	48.23387	ppb	99
13) Benzyl alcohol	5.46	108	228364	54.11716	ppb	97
14) 1,2-DCB	5.48	146	356515	49.10508	ppb	98
15) 2-Methylphenol	5.59	107	323268	51.13497	ppb	97
16) Bis (2-chloroisopropyl) et	5.60	45	336907	51.59184	ppb	99
17) Acetophenone	5.76	105	501192	51.76705	ppb	90
18) 3&4-Methylphenol	5.77	107	798429	105.21361	ppb	98
19) n-Nitrosodi-n-propylamine	5.76	70	279735	52.64435	ppb	99
20) Hexachloroethane	5.85	117	142308	48.25739	ppb	98
23) Nitrobenzene	5.95	77	405273	49.09695	ppb	91
24) Isophorone	6.23	82	712195	49.61402	ppb	97
25) 2-Nitrophenol	6.31	139	211060	50.43960	ppb	91
26) 2,4-Dimethylphenol	6.37	122	334315	50.68495	ppb	97
27) Benzoic acid	6.54	105	226874m	50.05571	ppb	98
28) Bis (2-chloroethoxy) metha	6.47	93	433382	49.42320	ppb	99
29) 2,4-Dichlorophenol	6.60	162	286425	51.21096	ppb	94
30) 1,2,4-Trichlorobenzene	6.67	180	298776	48.66301	ppb	99
31) 3,4-Dimethylphenol	6.71	107	486603	49.88765	ppb	98
32) Naphthalene	6.77	128	1076922	49.20461	ppb	100
33) 4-Chloroaniline	6.84	127	428522	53.10944	ppb	99
34) 2,6-Dichlorophenol	6.84	162	281956	50.13938	ppb	95
35) Hexachloropropene	6.86	213	179274	52.55150	ppb	99
36) Hexachlorobutadiene	6.90	225	148617	49.34594	ppb	98
37) Caprolactum	7.29	55	143861	51.04655	ppb	96

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190411\0411Y264.D
Acq On : 2 May 19 9:26
Sample : 50ug/ml 8270 3/13/19
Misc :

Vial: 64
Operator: MA
Inst : Yoda
Multiplr: 1.00

Quant Time: May 2 9:40 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Wed May 01 12:19:54 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.42	107	350405	51.68448	ppb		99
39)	2-Methylnaphthalene	7.56	142	684275	49.03051	ppb		100
40)	1-Methylnaphthalene	7.68	142	713148	49.30457	ppb		100
42)	Hexachlorocyclopentadiene	7.73	237	48335	50.13406	ppb		98
43)	1,2,4,5-Tetrachlorobenzene	7.76	216	278228	48.47670	ppb		99
44)	2,4,6-Trichlorophenol	7.91	196	183220	49.64079	ppb		99
45)	2,4,5-Trichlorophenol	7.96	196	198552	50.05335	ppb		91
47)	1,1'-Biphenyl	8.11	154	872969	48.04038	ppb		97
48)	2-Chloronaphthalene	8.13	162	665077	48.66026	ppb		99
49)	2-Nitroaniline	8.27	65	227767	50.84789	ppb		94
50)	Dimethyl phthalate	8.47	163	792182	49.86861	ppb		98
51)	2,6-DNT	8.56	165	189811	51.09886	ppb		96
52)	Acenaphthylene	8.61	152	1051555	48.61093	ppb		99
53)	3-Nitroaniline	8.76	138	213045	52.17738	ppb		94
54)	Acenaphthene	8.82	154	675992	48.51540	ppb		99
55)	2,4-Dinitrophenol	8.90	184	79338	44.28597	ppb		100
56)	4-Nitrophenol	8.98	65	139920	58.19666	ppb		78
57)	Dibenzofuran	9.02	168	925004	48.91754	ppb		94
58)	2,4-DNT	9.03	165	252779	50.34983	ppb		82
59)	2,3,4,6-Tetrachlorophenol	9.18	232	143853	57.10896	ppb		97
60)	Diethyl phthalate	9.30	149	773989	49.37250	ppb		97
61)	4-Chlorophenyl phenyl ethe	9.42	204	355946	49.25941	ppb		96
62)	Fluorene	9.43	166	779284	49.40424	ppb		99
63)	4-Nitroaniline	9.49	138	200794	48.61311	ppb		95
66)	4,6-Dinitro-2-methylphenol	9.52	198	149879	54.53100	ppb		88
67)	Diphenyl amine	9.57	169	1228175	99.37115	ppb		97
68)	n-Nitrosodiphenylamine	9.57	169	1228175	99.37115	ppb		97
69)	1,2-Diphenylhydrazine	9.61	77	814270	47.07419	ppb		91
70)	4-Bromophenyl phenyl ether	10.00	248	193408	50.15482	ppb		91
71)	Hexachlorobenzene	10.07	284	181752	50.74704	ppb		87
72)	Atrazine	10.20	200	106182	25.13958	ppb		96
73)	Pentachlorophenol	10.31	266	74690	56.00343	ppb		97
74)	Phenanthrene	10.56	178	1103188	49.00857	ppb		100
75)	Anthracene	10.62	178	1161674	48.85308	ppb		99
76)	Carbazol	10.81	167	1082224	49.42149	ppb		100
77)	Di-n-butylphthalate	11.20	149	1353910	49.37563	ppb		100
78)	Fluoranthene	11.96	202	1152215	48.95479	ppb	#	95
80)	Benzidine	12.12	184	296102	55.63736	ppb		98
81)	Pyrene	12.22	202	1215141	49.12005	ppb		100
83)	Butyl benzylphthalate	12.97	149	617090	49.27720	ppb		96
84)	3,3'-Dichlorobenzidine	13.60	252	314497	50.56560	ppb	#	98
85)	Benz (a) anthracene	13.64	228	1071778	48.99446	ppb		99
86)	Bis (2-ethylhexyl) phthala	13.62	149	854006	47.61243	ppb		97
87)	Chrysene	13.67	228	1026343	48.66215	ppb		99
88)	Di-n-octylphthalate	14.37	149	1505636	48.68238	ppb		96
90)	Benzo (b) fluoranthene	14.94	252	1106318	56.24897	ppb		99
91)	Benzo (k) fluoranthene	14.98	252	917061	46.62650	ppb		98
92)	Benzo (a) pyrene	15.41	252	964689	49.24786	ppb		100
93)	Indeno (1,2,3-cd) pyrene	17.40	276	1026636	48.71530	ppb		97
94)	Dibenz (a,h) anthracene	17.41	278	898017	48.60259	ppb		99
95)	Benzo (g,h,i) perylene	17.97	276	819807	48.74559	ppb		98

(#) = qualifier out of range (m) = manual integration

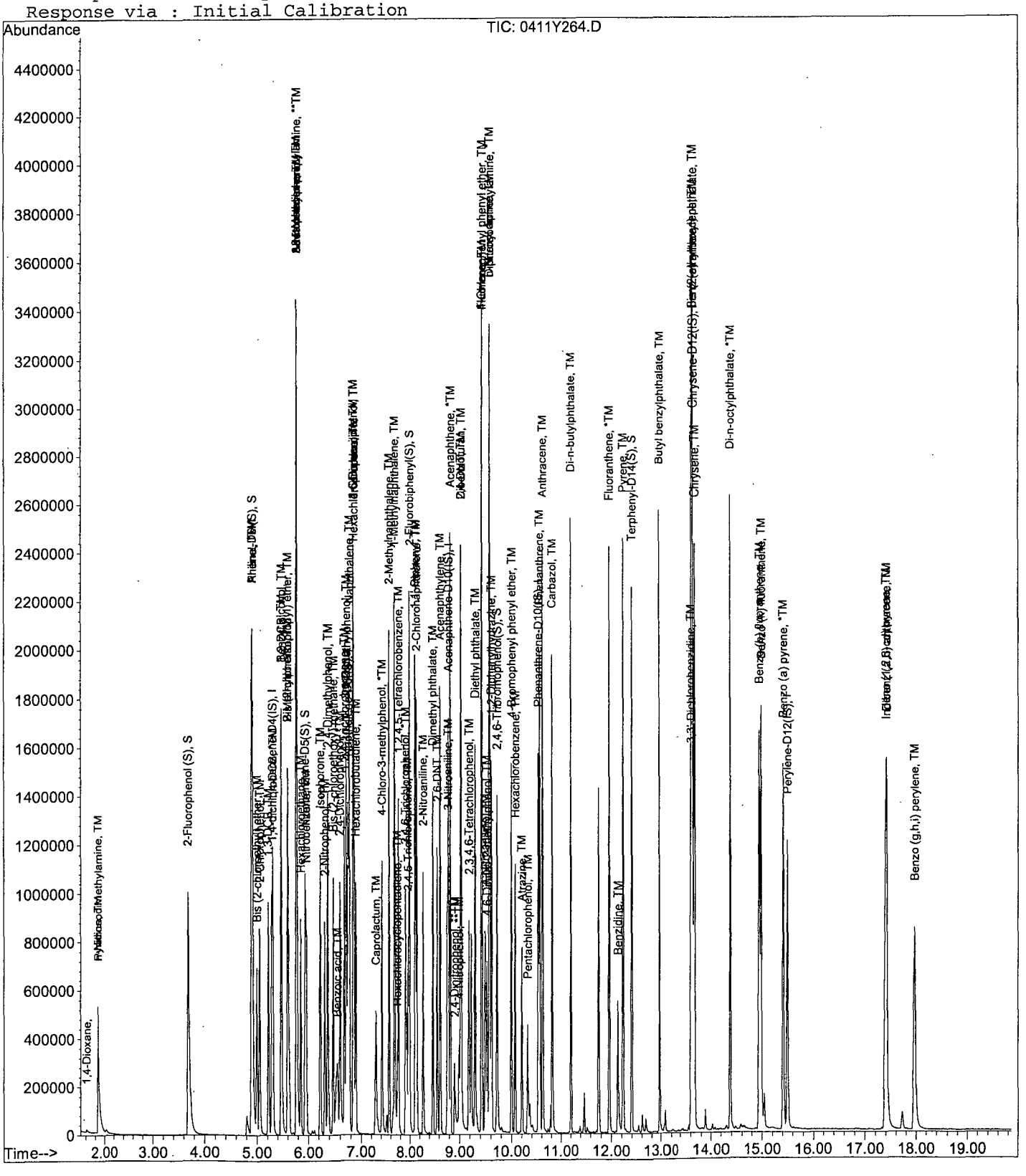
Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y264.D
Acq On : 2 May 19 9:26
Sample : 50ug/ml 8270 3/13/19
Misc :

Vial: 64
Operator: MA
Inst : Yoda
Multiplr: 1.00

Quant Time: May 2 9:40 2019 Quant Results File: Y0319NC.RES

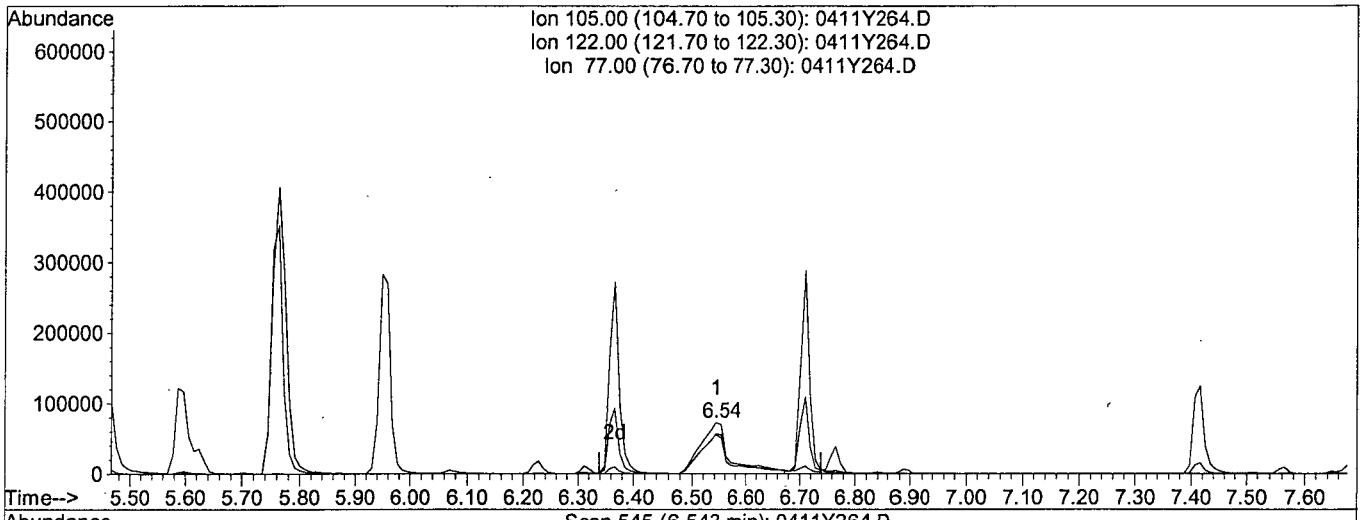
Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Wed May 01 12:19:54 2019
Response via : Initial Calibration

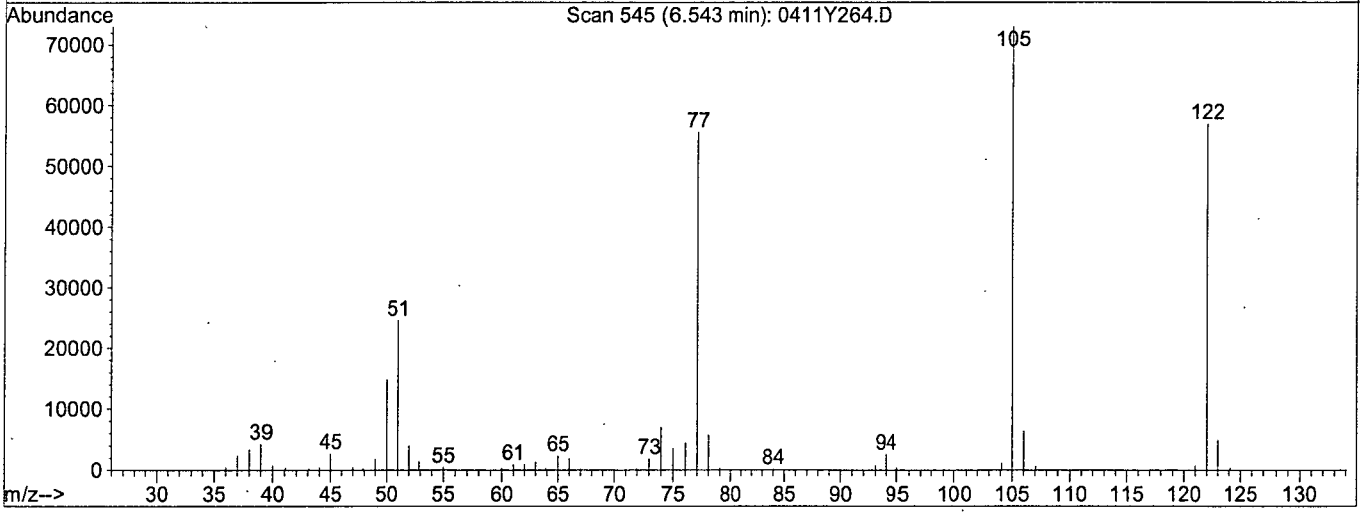


Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y264.D Vial: 64
Acq On : 2 May 19 9:26 Operator: MA
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: May 2 9:39 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Wed May 01 12:19:54 2019
Response via : Multiple Level Calibration





TIC: 0411Y264.D

(27) Benzoic acid (TM)

6.54min 61.8463ppb

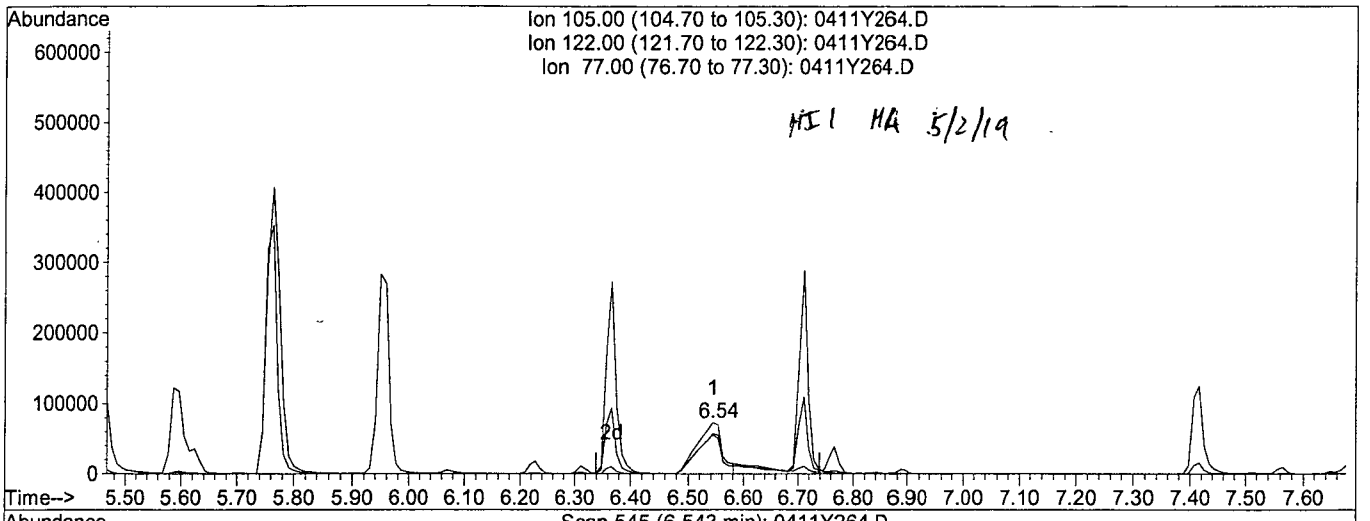
response 280314

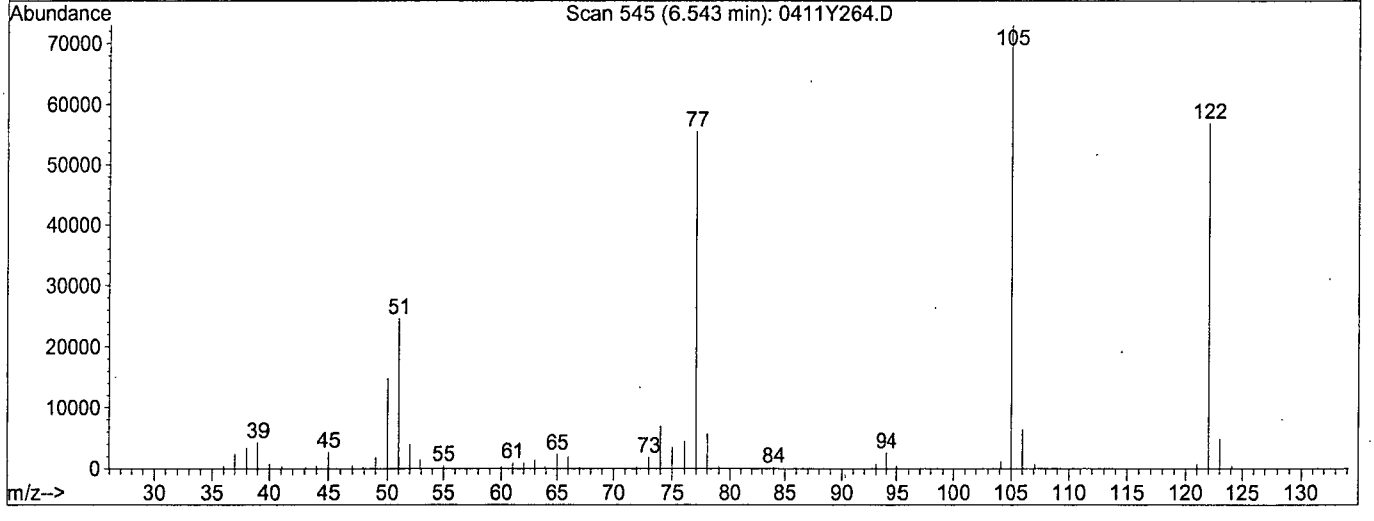
Ion	Exp%	Act%
105.00	100	100
122.00	79.10	78.05
77.00	72.70	75.53
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y264.D Vial: 64
Acq On : 2 May 19 9:26 Operator: MA
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: May 2 9:40 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Wed May 01 12:19:54 2019
Response via : Multiple Level Calibration





TIC: 0411Y264.D

(27) Benzoic acid (TM)

6.54min 50.0557ppb m

response 226874

Ion	Exp%	Act%
105.00	100	100
122.00	79.10	78.05
77.00	72.70	76.14
0.00	0.00	0.00

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 2 May 19 20:30
Instrument: Yoda
Initial Cal. Date: 03/19/19
Data File: 0411Y287.D

		Compound	MEAN	CCRF	%D	%Drift	
1	I	1,4-dichlorobenzene-D4(IS)	ISTD			I	
2		1,4-Dioxane	0.2708	0.2491	8.0		
3	TM	n-Nitrosodimethylamine	0.5083	0.4636	8.8	TM	
4	TM	Pyridine	1.222	1.188	2.8	TM	
5	S	2-Fluorophenol (S)	1.495	1.595	6.7	S	
6	S	Phenol-D6 (S)	1.955	2.157	10	S	
7	*TM	Phenol	2.163	2.249	4.0	*TM	
8	TM	Aniline	2.108	2.265	7.4	TM	
9	TM	Bis (2-chloroethyl) ether	0.9612	0.9883	2.8	TM	
10	TM	2-Chlorophenol	1.573	1.612	2.4	TM	
11	TM	1,3-DCB	1.652	1.607	2.7	TM	
12	*TM	1,4-DCB	1.698	1.618	4.7	*TM	
13	TM	Benzyl alcohol	0.9149	0.9941	8.7	TM	
14	TM	1,2-DCB	1.574	1.527	3.0	TM	
15	TM	2-Methylphenol	1.371	1.428	4.2	TM	
16	TM	Bis (2-chloroisopropyl) ether	1.416	1.443	1.9	TM	
17	TM	Acetophenone	2.099	2.188	4.2	TM	
18	TM	3&4-Methylphenol	1.645	1.744	6.0	TM	
19	**TM	n-Nitrosodi-n-propylamine	1.152	1.216	5.6	**TM	
20	TM	Hexachloroethane	0.6394	0.6112	4.4	TM	
21	I	Napthalene-D8(IS)	ISTD			I	
22	S	Nitrobenzene-D5(S)	0.4226	0.4454	5.4	S	
23	TM	Nitrobenzene	0.4082	0.4042	0.99	TM	
24	TM	Isophorone	0.7099	0.7178	1.1	TM	
25	*TM	2-Nitrophenol	0.2069	0.2084	0.70	*TM	
26	TM	2,4-Dimethylphenol	0.3262	0.3334	2.2	TM	
27	TM	Benzoic acid	0.2242	0.2823	26	TM	
28	TM	Bis (2-chloroethoxy) methane	0.4337	0.4358	0.50	TM	
29	*TM	2,4-Dichlorophenol	0.2766	0.2839	2.6	*TM	
30	TM	1,2,4-Trichlorobenzene	0.3036	0.2951	2.8	TM	
31	TM	3,4-Dimethylphenol	0.4824	0.4946	2.5	TM	
32	TM	Naphthalene	1.082	1.058	2.3	TM	
33	TM	4-Chloroaniline	0.3990	0.4249	6.5	TM	
34	TM	2,6-Dichlorophenol	0.2781	0.2803	0.80	TM	
35	TM	Hexachloropropene	0.1687	0.1668	1.2	TM	
36	*TM	Hexachlorobutadiene	0.1489	0.1465	1.7	*TM	
37	TM	Caprolactum	0.1394	0.1422	2.0	TM	
38	*TM	4-Chloro-3-methylphenol	0.3353	0.3513	4.8	*TM	
39	TM	2-Methylnaphthalene	0.6902	0.6802	1.4	TM	
40	TM	1-Methylnaphthalene	0.7153	0.7086	0.94	TM	
		Average			4.3		

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 2 May 19 20:30
Instrument: Yoda
Cal. Date: 03/19/19
Data File: 0411Y287.D

		Compound	MEAN	CCRF	%D		%Drift
41	I	Acenaphthene-D10(IS)	ISTD			I	
42	**TMQ	Hexachlorocyclopentadiene	0.0924	0.0564	39	**TMQ	21
43	TM	1,2,4,5-Tetrachlorobenzene	0.5222	0.5011	4.0	TM	
44	*TM	2,4,6-Trichlorophenol	0.3358	0.3365	0.21	*TM	
45	TM	2,4,5-Trichlorophenol	0.3609	0.3581	0.79	TM	
46	S	2-Fluorobiphenyl(S)	1.477	1.480	0.21	S	
47	TM	1,1'-Biphenyl	1.653	1.586	4.1	TM	
48	TM	2-Chloronaphthalene	1.244	1.200	3.5	TM	
49	TM	2-Nitroaniline	0.4076	0.4137	1.5	TM	
50	TM	Dimethyl phthalate	1.445	1.409	2.5	TM	
51	TM	2,6-DNT	0.3380	0.3434	1.6	TM	
52	TM	Acenaphthylene	1.968	1.892	3.9	TM	
53	TM	3-Nitroaniline	0.3715	0.3845	3.5	TM	
54	*TM	Acenaphthene	1.268	1.221	3.7	*TM	
55	**TML	2,4-Dinitrophenol	0.1301	0.1409	8.2	**TML	13
56	**TMQ	4-Nitrophenol	0.1853	0.2528	36	**TMQ	16
57	TM	Dibenzofuran	1.721	1.672	2.8	TM	
58	TM	2,4-DNT	0.4568	0.4623	1.2	TM	
59	TM	2,3,4,6-Tetrachlorophenol	0.2292	0.2582	13	TM	
60	TM	Diethyl phthalate	1.426	1.398	2.0	TM	
61	TM	4-Chlorophenyl phenyl ether	0.6575	0.6450	1.9	TM	
62	TM	Fluorene	1.435	1.403	2.3	TM	
63	TM	4-Nitroaniline	0.3758	0.3644	3.0	TM	
64	S	2,4,6-Tribromophenol(S)	0.1326	0.1475	11	S	
65	I	Phenanthrene-D10(IS)	ISTD			I	
66	TM	4,6-Dinitro-2-methylphenol	0.1492	0.1607	7.7	TM	
67	TM	Diphenyl amine	0.6711	0.6619	1.4	TM	
68	*TM	n-Nitrosodiphenylamine	0.6711	0.6619	1.4	*TM	
69	TM	1,2-Diphenylhydrazine	0.9392	0.8818	6.1	TM	
70	TM	4-Bromophenyl phenyl ether	0.2094	0.2085	0.42	TM	
71	TM	Hexachlorobenzene	0.1945	0.1915	1.5	TM	
72	TM	Atrazine	0.2293	0.1921	16	TM	
73	*TML	Pentachlorophenol	0.0578	0.0810	40	*TML	12
74	TM	Phenanthrene	1.222	1.191	2.6	TM	
75	TM	Anthracene	1.291	1.255	2.8	TM	
76	TM	Carbazol	1.189	1.180	0.77	TM	
77	TM	Di-n-butylphthalate	1.489	1.465	1.6	TM	
78	*TM	Fluoranthene	1.278	1.273	0.42	*TM	
79	I	Chrysene-D12(IS)	ISTD			I	
80	TM	Benzidine	0.3173	0.2255	29	TM	
		Average			7.1		

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 2 May 19 20:30
Instrument: Yoda
Cal. Date: 03/19/19
Data File: 0411Y287.D

		Compound	MEAN	CCRF	%D		%Drift
81	TM	Pyrene	1.475	1.437	2.6	TM	
82	S	Terphenyl-D14(S)	0.9778	1.007	3.0	S	
83	TM	Butyl benzylphthalate	0.7465	0.7365	1.3	TM	
84	TM	3,3'-Dichlorobenzidine	0.3708	0.4046	9.1	TM	
85	TM	Benz (a) anthracene	1.304	1.264	3.1	TM	
86	TM	Bis (2-ethylhexyl) phthalate	1.069	1.043	2.5	TM	
87	TM	Chrysene	1.257	1.222	2.8	TM	
88	*TM	Di-n-octylphthalate	1.844	1.801	2.3	*TM	
89	I	Perylene-D12(IS)	ISTD			I	
90	TM	Benzo (b) fluoranthene	1.190	1.261	5.9	TM	
91	TM	Benzo (k) fluoranthene	1.190	1.175	1.3	TM	
92	*TM	Benzo (a) pyrene	1.186	1.150	3.0	*TM	
93	TM	Indeno (1,2,3-cd) pyrene	1.276	1.218	4.5	TM	
94	TM	Dibenz (a,h) anthracene	1.118	1.068	4.5	TM	
95	TM	Benzo (g,h,i) perylene	1.018	0.9545	6.2	TM	
96							
97							
98							
99							
100							
101							
102							
103							
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111							
112							
113							
114							
115							
116							
117							
118							
119							
120							
		Average			3.7		

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y287.D Vial: 87
Acq On : 2 May 19 20:30 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: May 3 8:45 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	207550	40.00000 ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	911370	40.00000 ppb	-0.03
41) Acenaphthene-D10(IS)	8.78	164	504495	40.00000 ppb	-0.01
65) Phenanthrene-D10(IS)	10.54	188	839503	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.65	240	762276	40.00000 ppb	0.02
89) Perylene-D12(IS)	15.49	264	743444	40.00000 ppb	0.02
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.67	112	827842	106.71787 ppb	-0.12
Spiked Amount 200.000			Recovery	= 53.359%	
6) Phenol-D6 (S)	4.89	99	1119054	110.34214 ppb	-0.05
Spiked Amount 200.000			Recovery	= 55.171%	
22) Nitrobenzene-D5(S)	5.93	82	507403	52.69634 ppb	-0.04
Spiked Amount 100.000			Recovery	= 52.696%	
46) 2-Fluorobiphenyl(S)	7.99	172	933293	50.10341 ppb	-0.03
Spiked Amount 100.000			Recovery	= 50.103%	
64) 2,4,6-Tribromophenol(S)	9.72	330	186040	111.26952 ppb	0.00
Spiked Amount 200.000			Recovery	= 55.635%	
82) Terphenyl-D14(S)	12.40	244	959745	51.50646 ppb	0.00
Spiked Amount 100.000			Recovery	= 51.506%	
Target Compounds					Qvalue
2) 1,4-Dioxane	1.61	58	6462	4.59900	94
3) n-Nitrosodimethylamine	1.85	42	120277	45.60232 ppb	93
4) Pyridine	1.86	79	308223	48.59143 ppb	97
7) Phenol	4.91	94	583468	51.99470 ppb	94
8) Aniline	4.91	93	587671	53.71911 ppb	97
9) Bis (2-chloroethyl) ether	4.99	63	256414	51.41122 ppb	96
10) 2-Chlorophenol	5.05	128	418171	51.22254 ppb	95
11) 1,3-DCB	5.22	146	416899	48.64659 ppb	98
12) 1,4-DCB	5.30	146	419807	47.63620 ppb	98
13) Benzyl alcohol	5.47	108	257904	54.32756 ppb	92
14) 1,2-DCB	5.48	146	396112	48.49773 ppb	99
15) 2-Methylphenol	5.60	107	370532	52.09977 ppb	99
16) Bis (2-chloroisopropyl) et	5.60	45	374376	50.96051 ppb	97
17) Acetophenone	5.76	105	567575	52.11075 ppb	95
18) 3&4-Methylphenol	5.77	107	905046	106.01347 ppb	100
19) n-Nitrosodi-n-propylamine	5.76	70	315560	52.78879 ppb	97
20) Hexachloroethane	5.85	117	158566	47.79687 ppb	97
23) Nitrobenzene	5.96	77	460440	49.50283 ppb	100
24) Isophorone	6.23	82	817761	50.55709 ppb	99
25) 2-Nitrophenol	6.31	139	237402	50.35009 ppb	90
26) 2,4-Dimethylphenol	6.37	122	379822	51.10383 ppb	99
27) Benzoic acid	6.55	105	321593	62.96884 ppb	96
28) Bis (2-chloroethoxy) metha	6.47	93	496489	50.24812 ppb	97
29) 2,4-Dichlorophenol	6.60	162	323453	51.32316 ppb	94
30) 1,2,4-Trichlorobenzene	6.67	180	336222	48.59924 ppb	96
31) 3,4-Dimethylphenol	6.71	107	563500	51.26988 ppb	100
32) Naphthalene	6.77	128	1205030	48.86182 ppb	100
33) 4-Chloroaniline	6.84	127	484070	53.24232 ppb	97
34) 2,6-Dichlorophenol	6.85	162	319374	50.40195 ppb	98
35) Hexachloropropene	6.86	213	189989	49.42497 ppb	98
36) Hexachlorobutadiene	6.90	225	166862	49.16891 ppb	98
37) Caprolactum	7.30	55	161946	50.99689 ppb	96

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190411\0411Y287.D Vial: 87
Acq On : 2 May 19 20:30 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: May 3 8:45 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

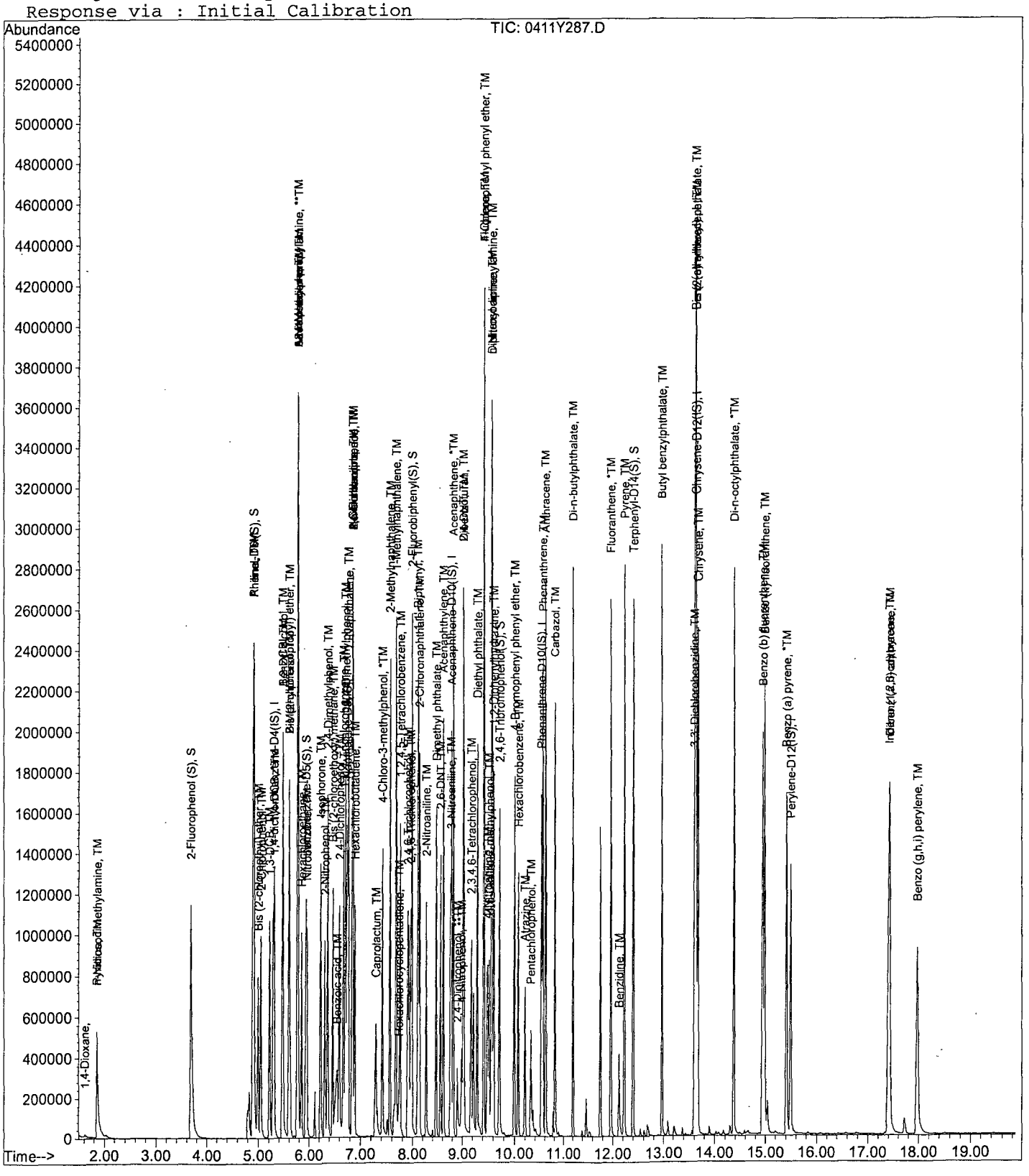
	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.42	107	400221	52.38897	ppb		98
39)	2-Methylnaphthalene	7.56	142	774915	49.27652	ppb		100
40)	1-Methylnaphthalene	7.68	142	807219	49.52780	ppb		99
42)	Hexachlorocyclopentadiene	7.73	237	35553	39.36268	ppb		97
43)	1,2,4,5-Tetrachlorobenzene	7.76	216	316009	47.97781	ppb		99
44)	2,4,6-Trichlorophenol	7.91	196	212223	50.10338	ppb		99
45)	2,4,5-Trichlorophenol	7.96	196	225821	49.60574	ppb		92
47)	1,1'-Biphenyl	8.11	154	999907	47.94861	ppb		97
48)	2-Chloronaphthalene	8.14	162	756636	48.23899	ppb		94
49)	2-Nitroaniline	8.27	65	260902	50.75376	ppb		88
50)	Dimethyl phthalate	8.47	163	888790	48.75399	ppb		99
51)	2,6-DNT	8.56	165	216560	50.80153	ppb		92
52)	Acenaphthylene	8.61	152	1193085	48.05981	ppb		99
53)	3-Nitroaniline	8.76	138	242494	51.75123	ppb		92
54)	Acenaphthene	8.82	154	769822	48.14344	ppb		99
55)	2,4-Dinitrophenol	8.90	184	88831	43.37902	ppb		97
56)	4-Nitrophenol	8.99	65	159422	57.84261	ppb	#	72
57)	Dibenzofuran	9.02	168	1054455	48.59122	ppb		95
58)	2,4-DNT	9.03	165	291504	50.59531	ppb		81
59)	2,3,4,6-Tetrachlorophenol	9.18	232	162804	56.31955	ppb		97
60)	Diethyl phthalate	9.30	149	881781	49.01396	ppb		98
61)	4-Chlorophenyl phenyl ethe	9.42	204	406749	49.05015	ppb		96
62)	Fluorene	9.43	166	884632	48.86972	ppb		100
63)	4-Nitroaniline	9.50	138	229810	48.48198	ppb		94
66)	4,6-Dinitro-2-methylphenol	9.52	198	168662	53.85011	ppb		94
67)	Diphenyl amine	9.58	169	1389140	98.63084	ppb		98
68)	n-Nitrosodiphenylamine	9.58	169	1389140	98.63084	ppb		98
69)	1,2-Diphenylhydrazine	9.61	77	925394	46.94699	ppb		92
70)	4-Bromophenyl phenyl ether	10.00	248	218786	49.78797	ppb		91
71)	Hexachlorobenzene	10.07	284	200994	49.24717	ppb		89
72)	Atrazine	10.20	200	100805	20.94382	ppb		96
73)	Pentachlorophenol	10.31	266	84952	55.90948	ppb		97
74)	Phenanthrene	10.56	178	1249545	48.71257	ppb		99
75)	Anthracene	10.62	178	1317326	48.61470	ppb		100
76)	Carbazol	10.82	167	1238090	49.61552	ppb		96
77)	Di-n-butylphthalate	11.20	149	1537682	49.21030	ppb		99
78)	Fluoranthene	11.96	202	1335460	49.79196	ppb	#	94
80)	Benzidine	12.12	184	214838	35.53446	ppb		100
81)	Pyrene	12.22	202	1368877	48.70909	ppb		100
83)	Butyl benzylphthalate	12.97	149	701780	49.33010	ppb		95
84)	3,3'-Dichlorobenzidine	13.60	252	385549	54.56721	ppb	#	98
85)	Benz (a) anthracene	13.64	228	1204037	48.45019	ppb		99
86)	Bis (2-ethylhexyl) phthala	13.62	149	993558	48.76028	ppb	#	96
87)	Chrysene	13.68	228	1164034	48.58228	ppb		99
88)	Di-n-octylphthalate	14.37	149	1715977	48.84012	ppb		95
90)	Benzo (b) fluoranthene	14.95	252	1171576	52.94948	ppb		99
91)	Benzo (k) fluoranthene	14.98	252	1091631	49.33636	ppb		99
92)	Benzo (a) pyrene	15.42	252	1068967	48.50884	ppb		96
93)	Indeno (1,2,3-cd) pyrene	17.41	276	1132053	47.74988	ppb		99
94)	Dibenz (a,h) anthracene	17.42	278	992480	47.74778	ppb		99
95)	Benzo (g,h,i) perylene	17.98	276	887025	46.88308	ppb		98

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190411\0411Y287.D Vial: 87
Acq On : 2 May 19 20:30 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: May 3 8:45 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration



Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 8 May 19 9:14
Instrument: Yoda
Initial Cal. Date: 03/19/19
Data File: 0411Y315.D

		Compound	MEAN	CCRF	%D	%Drift	
1	I	1,4-dichlorobenzene-D4(IS)	ISTD			I	
2		1,4-Dioxane	0.2708	0.2292	15		
3	TM	n-Nitrosodimethylamine	0.5083	0.5362	5.5	TM	
4	TM	Pyridine	1.222	1.150	6.0	TM	
5	S	2-Fluorophenol (S)	1.495	1.657	11	S	
6	S	Phenol-D6 (S)	1.955	2.270	16	S	
7	*TM	Phenol	2.163	2.366	9.4	*TM	
8	TM	Aniline	2.108	2.487	18	TM	
9	TM	Bis (2-chloroethyl) ether	0.9612	1.044	8.6	TM	
10	TM	2-Chlorophenol	1.573	1.690	7.4	TM	
11	TM	1,3-DCB	1.652	1.604	2.9	TM	
12	*TM	1,4-DCB	1.698	1.643	3.3	*TM	
13	TM	Benzyl alcohol	0.9149	1.063	16	TM	
14	TM	1,2-DCB	1.574	1.561	0.80	TM	
15	TM	2-Methylphenol	1.371	1.507	10.0	TM	
16	TM	Bis (2-chloroisopropyl) ether	1.416	1.513	6.8	TM	
17	TM	Acetophenone	2.099	2.290	9.1	TM	
18	TM	3&4-Methylphenol	1.645	1.821	11	TM	
19	**TM	n-Nitrosodi-n-propylamine	1.152	1.284	11	**TM	
20	TM	Hexachloroethane	0.6394	0.6399	0.09	TM	
21	I	Napthalene-D8(IS)	ISTD			I	
22	S	Nitrobenzene-D5(S)	0.4226	0.4474	5.9	S	
23	TM	Nitrobenzene	0.4082	0.4079	0.08	TM	
24	TM	Isophorone	0.7099	0.7211	1.6	TM	
25	*TM	2-Nitrophenol	0.2069	0.2085	0.76	*TM	
26	TM	2,4-Dimethylphenol	0.3262	0.3328	2.0	TM	
27	TM	Benzoic acid	0.2242	0.2537	13	TM	
28	TM	Bis (2-chloroethoxy) methane	0.4337	0.4335	0.05	TM	
29	*TM	2,4-Dichlorophenol	0.2766	0.2879	4.1	*TM	
30	TM	1,2,4-Trichlorobenzene	0.3036	0.2953	2.7	TM	
31	TM	3,4-Dimethylphenol	0.4824	0.4949	2.6	TM	
32	TM	Naphthalene	1.082	1.066	1.5	TM	
33	TM	4-Chloroaniline	0.3990	0.4365	9.4	TM	
34	TM	2,6-Dichlorophenol	0.2781	0.2805	0.87	TM	
35	TM	Hexachloropropene	0.1687	0.1740	3.2	TM	
36	*TM	Hexachlorobutadiene	0.1489	0.1473	1.1	*TM	
37	TM	Caprolactum	0.1394	0.1427	2.4	TM	
38	*TM	4-Chloro-3-methylphenol	0.3353	0.3528	5.2	*TM	
39	TM	2-Methylnaphthalene	0.6902	0.6892	0.15	TM	
40	TM	1-Methylnaphthalene	0.7153	0.7189	0.49	TM	
		Average			5.9		

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Continuing Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Date Analyzed: 8 May 19 9:14
Matrix: 0 Instrument: Yoda
Cal. Date: 03/19/19
Data File: 0411Y315.D

		Compound	MEAN	CCRF	%D		%Drift
41	I	Acenaphthene-D10(IS)	ISTD			I	
42	**TMQ	Hexachlorocyclopentadiene	0.0924	0.0730	21	**TMQ	9.6
43	TM	1,2,4,5-Tetrachlorobenzene	0.5222	0.5077	2.8	TM	
44	*TM	2,4,6-Trichlorophenol	0.3358	0.3370	0.33	*TM	
45	TM	2,4,5-Trichlorophenol	0.3609	0.3595	0.41	TM	
46	S	2-Fluorobiphenyl(S)	1.477	1.481	0.26	S	
47	TM	1,1'-Biphenyl	1.653	1.604	3.0	TM	
48	TM	2-Chloronaphthalene	1.244	1.216	2.2	TM	
49	TM	2-Nitroaniline	0.4076	0.4184	2.7	TM	
50	TM	Dimethyl phthalate	1.445	1.431	0.98	TM	
51	TM	2,6-DNT	0.3380	0.3383	0.10	TM	
52	TM	Acenaphthylene	1.968	1.920	2.5	TM	
53	TM	3-Nitroaniline	0.3715	0.3894	4.8	TM	
54	*TM	Acenaphthene	1.268	1.230	3.0	*TM	
55	**TML	2,4-Dinitrophenol	0.1301	0.1525	17	**TML	7.2
56	**TMQ	4-Nitrophenol	0.1853	0.2403	30	**TMQ	11
57	TM	Dibenzofuran	1.721	1.681	2.3	TM	
58	TM	2,4-DNT	0.4568	0.4636	1.5	TM	
59	TM	2,3,4,6-Tetrachlorophenol	0.2292	0.2585	13	TM	
60	TM	Diethyl phthalate	1.426	1.417	0.63	TM	
61	TM	4-Chlorophenyl phenyl ether	0.6575	0.6531	0.67	TM	
62	TM	Fluorene	1.435	1.424	0.77	TM	
63	TM	4-Nitroaniline	0.3758	0.3721	0.99	TM	
64	S	2,4,6-Tribromophenol(S)	0.1326	0.1454	9.7	S	
65	I	Phenanthrene-D10(IS)	ISTD			I	
66	TM	4,6-Dinitro-2-methylphenol	0.1492	0.1529	2.5	TM	
67	TM	Diphenyl amine	0.6711	0.6513	2.9	TM	
68	*TM	n-Nitrosodiphenylamine	0.6711	0.6513	2.9	*TM	
69	TM	1,2-Diphenylhydrazine	0.9392	0.8849	5.8	TM	
70	TM	4-Bromophenyl phenyl ether	0.2094	0.2014	3.8	TM	
71	TM	Hexachlorobenzene	0.1945	0.1881	3.3	TM	
72	TM	Atrazine	0.2293	0.2276	0.77	TM	
73	*TML	Pentachlorophenol	0.0578	0.0792	37	*TML	9.6
74	TM	Phenanthrene	1.222	1.185	3.0	TM	
75	TM	Anthracene	1.291	1.226	5.1	TM	
76	TM	Carbazol	1.189	1.149	3.4	TM	
77	TM	Di-n-butylphthalate	1.489	1.449	2.7	TM	
78	*TM	Fluoranthene	1.278	1.243	2.8	*TM	
79	I	Chrysene-D12(IS)	ISTD			I	
80	TM	Benzidine	0.3173	0.3443	8.5	TM	
		Average			5.5		

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 8 May 19 9:14
Instrument: Yoda
Cal. Date: 03/19/19
Data File: 0411Y315.D

		Compound	MEAN	CCRF	%D		%Drift
81	TM	Pyrene	1.475	1.490	1.0	TM	
82	S	Terphenyl-D14(S)	0.9778	1.029	5.2	S	
83	TM	Butyl benzylphthalate	0.7465	0.7506	0.55	TM	
84	TM	3,3'-Dichlorobenzidine	0.3708	0.3891	4.9	TM	
85	TM	Benz (a) anthracene	1.304	1.289	1.2	TM	
86	TM	Bis (2-ethylhexyl) phthalate	1.069	1.066	0.30	TM	
87	TM	Chrysene	1.257	1.253	0.32	TM	
88	*TM	Di-n-octylphthalate	1.844	1.818	1.4	*TM	
89	I	Perylene-D12(IS)	ISTD			I	
90	TM	Benzo (b) fluoranthene	1.190	1.288	8.2	TM	
91	TM	Benzo (k) fluoranthene	1.190	1.186	0.42	TM	
92	*TM	Benzo (a) pyrene	1.186	1.170	1.4	*TM	
93	TM	Indeno (1,2,3-cd) pyrene	1.276	1.220	4.3	TM	
94	TM	Dibenz (a,h) anthracene	1.118	1.066	4.7	TM	
95	TM	Benzo (g,h,i) perylene	1.018	0.9638	5.3	TM	
96							
97							
98							
99							
100							
101							
102							
103							
104							
105							
106							
107							
108							
109							
110							
111							
112							
113							
114							
115							
116							
117							
118							
119							
120							
		Average			2.8		

Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y315.D Vial: 15
Acq On : 8 May 19 9:14 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: May 8 10:49 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.29	152	166984	40.00000 ppb		-0.04
21) Napthalene-D8(IS)	6.75	136	768893	40.00000 ppb		-0.02
41) Acenaphthene-D10(IS)	8.78	164	422405	40.00000 ppb		-0.01
65) Phenanthrene-D10(IS)	10.54	188	719429	40.00000 ppb		0.00
79) Chrysene-D12(IS)	13.65	240	619512	40.00000 ppb		0.02
89) Perylene-D12(IS)	15.49	264	591322	40.00000 ppb		0.03
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.69	112	691769	110.84055 ppb		-0.10
Spiked Amount 200.000			Recovery =	55.421%		
6) Phenol-D6 (S)	4.89	99	947654	116.14166 ppb		-0.05
Spiked Amount 200.000			Recovery =	58.071%		
22) Nitrobenzene-D5(S)	5.93	82	429971	52.92921 ppb		-0.04
Spiked Amount 100.000			Recovery =	52.929%		
46) 2-Fluorobiphenyl(S)	7.99	172	781859	50.13090 ppb		-0.03
Spiked Amount 100.000			Recovery =	50.131%		
64) 2,4,6-Tribromophenol(S)	9.72	330	153518	109.66221 ppb		0.00
Spiked Amount 200.000			Recovery =	54.831%		
82) Terphenyl-D14(S)	12.40	244	796752	52.61282 ppb		0.00
Spiked Amount 100.000			Recovery =	52.613%		
Target Compounds						Qvalue
3) n-Nitrosodimethylamine	1.86	42	111920	52.74241 ppb		88
4) Pyridine	1.87	79	239978	47.02339 ppb		97
7) Phenol	4.91	94	493909	54.70623 ppb		93
8) Aniline	4.92	93	519154	58.98460 ppb	#	87
9) Bis (2-chloroethyl) ether	4.99	63	217813	54.28101 ppb		95
10) 2-Chlorophenol	5.05	128	352652	53.69099 ppb		100
11) 1,3-DCB	5.22	146	334839	48.56300 ppb		99
12) 1,4-DCB	5.31	146	342869	48.35747 ppb		99
13) Benzyl alcohol	5.47	108	221909	58.10118 ppb		96
14) 1,2-DCB	5.48	146	325920	49.59779 ppb		97
15) 2-Methylphenol	5.60	107	314631	54.98693 ppb		98
16) Bis (2-chloroisopropyl) et	5.60	45	315734	53.41890 ppb		88
17) Acetophenone	5.76	105	477949	54.54231 ppb		96
18) 3&4-Methylphenol	5.77	107	760382	110.70573 ppb		99
19) n-Nitrosodi-n-propylamine	5.76	70	268037	55.73171 ppb		98
20) Hexachloroethane	5.85	117	133572	50.04407 ppb		90
23) Nitrobenzene	5.96	77	392031	49.95814 ppb		96
24) Isophorone	6.23	82	693083	50.78901 ppb		100
25) 2-Nitrophenol	6.32	139	200414	50.38169 ppb		99
26) 2,4-Dimethylphenol	6.37	122	319884	51.01462 ppb		99
27) Benzoic acid	6.55	105	243842m	56.59218 ppb		98
28) Bis (2-chloroethoxy) metha	6.47	93	416600	49.97563 ppb		98
29) 2,4-Dichlorophenol	6.60	162	276675	52.03564 ppb		97
30) 1,2,4-Trichlorobenzene	6.68	180	283863	48.63411 ppb		99
31) 3,4-Dimethylphenol	6.71	107	475661	51.29733 ppb		97
32) Naphthalene	6.77	128	1024995	49.26317 ppb		100
33) 4-Chloroaniline	6.85	127	419487	54.68851 ppb		98
34) 2,6-Dichlorophenol	6.85	162	269610	50.43274 ppb		98
35) Hexachloropropene	6.86	213	167272	51.57866 ppb		99
36) Hexachlorobutadiene	6.90	225	141584	49.45112 ppb		100
37) Caprolactum	7.29	55	137151	51.19191 ppb		98
38) 4-Chloro-3-methylphenol	7.42	107	339116	52.61591 ppb		94

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190411\0411Y315.D Vial: 15
Acq On : 8 May 19 9:14 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: May 8 10:49 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

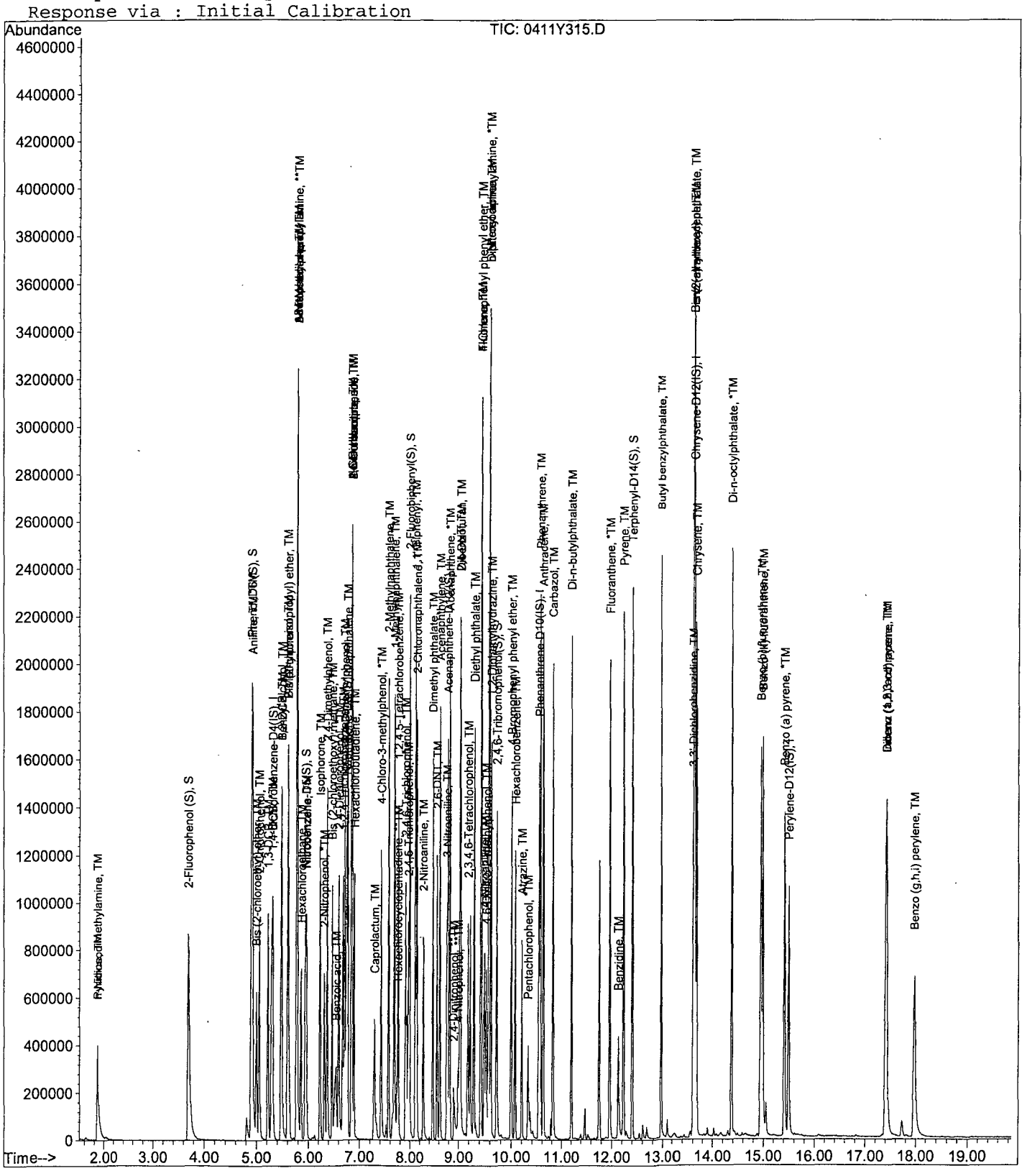
	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
39)	2-Methylnaphthalene	7.57	142	662386	49.92590 ppb		99
40)	1-Methylnaphthalene	7.69	142	690902	50.24617 ppb		98
42)	Hexachlorocyclopentadiene	7.74	237	38550	45.21110 ppb		99
43)	1,2,4,5-Tetrachlorobenzene	7.76	216	268072	48.60940 ppb		99
44)	2,4,6-Trichlorophenol	7.91	196	177915	50.16663 ppb		98
45)	2,4,5-Trichlorophenol	7.96	196	189795	49.79436 ppb		94
47)	1,1'-Biphenyl	8.11	154	846735	48.49441 ppb		98
48)	2-Chloronaphthalene	8.14	162	642069	48.89008 ppb		96
49)	2-Nitroaniline	8.27	65	220938	51.33210 ppb		83
50)	Dimethyl phthalate	8.48	163	755745	49.51242 ppb		99
51)	2,6-DNT	8.56	165	178643	50.05096 ppb		82
52)	Acenaphthylene	8.62	152	1013606	48.76494 ppb		100
53)	3-Nitroaniline	8.76	138	205623	52.41060 ppb		92
54)	Acenaphthene	8.82	154	649298	48.49743 ppb		99
55)	2,4-Dinitrophenol	8.91	184	80513m	46.37658 ppb		99
56)	4-Nitrophenol	9.00	65	126870	55.44297 ppb	#	67
57)	Dibenzofuran	9.02	168	887329	48.83624 ppb		98
58)	2,4-DNT	9.04	165	244767	50.73953 ppb		96
59)	2,3,4,6-Tetrachlorophenol	9.18	232	136487	56.39144 ppb		96
60)	Diethyl phthalate	9.30	149	748406	49.68486 ppb		98
61)	4-Chlorophenyl phenyl ethe	9.42	204	344830	49.66457 ppb		91
62)	Fluorene	9.43	166	751980	49.61481 ppb		98
63)	4-Nitroaniline	9.50	138	196479	49.50572 ppb		88
66)	4,6-Dinitro-2-methylphenol	9.52	198	137500	51.22788 ppb		96
67)	Diphenyl amine	9.58	169	1171455	97.05695 ppb		98
68)	n-Nitrosodiphenylamine	9.58	169	1171455	97.05695 ppb		98
69)	1,2-Diphenylhydrazine	9.62	77	795782	47.10960 ppb		97
70)	4-Bromophenyl phenyl ether	10.00	248	181097	48.08952 ppb		97
71)	Hexachlorobenzene	10.07	284	169165	48.36631 ppb		99
72)	Atrazine	10.20	200	102322	24.80716 ppb		99
73)	Pentachlorophenol	10.32	266	71183	54.80743 ppb		98
74)	Phenanthrene	10.56	178	1065897	48.48849 ppb		100
75)	Anthracene	10.62	178	1102338	47.47045 ppb		100
76)	Carbazol	10.82	167	1032867	48.29965 ppb		98
77)	Di-n-butylphthalate	11.20	149	1303081	48.66259 ppb		99
78)	Fluoranthene	11.97	202	1117492	48.61912 ppb		99
80)	Benzidine	12.13	184	266602	54.25810 ppb		98
81)	Pyrene	12.23	202	1153838	50.51879 ppb		100
83)	Butyl benzylphthalate	12.97	149	581271	50.27501 ppb		99
84)	3,3'-Dichlorobenzidine	13.60	252	301308	52.47173 ppb	#	96
85)	Benz (a) anthracene	13.64	228	997914	49.40960 ppb		99
86)	Bis (2-ethylhexyl) phthala	13.63	149	825521	49.84982 ppb	#	98
87)	Chrysene	13.67	228	970532	49.84076 ppb		99
88)	Di-n-octylphthalate	14.37	149	1407877	49.30518 ppb		96
90)	Benzo (b) fluoranthene	14.95	252	952244	54.10828 ppb		100
91)	Benzo (k) fluoranthene	14.98	252	876262	49.79084 ppb		99
92)	Benzo (a) pyrene	15.41	252	864485	49.32173 ppb		100
93)	Indeno (1,2,3-cd) pyrene	17.41	276	902078	47.83809 ppb		98
94)	Dibenz (a,h) anthracene	17.42	278	787706	47.64527 ppb		98
95)	Benzo (g,h,i) perylene	17.97	276	712397	47.33982 ppb		97

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190411\0411Y315.D Vial: 15
Acq On : 8 May 19 9:14 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: May 8 10:49 2019 Quant Results File: Y0319NC.RES

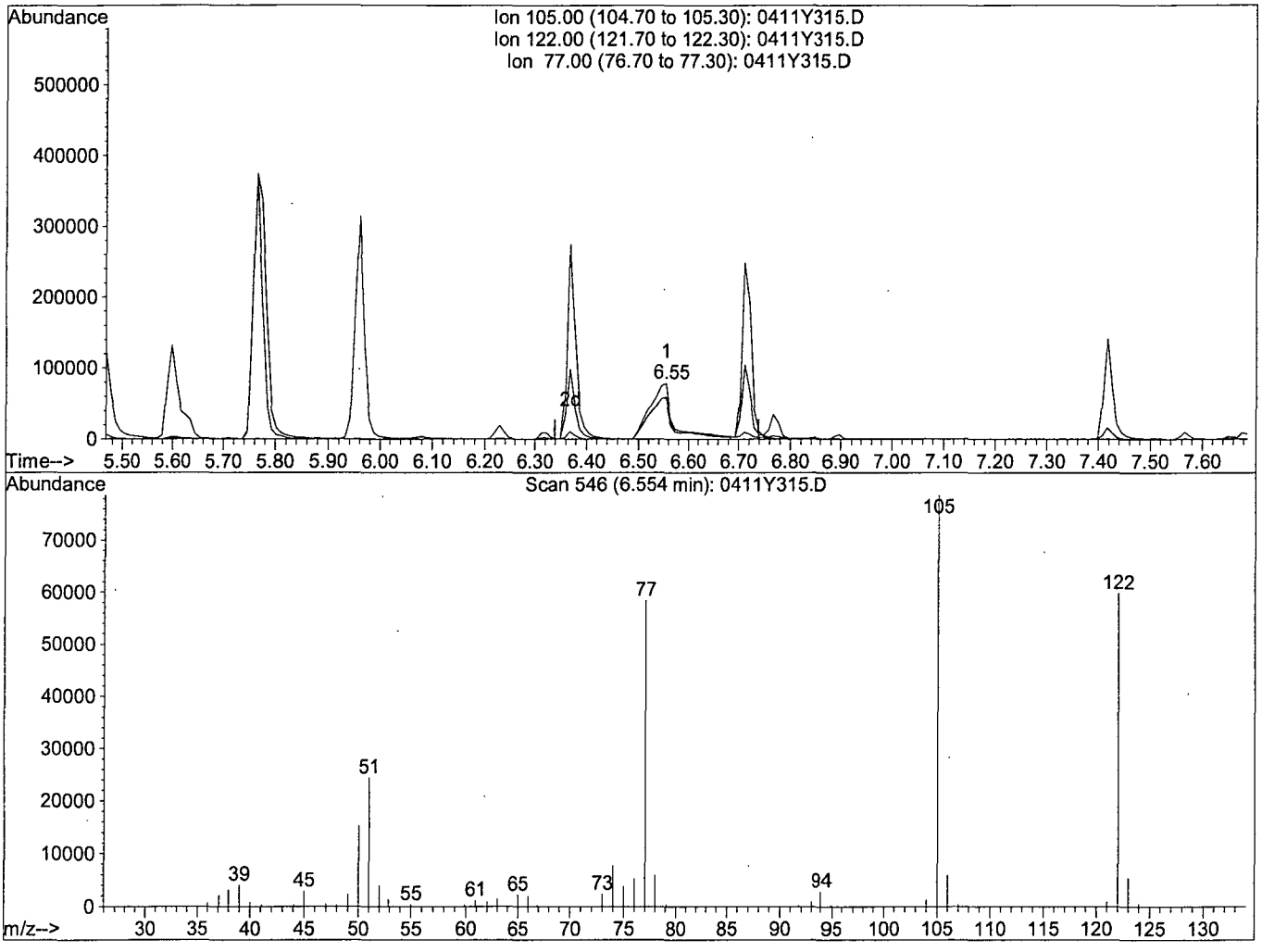
Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y315.D Vial: 15
Acq On : 8 May 19 9:14 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: May 8 9:23 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Multiple Level Calibration



TIC: 0411Y315.D

(27) Benzoic acid (TM)

6.55min 62.0044ppb

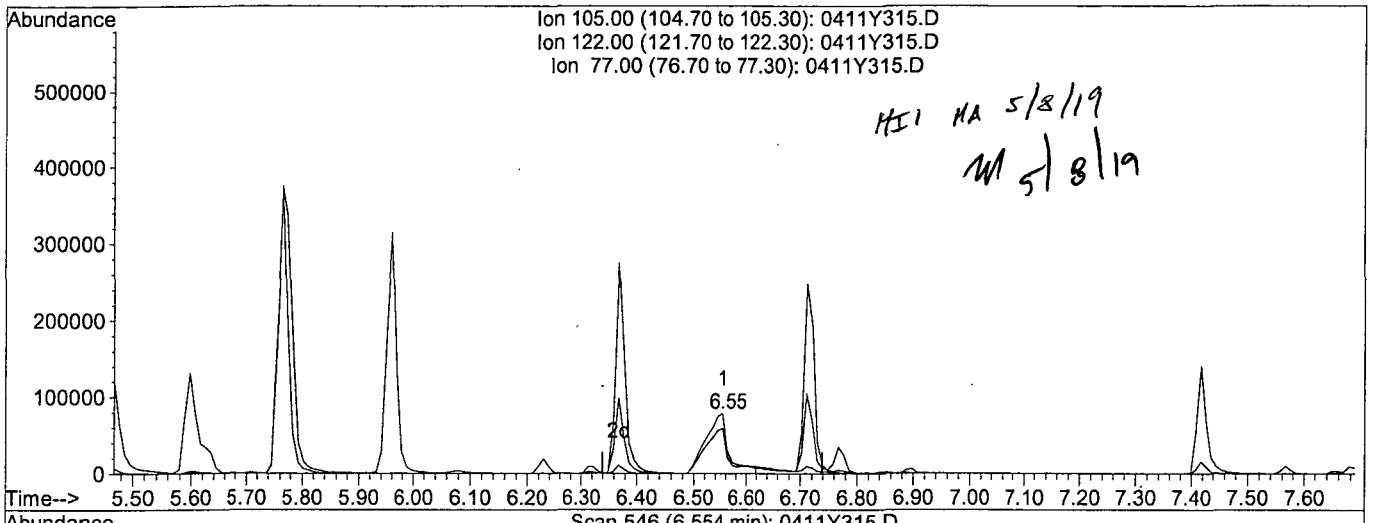
response 267162

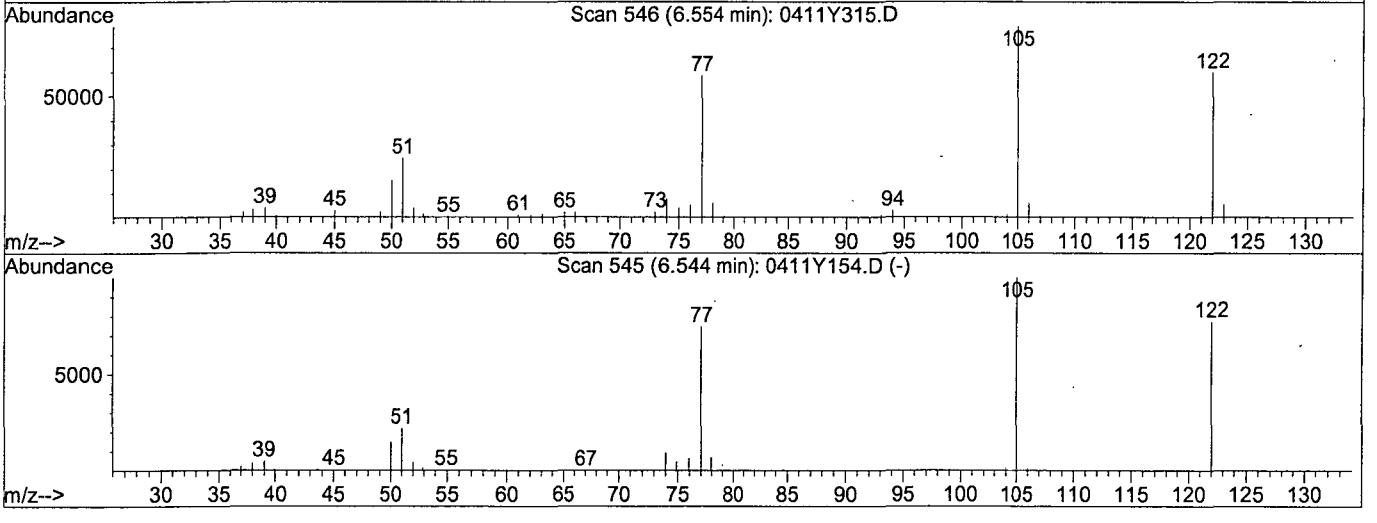
Ion	Exp%	Act%
105.00	100	100
122.00	79.10	76.10
77.00	72.70	73.80
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y315.D Vial: 15
Acq On : 8 May 19 9:14 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: May 8 10:48 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Multiple Level Calibration





TIC: 0411Y315.D

(27) Benzoic acid (TM)

6.55min 56.5922ppb m

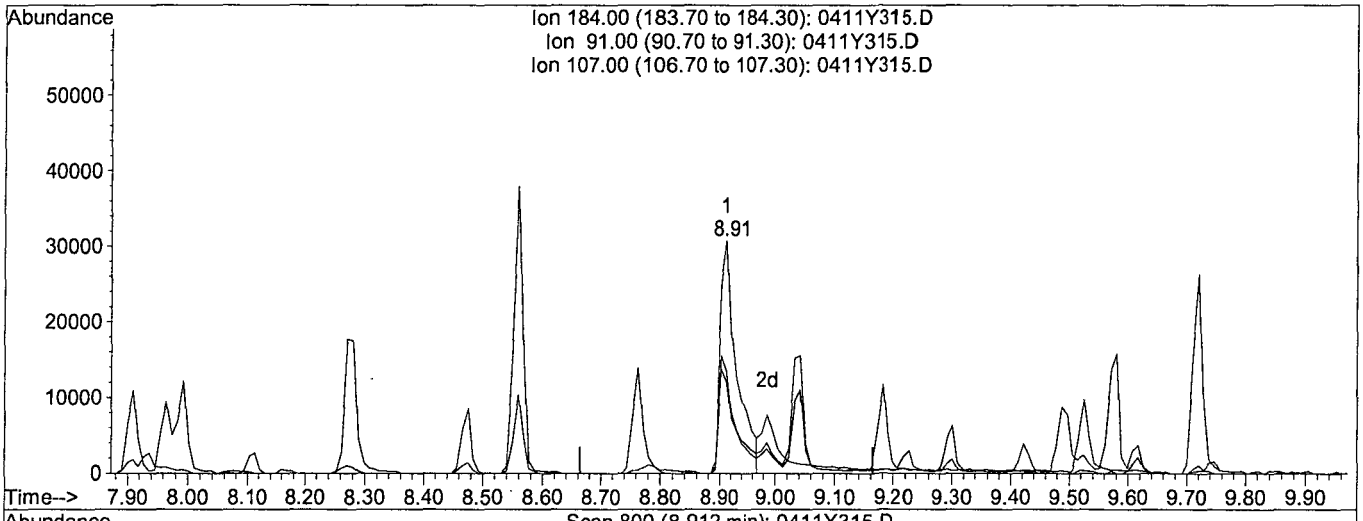
response 243842

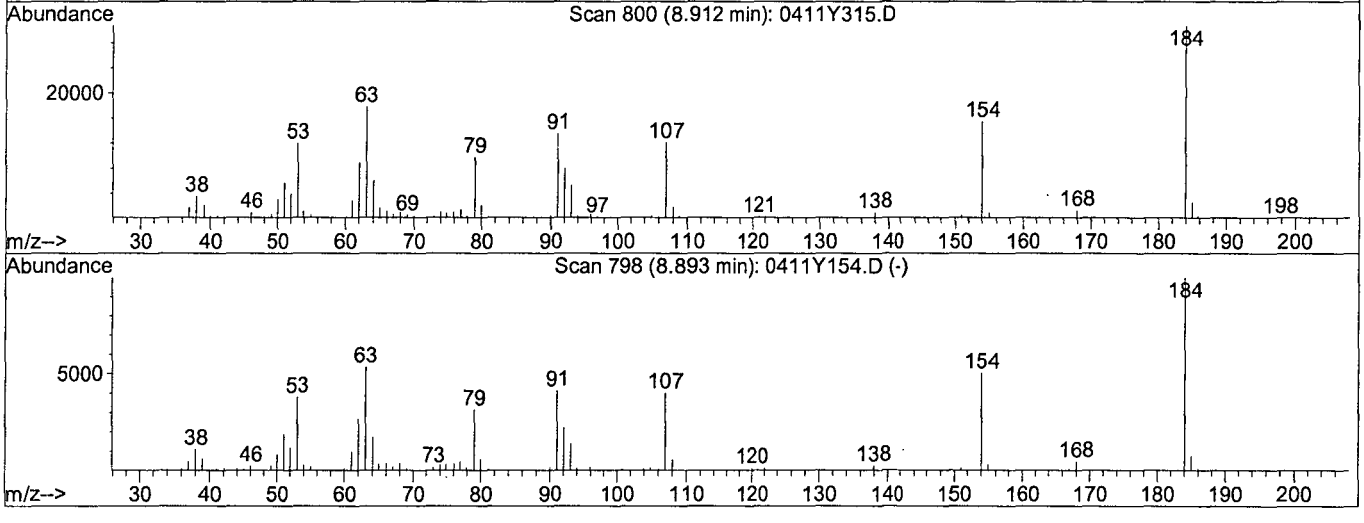
Ion	Exp%	Act%
105.00	100	100
122.00	79.10	76.10
77.00	72.70	74.28
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y315.D Vial: 15
Acq On : 8 May 19 9:14 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: May 8 10:48 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Multiple Level Calibration





TIC: 0411Y315.D

(55) 2,4-Dinitrophenol (**TM)

8.91min 38.5822ppb

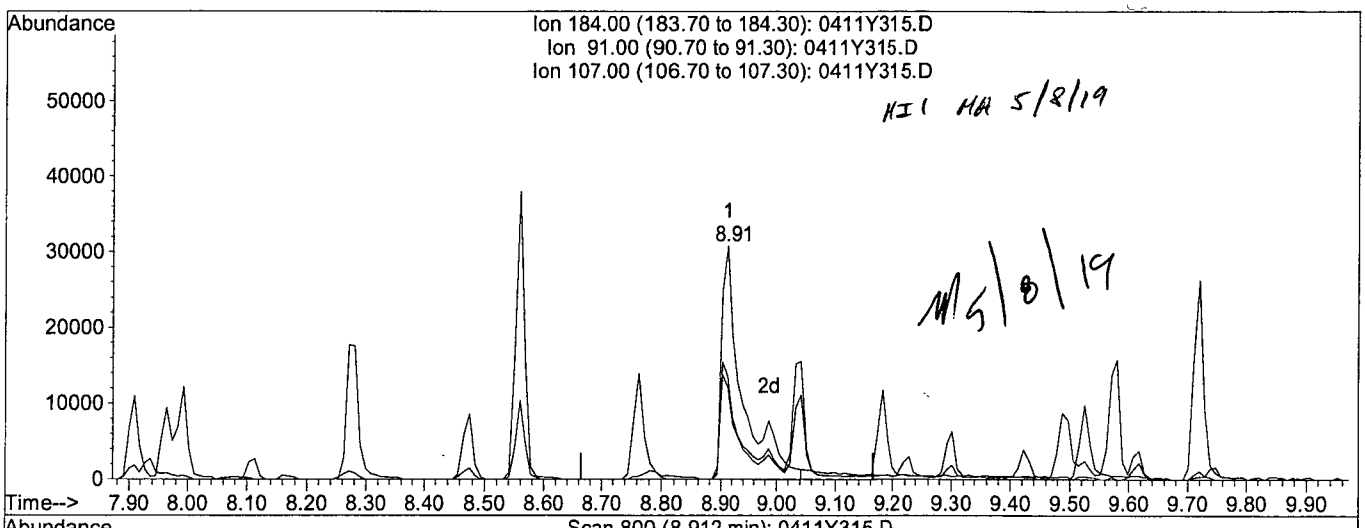
response 64557

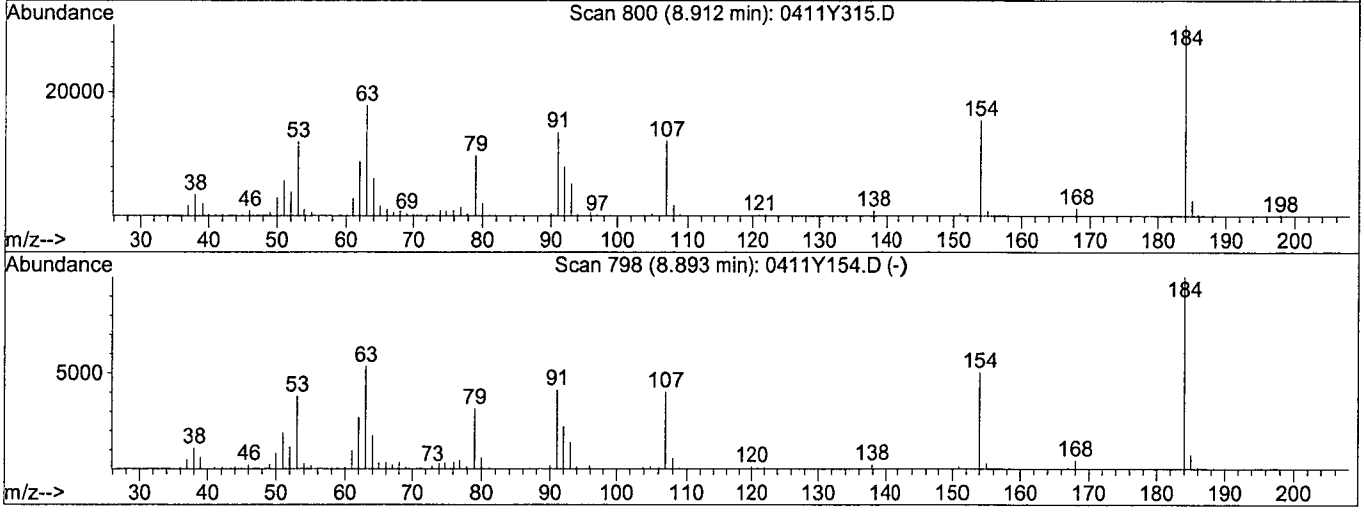
Ion	Exp%	Act%
184.00	100	100
91.00	44.50	42.94
107.00	39.30	39.08
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y315.D Vial: 15
Acq On : 8 May 19 9:14 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: May 8 10:49 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Multiple Level Calibration





TIC: 0411Y315.D

(55) 2,4-Dinitrophenol (**TM)

8.91min 46.3766ppb m

response 80513

Ion	Exp%	Act%
184.00	100	100
91.00	44.50	43.95
107.00	39.30	39.35
0.00	0.00	0.00

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 8 May 19 13:51
Instrument: Yoda
Initial Cal. Date: 03/19/19
Data File: 0411Y325.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	1,4-dichlorobenzene-D4(IS)	ISTD			I	
2		1,4-Dioxane	0.2708	0.2667	1.5		
3	TM	n-Nitrosodimethylamine	0.5083	0.5126	0.84	TM	
4	TM	Pyridine	1.222	1.072	12	TM	
5	S	2-Fluorophenol (S)	1.495	1.535	2.7	S	
6	S	Phenol-D6 (S)	1.955	2.051	4.9	S	
7	*TM	Phenol	2.163	2.205	2.0	*TM	
8	TM	Aniline	2.108	2.309	9.5	TM	
9	TM	Bis (2-chloroethyl) ether	0.9612	0.9473	1.4	TM	
10	TM	2-Chlorophenol	1.573	1.589	1.0	TM	
11	TM	1,3-DCB	1.652	1.558	5.7	TM	
12	*TM	1,4-DCB	1.698	1.593	6.2	*TM	
13	TM	Benzyl alcohol	0.9149	0.9747	6.5	TM	
14	TM	1,2-DCB	1.574	1.496	4.9	TM	
15	TM	2-Methylphenol	1.371	1.355	1.1	TM	
16	TM	Bis (2-chloroisopropyl) ether	1.416	1.391	1.7	TM	
17	TM	Acetophenone	2.099	2.147	2.3	TM	
18	TM	3&4-Methylphenol	1.645	1.680	2.1	TM	
19	**TM	n-Nitrosodi-n-propylamine	1.152	1.180	2.4	**TM	
20	TM	Hexachloroethane	0.6394	0.6048	5.4	TM	
21	I	Napthalene-D8(IS)	ISTD			I	
22	S	Nitrobenzene-D5(S)	0.4226	0.4199	0.65	S	
23	TM	Nitrobenzene	0.4082	0.3888	4.8	TM	
24	TM	Isophorone	0.7099	0.6787	4.4	TM	
25	*TM	2-Nitrophenol	0.2069	0.2024	2.2	*TM	
26	TM	2,4-Dimethylphenol	0.3262	0.3227	1.1	TM	
27	TM	Benzoic acid	0.2242	0.2639	18	TM	
28	TM	Bis (2-chloroethoxy) methane	0.4337	0.4083	5.8	TM	
29	*TM	2,4-Dichlorophenol	0.2766	0.2666	3.6	*TM	
30	TM	1,2,4-Trichlorobenzene	0.3036	0.2879	5.2	TM	
31	TM	3,4-Dimethylphenol	0.4824	0.4700	2.6	TM	
32	TM	Naphthalene	1.082	1.018	6.0	TM	
33	TM	4-Chloroaniline	0.3990	0.4176	4.6	TM	
34	TM	2,6-Dichlorophenol	0.2781	0.2702	2.9	TM	
35	TM	Hexachloropropene	0.1687	0.1636	3.0	TM	
36	*TM	Hexachlorobutadiene	0.1489	0.1433	3.8	*TM	
37	TM	Caprolactum	0.1394	0.1352	3.0	TM	
38	*TM	4-Chloro-3-methylphenol	0.3353	0.3318	1.0	*TM	
39	TM	2-Methylnaphthalene	0.6902	0.6535	5.3	TM	
40	TM	1-Methylnaphthalene	0.7153	0.6794	5.0	TM	
		Average			4.1		

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 8 May 19 13:51
Instrument: Yoda
Cal. Date: 03/19/19
Data File: 0411Y325.D

		Compound	MEAN	CCRF	%D		%Drift
41	I	Acenaphthene-D10(IS)	ISTD			I	
42	**TMQ	Hexachlorocyclopentadiene	0.0924	0.0691	25	**TMQ	12
43	TM	1,2,4,5-Tetrachlorobenzene	0.5222	0.5323	1.9	TM	
44	*TM	2,4,6-Trichlorophenol	0.3358	0.3548	5.7	*TM	
45	TM	2,4,5-Trichlorophenol	0.3609	0.3713	2.9	TM	
46	S	2-Fluorobiphenyl(S)	1.477	1.534	3.9	S	
47	TM	1,1'-Biphenyl	1.653	1.681	1.7	TM	
48	TM	2-Chloronaphthalene	1.244	1.262	1.5	TM	
49	TM	2-Nitroaniline	0.4076	0.4396	7.9	TM	
50	TM	Dimethyl phthalate	1.445	1.466	1.4	TM	
51	TM	2,6-DNT	0.3380	0.3574	5.7	TM	
52	TM	Acenaphthylene	1.968	1.999	1.6	TM	
53	TM	3-Nitroaniline	0.3715	0.4095	10	TM	
54	*TM	Acenaphthene	1.268	1.283	1.2	*TM	
55	**TML	2,4-Dinitrophenol	0.1301	0.1331	2.3	**TML	17
56	**TMQ	4-Nitrophenol	0.1853	0.2562	38	**TMQ	17
57	TM	Dibenzofuran	1.721	1.765	2.6	TM	
58	TM	2,4-DNT	0.4568	0.4890	7.1	TM	
59	TM	2,3,4,6-Tetrachlorophenol	0.2292	0.2709	18	TM	
60	TM	Diethyl phthalate	1.426	1.449	1.6	TM	
61	TM	4-Chlorophenyl phenyl ether	0.6575	0.6719	2.2	TM	
62	TM	Fluorene	1.435	1.469	2.4	TM	
63	TM	4-Nitroaniline	0.3758	0.3907	4.0	TM	
64	S	2,4,6-Tribromophenol(S)	0.1326	0.1557	17	S	
65	I	Phenanthrene-D10(IS)	ISTD			I	
66	TM	4,6-Dinitro-2-methylphenol	0.1492	0.1522	2.0	TM	
67	TM	Diphenyl amine	0.6711	0.6521	2.8	TM	
68	*TM	n-Nitrosodiphenylamine	0.6711	0.6521	2.8	*TM	
69	TM	1,2-Diphenylhydrazine	0.9392	0.8570	8.8	TM	
70	TM	4-Bromophenyl phenyl ether	0.2094	0.2001	4.4	TM	
71	TM	Hexachlorobenzene	0.1945	0.1872	3.8	TM	
72	TM	Atrazine	0.2293	0.2142	6.6	TM	
73	*TML	Pentachlorophenol	0.0578	0.0750	30	*TML	4.6
74	TM	Phenanthrene	1.222	1.149	6.0	TM	
75	TM	Anthracene	1.291	1.196	7.4	TM	
76	TM	Carbazol	1.189	1.120	5.8	TM	
77	TM	Di-n-butylphthalate	1.489	1.400	6.0	TM	
78	*TM	Fluoranthene	1.278	1.213	5.1	*TM	
79	I	Chrysene-D12(IS)	ISTD			I	
80	TM	Benzidine	0.3173	0.4038	27	TM	
		Average			7.7		

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 8 May 19 13:51
Instrument: Yoda
Cal. Date: 03/19/19
Data File: 0411Y325.D

		Compound	MEAN	CCRF	%D		%Drift
81	TM	Pyrene	1.475	1.419	3.8	TM	
82	S	Terphenyl-D14(S)	0.9778	0.9942	1.7	S	
83	TM	Butyl benzylphthalate	0.7465	0.7074	5.2	TM	
84	TM	3,3'-Dichlorobenzidine	0.3708	0.4335	17	TM	
85	TM	Benz (a) anthracene	1.304	1.231	5.6	TM	
86	TM	Bis (2-ethylhexyl) phthalate	1.069	0.9825	8.1	TM	
87	TM	Chrysene	1.257	1.185	5.8	TM	
88	*TM	Di-n-octylphthalate	1.844	1.713	7.1	*TM	
89	I	Perylene-D12(IS)	ISTD			I	
90	TM	Benzo (b) fluoranthene	1.190	1.334	12	TM	
91	TM	Benzo (k) fluoranthene	1.190	1.116	6.3	TM	
92	*TM	Benzo (a) pyrene	1.186	1.150	3.0	*TM	
93	TM	Indeno (1,2,3-cd) pyrene	1.276	1.180	7.5	TM	
94	TM	Dibenz (a,h) anthracene	1.118	1.057	5.5	TM	
95	TM	Benzo (g,h,i) perylene	1.018	0.9757	4.2	TM	
96							
97							
98							
99							
100							
101							
102							
103							
104							
105							
106							
107							
108							
109							
110							
111							
112							
113							
114							
115							
116							
117							
118							
119							
120							
		Average			6.6		

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y325.D Vial: 25
Acq On : 8 May 19 13:51 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: May 8 14:08 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	176117	40.00000	ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	781817	40.00000	ppb	-0.03
41) Acenaphthene-D10(IS)	8.78	164	387954	40.00000	ppb	-0.01
65) Phenanthrene-D10(IS)	10.53	188	700744	40.00000	ppb	0.00
79) Chrysene-D12(IS)	13.64	240	626040	40.00000	ppb	0.01
89) Perylene-D12(IS)	15.49	264	575817	40.00000	ppb	0.02
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.68	112	675781	102.66375	ppb	-0.11
Spiked Amount 200.000			Recovery = 51.332%			
6) Phenol-D6 (S)	4.89	99	902922	104.92091	ppb	-0.06
Spiked Amount 200.000			Recovery = 52.461%			
22) Nitrobenzene-D5(S)	5.93	82	410320	49.67521	ppb	-0.04
Spiked Amount 100.000			Recovery = 49.675%			
46) 2-Fluorobiphenyl(S)	7.99	172	744109	51.94723	ppb	-0.03
Spiked Amount 100.000			Recovery = 51.947%			
64) 2,4,6-Tribromophenol(S)	9.72	330	151044	117.47622	ppb	0.00
Spiked Amount 200.000			Recovery = 58.738%			
82) Terphenyl-D14(S)	12.40	244	777975	50.83721	ppb	0.00
Spiked Amount 100.000			Recovery = 50.837%			
Target Compounds						Qvalue
2) 1,4-Dioxane	1.62	58	5872	4.92497		94
3) n-Nitrosodimethylamine	1.85	42	112839	50.41794	ppb	97
4) Pyridine	1.86	79	235897	43.82667	ppb	96
7) Phenol	4.91	94	485493	50.98547	ppb	100
8) Aniline	4.91	93	508274	54.75375	ppb	96
9) Bis (2-chloroethyl) ether	4.99	63	208541	49.27528	ppb	97
10) 2-Chlorophenol	5.05	128	349839	50.50064	ppb	95
11) 1,3-DCB	5.22	146	342937	47.15821	ppb	99
12) 1,4-DCB	5.30	146	350591	46.88238	ppb	98
13) Benzyl alcohol	5.47	108	214579	53.26854	ppb	92
14) 1,2-DCB	5.48	146	329408	47.52904	ppb	99
15) 2-Methylphenol	5.60	107	298316	49.43199	ppb	96
16) Bis (2-chloroisopropyl) et	5.60	45	306249	49.12719	ppb	98
17) Acetophenone	5.76	105	472666	51.14226	ppb	90
18) 3&4-Methylphenol	5.77	107	739837	102.12873	ppb	100
19) n-Nitrosodi-n-propylamine	5.75	70	259814	51.22049	ppb	94
20) Hexachloroethane	5.85	117	133136	47.29403	ppb	100
23) Nitrobenzene	5.96	77	380002	47.62473	ppb	99
24) Isophorone	6.23	82	663303	47.80323	ppb	99
25) 2-Nitrophenol	6.31	139	197834	48.91098	ppb	91
26) 2,4-Dimethylphenol	6.37	122	315410	49.46960	ppb	98
27) Benzoic acid	6.54	105	257857	58.85558	ppb	97
28) Bis (2-chloroethoxy) metha	6.47	93	399024	47.07592	ppb	99
29) 2,4-Dichlorophenol	6.60	162	260515	48.18640	ppb	96
30) 1,2,4-Trichlorobenzene	6.67	180	281348	47.40639	ppb	96
31) 3,4-Dimethylphenol	6.71	107	459287	48.71270	ppb	98
32) Naphthalene	6.77	128	994455	47.00526	ppb	100
33) 4-Chloroaniline	6.84	127	408102	52.32475	ppb	98
34) 2,6-Dichlorophenol	6.85	162	264035	48.57344	ppb	98
35) Hexachloropropene	6.86	213	159884	48.48558	ppb	98
36) Hexachlorobutadiene	6.90	225	140052	48.10742	ppb	99
37) Caprolactum	7.29	55	132117	48.49778	ppb	95

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y325.D Vial: 25
Acq On : 8 May 19 13:51 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: May 8 14:08 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.42	107	324304	49.48595 ppb		99
39)	2-Methylnaphthalene	7.56	142	638607	47.33793 ppb		99
40)	1-Methylnaphthalene	7.68	142	663948	47.48773 ppb		100
42)	Hexachlorocyclopentadiene	7.73	237	33509	43.87365 ppb		98
43)	1,2,4,5-Tetrachlorobenzene	7.76	216	258137	50.96451 ppb		99
44)	2,4,6-Trichlorophenol	7.91	196	172077	52.82920 ppb		99
45)	2,4,5-Trichlorophenol	7.96	196	180079	51.44075 ppb		95
47)	1,1'-Biphenyl	8.11	154	815347	50.84351 ppb		97
48)	2-Chloronaphthalene	8.14	162	612207	50.75586 ppb		95
49)	2-Nitroaniline	8.27	65	213180	53.92795 ppb		92
50)	Dimethyl phthalate	8.47	163	711046	50.72072 ppb		98
51)	2,6-DNT	8.56	165	173326	52.87360 ppb		93
52)	Acenaphthylene	8.61	152	969325	50.77579 ppb		99
53)	3-Nitroaniline	8.76	138	198592	55.11351 ppb		96
54)	Acenaphthene	8.82	154	622378	50.61482 ppb		99
55)	2,4-Dinitrophenol	8.90	184	64566	41.38738 ppb		92
56)	4-Nitrophenol	8.98	65	124232	58.49875 ppb	#	75
57)	Dibenzofuran	9.02	168	855837	51.28584 ppb		96
58)	2,4-DNT	9.03	165	237147	53.52541 ppb		81
59)	2,3,4,6-Tetrachlorophenol	9.18	232	131354	59.09000 ppb		99
60)	Diethyl phthalate	9.29	149	702455	50.77550 ppb		99
61)	4-Chlorophenyl phenyl ethe	9.42	204	325828	51.09505 ppb		97
62)	Fluorene	9.43	166	712618	51.19301 ppb		99
63)	4-Nitroaniline	9.49	138	189484	51.98291 ppb		97
66)	4,6-Dinitro-2-methylphenol	9.52	198	133350	51.00647 ppb		88
67)	Diphenyl amine	9.57	169	1142374	97.17127 ppb		99
68)	n-Nitrosodiphenylamine	9.57	169	1142374	97.17127 ppb		99
69)	1,2-Diphenylhydrazine	9.61	77	750681	45.62463 ppb		93
70)	4-Bromophenyl phenyl ether	10.00	248	175275	47.78457 ppb		89
71)	Hexachlorobenzene	10.07	284	163941	48.12255 ppb		88
72)	Atrazine	10.20	200	93823	23.35318 ppb		96
73)	Pentachlorophenol	10.32	266	65726	52.28477 ppb		98
74)	Phenanthrene	10.55	178	1006840	47.02323 ppb		99
75)	Anthracene	10.62	178	1047188	46.29796 ppb		100
76)	Carbazol	10.81	167	981157	47.10496 ppb		100
77)	Di-n-butylphthalate	11.20	149	1226525	47.02500 ppb		100
78)	Fluoranthene	11.96	202	1062408	47.45506 ppb	#	95
80)	Benzidine	12.12	184	315969	63.63460 ppb		99
81)	Pyrene	12.22	202	1110132	48.09837 ppb		100
83)	Butyl benzylphthalate	12.97	149	553576	47.38037 ppb		93
84)	3,3'-Dichlorobenzidine	13.60	252	339260	58.46487 ppb		97
85)	Benz (a) anthracene	13.63	228	963540	47.21017 ppb		99
86)	Bis (2-ethylhexyl) phthala	13.62	149	768823	45.94196 ppb		98
87)	Chrysene	13.67	228	927179	47.11791 ppb		99
88)	Di-n-octylphthalate	14.37	149	1340835	46.46766 ppb		98
90)	Benzo (b) fluoranthene	14.94	252	960218	56.03055 ppb		99
91)	Benzo (k) fluoranthene	14.98	252	803307	46.87449 ppb		97
92)	Benzo (a) pyrene	15.41	252	827566	48.48674 ppb		99
93)	Indeno (1,2,3-cd) pyrene	17.40	276	849061	46.23898 ppb		98
94)	Dibenz (a,h) anthracene	17.41	278	760993	47.26894 ppb		98
95)	Benzo (g,h,i) perylene	17.97	276	702276	47.92387 ppb		98

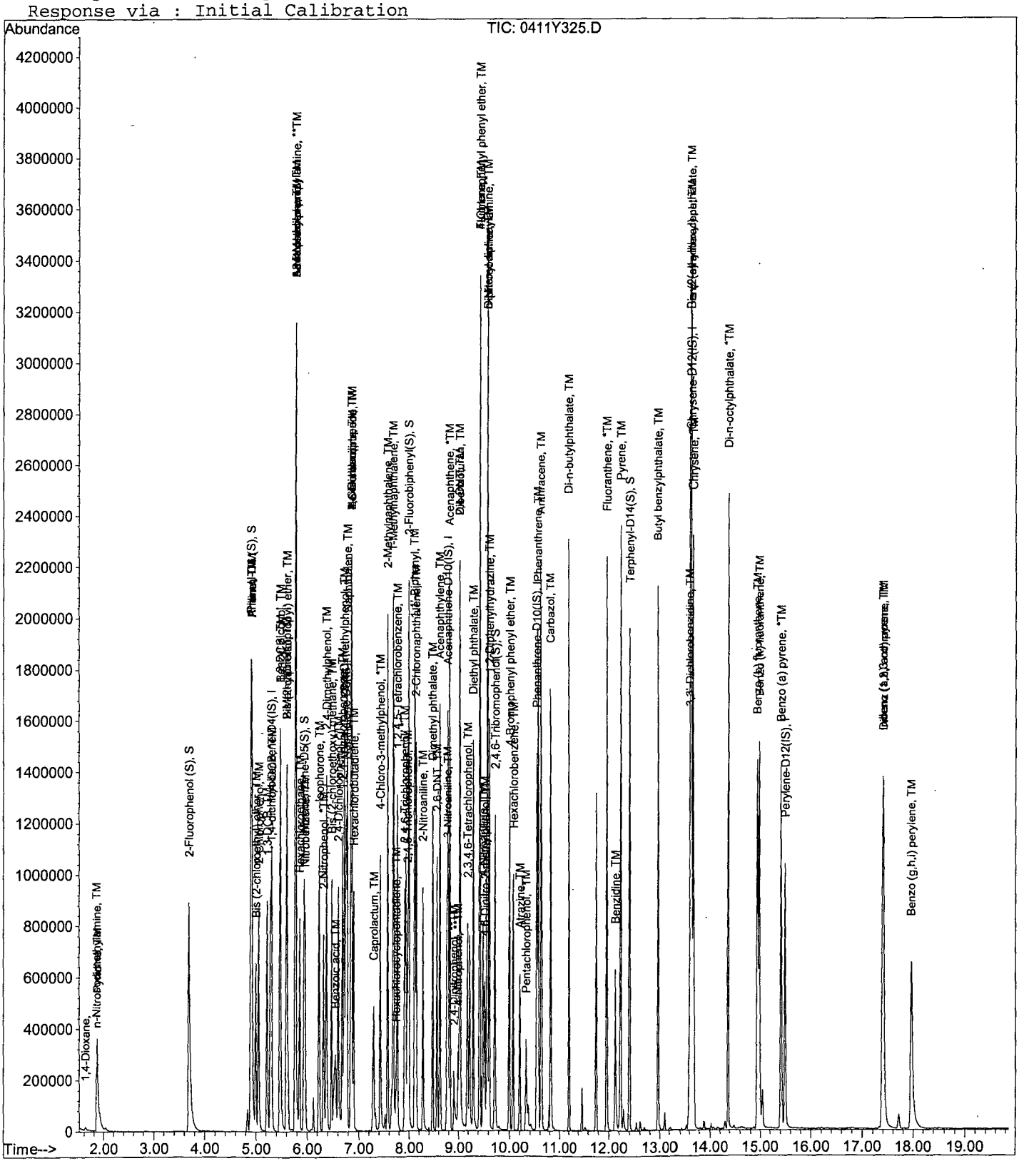
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y325.D Vial: 25
Acq On : 8 May 19 13:51 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: May 8 14:08 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



ORGANICS
Raw Data

Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y283.D Vial: 83
Acq On : 2 May 19 18:39 Operator: MA,SS
Sample : AZ90213W21 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 3 9:11 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	155289	40.00000 ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	709163	40.00000 ppb	-0.03
41) Acenaphthene-D10(IS)	8.78	164	426862	40.00000 ppb	-0.01
65) Phenanthrene-D10(IS)	10.53	188	721470	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.64	240	642632	40.00000 ppb	0.01
89) Perylene-D12(IS)	15.49	264	618437	40.00000 ppb	0.02
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.70	112	843099	181.57679 ppb	-0.09
Spiked Amount 250.000			Recovery =	72.631%	
6) Phenol-D6 (S)	4.89	99	1082306	178.29226 ppb	-0.06
Spiked Amount 250.000			Recovery =	71.317%	
22) Nitrobenzene-D5(S)	5.93	82	572382	95.49312 ppb	-0.04
Spiked Amount 125.000			Recovery =	76.394%	
46) 2-Fluorobiphenyl(S)	7.99	172	1058674	83.96356 ppb	-0.03
Spiked Amount 125.000			Recovery =	67.171%	
64) 2,4,6-Tribromophenol(S)	9.72	330	217378	192.07235 ppb	0.00
Spiked Amount 250.000			Recovery =	76.829%	
82) Terphenyl-D14(S)	12.40	244	1062757	84.56677 ppb	0.00
Spiked Amount 125.000			Recovery =	67.654%	

Target Compounds Qvalue

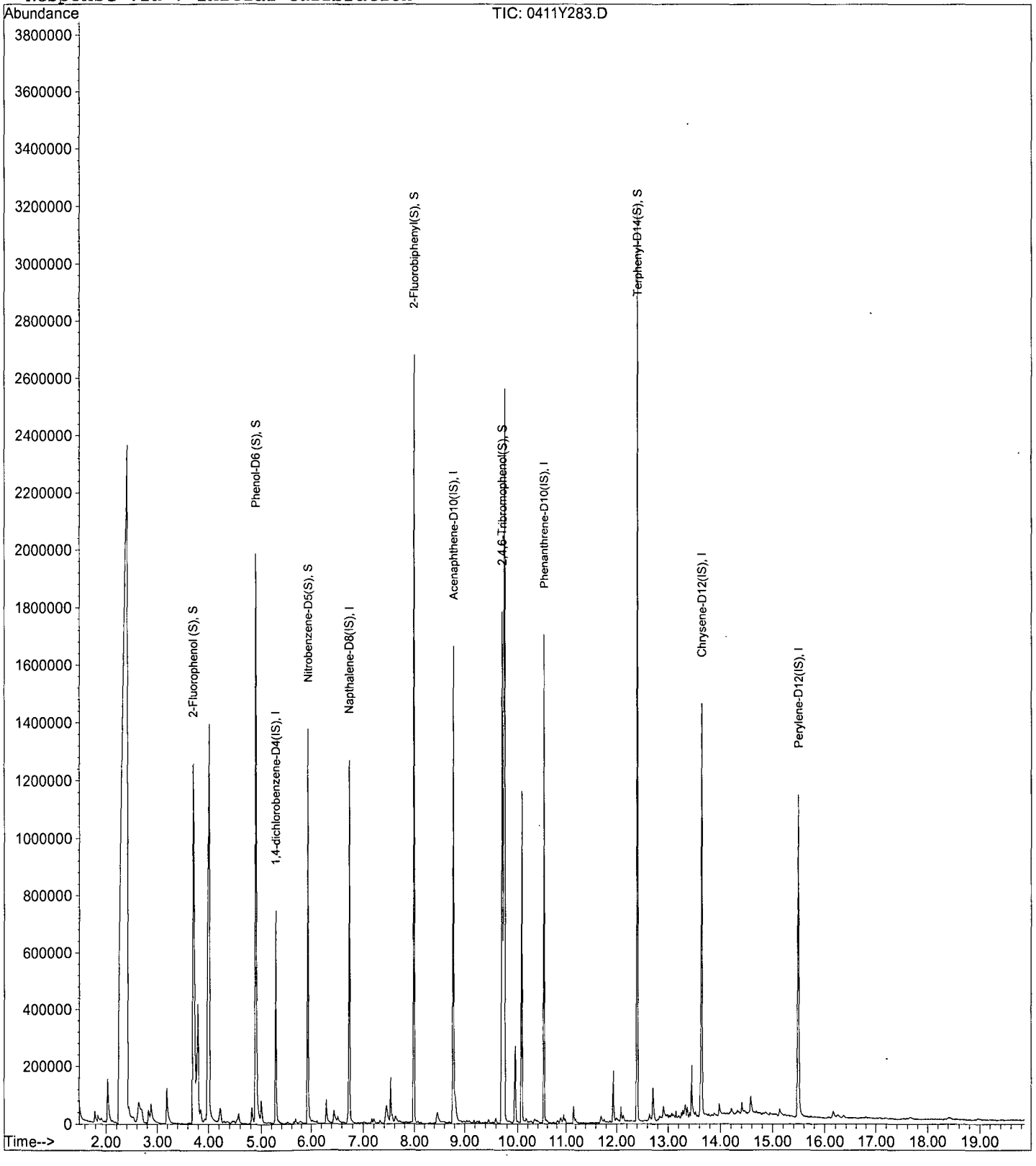
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y283.D Vial: 83
Acq On : 2 May 19 18:39 Operator: MA,SS
Sample : AZ90213W21 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 3 9:11 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y284.D Vial: 84
Acq On : 2 May 19 19:07 Operator: MA,SS
Sample : AZ90215W18 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 3 9:06 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	160650	40.00000 ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	761577	40.00000 ppb	-0.03
41) Acenaphthene-D10(IS)	8.77	164	485980	40.00000 ppb	-0.02
65) Phenanthrene-D10(IS)	10.53	188	823809	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.64	240	741476	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.49	264	716705	40.00000 ppb	0.02
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.70	112	124667	25.95334 ppb	-0.10
Spiked Amount 250.000			Recovery =	10.381%	
6) Phenol-D6 (S)	4.89	99	155357	24.73849 ppb	-0.05
Spiked Amount 250.000			Recovery =	9.895%	
22) Nitrobenzene-D5(S)	5.93	82	73419	11.40583 ppb	-0.04
Spiked Amount 125.000			Recovery =	9.125%	
46) 2-Fluorobiphenyl(S)	7.99	172	143040	9.96449 ppb	-0.03
Spiked Amount 125.000			Recovery =	7.971%	
64) 2,4,6-Tribromophenol(S)	9.71	330	28458	22.08629 ppb	-0.01
Spiked Amount 250.000			Recovery =	8.834%	
82) Terphenyl-D14(S)	12.39	244	149382	10.30218 ppb	0.00
Spiked Amount 125.000			Recovery =	8.242%	
Target Compounds					Qvalue
86) Bis (2-ethylhexyl) phthala	13.62	149	23508	1.48257 ppb	98

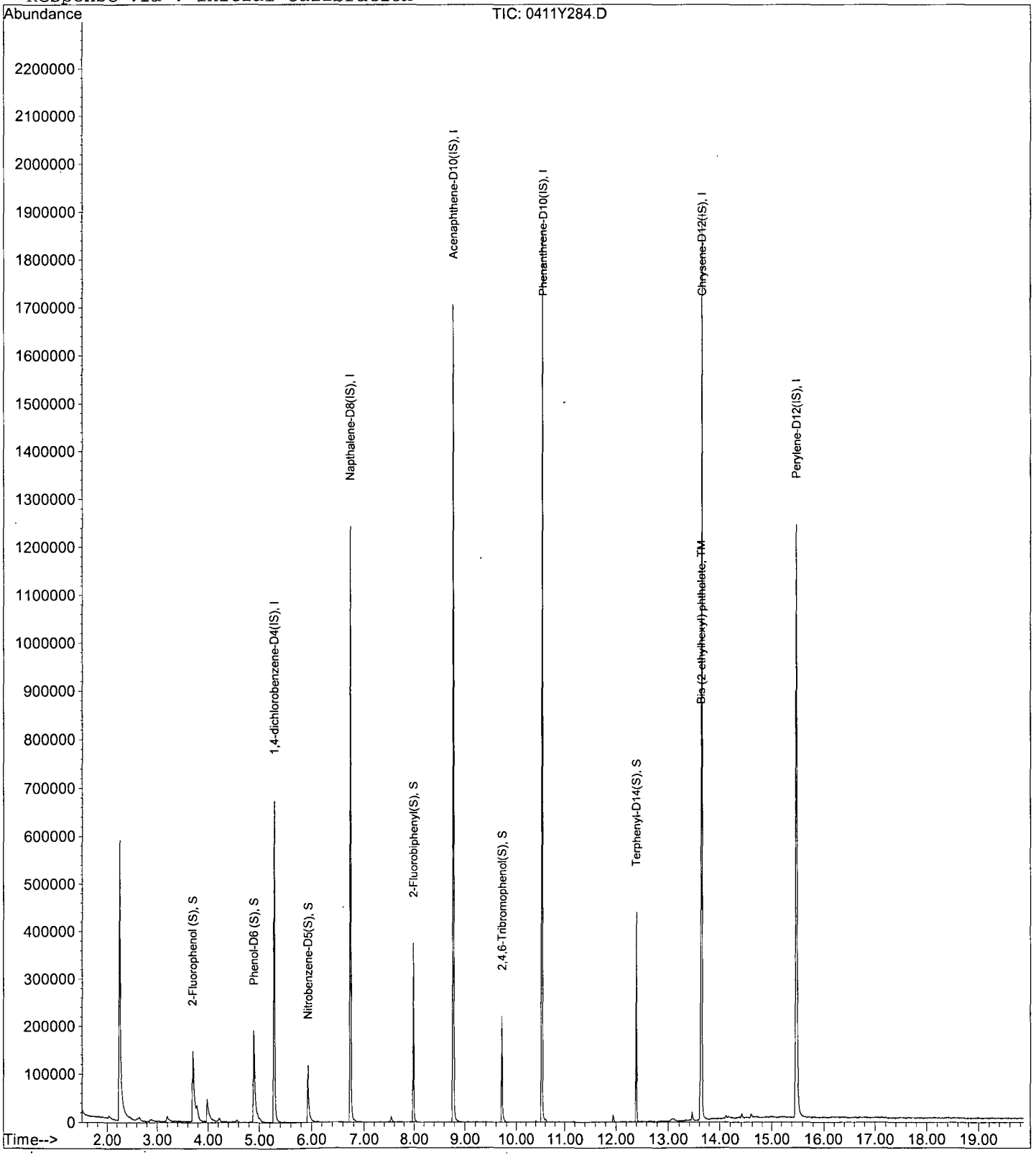
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y284.D Vial: 84
Acq On : 2 May 19 19:07 Operator: MA,SS
Sample : AZ90215W18 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 3 9:06 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y324.D Vial: 24
Acq On : 8 May 19 13:23 Operator: MA,SS
Sample : AZ90215W19 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 13:38 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

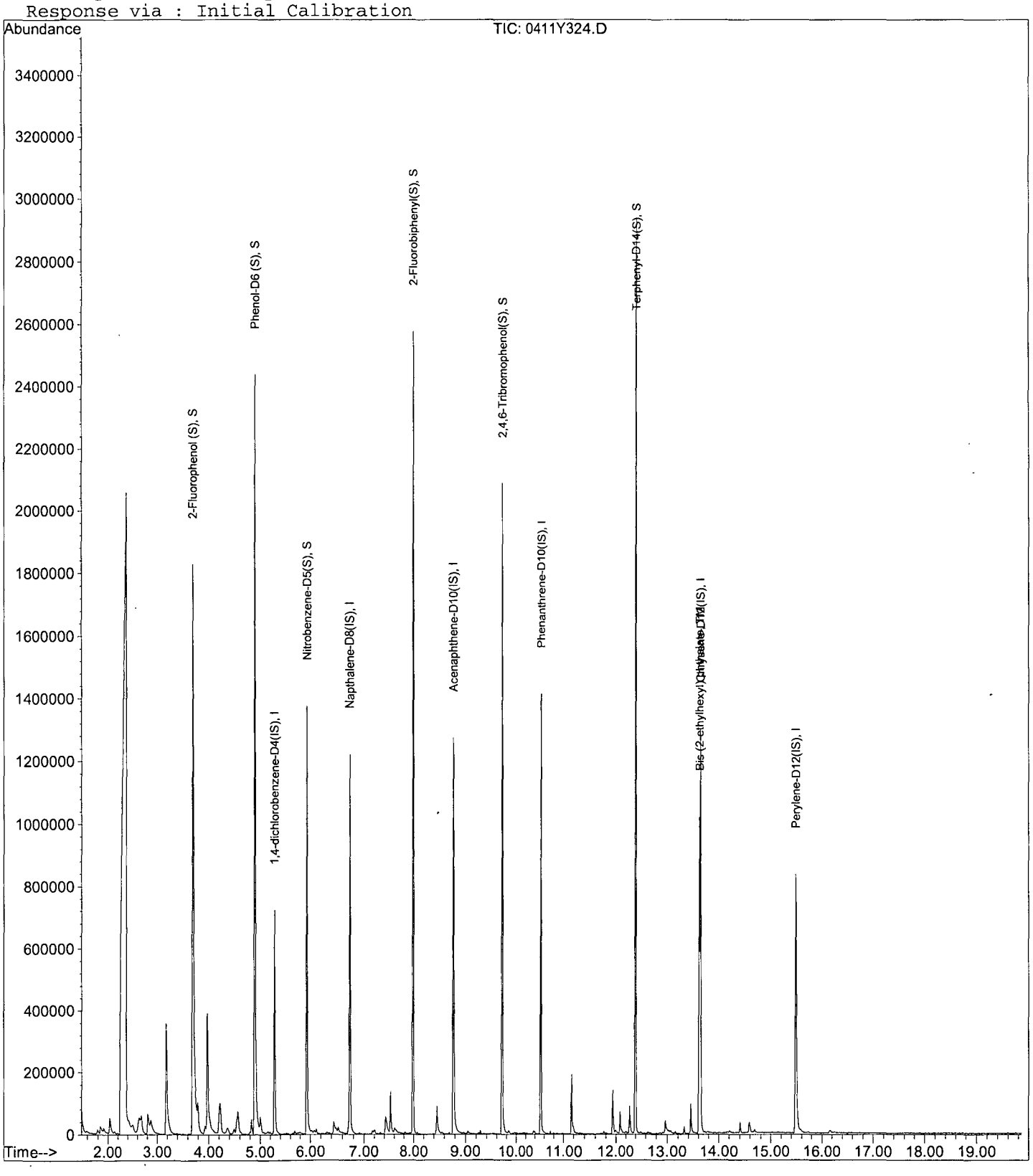
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	156965	40.00000 ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	684744	40.00000 ppb	-0.03
41) Acenaphthene-D10(IS)	8.77	164	371687	40.00000 ppb	-0.02
65) Phenanthrene-D10(IS)	10.53	188	615083	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.64	240	536050	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.48	264	507989	40.00000 ppb	0.02
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.69	112	982516	209.34339 ppb	-0.10
Spiked Amount 250.000			Recovery =	83.737%	
6) Phenol-D6 (S)	4.89	99	1222295	199.20321 ppb	-0.05
Spiked Amount 250.000			Recovery =	79.681%	
22) Nitrobenzene-D5(S)	5.93	82	608242	105.09459 ppb	-0.04
Spiked Amount 125.000			Recovery =	84.076%	
46) 2-Fluorobiphenyl(S)	7.99	172	1114063	101.47253 ppb	-0.03
Spiked Amount 125.000			Recovery =	81.178%	
64) 2,4,6-Tribromophenol(S)	9.71	330	243797	247.39319 ppb	-0.02
Spiked Amount 250.000			Recovery =	98.957%	
82) Terphenyl-D14(S)	12.40	244	1125921	107.40655 ppb	0.00
Spiked Amount 125.000			Recovery =	85.926%	
Target Compounds					Qvalue
86) Bis (2-ethylhexyl) phthala	13.62	149	278380	24.28443 ppb	99

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190411\0411Y324.D Vial: 24
Acq On : 8 May 19 13:23 Operator: MA,SS
Sample : AZ90215W19 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 13:38 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y270.D Vial: 70
Acq On : 2 May 19 12:35 Operator: MA,SS
Sample : 190430A BLK 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:57 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

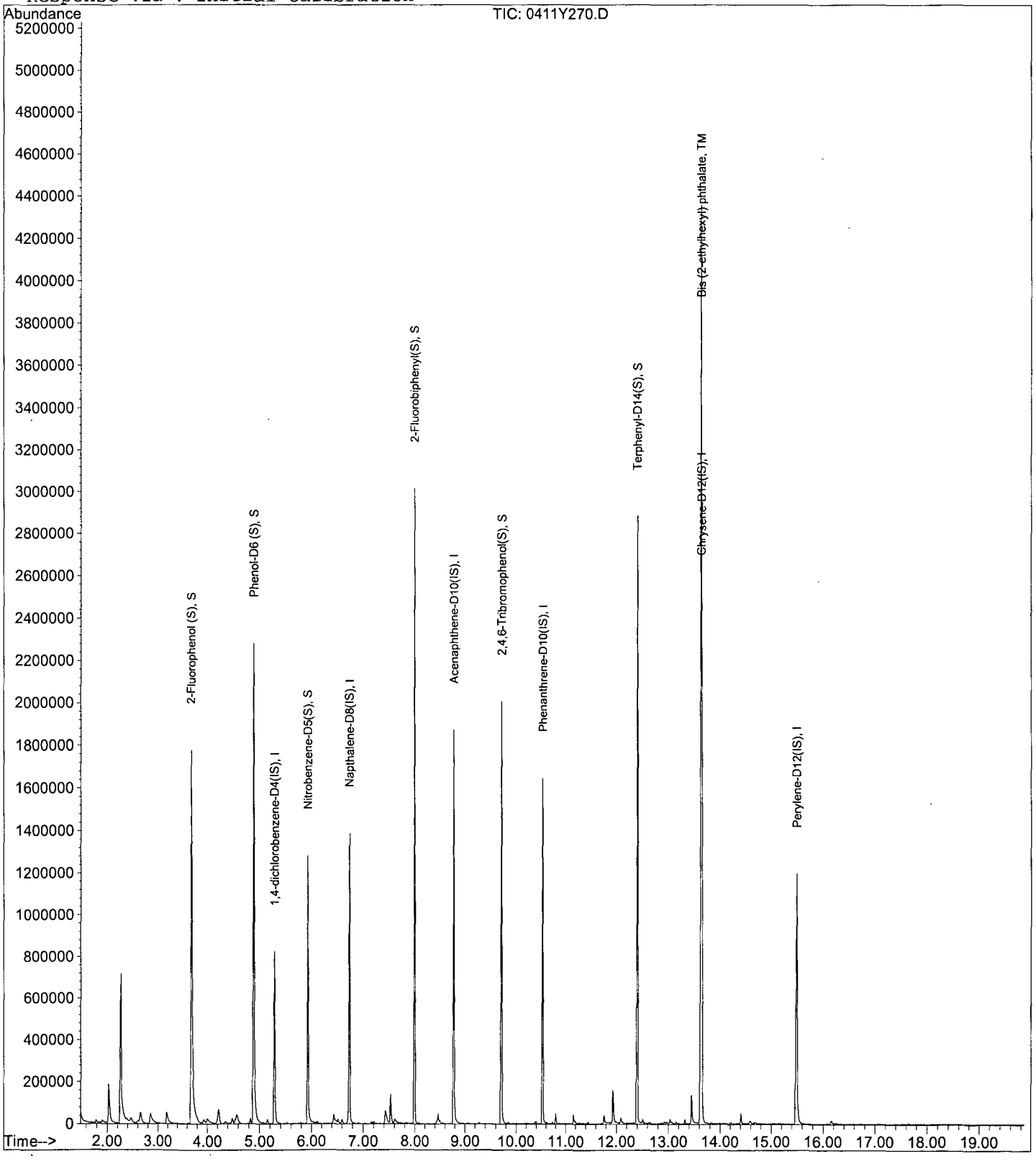
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	199329	40.00000 ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	866269	40.00000 ppb	-0.03
41) Acenaphthene-D10(IS)	8.77	164	470806	40.00000 ppb	-0.02
65) Phenanthrene-D10(IS)	10.53	188	780417	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.64	240	707014	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.49	264	699190	40.00000 ppb	0.02
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.68	112	994011	166.77968 ppb	-0.11
Spiked Amount 250.000			Recovery =	66.712%	
6) Phenol-D6 (S)	4.88	99	1189292	152.63043 ppb	-0.06
Spiked Amount 250.000			Recovery =	61.052%	
22) Nitrobenzene-D5(S)	5.92	82	594572	81.20521 ppb	-0.05
Spiked Amount 125.000			Recovery =	64.964%	
46) 2-Fluorobiphenyl(S)	7.98	172	1072133	77.09439 ppb	-0.03
Spiked Amount 125.000			Recovery =	61.675%	
64) 2,4,6-Tribromophenol(S)	9.71	330	236281	189.28821 ppb	-0.01
Spiked Amount 250.000			Recovery =	75.715%	
82) Terphenyl-D14(S)	12.40	244	1139929	82.44758 ppb	0.00
Spiked Amount 125.000			Recovery =	65.958%	
Target Compounds					Qvalue
86) Bis (2-ethylhexyl) phthala	13.62	149	1184826	78.36493 ppb	97

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190411\0411Y270.D Vial: 70
Acq On : 2 May 19 12:35 Operator: MA,SS
Sample : 190430A BLK 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:57 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y318.D Vial: 18
Acq On : 8 May 19 10:36 Operator: MA,SS
Sample : 190506A BLK 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 10:51 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	164984	40.00000 ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	704479	40.00000 ppb	-0.03
41) Acenaphthene-D10(IS)	8.77	164	379264	40.00000 ppb	-0.02
65) Phenanthrene-D10(IS)	10.53	188	653354	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.64	240	545290	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.48	264	520672	40.00000 ppb	0.02
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.69	112	998811	202.47151 ppb	-0.11
Spiked Amount 250.000			Recovery	= 80.989%	
6) Phenol-D6 (S)	4.89	99	1232028	191.03013 ppb	-0.05
Spiked Amount 250.000			Recovery	= 76.412%	
22) Nitrobenzene-D5(S)	5.92	82	603571	101.36605 ppb	-0.05
Spiked Amount 125.000			Recovery	= 81.093%	
46) 2-Fluorobiphenyl(S)	7.98	172	1078133	96.23805 ppb	-0.04
Spiked Amount 125.000			Recovery	= 76.990%	
64) 2,4,6-Tribromophenol(S)	9.71	330	236807	235.49932 ppb	-0.01
Spiked Amount 250.000			Recovery	= 94.200%	
82) Terphenyl-D14(S)	12.40	244	1107263	103.83682 ppb	0.00
Spiked Amount 125.000			Recovery	= 83.070%	

Target Compounds Qvalue

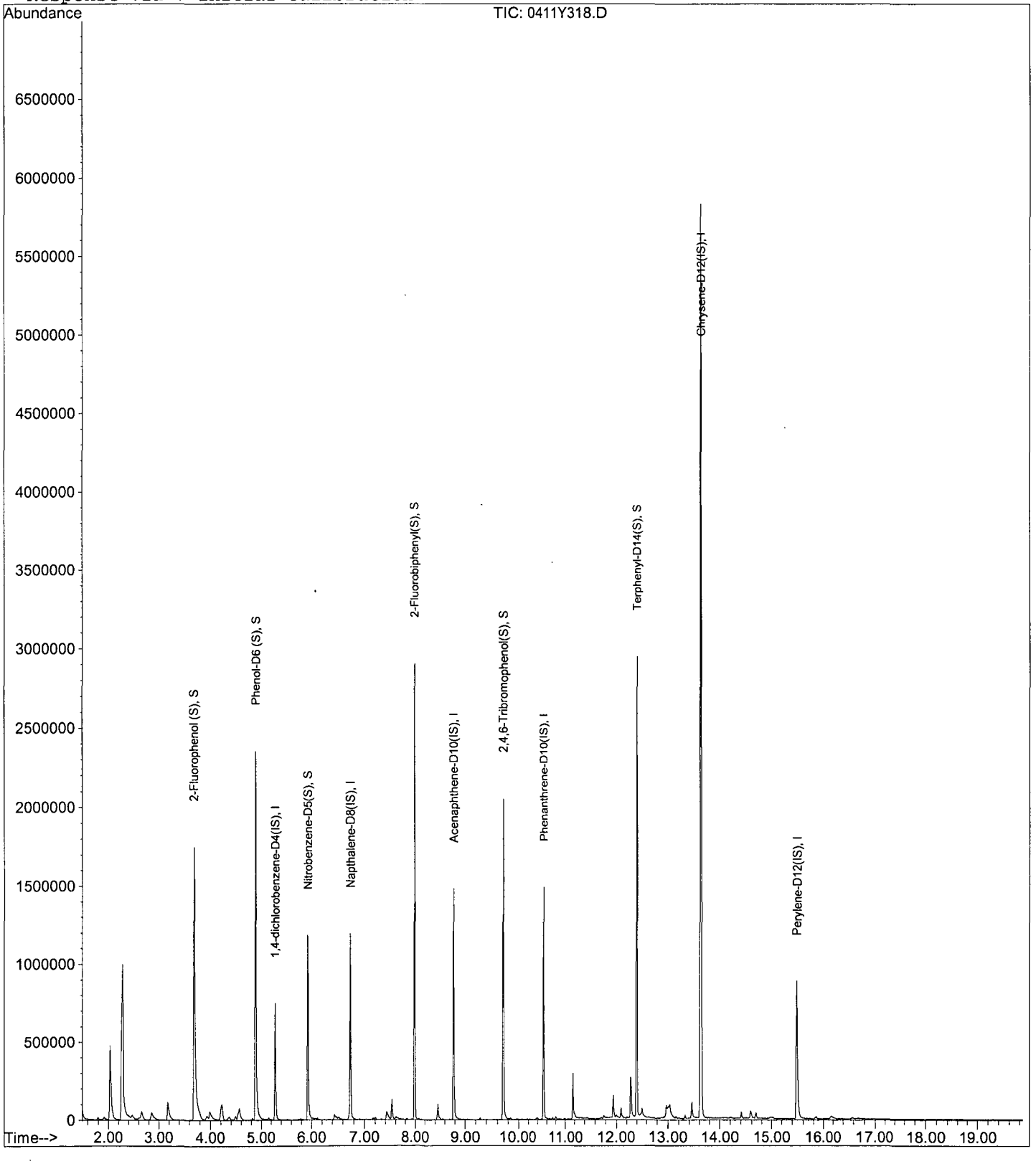
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y318.D Vial: 18
Acq On : 8 May 19 10:36 Operator: MA,SS
Sample : 190506A BLK 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 10:51 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y271.D Vial: 71
Acq On : 2 May 19 13:03 Operator: MA,SS
Sample : 190430A LCS-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:43 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	167547	40.00000 ppb		-0.05
21) Napthalene-D8(IS)	6.74	136	753242	40.00000 ppb		-0.03
41) Acenaphthene-D10(IS)	8.78	164	443671	40.00000 ppb		-0.01
65) Phenanthrene-D10(IS)	10.53	188	766016	40.00000 ppb		0.00
79) Chrysene-D12(IS)	13.64	240	688048	40.00000 ppb		0.01
89) Perylene-D12(IS)	15.49	264	671650	40.00000 ppb		0.02
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.68	112	995932	198.79959 ppb		-0.11
Spiked Amount 250.000			Recovery = 79.520%			
6) Phenol-D6 (S)	4.89	99	1223356	186.78385 ppb		-0.06
Spiked Amount 250.000			Recovery = 74.714%			
22) Nitrobenzene-D5(S)	5.93	82	578286	90.83231 ppb		-0.04
Spiked Amount 125.000			Recovery = 72.666%			
46) 2-Fluorobiphenyl(S)	7.99	172	1048479	80.00457 ppb		-0.03
Spiked Amount 125.000			Recovery = 64.004%			
64) 2,4,6-Tribromophenol(S)	9.72	330	231509	196.80838 ppb		0.00
Spiked Amount 250.000			Recovery = 78.723%			
82) Terphenyl-D14(S)	12.40	244	1125139	83.62104 ppb		0.00
Spiked Amount 125.000			Recovery = 66.897%			
Target Compounds						Qvalue
2) 1,4-Dioxane	1.61	58	4750	5.23463		94
3) n-Nitrosodimethylamine	1.85	42	87008	51.08103 ppb		95
4) Pyridine	1.85	79	186085	45.42575 ppb		91
7) Phenol	4.91	94	375402	51.80059 ppb		82
8) Aniline	4.91	93	277130	39.22601 ppb	#	68
9) Bis (2-chloroethyl) ether	4.99	63	168812	52.41018 ppb		96
10) 2-Chlorophenol	5.05	128	280095	53.12619 ppb		97
11) 1,3-DCB	5.22	146	253290	45.76523 ppb		98
12) 1,4-DCB	5.30	146	263369	46.27519 ppb		98
13) Benzyl alcohol	5.47	108	170724	55.68687 ppb		94
14) 1,2-DCB	5.47	146	248340	47.08106 ppb		97
15) 2-Methylphenol	5.60	107	239314	52.10439 ppb		98
16) Bis (2-chloroisopropyl) et	5.60	45	247142	52.09168 ppb		96
17) Acetophenone	5.75	105	383722	54.55278 ppb		87
18) 3&4-Methylphenol	5.77	107	601539	109.10642 ppb		100
19) n-Nitrosodi-n-propylamine	5.75	70	207767	53.81860 ppb		95
20) Hexachloroethane	5.85	117	89118	41.59593 ppb		96
23) Nitrobenzene	5.95	77	312995	50.89377 ppb		90
24) Isophorone	6.22	82	543732	50.84061 ppb		98
25) 2-Nitrophenol	6.31	139	160076	51.34667 ppb		92
26) 2,4-Dimethylphenol	6.37	122	233264	47.46694 ppb		98
27) Benzoic acid	6.54	105	204558	60.57672 ppb		96
28) Bis (2-chloroethoxy) metha	6.47	93	331064	50.67484 ppb		99
29) 2,4-Dichlorophenol	6.60	162	222645	53.43002 ppb		95
30) 1,2,4-Trichlorobenzene	6.67	180	204475	44.70065 ppb		99
31) 3,4-Dimethylphenol	6.71	107	370813	51.02624 ppb		99
32) Naphthalene	6.77	128	793698	48.67402 ppb		100
33) 4-Chloroaniline	6.84	127	119480	19.87532 ppb		96
34) 2,6-Dichlorophenol	6.84	162	210977	50.35622 ppb		97
35) Hexachloropropene	6.86	213	77307	30.41635 ppb		100
36) Hexachlorobutadiene	6.90	225	90700	40.42133 ppb		99
37) Caprolactum	7.28	55	104842	49.93201 ppb		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y271.D Vial: 71
Acq On : 2 May 19 13:03 Operator: MA,SS
Sample : 190430A LCS-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:43 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.42	107	265136	52.49028	ppb		98
39)	2-Methylnaphthalene	7.56	142	501782	48.25821	ppb		100
40)	1-Methylnaphthalene	7.68	142	520049	48.25832	ppb		99
42)	Hexachlorocyclopentadiene	7.73	237	1287	20.11178	ppb	#	91
43)	1,2,4,5-Tetrachlorobenzene	7.76	216	200849	43.34275	ppb		99
44)	2,4,6-Trichlorophenol	7.91	196	148785	49.92747	ppb		100
45)	2,4,5-Trichlorophenol	7.96	196	157007	49.02216	ppb		92
47)	1,1'-Biphenyl	8.10	154	649860	44.29371	ppb		100
48)	2-Chloronaphthalene	8.13	162	497040	45.04104	ppb		98
49)	2-Nitroaniline	8.27	65	169259	46.80028	ppb		95
50)	Dimethyl phthalate	8.46	163	618243	48.20322	ppb		99
51)	2,6-DNT	8.56	165	143083	47.70813	ppb		97
52)	Acenaphthylene	8.61	152	767682	43.95395	ppb		99
53)	3-Nitroaniline	8.75	138	113334	34.37840	ppb		85
54)	Acenaphthene	8.82	154	511724	45.48712	ppb		99
55)	2,4-Dinitrophenol	8.90	184	62380	45.07265	ppb		95
56)	4-Nitrophenol	8.98	65	118642	63.19255	ppb	#	71
57)	Dibenzofuran	9.02	168	697306	45.67294	ppb		96
58)	2,4-DNT	9.03	165	196273	48.42082	ppb		95
59)	2,3,4,6-Tetrachlorophenol	9.18	232	107873	53.04112	ppb		96
60)	Diethyl phthalate	9.29	149	596076	47.09410	ppb		99
61)	4-Chlorophenyl phenyl ethe	9.42	204	271994	46.62072	ppb		100
62)	Fluorene	9.42	166	581825	45.68519	ppb		99
63)	4-Nitroaniline	9.49	138	139964	41.96948	ppb		95
66)	4,6-Dinitro-2-methylphenol	9.51	198	113147	49.48879	ppb		95
67)	Diphenyl amine	9.57	169	885294	86.10902	ppb		99
68)	n-Nitrosodiphenylamine	9.57	169	885294	86.10902	ppb		99
69)	1,2-Diphenylhydrazine	9.61	77	612765	42.58625	ppb		96
70)	4-Bromophenyl phenyl ether	10.00	248	144499	45.04682	ppb		86
71)	Hexachlorobenzene	10.07	284	135956	45.63425	ppb	#	82
72)	Atrazine	10.20	200	76698	21.82993	ppb		93
73)	Pentachlorophenol	10.31	266	61395	56.99910	ppb		99
74)	Phenanthrene	10.55	178	827791	44.20835	ppb		99
75)	Anthracene	10.62	178	852901	43.11887	ppb		100
76)	Carbazol	10.81	167	808921	44.40847	ppb		99
77)	Di-n-butylphthalate	11.20	149	1048492	45.96731	ppb		100
78)	Fluoranthene	11.95	202	882694	45.08509	ppb	#	96
80)	Benzidine	12.14	184	16658	3.81562	ppb		97
81)	Pyrene	12.22	202	925142	45.58873	ppb		100
83)	Butyl benzylphthalate	12.97	149	482992	47.01695	ppb		92
84)	3,3'-Dichlorobenzidine	13.60	252	117284	22.98764	ppb		98
85)	Benz (a) anthracene	13.63	228	815637	45.45233	ppb		99
86)	Bis (2-ethylhexyl) phthala	13.62	149	653569	44.41891	ppb		96
87)	Chrysene	13.67	228	770114	44.51135	ppb		99
88)	Di-n-octylphthalate	14.37	149	1171963	46.19369	ppb		98
90)	Benzo (b) fluoranthene	14.94	252	847642	53.00526	ppb		98
91)	Benzo (k) fluoranthene	14.98	252	675971	42.27022	ppb		96
92)	Benzo (a) pyrene	15.41	252	696073	43.70455	ppb		99
93)	Indeno (1,2,3-cd) pyrene	17.39	276	748292	43.67087	ppb		98
94)	Dibenz (a,h) anthracene	17.41	278	670623	44.64010	ppb		99
95)	Benzo (g,h,i) perylene	17.97	276	629749	46.05354	ppb		97

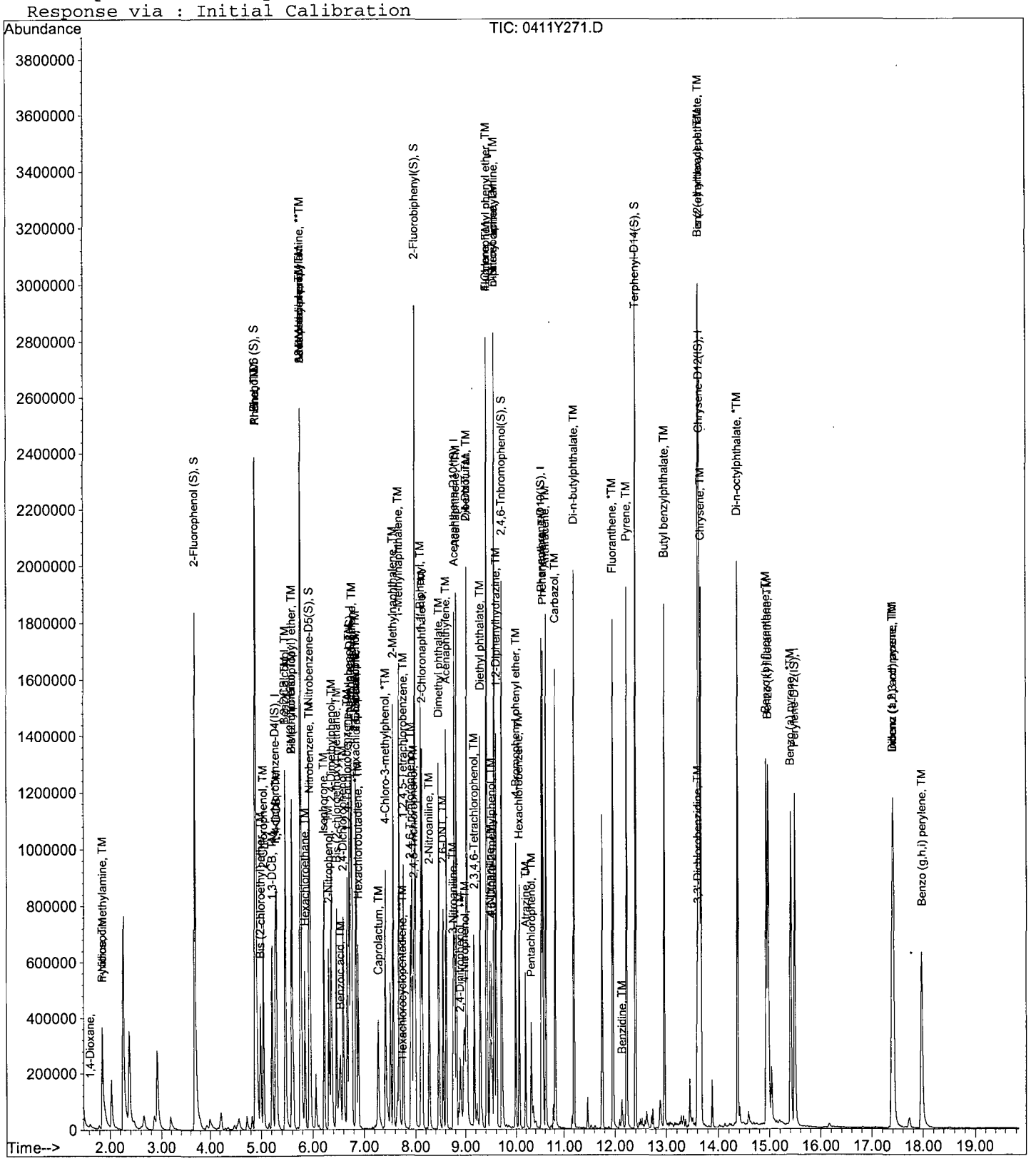
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y271.D Vial: 71
Acq On : 2 May 19 13:03 Operator: MA,SS
Sample : 190430A LCS-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:43 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y272.D Vial: 72
Acq On : 2 May 19 13:31 Operator: MA,SS
Sample : 190430A LCSD-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:43 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	159395	40.00000	ppb		-0.05
21) Napthalene-D8(IS)	6.74	136	719335	40.00000	ppb		-0.03
41) Acenaphthene-D10(IS)	8.78	164	448864	40.00000	ppb		-0.01
65) Phenanthrene-D10(IS)	10.53	188	760800	40.00000	ppb		0.00
79) Chrysene-D12(IS)	13.65	240	689946	40.00000	ppb		0.02
89) Perylene-D12(IS)	15.49	264	668653	40.00000	ppb		0.02
System Monitoring Compounds							
5) 2-Fluorophenol (S)	3.68	112	1009611	211.83700	ppb		-0.11
Spiked Amount 250.000			Recovery =	84.735%			
6) Phenol-D6 (S)	4.89	99	1244862	199.78811	ppb		-0.05
Spiked Amount 250.000			Recovery =	79.915%			
22) Nitrobenzene-D5(S)	5.93	82	586838	96.52043	ppb		-0.04
Spiked Amount 125.000			Recovery =	77.216%			
46) 2-Fluorobiphenyl(S)	7.99	172	1062465	80.13384	ppb		-0.03
Spiked Amount 125.000			Recovery =	64.107%			
64) 2,4,6-Tribromophenol(S)	9.72	330	244209	205.20297	ppb		0.00
Spiked Amount 250.000			Recovery =	82.081%			
82) Terphenyl-D14(S)	12.40	244	1113070	82.49650	ppb		0.00
Spiked Amount 125.000			Recovery =	65.997%			
Target Compounds							Qvalue
2) 1,4-Dioxane	1.61	58	4842	5.60892			75
3) n-Nitrosodimethylamine	1.85	42	85262	52.61602	ppb		90
4) Pyridine	1.86	79	185793	47.67405	ppb		94
7) Phenol	4.91	94	384370	55.75060	ppb		84
8) Aniline	4.91	93	301066	44.79343	ppb	#	75
9) Bis (2-chloroethyl) ether	4.99	63	171994	56.12903	ppb		96
10) 2-Chlorophenol	5.05	128	289406	57.69960	ppb		95
11) 1,3-DCB	5.22	146	247809	47.06485	ppb		98
12) 1,4-DCB	5.30	146	258633	47.76716	ppb		98
13) Benzyl alcohol	5.47	108	175056	60.02017	ppb		92
14) 1,2-DCB	5.48	146	249614	49.74282	ppb		98
15) 2-Methylphenol	5.60	107	247125	56.55680	ppb		99
16) Bis (2-chloroisopropyl) et	5.60	45	250888	55.58578	ppb		96
17) Acetophenone	5.75	105	384437	57.44964	ppb		89
18) 3&4-Methylphenol	5.77	107	611513	116.58808	ppb		99
19) n-Nitrosodi-n-propylamine	5.75	70	209387	57.01216	ppb		94
20) Hexachloroethane	5.85	117	82932	40.68830	ppb		98
23) Nitrobenzene	5.95	77	316177	53.83452	ppb		92
24) Isophorone	6.22	82	555845	54.42306	ppb		98
25) 2-Nitrophenol	6.31	139	160999	54.07700	ppb		91
26) 2,4-Dimethylphenol	6.37	122	243675	51.92277	ppb		96
27) Benzoic acid	6.54	105	214178	66.41520	ppb		97
28) Bis (2-chloroethoxy) metha	6.47	93	334125	53.55410	ppb		99
29) 2,4-Dichlorophenol	6.60	162	223121	56.06814	ppb		94
30) 1,2,4-Trichlorobenzene	6.67	180	204400	46.79052	ppb		98
31) 3,4-Dimethylphenol	6.71	107	376157	54.20147	ppb		99
32) Naphthalene	6.77	128	801294	51.45614	ppb		100
33) 4-Chloroaniline	6.84	127	114193	19.89124	ppb		97
34) 2,6-Dichlorophenol	6.84	162	215211	53.78805	ppb		96
35) Hexachloropropene	6.86	213	73809	30.40891	ppb		98
36) Hexachlorobutadiene	6.89	225	84432	39.40159	ppb		99
37) Caprolactum	7.28	55	107959	53.84011	ppb		97

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190411\0411Y272.D Vial: 72
Acq On : 2 May 19 13:31 Operator: MA,SS
Sample : 190430A LCSD-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:43 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Thu May 02 09:51:35 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.42	107	276924	57.40823	ppb		98
39)	2-Methylnaphthalene	7.56	142	496602	50.01128	ppb		100
40)	1-Methylnaphthalene	7.68	142	529066	51.40923	ppb		98
42)	Hexachlorocyclopentadiene	7.73	237	1571	20.42536	ppb		96
43)	1,2,4,5-Tetrachlorobenzene	7.76	216	201007	42.87501	ppb		97
44)	2,4,6-Trichlorophenol	7.91	196	150835	50.02980	ppb		98
45)	2,4,5-Trichlorophenol	7.96	196	160653	49.58023	ppb		92
47)	1,1'-Biphenyl	8.10	154	656749	44.24538	ppb		99
48)	2-Chloronaphthalene	8.13	162	496432	44.46549	ppb		99
49)	2-Nitroaniline	8.27	65	171757	46.94155	ppb		94
50)	Dimethyl phthalate	8.46	163	620724	47.83675	ppb		100
51)	2,6-DNT	8.56	165	144411	47.59386	ppb		99
52)	Acenaphthylene	8.61	152	775499	43.88782	ppb		99
53)	3-Nitroaniline	8.75	138	115013	34.48408	ppb		85
54)	Acenaphthene	8.82	154	513076	45.07966	ppb		100
55)	2,4-Dinitrophenol	8.90	184	66521	47.03261	ppb		93
56)	4-Nitrophenol	8.98	65	123706	64.68733	ppb	#	77
57)	Dibenzofuran	9.02	168	696868	45.11618	ppb		94
58)	2,4-DNT	9.03	165	199214	48.57778	ppb		96
59)	2,3,4,6-Tetrachlorophenol	9.18	232	113461	55.14330	ppb		95
60)	Diethyl phthalate	9.29	149	598780	46.76042	ppb		99
61)	4-Chlorophenyl phenyl ethe	9.42	204	274009	46.42274	ppb		99
62)	Fluorene	9.42	166	596913	46.32766	ppb		99
63)	4-Nitroaniline	9.49	138	142546	42.24921	ppb		95
66)	4,6-Dinitro-2-methylphenol	9.51	198	115562	50.89161	ppb		95
67)	Diphenyl amine	9.57	169	900597	88.19804	ppb		98
68)	n-Nitrosodiphenylamine	9.57	169	900597	88.19804	ppb		98
69)	1,2-Diphenylhydrazine	9.61	77	618101	43.25161	ppb		96
70)	4-Bromophenyl phenyl ether	10.00	248	145086	45.53991	ppb		85
71)	Hexachlorobenzene	10.07	284	135533	45.80417	ppb	#	84
72)	Atrazine	10.20	200	77439	22.19194	ppb		96
73)	Pentachlorophenol	10.31	266	63028	58.65007	ppb		96
74)	Phenanthrene	10.55	178	837876	45.05372	ppb		100
75)	Anthracene	10.62	178	855054	43.52408	ppb		99
76)	Carbazol	10.81	167	822263	45.45041	ppb		99
77)	Di-n-butylphthalate	11.20	149	1048062	46.26347	ppb		100
78)	Fluoranthene	11.96	202	894525	46.00262	ppb		96
80)	Benzidine	12.13	184	22821	5.21291	ppb		96
81)	Pyrene	12.22	202	936783	46.03538	ppb		99
83)	Butyl benzylphthalate	12.97	149	554986	53.87660	ppb		92
84)	3,3'-Dichlorobenzidine	13.60	252	109043	21.31361	ppb		98
85)	Benz (a) anthracene	13.63	228	818735	45.49945	ppb		99
86)	Bis (2-ethylhexyl) phthala	13.62	149	814494	55.20368	ppb		97
87)	Chrysene	13.67	228	779811	44.94783	ppb		99
88)	Di-n-octylphthalate	14.37	149	1212981	47.67892	ppb		98
90)	Benzo (b) fluoranthene	14.94	252	750155	47.11940	ppb		97
91)	Benzo (k) fluoranthene	14.97	252	784215	49.25880	ppb		97
92)	Benzo (a) pyrene	15.41	252	704842	44.45349	ppb		98
93)	Indeno (1,2,3-cd) pyrene	17.40	276	759417	44.51879	ppb		98
94)	Dibenz (a,h) anthracene	17.41	278	681899	45.59413	ppb		98
95)	Benzo (g,h,i) perylene	17.96	276	639591	46.98293	ppb		99

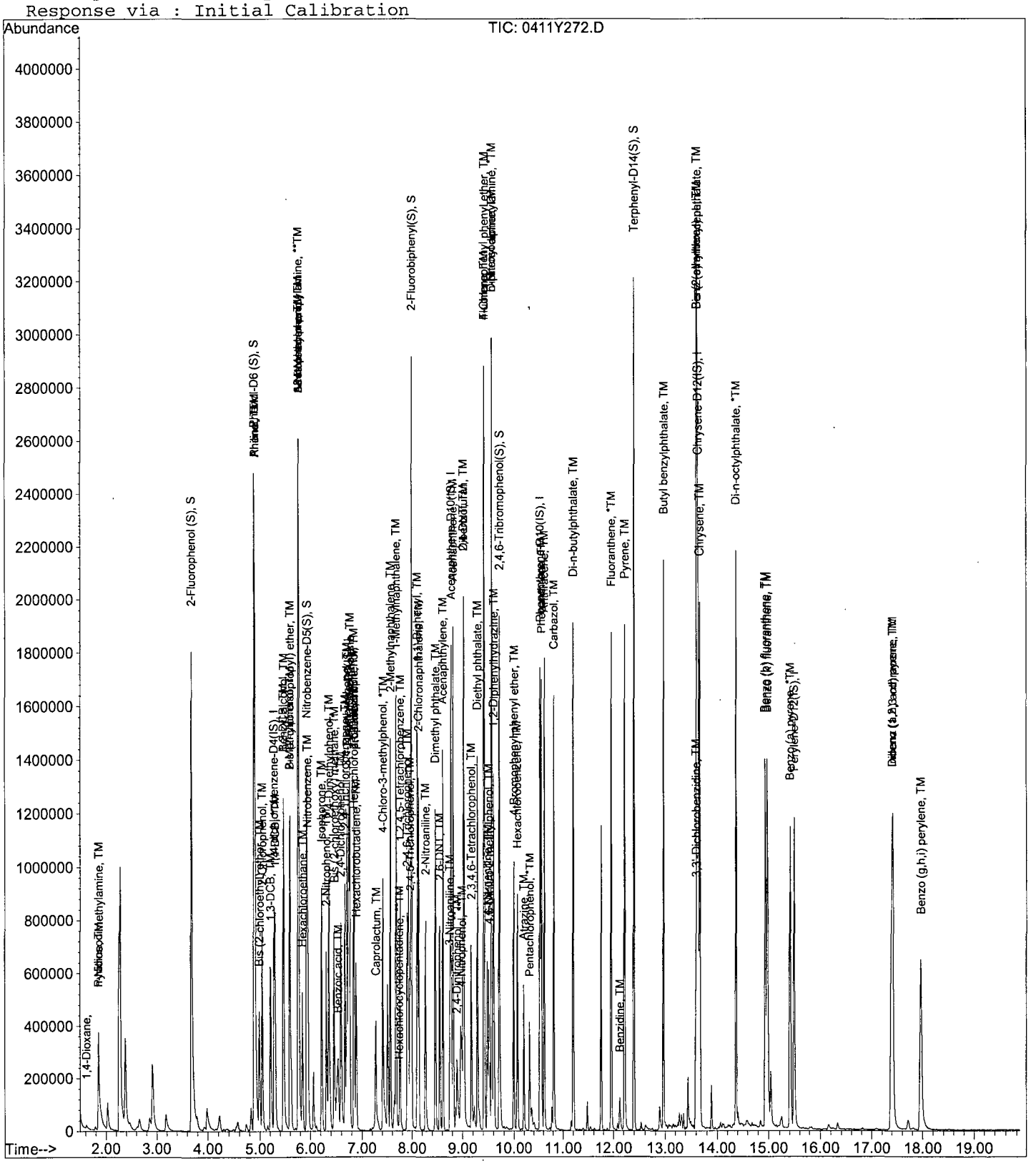
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y272.D Vial: 72
Acq On : 2 May 19 13:31 Operator: MA,SS
Sample : 190430A LCSD-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 2 15:43 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y319.D Vial: 19
Acq On : 8 May 19 11:04 Operator: MA,SS
Sample : 190506A LCS-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 12:03 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	168710	40.00000 ppb		-0.05
21) Napthalene-D8(IS)	6.74	136	720597	40.00000 ppb		-0.03
41) Acenaphthene-D10(IS)	8.77	164	395924	40.00000 ppb		-0.02
65) Phenanthrene-D10(IS)	10.53	188	662510	40.00000 ppb		0.00
79) Chrysene-D12(IS)	13.65	240	571921	40.00000 ppb		0.02
89) Perylene-D12(IS)	15.49	264	544110	40.00000 ppb		0.02
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.69	112	1055549	209.24737 ppb		-0.10
Spiked Amount 250.000			Recovery	= 83.699%		
6) Phenol-D6 (S)	4.89	99	1312367	198.99290 ppb		-0.05
Spiked Amount 250.000			Recovery	= 79.597%		
22) Nitrobenzene-D5(S)	5.93	82	621304	102.01027 ppb		-0.04
Spiked Amount 125.000			Recovery	= 81.608%		
46) 2-Fluorobiphenyl(S)	7.99	172	1110045	94.91719 ppb		-0.02
Spiked Amount 125.000			Recovery	= 75.934%		
64) 2,4,6-Tribromophenol(S)	9.72	330	246688	235.00275 ppb		0.00
Spiked Amount 250.000			Recovery	= 94.001%		
82) Terphenyl-D14(S)	12.40	244	1154068	103.18664 ppb		0.00
Spiked Amount 125.000			Recovery	= 82.550%		
Target Compounds						Qvalue
2) 1,4-Dioxane	1.62	58	7205	7.88537		61
3) n-Nitrosodimethylamine	1.85	42	101805	59.35611 ppb		98
4) Pyridine	1.87	79	131609	31.90598 ppb		97
7) Phenol	4.91	94	420111	57.57023 ppb	#	75
8) Aniline	4.92	93	216518	30.43550 ppb		89
9) Bis (2-chloroethyl) ether	4.99	63	188216	58.03162 ppb		95
10) 2-Chlorophenol	5.05	128	309670	58.33084 ppb		96
11) 1,3-DCB	5.21	146	260326	46.71228 ppb		100
12) 1,4-DCB	5.30	146	271233	47.32841 ppb		99
13) Benzyl alcohol	5.46	108	185560	60.10885 ppb		98
14) 1,2-DCB	5.47	146	261396	49.21464 ppb		98
15) 2-Methylphenol	5.59	107	267578	57.85654 ppb		96
16) Bis (2-chloroisopropyl) et	5.60	45	270892	56.70402 ppb		98
17) Acetophenone	5.76	105	416494	58.80371 ppb		89
18) 3&4-Methylphenol	5.78	107	669866	120.66193 ppb		97
19) n-Nitrosodi-n-propylamine	5.76	70	227633	58.55809 ppb		97
20) Hexachloroethane	5.85	117	92044	42.66549 ppb		95
23) Nitrobenzene	5.95	77	345844	58.78270 ppb		93
24) Isophorone	6.22	82	604646	59.09751 ppb		99
25) 2-Nitrophenol	6.31	139	177193	59.41207 ppb		95
26) 2,4-Dimethylphenol	6.36	122	275886	58.68340 ppb		98
27) Benzoic acid	6.55	105	248911	77.05050 ppb		97
28) Bis (2-chloroethoxy) metha	6.46	93	364389	58.30258 ppb		98
29) 2,4-Dichlorophenol	6.59	162	242432	60.81412 ppb		98
30) 1,2,4-Trichlorobenzene	6.68	180	221587	50.63607 ppb		99
31) 3,4-Dimethylphenol	6.71	107	412012	59.26394 ppb		97
32) Naphthalene	6.77	128	845216	54.18159 ppb		100
33) 4-Chloroaniline	6.84	127	86123	14.97546 ppb		99
34) 2,6-Dichlorophenol	6.84	162	233022	58.13759 ppb		97
35) Hexachloropropene	6.85	213	101196	41.61919 ppb		98
36) Hexachlorobutadiene	6.89	225	98023	45.66394 ppb		99
37) Caprolactum	7.28	55	114210	56.85778 ppb		94

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190411\0411Y319.D Vial: 19
Acq On : 8 May 19 11:04 Operator: MA,SS
Sample : 190506A LCS-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 12:03 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

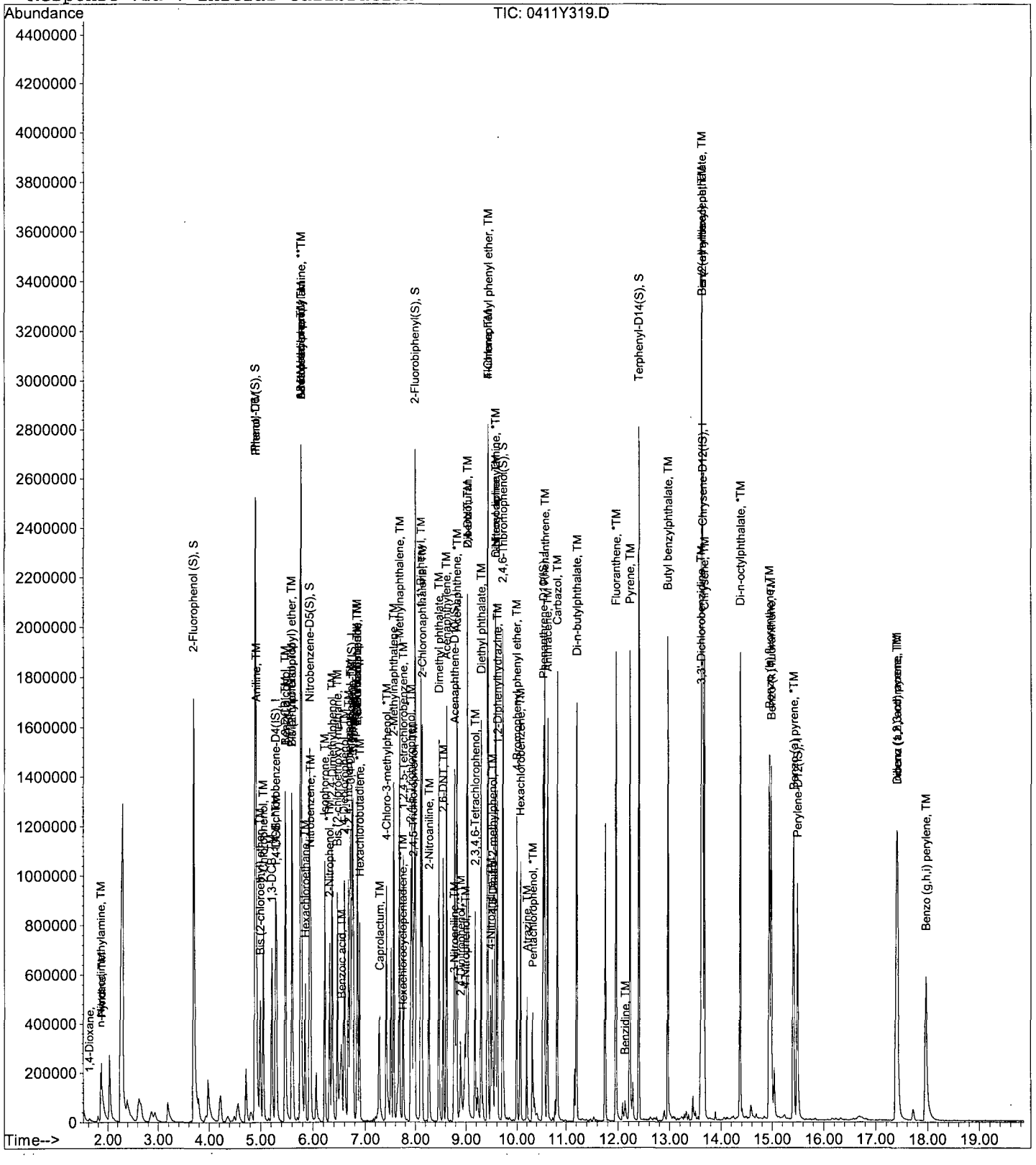
	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.42	107	297772	61.62205	ppb		98
39)	2-Methylnaphthalene	7.57	142	539934	54.27988	ppb		99
40)	1-Methylnaphthalene	7.68	142	561209	54.43705	ppb		100
42)	Hexachlorocyclopentadiene	7.73	237	1025	19.94794	ppb	#	89
43)	1,2,4,5-Tetrachlorobenzene	7.75	216	218638	52.87150	ppb		98
44)	2,4,6-Trichlorophenol	7.90	196	165599	62.27121	ppb		99
45)	2,4,5-Trichlorophenol	7.96	196	174497	61.05351	ppb		98
47)	1,1'-Biphenyl	8.11	154	704960	53.84382	ppb		98
48)	2-Chloronaphthalene	8.13	162	538395	54.67230	ppb		97
49)	2-Nitroaniline	8.27	65	183308	56.79725	ppb		98
50)	Dimethyl phthalate	8.47	163	692358	60.49184	ppb		100
51)	2,6-DNT	8.55	165	155906	58.25275	ppb	#	76
52)	Acenaphthylene	8.62	152	840587	53.93223	ppb		100
53)	3-Nitroaniline	8.76	138	43764	14.87619	ppb		93
54)	Acenaphthene	8.82	154	549513	54.73686	ppb		99
55)	2,4-Dinitrophenol	8.89	184	82514	62.56249	ppb		94
56)	4-Nitrophenol	8.99	65	134250	76.85033	ppb	#	71
57)	Dibenzofuran	9.02	168	752118	55.20403	ppb		94
58)	2,4-DNT	9.03	165	210557	58.20905	ppb		97
59)	2,3,4,6-Tetrachlorophenol	9.17	232	121504	66.94832	ppb		96
60)	Diethyl phthalate	9.29	149	652720	57.78844	ppb		99
61)	4-Chlorophenyl phenyl ethe	9.41	204	292418	56.16593	ppb		87
62)	Fluorene	9.42	166	636311	55.98887	ppb		100
63)	4-Nitroaniline	9.48	138	125421	42.14410	ppb		93
66)	4,6-Dinitro-2-methylphenol	9.52	198	121600	61.49542	ppb		94
67)	Diphenyl amine	9.57	169	742782	83.53489	ppb		99
68)	n-Nitrosodiphenylamine	9.57	169	742782	83.53489	ppb		99
69)	1,2-Diphenylhydrazine	9.61	77	649293	52.17489	ppb		98
70)	4-Bromophenyl phenyl ether	10.00	248	155137	55.91909	ppb	#	81
71)	Hexachlorobenzene	10.06	284	145659	56.52952	ppb		98
72)	Atrazine	10.19	200	59654	19.63149	ppb		98
73)	Pentachlorophenol	10.31	266	72005	74.47490	ppb		97
74)	Phenanthrene	10.56	178	894264	55.21978	ppb		99
75)	Anthracene	10.62	178	922091	53.89989	ppb		100
76)	Carbazol	10.82	167	879480	55.82531	ppb		99
77)	Di-n-butylphthalate	11.21	149	1136263	57.59811	ppb		99
78)	Fluoranthene	11.96	202	957059	56.52062	ppb		98
80)	Benzidine	12.13	184	16270	4.48345	ppb	#	88
81)	Pyrene	12.23	202	982696	58.25739	ppb		99
83)	Butyl benzylphthalate	12.96	149	523850	61.34853	ppb		95
84)	3,3'-Dichlorobenzidine	13.60	252	58932	13.89599	ppb		96
85)	Benz (a) anthracene	13.63	228	833165	55.85639	ppb		99
86)	Bis (2-ethylhexyl) phthala	13.62	149	762507	62.34520	ppb		100
87)	Chrysene	13.68	228	820212	57.03279	ppb		99
88)	Di-n-octylphthalate	14.37	149	1257314	59.62045	ppb		97
90)	Benzo (b) fluoranthene	14.94	252	793143	61.22296	ppb		99
91)	Benzo (k) fluoranthene	14.98	252	758392	58.54052	ppb		99
92)	Benzo (a) pyrene	15.41	252	708627	54.92194	ppb		97
93)	Indeno (1,2,3-cd) pyrene	17.39	276	748664	53.93418	ppb		98
94)	Dibenz (a,h) anthracene	17.41	278	671979	55.21521	ppb		99
95)	Benzo (g,h,i) perylene	17.96	276	614772	55.49655	ppb		98

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190411\0411Y319.D Vial: 19
Acq On : 8 May 19 11:04 Operator: MA,SS
Sample : 190506A LCS-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 12:03 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y320.D Vial: 20
Acq On : 8 May 19 11:32 Operator: MA,SS
Sample : 190506A LCSD-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 12:03 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	158913	40.00000	ppb		-0.05
21) Napthalene-D8(IS)	6.74	136	673513	40.00000	ppb		-0.03
41) Acenaphthene-D10(IS)	8.78	164	367411	40.00000	ppb		-0.01
65) Phenanthrene-D10(IS)	10.53	188	611960	40.00000	ppb		0.00
79) Chrysene-D12(IS)	13.65	240	537860	40.00000	ppb		0.02
89) Perylene-D12(IS)	15.49	264	518530	40.00000	ppb		0.03
System Monitoring Compounds							
5) 2-Fluorophenol (S)	3.69	112	992101	208.79443	ppb		-0.10
Spiked Amount 250.000			Recovery =	83.518%			
6) Phenol-D6 (S)	4.89	99	1234733	198.76355	ppb		-0.05
Spiked Amount 250.000			Recovery =	79.506%			
22) Nitrobenzene-D5(S)	5.93	82	580784	102.02365	ppb		-0.04
Spiked Amount 125.000			Recovery =	81.619%			
46) 2-Fluorobiphenyl(S)	7.99	172	1050428	96.78995	ppb		-0.03
Spiked Amount 125.000			Recovery =	77.432%			
64) 2,4,6-Tribromophenol(S)	9.72	330	231146	237.28538	ppb		0.00
Spiked Amount 250.000			Recovery =	94.914%			
82) Terphenyl-D14(S)	12.40	244	1099368	104.52062	ppb		0.00
Spiked Amount 125.000			Recovery =	83.617%			
Target Compounds							Qvalue
2) 1,4-Dioxane	1.62	58	4421	5.13677			95
3) n-Nitrosodimethylamine	1.86	42	93365	57.79121	ppb		91
4) Pyridine	1.87	79	188944	48.62964	ppb		97
7) Phenol	4.91	94	399601	58.13556	ppb		78
8) Aniline	4.91	93	252532	37.68637	ppb	#	47
9) Bis (2-chloroethyl) ether	4.99	63	172998	56.62792	ppb		97
10) 2-Chlorophenol	5.05	128	293401	58.67351	ppb		97
11) 1,3-DCB	5.22	146	243919	46.46656	ppb		99
12) 1,4-DCB	5.30	146	255279	47.29071	ppb		100
13) Benzyl alcohol	5.47	108	178500	61.38661	ppb		91
14) 1,2-DCB	5.48	146	246841	49.33942	ppb		100
15) 2-Methylphenol	5.60	107	247302	56.76898	ppb		96
16) Bis (2-chloroisopropyl) et	5.60	45	252124	56.02905	ppb		93
17) Acetophenone	5.75	105	389894	58.44185	ppb		86
18) 3&4-Methylphenol	5.77	107	617715	118.12774	ppb		99
19) n-Nitrosodi-n-propylamine	5.75	70	212228	57.96098	ppb		95
20) Hexachloroethane	5.85	117	87848	43.23093	ppb		95
23) Nitrobenzene	5.95	77	319106	58.02975	ppb		92
24) Isophorone	6.22	82	557815	58.33170	ppb		99
25) 2-Nitrophenol	6.31	139	163495	58.65149	ppb		91
26) 2,4-Dimethylphenol	6.37	122	236656	53.85792	ppb		97
27) Benzoic acid	6.54	105	228488	75.67305	ppb		99
28) Bis (2-chloroethoxy) metha	6.46	93	337636	57.79865	ppb		97
29) 2,4-Dichlorophenol	6.60	162	226306	60.73751	ppb		94
30) 1,2,4-Trichlorobenzene	6.67	180	207470	50.72446	ppb		96
31) 3,4-Dimethylphenol	6.71	107	381298	58.68021	ppb		99
32) Naphthalene	6.77	128	797031	54.66454	ppb		99
33) 4-Chloroaniline	6.84	127	127439	23.70882	ppb		98
34) 2,6-Dichlorophenol	6.84	162	219564	58.60945	ppb		96
35) Hexachloropropene	6.85	213	96863	42.62208	ppb		98
36) Hexachlorobutadiene	6.89	225	91185	45.44805	ppb		97
37) Caprolactum	7.27	55	110666	58.94493	ppb		97

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190411\0411Y320.D Vial: 20
Acq On : 8 May 19 11:32 Operator: MA,SS
Sample : 190506A LCSD-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 12:03 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

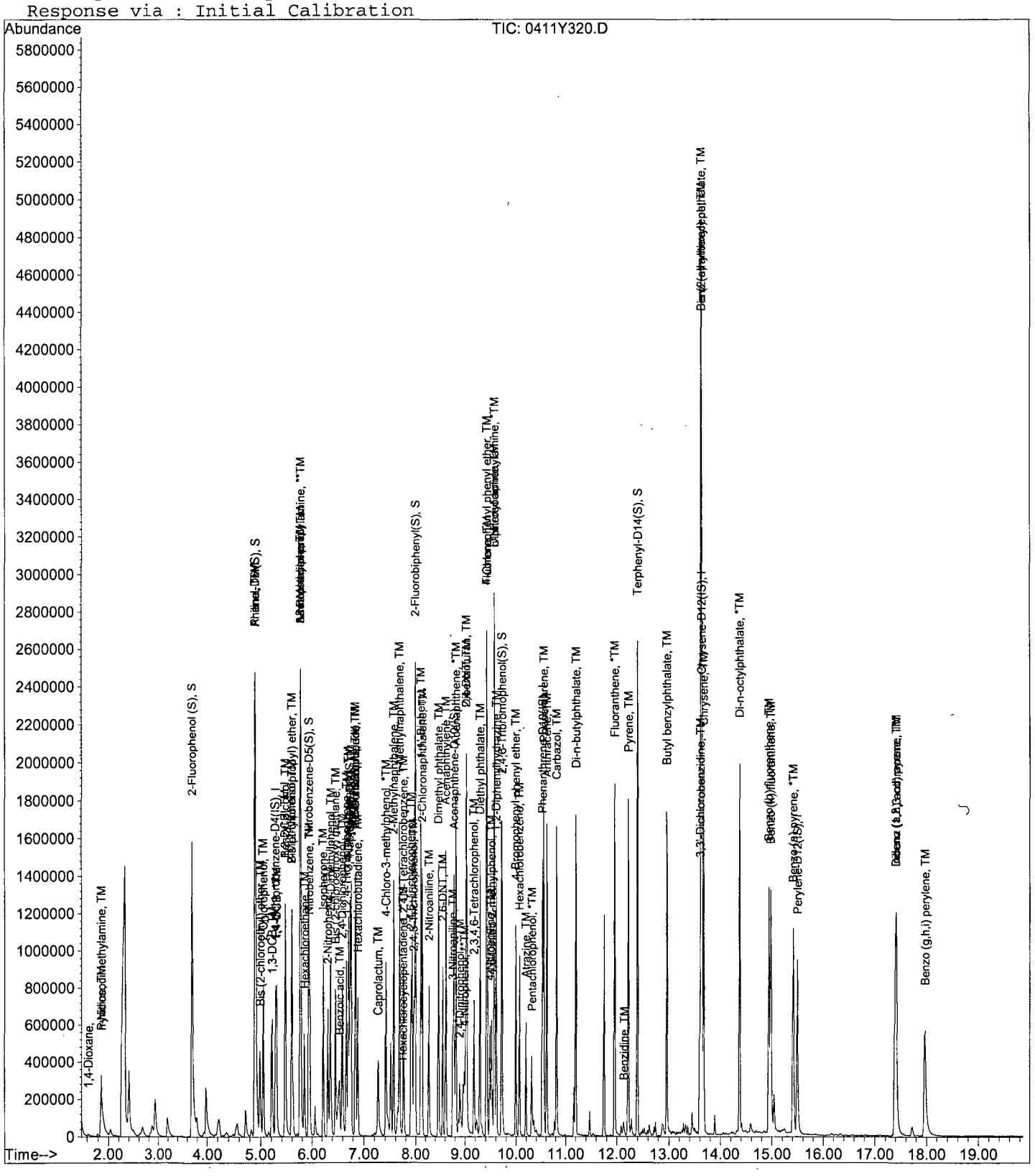
	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.42	107	278682	61.70320	ppb		100
39)	2-Methylnaphthalene	7.57	142	504982	54.31510	ppb		99
40)	1-Methylnaphthalene	7.68	142	527467	54.74088	ppb		98
42)	Hexachlorocyclopentadiene	7.73	237	1527	20.76710	ppb	#	88
43)	1,2,4,5-Tetrachlorobenzene	7.76	216	203382	52.99906	ppb		97
44)	2,4,6-Trichlorophenol	7.91	196	152033	61.60659	ppb		99
45)	2,4,5-Trichlorophenol	7.96	196	162993	61.45416	ppb		91
47)	1,1'-Biphenyl	8.10	154	659536	54.28372	ppb		98
48)	2-Chloronaphthalene	8.13	162	501649	54.89413	ppb		98
49)	2-Nitroaniline	8.27	65	175804	58.69949	ppb		96
50)	Dimethyl phthalate	8.47	163	658684	62.01588	ppb		100
51)	2,6-DNT	8.55	165	147909	59.55358	ppb	#	73
52)	Acenaphthylene	8.61	152	786556	54.38198	ppb		100
53)	3-Nitroaniline	8.75	138	126321	46.27111	ppb		90
54)	Acenaphthene	8.82	154	512995	55.06488	ppb		100
55)	2,4-Dinitrophenol	8.90	184	68444	56.85676	ppb		95
56)	4-Nitrophenol	8.99	65	123456	76.23758	ppb	#	71
57)	Dibenzofuran	9.02	168	700944	55.44058	ppb		94
58)	2,4-DNT	9.03	165	195240	58.16333	ppb		93
59)	2,3,4,6-Tetrachlorophenol	9.17	232	112806	66.97936	ppb		91
60)	Diethyl phthalate	9.29	149	610882	58.28155	ppb		100
61)	4-Chlorophenyl phenyl ethe	9.42	204	271424	56.17936	ppb		98
62)	Fluorene	9.42	166	595903	56.50248	ppb		99
63)	4-Nitroaniline	9.49	138	145834	52.80620	ppb		92
66)	4,6-Dinitro-2-methylphenol	9.51	198	118254	64.74324	ppb		98
67)	Diphenyl amine	9.57	169	893436	108.77758	ppb		99
68)	n-Nitrosodiphenylamine	9.57	169	893436	108.77758	ppb		99
69)	1,2-Diphenylhydrazine	9.61	77	734499	63.89715	ppb		99
70)	4-Bromophenyl phenyl ether	10.00	248	143416	55.96438	ppb	#	82
71)	Hexachlorobenzene	10.06	284	133764	56.20134	ppb		93
72)	Atrazine	10.19	200	76961	27.41913	ppb		98
73)	Pentachlorophenol	10.31	266	67919	75.88395	ppb		98
74)	Phenanthrene	10.55	178	840975	56.21878	ppb		99
75)	Anthracene	10.62	178	865142	54.74834	ppb		99
76)	Carbazol	10.81	167	817698	56.19109	ppb		100
77)	Di-n-butylphthalate	11.20	149	1054034	57.84334	ppb		99
78)	Fluoranthene	11.96	202	896335	57.30703	ppb		97
80)	Benzidine	12.15	184	6150	1.80205	ppb	#	91
81)	Pyrene	12.23	202	911937	57.48618	ppb		100
83)	Butyl benzylphthalate	12.97	149	507860	63.24235	ppb		85
84)	3,3'-Dichlorobenzidine	13.60	252	150764	37.80096	ppb		98
85)	Benz (a) anthracene	13.63	228	809383	57.69827	ppb		98
86)	Bis (2-ethylhexyl) phthala	13.62	149	1188409	103.32178	ppb		96
87)	Chrysene	13.67	228	765786	56.62037	ppb		99
88)	Di-n-octylphthalate	14.37	149	1179724	59.48380	ppb		100
90)	Benzo (b) fluoranthene	14.94	252	725835	58.79136	ppb		98
91)	Benzo (k) fluoranthene	14.97	252	763433	61.83673	ppb		97
92)	Benzo (a) pyrene	15.41	252	672422	54.68685	ppb		99
93)	Indeno (1,2,3-cd) pyrene	17.40	276	723701	54.70778	ppb		99
94)	Dibenz (a,h) anthracene	17.41	278	648251	55.89320	ppb		98
95)	Benzo (g,h,i) perylene	17.97	276	595590	56.41727	ppb		100

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190411\0411Y320.D Vial: 20
Acq On : 8 May 19 11:32 Operator: MA,SS
Sample : 190506A LCSD-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

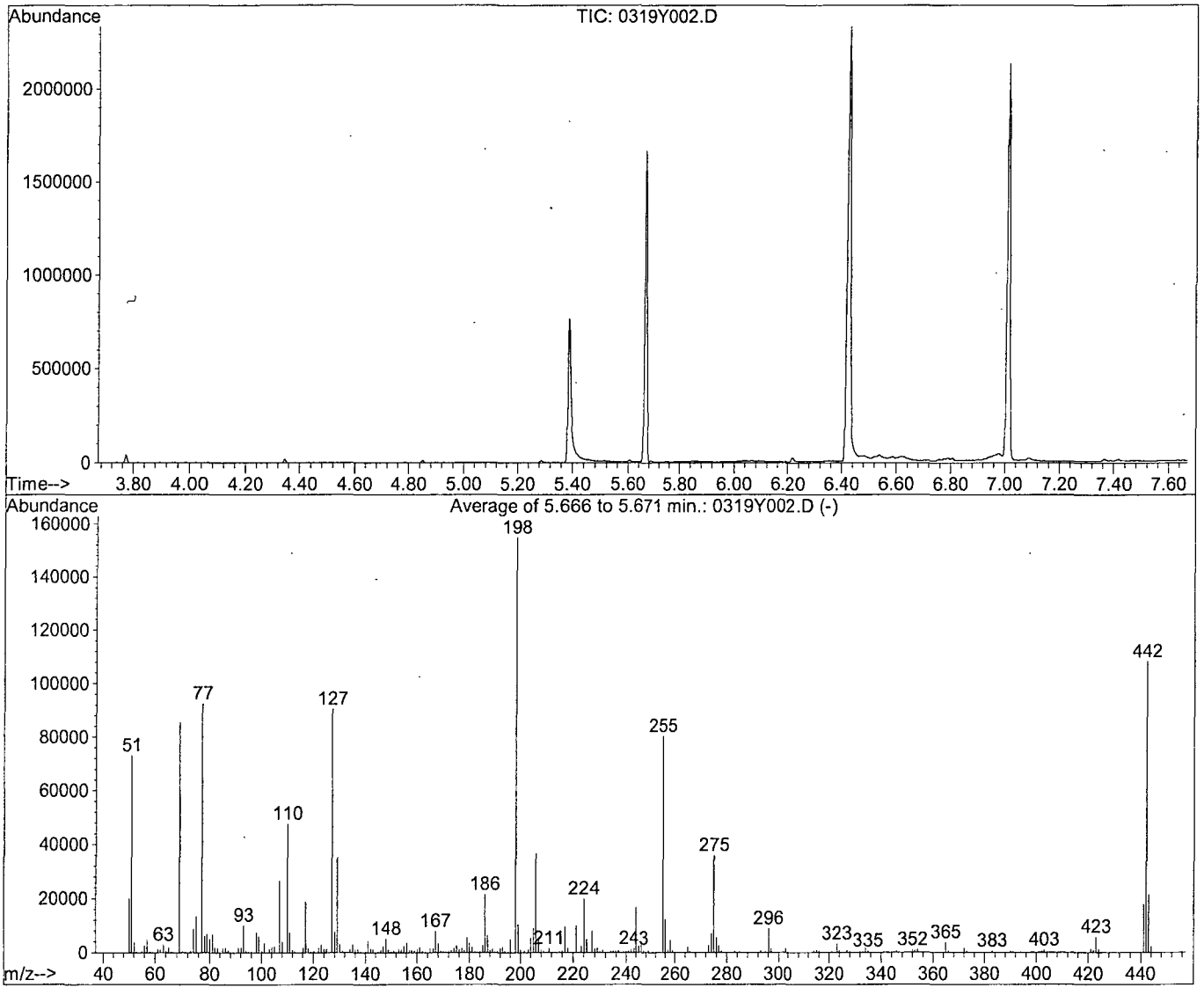
Quant Time: May 8 12:03 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Data File : M:\YODA\DATA\Y190319\0319Y002.D Vial: 2
Acq On : 19 Mar 19 18:15 Operator: MA
Sample : SV Tune 11/10/18 Inst : Yoda
Misc : Multiplr: 1.00

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C



AutoFind: Scans 833, 834, 835; Background Corrected with Scan 824

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	47.2	73142	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.6	492	PASS
127	198	10	80	58.4	90499	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	154987	PASS
199	198	5	9	6.7	10387	PASS
275	198	10	60	23.1	35872	PASS
365	198	1	100	2.4	3731	PASS
441	442	0.01	24	16.3	17617	PASS
442	198	50	150	69.9	108320	PASS
443	442	15	24	19.7	21288	PASS

Data File Name:	**0319Y002.D**
Data File Path:	**M:\YODA\DATA\Y190319**
Operator:	**MA**
Date Acquired:	**19 Mar 2019 18:15**
Method File:	**DFTPP2.M**
Sample Name:	**SV Tune 11/10/18**
Vial Number:	**2**
Instrument Name:	**Yoda**

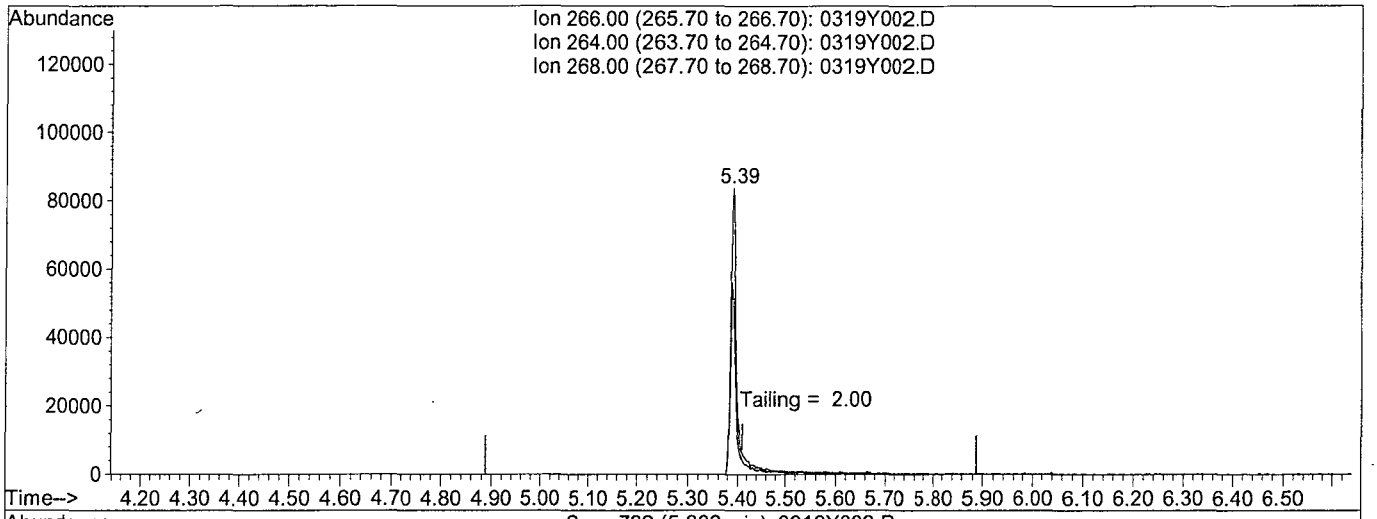
#	Name	Ret Time	Target Response
1)	DDT	7.01	15502300
2)	DDD	6.80	149561
3)	DDE	6.95	46466

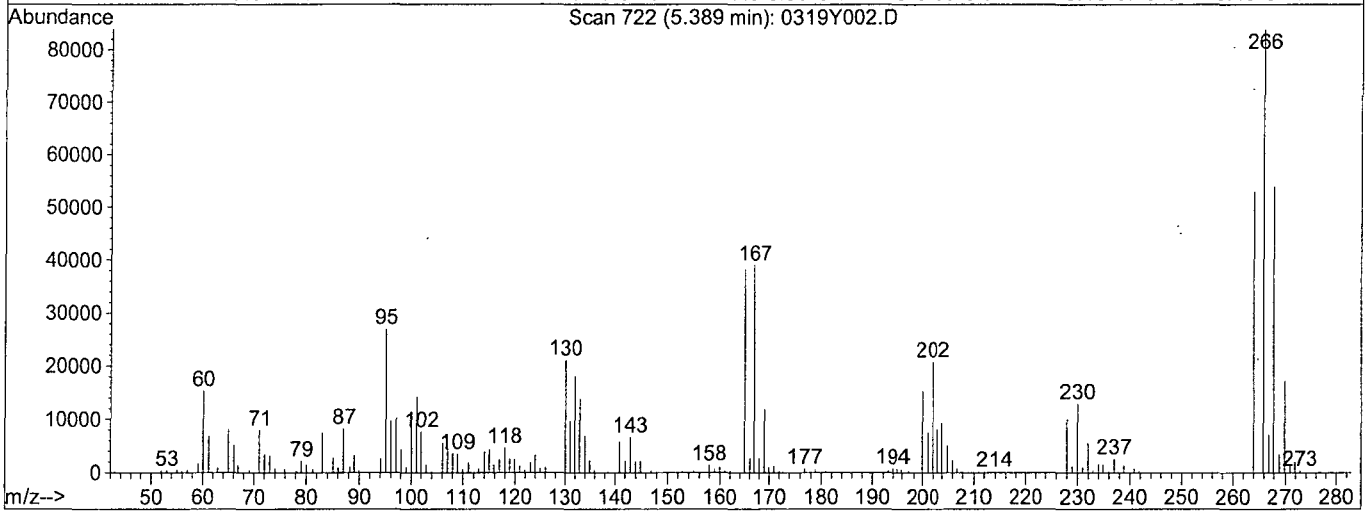
Breakdown **1.25**

Quantitation Report

Data File : M:\YODA\DATA\Y190319\0319Y002.D Vial: 2
Acq On : 19 Mar 19 18:15 Operator: MA
Sample : SV Tune 11/10/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: Mar 19 19:13 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190319\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Wed Mar 20 00:14:48 2019
Response via : Single Level Calibration





TIC: 0319Y002.D

(5) Pentachlorophenol

5.39min 0.0000

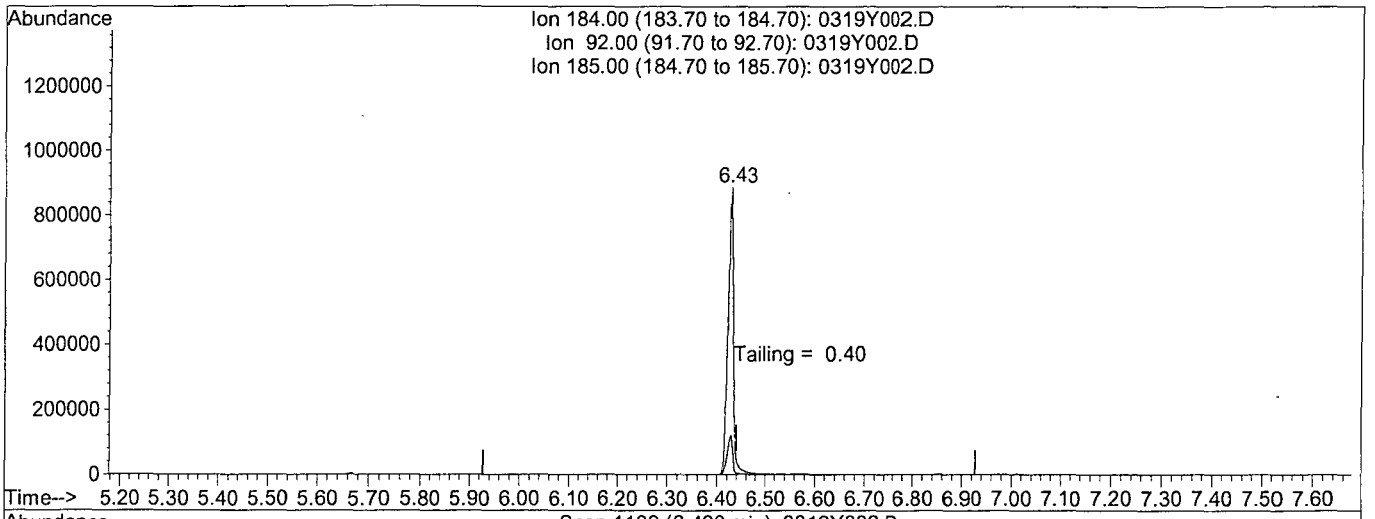
response 676097

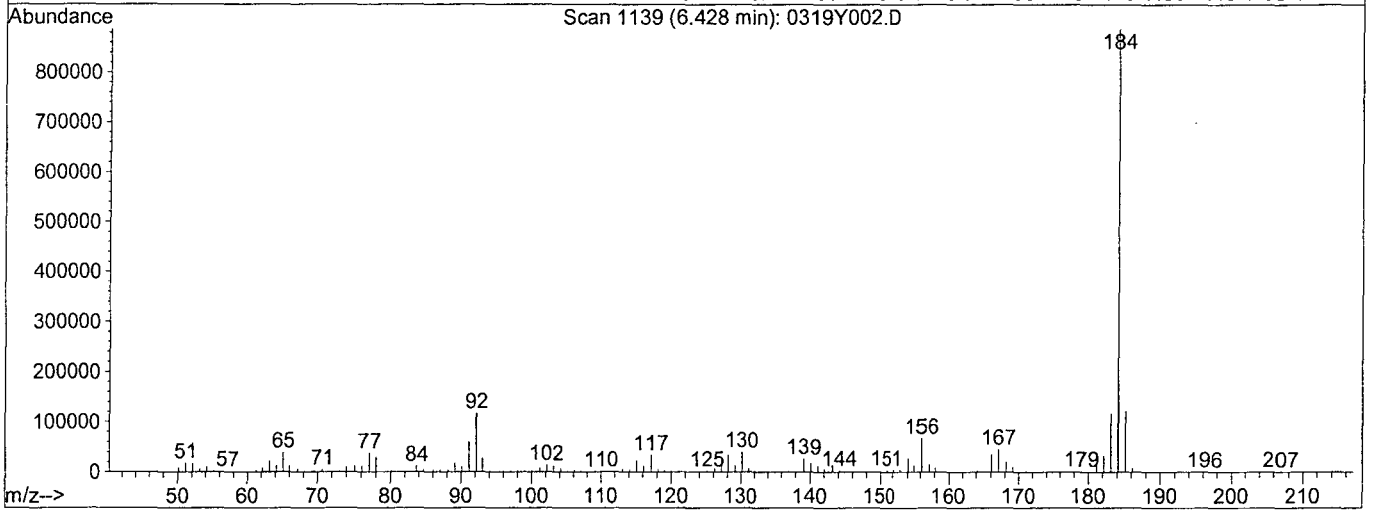
Ion	Exp%	Act%
266.00	100	100
264.00	63.10	59.85
268.00	64.40	64.59
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190319\0319Y002.D Vial: 2
Acq On : 19 Mar 19 18:15 Operator: MA
Sample : SV Tune 11/10/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: Mar 19 19:13 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190319\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Wed Mar 20 00:14:48 2019
Response via : Single Level Calibration





TIC: 0319Y002.D

(6) Benzidine

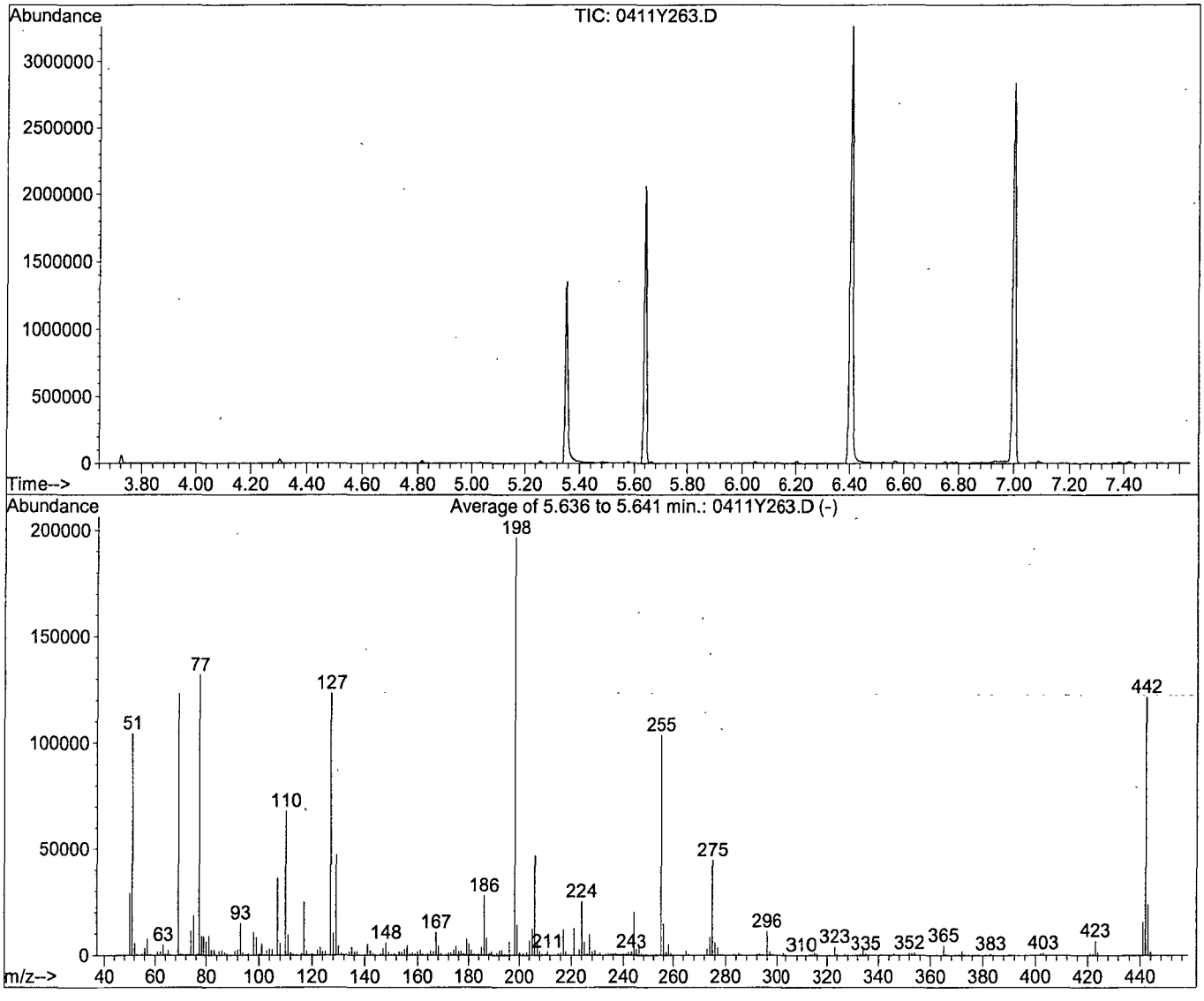
6.43min 0.0000

response 6732623

Ion	Exp%	Act%
184.00	100	100
92.00	13.20	13.26
185.00	13.60	13.98
0.00	0.00	0.00

Data File : M:\YODA\DATA\Y190411\0411Y263.D Vial: 63
Acq On : 2 May 19 9:11 Operator: MA
Sample : SV TUNE 10/11/18 Inst : Yoda
Misc : Multiplr: 1.00

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C



AutoFind: Scans 821, 822, 823; Background Corrected with Scan 813

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	53.1	104451	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.5	601	PASS
127	198	10	80	62.7	123312	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	196629	PASS
199	198	5	9	7.2	14195	PASS
275	198	10	60	22.7	44613	PASS
365	198	1	100	2.3	4505	PASS
441	442	0.01	24	12.8	15547	PASS
442	198	50	150	61.8	121419	PASS
443	442	15	24	19.7	23902	PASS

Data File Name:	**0411Y263.D**
Data File Path:	**M:\YODA\DATA\Y190411**
Operator:	**MA**
Date Acquired:	**2 May 19 9:11**
Method File:	**DFTPP2.M**
Sample Name:	**SV TUNE 10/11/18**
Vial Number:	**63**
Instrument Name:	**Yoda**

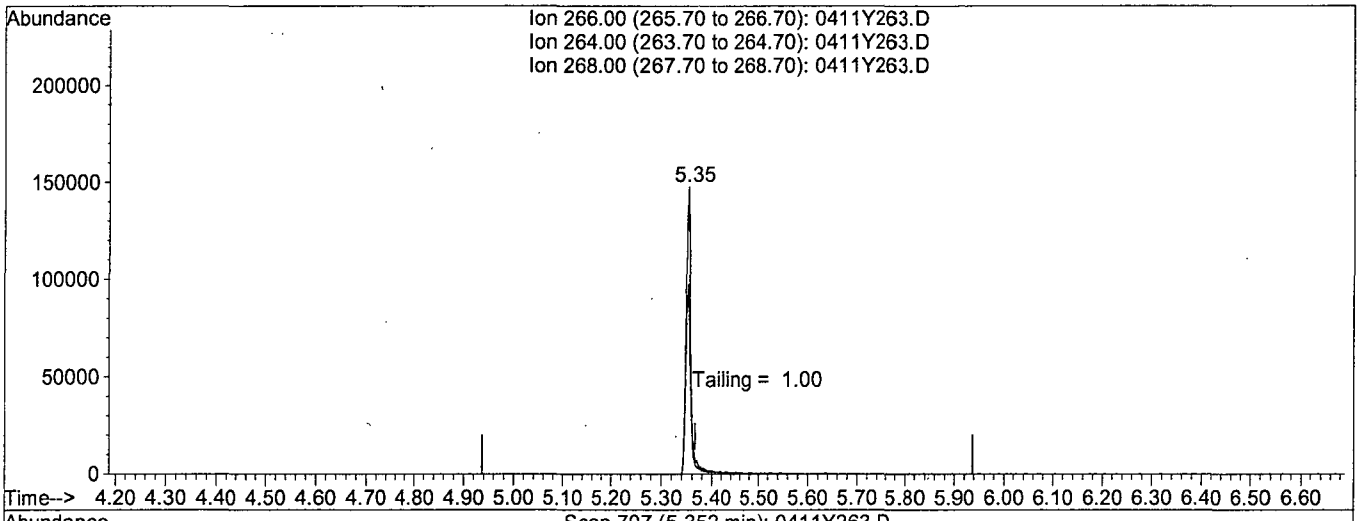
#	Name	Ret Time	Target Response
1)	DDT	7.08	20599800
2)	DDD	6.75	0
3)	DDE	6.86	0

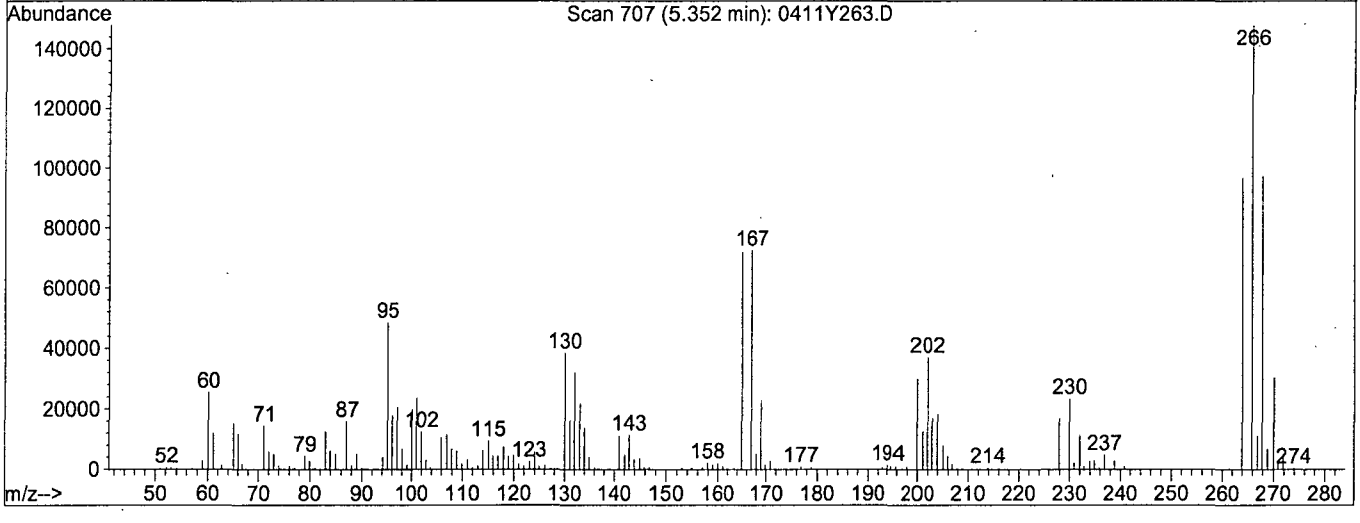
Breakdown **0.00**

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y263.D Vial: 63
Acq On : 2 May 19 9:11 Operator: MA
Sample : SV TUNE 10/11/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: May 2 9:29 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190411\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Mon Apr 22 13:05:57 2019
Response via : Single Level Calibration





TIC: 0411Y263.D

(5) Pentachlorophenol

5.35min 0.0000

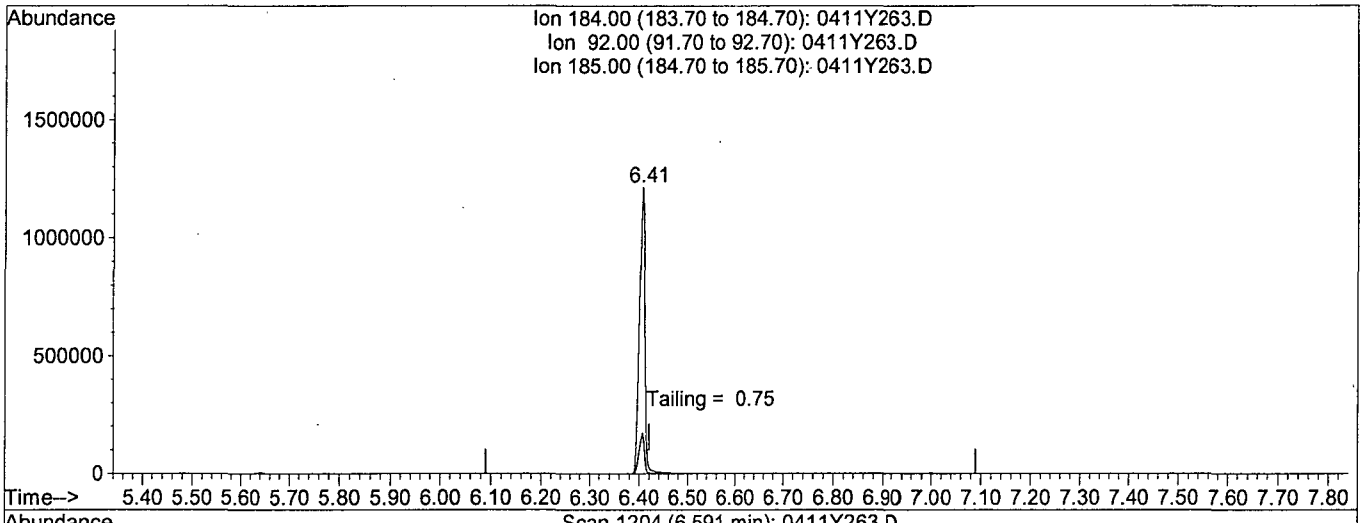
response 956612

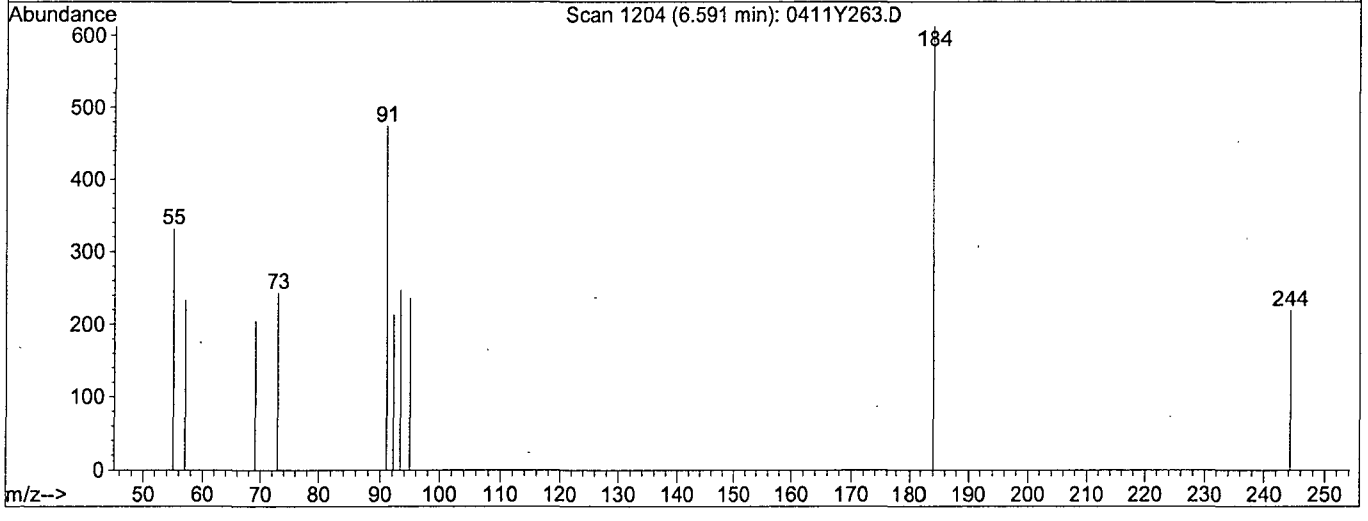
Ion	Exp%	Act%
266.00	100	100
264.00	61.20	63.94
268.00	65.20	63.63
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y263.D Vial: 63
Acq On : 2 May 19 9:11 Operator: MA
Sample : SV TUNE 10/11/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: May 2 9:29 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190411\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Mon Apr 22 13:05:57 2019
Response via : Single Level Calibration





TIC: 0411Y263.D

(6) Benzidine

6.59min 0.0000

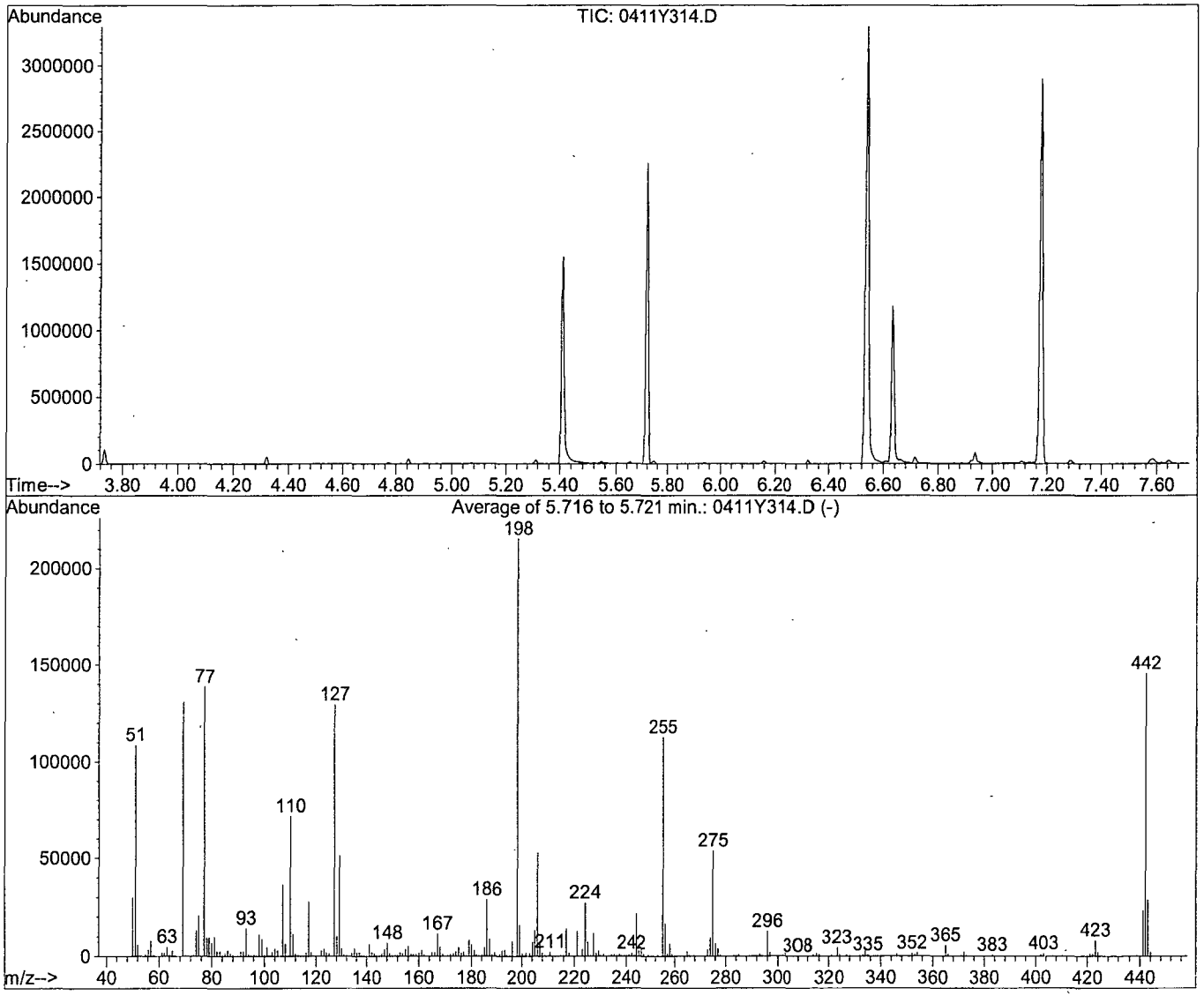
response 0

Ion	Exp%	Act%
184.00	100	0.00
92.00	13.60	0.00#
185.00	14.10	0.00#
0.00	0.00	0.00

DFTPP

Data File : M:\YODA\DATA\Y190411\0411Y314.D Vial: 14
Acq On : 8 May 19 8:53 Operator: MA,SS
Sample : SV TUNE 10/11/18 Inst : Yoda
Misc : Multiplr: 1.00

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C



AutoFind: Scans 852, 853, 854; Background Corrected with Scan 844

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	50.4	108555	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.2	299	PASS
127	198	10	80	60.1	129512	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	215509	PASS
199	198	5	9	7.4	15879	PASS
275	198	10	60	24.9	53712	PASS
365	198	1	100	2.5	5440	PASS
441	442	0.01	24	15.8	23035	PASS
442	198	50	150	67.5	145395	PASS
443	442	15	24	19.7	28701	PASS

Data File Name:	**0411Y314.D**
Data File Path:	**M:\YODA\DATA\Y190411**
Operator:	**MA,SS**
Date Acquired:	**8 May 19 8:53**
Method File:	**DFTPP2.M**
Sample Name:	**SV TUNE 10/11/18**
Vial Number:	**14**
Instrument Name:	**Yoda**

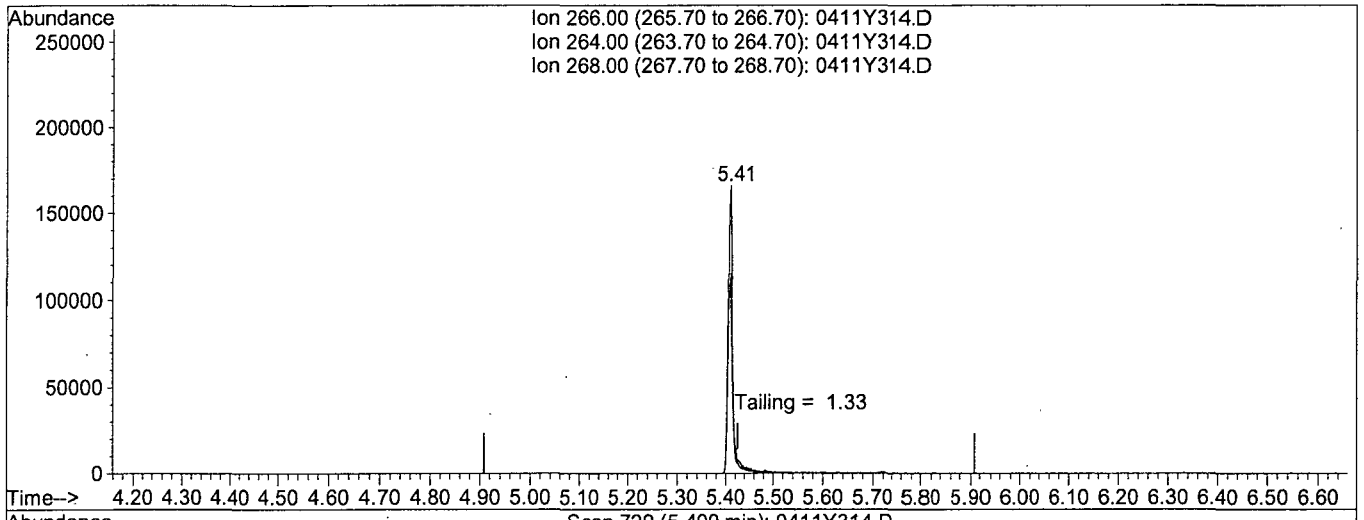
#	Name	Ret Time	Target Response
1)	DDT	7.18	22063400
2)	DDD	6.94	882060
3)	DDE	7.09	0

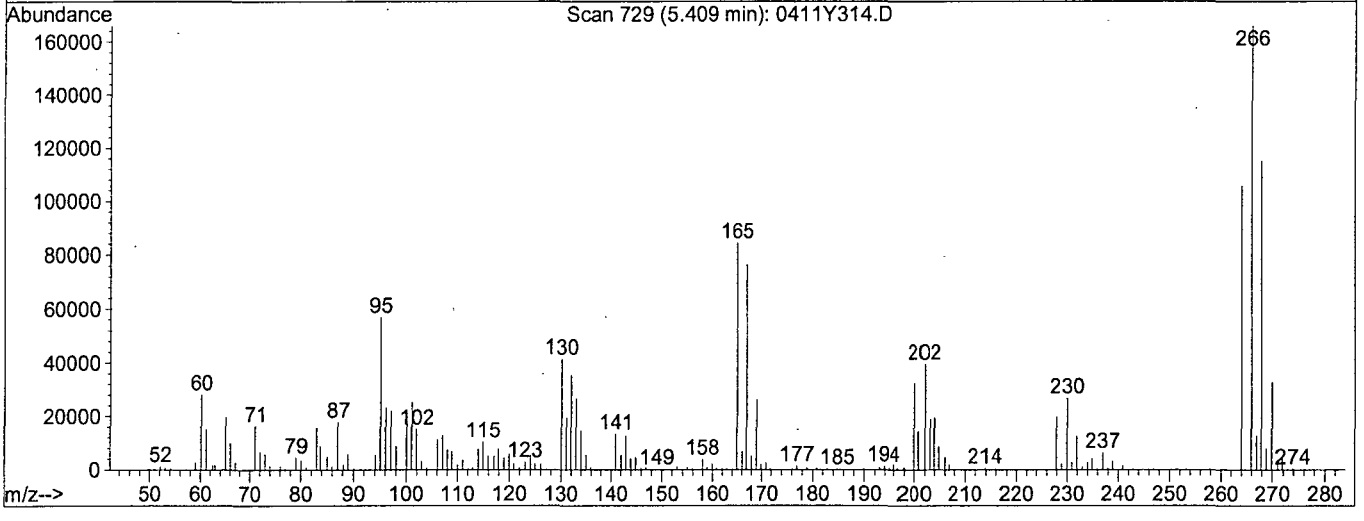
Breakdown **3.84**

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y314.D Vial: 14
Acq On : 8 May 19 8:53 Operator: MA,SS
Sample : SV TUNE 10/11/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: May 8 8:55 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190411\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Wed May 08 08:55:00 2019
Response via : Single Level Calibration





TIC: 0411Y314.D

(5) Pentachlorophenol

5.41min 0.0000

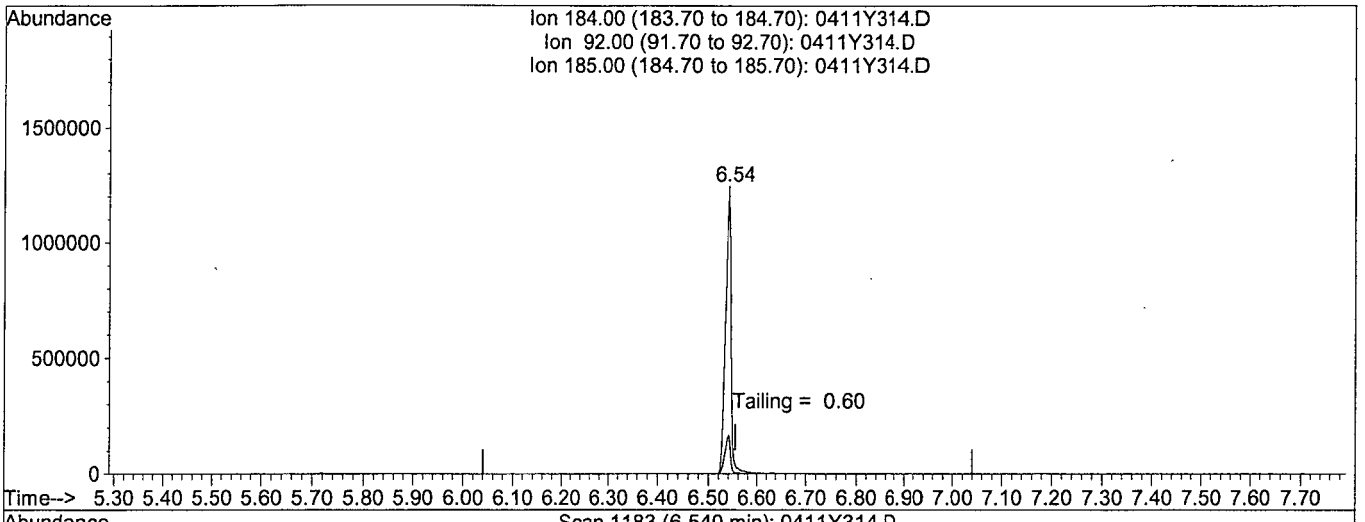
response 1064882

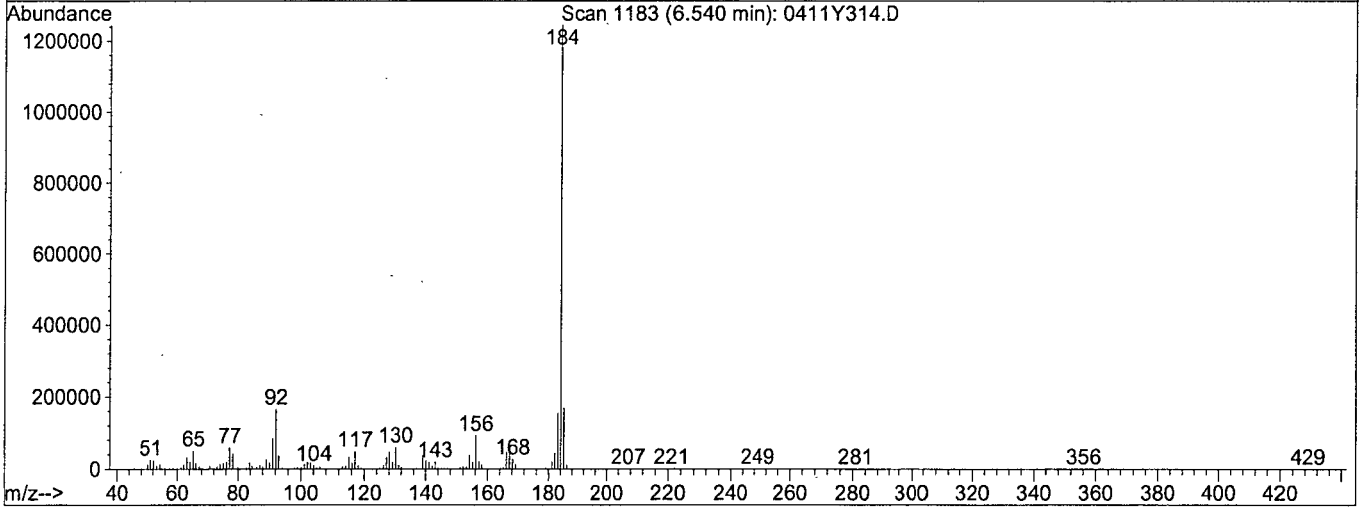
Ion	Exp%	Act%
266.00	100	100
264.00	63.90	67.48
268.00	69.50	67.60
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y314.D Vial: 14
Acq On : 8 May 19 8:53 Operator: MA,SS
Sample : SV TUNE 10/11/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: May 8 8:55 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190411\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Wed May 08 08:55:00 2019
Response via : Single Level Calibration





TIC: 0411Y314.D

(6) Benzidine

6.54min 0.0000

response 9629096

Ion	Exp%	Act%
184.00	100	100
92.00	13.30	13.55
185.00	13.60	13.87
0.00	0.00	0.00

Name of Final Standard	8270 Full Scan Standard Curve	**Prep'd By (Initials)**	**GA**
Prep Date	**03/13/19**		
Exp Date	**09/13/19**		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
8270 Stock	APPL	8270 Stock	200 ug/mL	**03/05/19**	**10/20/19**	4 uL	200uL	**MC 56258 192uL**	4 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	**10/17/18**	**09/27/19**	4 uL	*	*	*
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	**02/09/19**	**02/09/20**	4 uL	*	*	*
8270 Stock	APPL	8270 Stock	200 ug/mL	**03/05/19**	**10/20/19**	5 uL	200uL	**MC 56258 190uL**	5 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	**10/17/18**	**09/27/19**	5 uL	*	*	*
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	**02/09/19**	**02/09/20**	4 uL	*	*	*
8270 Stock	APPL	8270 Stock	200 ug/mL	**03/05/19**	**10/20/19**	5 uL	100uL	**MC 56258 90uL**	10 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	**10/17/18**	**09/27/19**	5 uL	*	*	*
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	**02/09/19**	**02/09/20**	2 uL	*	*	*
8270 Stock	APPL	8270 Stock	200 ug/mL	**03/05/19**	**10/20/19**	10 uL	100uL	**MC 56258 80uL**	20 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	**10/17/18**	**09/27/19**	10 uL	*	*	*
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	**02/09/19**	**02/09/20**	2 uL	*	*	*
8270 Stock	APPL	8270 Stock	200 ug/mL	**03/05/19**	**10/20/19**	20 uL	100uL	**MC 56258 60uL**	40 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	**10/17/18**	**09/27/19**	20 uL	*	*	*
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	**02/09/19**	**02/09/20**	2 uL	*	*	*
8270 Stock	APPL	8270 Stock	200 ug/mL	**03/05/19**	**10/20/19**	50 uL	200 uL	**MC 56258 100uL**	50 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	**10/17/18**	**09/27/19**	50 uL	*	*	*
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	**02/09/19**	**02/09/20**	4 uL	*	*	*
8270 Stock	APPL	8270 Stock	200 ug/mL	**03/05/19**	**10/20/19**	30 uL	100uL	**MC 56258 40uL**	60 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	**10/17/18**	**09/27/19**	30 uL	*	*	*
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	**02/09/19**	**02/09/20**	2 uL	*	*	*
8270 Stock	APPL	8270 Stock	200 ug/mL	**03/05/19**	**10/20/19**	40 uL	100uL	**MC 56258 20uL**	80 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	**10/17/18**	**09/27/19**	40 uL	*	*	*
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	**02/09/19**	**02/09/20**	2 uL	*	*	*
8270 Stock	APPL	8270 Stock	200 ug/mL	**03/05/19**	**10/20/19**	50 uL	100uL	**na**	100 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	**10/17/18**	**09/27/19**	50 uL	*	*	*
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	**02/09/19**	**02/09/20**	2 uL	*	*	*

Name of Final Standard	8270 Full Scan Second Source	**Prep'd By (Initials)**	**GA**
Prep Date	**03/13/19**		
Exp Date	**09/13/19**		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
8270 SS Stock	o2si	8270 SS Stock	200 ug/mL	**03/05/19**	**01/08/20**	50 uL	200uL	**MC 56258 150uL**	50 ug/mL
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	**01/16/19**	**01/16/20**	4 uL	*	*	*

Name of Final Standard	8270 Full Scan Spike	Prep'd By (Initials)	GA
Prep Date	03/05/19		
Exp Date	10/20/19		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
10001	Absolute	10001	2000	051018-39827 051018-39828	03/05/20	2.0 mL	20 mL	NA	200 ug/mL
10002	Absolute	10002	2000	051018-39832 051018-39833	03/05/20	2.0 mL	*	*	200 ug/mL
10004	Absolute	10004	2000	031618-39836 031618-39839	01/30/20	2.0 mL	*	*	200 ug/mL
10005	Absolute	10005	2000	032018-40011 032018-40012	01/30/20	2.0 mL	*	*	200 ug/mL
10006	Absolute	10006	2000	071318-39842 071318-39843	01/30/20	2.0 mL	*	*	200 ug/mL
10007	Absolute	10007	2000	080116-40016 080116-40017	01/30/20	2.0 mL	*	*	200 ug/mL
10018	Absolute	10018	2000	062718-39847 062718-39848	01/30/20	2.0 mL	*	*	200 ug/mL
70023	Absolute	70023	1000	091217-39852 091217-39853	01/30/20	2.0 mL	*	*	100 ug/mL
82705	Absolute	82705	2000	081418-40020 081418-40021	01/30/20	2.0 mL	*	*	200 ug/mL
94552	Absolute	94552	various	102017-40026 102017-40027	10/20/19	2.0 mL	*	*	various

Name of Final Standard	8270 SS STOCK	Prep'd By (Initials)	GA
Prep Date	03/05/19		
Exp Date	01/08/20		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
10001	Absolute	10001	2000	031618-39202	03/05/20	1.0 mL	10 mL	NA	200 ug/mL
10002	Absolute	10002	2000	G34-020217-38182	02/02/20	1.0 mL	*	*	200 ug/mL
10004	Absolute	10004	2000	010815-38625	01/08/20	1.0 mL	*	*	200 ug/mL
10005	Absolute	10005	2000	041317-37804	03/05/20	1.0 mL	*	*	200 ug/mL
10006	Absolute	10006	2000	011718-38827	03/05/20	1.0 mL	*	*	200 ug/mL
10007	Absolute	10007	2000	020515-38627	02/05/20	1.0 mL	*	*	200 ug/mL
10018	Absolute	10018	2000	G34-030216-38195	03/05/20	1.0 mL	*	*	200 ug/mL
70023	Absolute	70023	1000	013118-38830	03/05/20	1.0 mL	*	*	100 ug/mL
82705	Absolute	82705	2000	090617-38832	03/05/20	1.0 mL	*	*	200 ug/mL
94552	Absolute	94552	various	013118-40453	01/31/20	1.0 mL	*	*	various

Name of Final Standard	8270 Internal Standard (Ampule)	**Prep'd By (Initials)**	GA
Prep Date	02/09/19		
Exp Date	02/09/20		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc.(range)
Semivolatile Internal Standard	Restek	31206	2mg/mL	**A0138585-39540**	**01/16/20**	1 mL	1 mL	NA	2mg/mL

Name of Final Standard	**8270 Surrogate 200/400 ppm**
Prep Date	**10/17/18**
Exp Date	**09/27/19**

Prep'd By (Initials) **GA**

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc. (range)
8270 Acid Surrogate Mix	Restek	33029	10,000 ug/mL	**A0136352-39395**	**10/17/19**	200 uL	5 mL	**MC 56258**	400 ug/mL
8270 B/N Surrogate Mix	Restek	31086	5000 ug/mL	**A0135243-39166**	**09/27/19**	200 uL	"	"	200 ug/mL

Name of Final Standard	8270 Full Scan Spike	Prep'd By (Initials)	GA
Prep Date	01/30/19		
Exp Date	10/20/19		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
10001	Absolute	10001	2000	051018-39825 051018-39826	01/30/20	2.0 mL	20 mL	NA	200 ug/mL
10002	Absolute	10002	2000	051018-39830 051018-39831	01/30/20	2.0 mL	"	"	200 ug/mL
10004	Absolute	10004	2000	031618-39834 031618-39835	01/30/20	2.0 mL	"	"	200 ug/mL
10005	Absolute	10005	2000	032018-39611 032018-40010	01/30/20	2.0 mL	"	"	200 ug/mL
10006	Absolute	10006	2000	071318-39840 071318-39841	01/30/20	2.0 mL	"	"	200 ug/mL
10007	Absolute	10007	2000	080116-39616 080116-40015	01/30/20	2.0 mL	"	"	200 ug/mL
10018	Absolute	10018	2000	062718-39845 062718-39846	01/30/20	2.0 mL	"	"	200 ug/mL
70023	Absolute	70023	1000	091217-39850 091217-39851	01/30/20	2.0 mL	"	"	100 ug/mL
82705	Absolute	82705	2000	081418-39620 081418-39621	01/30/20	2.0 mL	"	"	200 ug/mL
94552	Absolute	94552	various	102017-40025 102017-40225	10/20/19	2.0 mL	"	"	various

Name of Final Standard	8270 Surrogate 100/200 ppm	Prep'd By (Initials)	GA
Prep Date	01/30/19		
Exp Date	12/06/19		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
8270 Acid Surrogate Mix	Restek	33029	10,000 ug/mL	A0132399 -39396	01/30/20	5.0 mL	250 mL	Acetone #101717I	200 ug/mL
8270 B/N Surrogate Mix	Restek	31086	5000 ug/mL	A0140132 - 39546 & 39547	12/06/19 01/30/20	5.0 mL	250 mL	"	100 ug/mL

Name of Final Standard	8270 Full Scan Spike	Prep'd By (Initials)	GA
Prep Date	04/12/19		
Exp Date	10/20/19		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	+ Lot# (or APPL Prep Date)	Final Standard Conc (range)
10001	Absolute	10001	2000	020119-40371 020119-40372	04/12/20	2.0 mL	20 mL	NA	200 ug/mL
10002	Absolute	10002	2000	051018-40376 051018-40377	04/12/20	2.0 mL	*	*	200 ug/mL
10004	Absolute	10004	2000	031618-40382 031618-40383	04/12/20	2.0 mL	*	*	200 ug/mL
10005	Absolute	10005	2000	032018-40014 032018-40512	04/12/20	2.0 mL	*	*	200 ug/mL
10006	Absolute	10006	2000	110618-40387 110618-40388	04/12/20	2.0 mL	*	*	200 ug/mL
10007	Absolute	10007	2000	080116-40019 080116-40517	04/12/20	2.0 mL	*	*	200 ug/mL
10018	Absolute	10018	2000	120518-40392 120518-40393	04/12/20	2.0 mL	*	*	200 ug/mL
70023	Absolute	70023	1000	091217-40397 091217-40398	04/12/20	2.0 mL	*	*	100 ug/mL
82705	Absolute	82705	2000	081418-40023 081418-40024	04/12/20	2.0 mL	*	*	200 ug/mL
94552	Absolute	94552	various	102017-40029 102017-40528	10/20/19	2.0 mL	*	*	various

Organic Extraction Worksheet

Method	Continuous Liquid/Liquid SVOC 3520C	Extraction Set	190430A	Extraction Method	LIQ003	Units	mL

Spiked ID 1	8270T Spike 4-12-19 exp 10-20-19		Surrogate ID 1	8270 Surrogate 4-10-19 exp 3-15-20	
Spiked ID 2	Sim Spike 3-20-19 exp 3-20-20		Surrogate ID 2	SIM Surrogate 3-25-19 exp 3-25-20	
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	YES	
Spiked ID 7			Ext. Start Time:	04/30/19 13:10, 05/01/19 11:30	
Spiked ID 8			Ext. End Time:	05/01/19 7:45, 05/02/19 05:45, 11:10	
			GC Requires Extract By:	05/02/19 0:00	

pH1	2	4/30/19 10:35:00 AM	Water Bath Temp Criteria 71,70 °C
pH2	14	5/01/19 11:10:00 AM	
pH3			

Spiked By: KY **Date** 04/30/19 **Witnessed By:** DL **Date** 04/30/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
1	190430A Blk				1,0.050	1,2	800	1	2/1	04/30/19 10:25	
						equip	e-hp51 E-WB6				
2	190430A LCS-1		0.250	1	1	1	800	1	2/1	04/30/19 10:25	
						equip	e-hp50 E-WB6				
3	190430A LCS-2		0.0250	2	0.050	2	800	1	2/1	04/30/19 10:25	
						equip	E-HP48 E-WB6				
4	190430A LCSD-1		0.250	1	1	1	800	1	2/1	04/30/19 10:25	
						equip	E-HP49 E-WB6				
5	190430A LCSD-2		0.0250	2	0.050	2	800	1	2/1	04/30/19 10:25	
						equip	E-HP47 E-WB6				
6	AZ90100	AZ90100W21			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88714
						equip	E-HP25 E-WB6				
7	AZ90102	AZ90102W22			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88714
						equip	E-HP26 E-WB5				
8	AZ90103	AZ90103W08			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88714
						equip	E-HP27 E-WB5				
9	AZ90105	AZ90105W21			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88714
						equip	E-HP28 E-WB5				
10	AZ90107	AZ90107W18			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88714
						equip	E-HP29 E-WB5				
11	AZ90109	AZ90109W21			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88714
						equip	E-HP30 E-WB5				
12	AZ90121 MS-1	AZ90121W22	0.250	1	1	1	800	1	2/1	04/30/19 10:25	88712
						equip	E-HP16 E-WB6				
13	AZ90121 MSD-1	AZ90121W19	0.250	1	1	1	800	1	2/1	04/30/19 10:25	88712
						equip	E-HP15 E-WB6				
14	AZ90121 MS-2	AZ90121W23	0.0250	2	0.050	2	800	1	2/1	04/30/19 10:25	88712
						equip	E-HP14 E-WB6				
15	AZ90121 MSD-2	AZ90121W20	0.0250	2	0.050	2	800	1	2/1	04/30/19 10:25	88712
						equip	E-HP13 E-WB6				
16	AZ90121	AZ90121W24			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88712
						equip	E-HP17 E-WB6				

Solvent and Lot#	
PH Strips	HC857466
Dichloromethane (DCM)	58240
1+1 H2SO4	4-22-19
10N NaOH	4-22-19
Filter Paper	400148
Acidified Na2SO4	2-28-19
B. Na2SO4	18D105205

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	SS
Date	5/2/19
Time	11:40
Refrigerator	GC-C

	Technician's Initials
Scanned By	DL
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	05/02/19 12:10:32 PM

Reviewed By: KS **Date** 5/2/19

Organic Extraction Worksheet

Method	Continuous Liquid/Liquid SVOC 3520C	Extraction Set	190430A	Extraction Method	LIQ003	Units	mL

Spiked ID 1	8270T Spike 4-12-19 exp 10-20-19		Surrogate ID 1	8270 Surrogate 4-10-19 exp 3-15-20	
Spiked ID 2	Sim Spike 3-20-19 exp 3-20-20		Surrogate ID 2	SIM Surrogate 3-25-19 exp 3-25-20	
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	YES	
Spiked ID 7			Ext. Start Time:	04/30/19 13:10 , 05/01/19 11:30	
Spiked ID 8			Ext. End Time:	05/01/19 7:45 , 05/02/19 05:45 , 11:10	
			GC Requires Extract By:	05/02/19 0:00	

pH1	2	4/30/19 10:35:00 AM	Water Bath Temp Criteria	71,70 °C
pH2	14	5/01/19 11:10:00 AM		
pH3				

Spiked By: KY **Date** 04/30/19 **Witnessed By:** DL **Date** 04/30/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
17	AZ90122	AZ90122W07			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88712
						equip	E-HP12 E-WB6				
18	AZ90213	AZ90213W21			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88736
						equip	E-HP11 E-WB6				
19	AZ90215	AZ90215W18			1,0.050	1,2	800	1	2/1	04/30/19 10:25	88736
						equip	E-HP10 E-WB5				

Ky 5/2/19

Solvent and Lot#	
PH Strips	HC857466
Dichloromethane (DCM)	58240
1+1 H2SO4	4-22-19
10N NaOH	4-22-19
Filter Paper	400148
Acidified Na2SO4	2-28-19
B. Na2SO4	18D105205

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	
Date	
Time	
Refrigerator	

	Technician's Initials
Scanned By	DL
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	05/02/19 12:10:32 PM

Reviewed By: Ky **Date** 5/2/19

_LIQ003

Organic Extraction Worksheet

Method	Continuous Liquid/Liquid SVOC 3520C	Extraction Set	190506A	Extraction Method	LIQ003	Units	mL

Spiked ID 1	8270T Spike 4-12-19 EXP 10-20-19		Surrogate ID 1	8270 Surrogate 4-10-19 EXP 3-15-20	
Spiked ID 2	Sim Spike 3-20-19 EXP 3-20-20		Surrogate ID 2	SIM Surrogate 5-1-19 EXP 5-1-20	
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	no	
Spiked ID 7			Ext. Start Time:	05/06/19 11:00 ,05/07/19 08:35	
Spiked ID 8			Ext. End Time:	05/07/19 6:30 ,05/08/19 05:20, 9:50	
			GC Requires Extract By:	05/02/19 0:00	

pH1	2	5/06/19 10:00:00 AM	Water Bath Temp Criteria	75 °C
pH2	14	05/07/19 8:30:00 AM		
pH3				

Spiked By: DL **Date** 05/06/19 **Witnessed By:** KY **Date** 05/06/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
1	190506A Blk				1,0.050	1,2	800	1	2/1	05/06/19 9:50	
						equip	E-HP51 E-WB6				
2	190506A LCS-1		0.250	1	1	1	800	1	2/1	05/06/19 9:50	
						equip	E-HP50 E-WB6				
3	190506A LCS-2		0.0250	2	0.050	2	800	1	2/1	05/06/19 9:50	
						equip	E-HP48 E-WB6				
4	190506A LCSD-1		0.250	1	1	1	800	1	2/1	05/06/19 9:50	
						equip	E-HP49 E-WB6				
5	190506A LCSD-2		0.0250	2	0.050	2	800	1	2/1	05/06/19 9:50	
						equip	E-HP47 E-WB6				
6	AZ90215	AZ90215W19			1,0.050	1,2	800	1	2/1	05/06/19 9:50	88736 RE-EXTRACT
						equip	E-HP25 E-WB6				
7	AZ90447	AZ90447W07			1,0.050	1,2	800	1	2/1	05/06/19 9:50	88764
						equip	E-HP26 E-WB6				
8	AZ90448	AZ90448W10			1,0.050	1,2	800	1	2/1	05/06/19 9:50	88764
						equip	E-HP27 E-WB6				
9	AZ90450	AZ90450W22			1,0.050	1,2	800	1	2/1	05/06/19 9:50	88764
						equip	E-HP28 E-WB6				

Ky 5/8/19

Solvent and Lot#	
PH Strips	HC 857466
Dichloromethane (DCM)	58240
1+1 H2SO4	4-22-19
10N NaOH	4-22-19
Filter Paper	400148
Acidified Na2SO4	2-28-19
B.Na2SO4	18D105205

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	MA
Date	5/8/19
Time	0950
Refrigerator	GC-C

	Technician's Initials
Scanned By	DL
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	05/08/19 8:42:43 AM

Reviewed By: Ky **Date** 5/8/19

05/08/19 12:30:48 PM Ext_ID 62732

Injection Log

Directory: M:\YODA\DATA\Y190319\

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	2	0319Y002.D	1	SV Tune 11/10/18		19 Mar 19 18:15
2	3	0319Y003.D	1	50ug/mL 8270 03/13/19		19 Mar 19 18:31
3	4	0319Y004.D	1	4ug/mL 8270 03/13/19		19 Mar 19 18:58
4	5	0319Y005.D	1	5ug/mL 8270 03/13/19		19 Mar 19 19:26
5	6	0319Y006.D	1	10ug/mL 8270 03/13/19		19 Mar 19 19:54
6	7	0319Y007.D	1	20ug/mL 8270 03/13/19		19 Mar 19 20:22
7	8	0319Y008.D	1	40ug/mL 8270 03/13/19		19 Mar 19 20:49
8	9	0319Y009.D	1	60ug/mL 8270 03/13/19		19 Mar 19 21:17
9	10	0319Y010.D	1	80ug/mL 8270 03/13/19		19 Mar 19 21:44
10	11	0319Y011.D	1	100ug/mL 8270 03/13/19		19 Mar 19 22:11
11	12	0319Y012.D	1	SS-8270 03/13/19		19 Mar 19 22:39
12	63	0411Y263.D	1	SV TUNE 10/11/18		2 May 19 9:11
13	64	0411Y264.D	1	50ug/ml 8270 3/13/19		2 May 19 9:26
14	70	0411Y270.D	1.25	190430A BLK 1/800		2 May 19 12:35
15	71	0411Y271.D	1.25	190430A LCS-1 1/800		2 May 19 13:03
16	72	0411Y272.D	1.25	190430A LCSD-1 1/800		2 May 19 13:31
17	83	0411Y283.D	1.25	AZ90213W21 1/800		2 May 19 18:39
18	84	0411Y284.D	1.25	AZ90215W18 1/800		2 May 19 19:07
19	87	0411Y287.D	1	50ug/ml 8270 3/13/19		2 May 19 20:30
20	14	0411Y314.D	1	SV TUNE 10/11/18		8 May 19 8:53
21	15	0411Y315.D	1	50ug/ml 8270 3/13/19		8 May 19 9:14
22	18	0411Y318.D	1.25	190506A BLK 1/800		8 May 19 10:36
23	19	0411Y319.D	1.25	190506A LCS-1 1/800		8 May 19 11:04
24	20	0411Y320.D	1.25	190506A LCSD-1 1/800		8 May 19 11:32
25	24	0411Y324.D	1.25	AZ90215W19 1/800		8 May 19 13:23
26	25	0411Y325.D	1	50ug/ml 8270 3/13/19		8 May 19 13:51

ORGANICS
Calibration Data

2MEE
EPA 8270

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 04/30/19
Matrix: Instrument: Yoda

Initials: MA/LP

			0430Y003.D	0430Y004.D	0430Y005.D	0430Y006.D	0430Y007.D	0430Y008.D	0430Y009.D	0430Y010.D								
		Compound	1	2	3	4	5	6	7	8			Avg	%RSD	Type	r^2	Q	MRF
1	I	1,4-dichlorobenzene-D4(IS)																
2	TML	2-(2-Methoxyethoxy)ethanol	0.0855	0.1071	0.1202	0.1690	0.1716	0.1510	0.1681	0.1572			0.14	23	TML	0.992		
3	I	Napthalene-D8(IS)																
4	I	Acenaphthene-D10(IS)																
5	I	Phenanthrene-D10(IS)																
6	I	Chrysene-D12(IS)																
7	I	Perylene-D12(IS)																
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
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34																		
35																		

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y003.D Vial: 3
Acq On : 30 Apr 19 9:27 Operator: MA
Sample : 50ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 12:16 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	184530	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	792854	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	436769	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	740242	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	652884	40.00000	ppb	0.01
7) Perylene-D12(IS)	15.14	264	661360	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.31	45	19721	51.20047	ppb	92

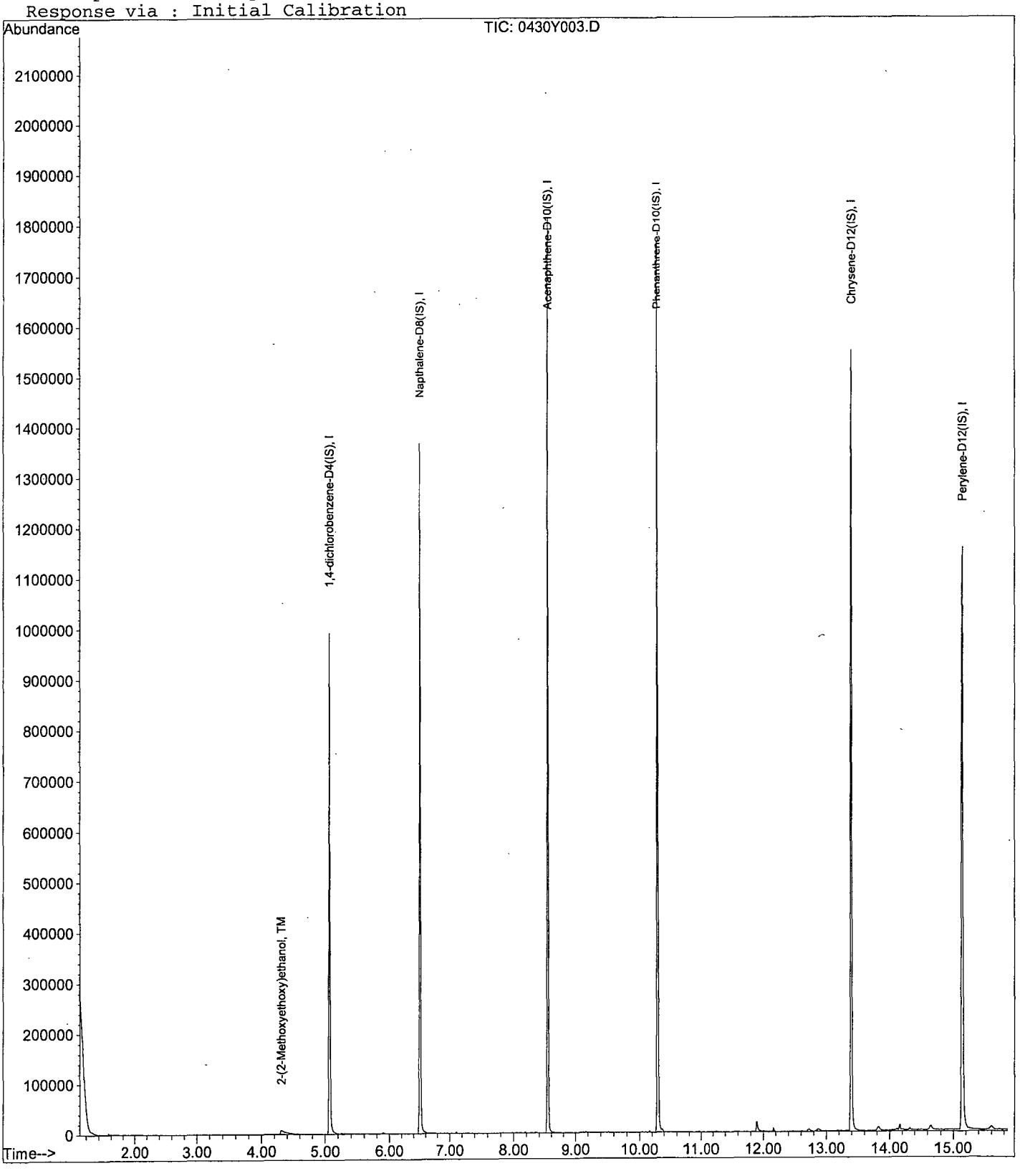
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y003.D Vial: 3
Acq On : 30 Apr 19 9:27 Operator: MA
Sample : 50ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 12:16 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y004.D Vial: 4
Acq On : 30 Apr 19 9:50 Operator: MA
Sample : 100ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:44:52 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	187806	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	863865	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	468856	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	791427	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	668649	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	626815	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.27	45	50283	84.61640	ppb	97

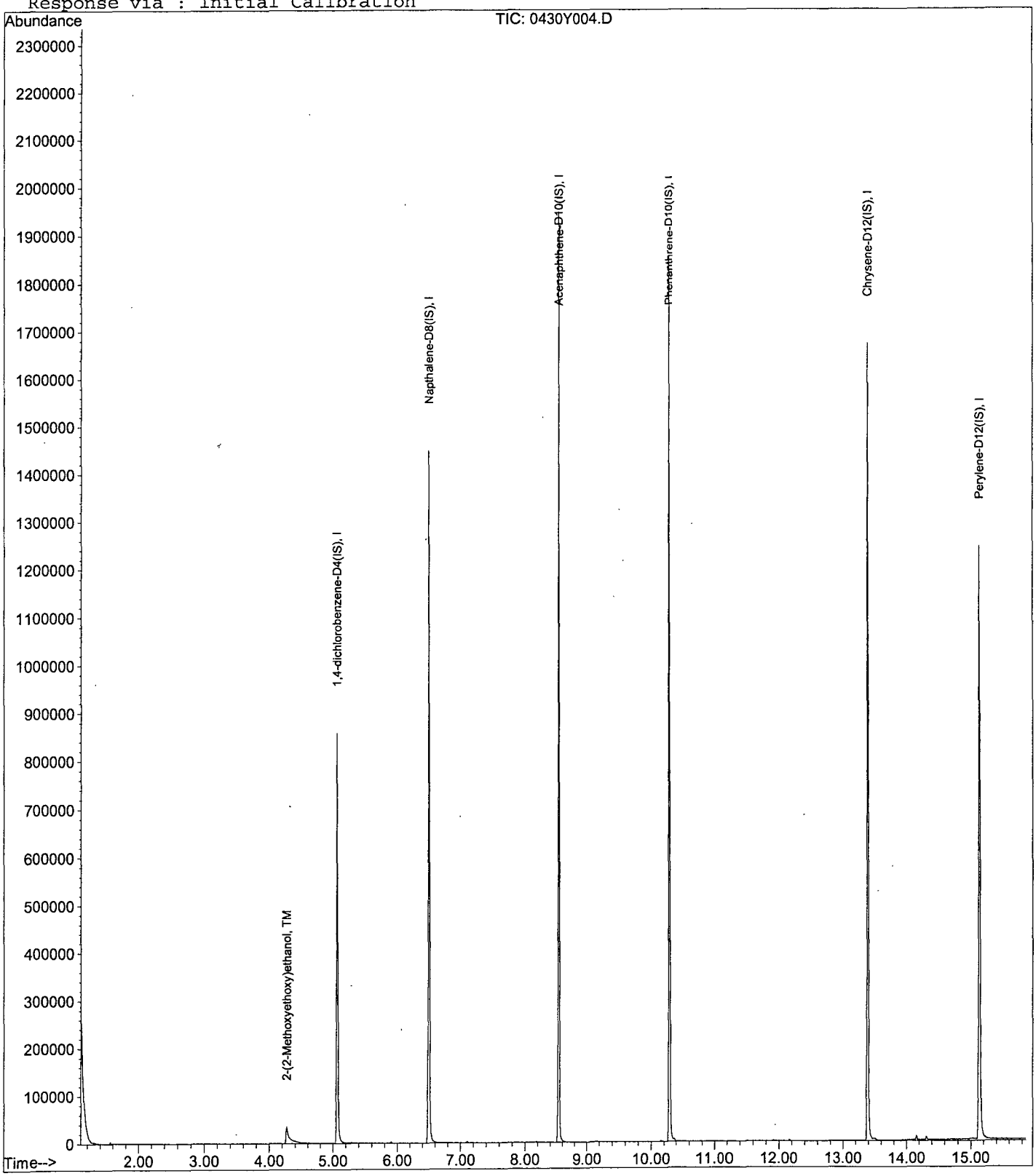
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y004.D Vial: 4
Acq On : 30 Apr 19 9:50 Operator: MA
Sample : 100ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y005.D Vial: 5
Acq On : 30 Apr 19 10:13 Operator: MA
Sample : 200ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:44:52 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	198152	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	841205	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	466203	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	786056	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	706531	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	682388	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.25	45	119065	189.90155	ppb	99

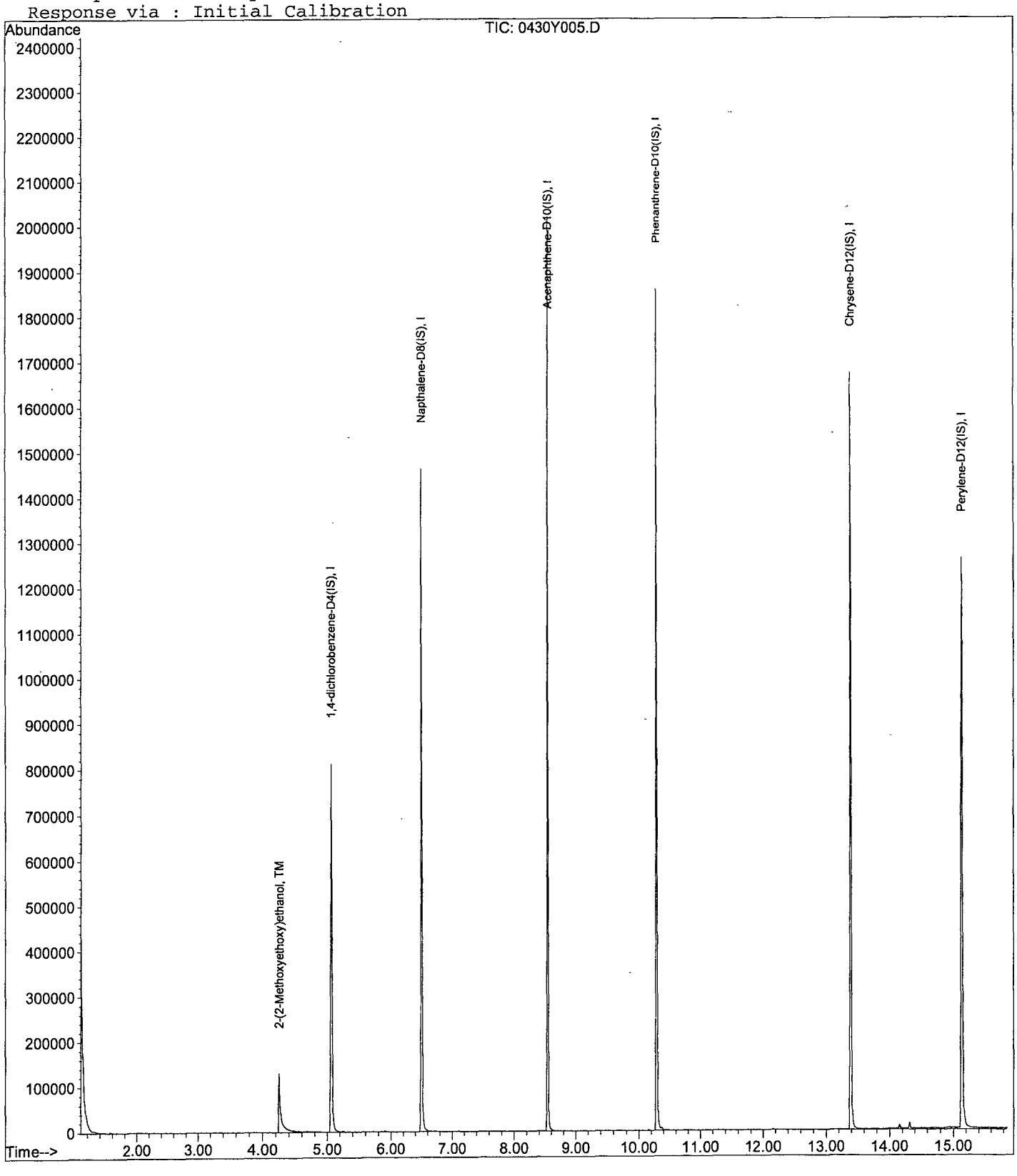
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y005.D Vial: 5
Acq On : 30 Apr 19 10:13 Operator: MA
Sample : 200ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y006.D Vial: 6
Acq On : 30 Apr 19 10:37 Operator: MA
Sample : 400ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:44:52 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	181654	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	797784	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	446801	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	742976	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	658989	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	628149	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.25	45	307070	534.23860	ppb	99

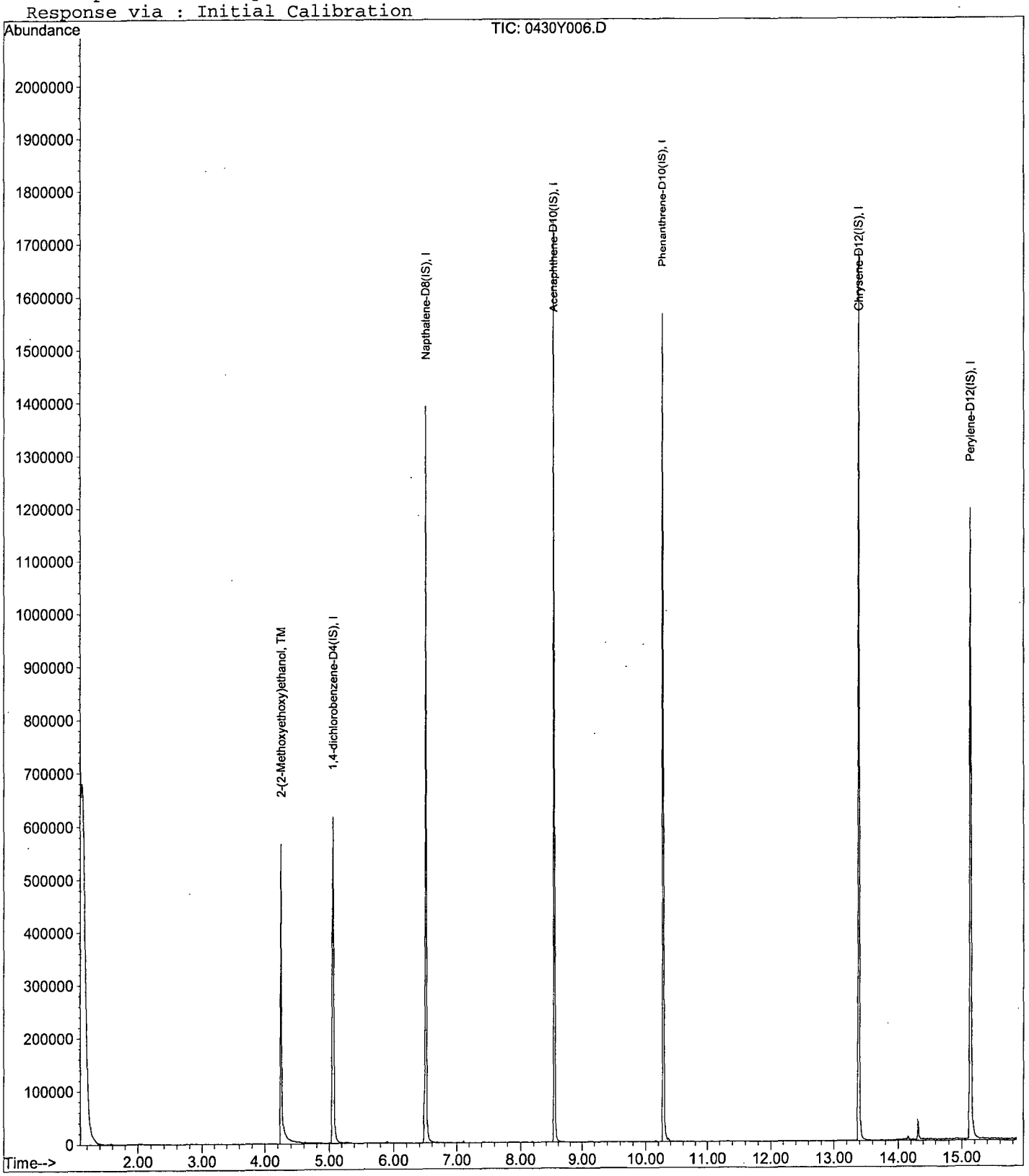
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y006.D Vial: 6
Acq On : 30 Apr 19 10:37 Operator: MA
Sample : 400ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y007.D Vial: 7
Acq On : 30 Apr 19 11:00 Operator: MA
Sample : 500ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:44:52 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	165959	40.00000 ppb	0.00
3) Napthalene-D8(IS)	6.51	136	714594	40.00000 ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	398927	40.00000 ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	678369	40.00000 ppb	0.00
6) Chrysene-D12(IS)	13.38	240	607331	40.00000 ppb	0.00
7) Perylene-D12(IS)	15.14	264	593257	40.00000 ppb	0.00

System Monitoring Compounds

Target Compounds					Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.25	45	356062	678.05928 ppb	100

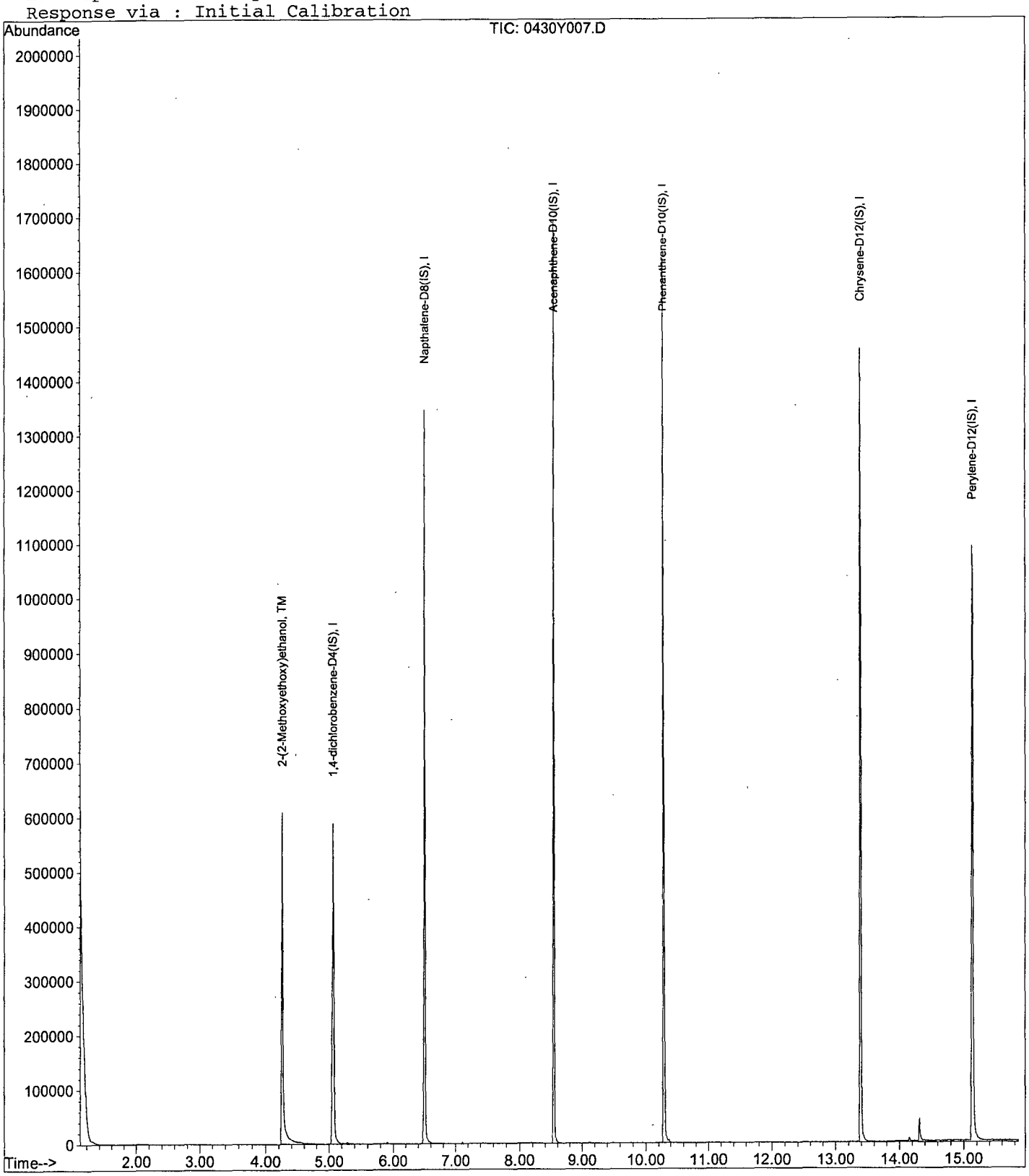
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y007.D Vial: 7
Acq On : 30 Apr 19 11:00 Operator: MA
Sample : 500ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y008.D Vial: 8
Acq On : 30 Apr 19 11:23 Operator: MA
Sample : 600ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:44:52 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	192050	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	832030	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	456909	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	771492	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	686371	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	672431	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.26	45	435053	715.93023	ppb	98

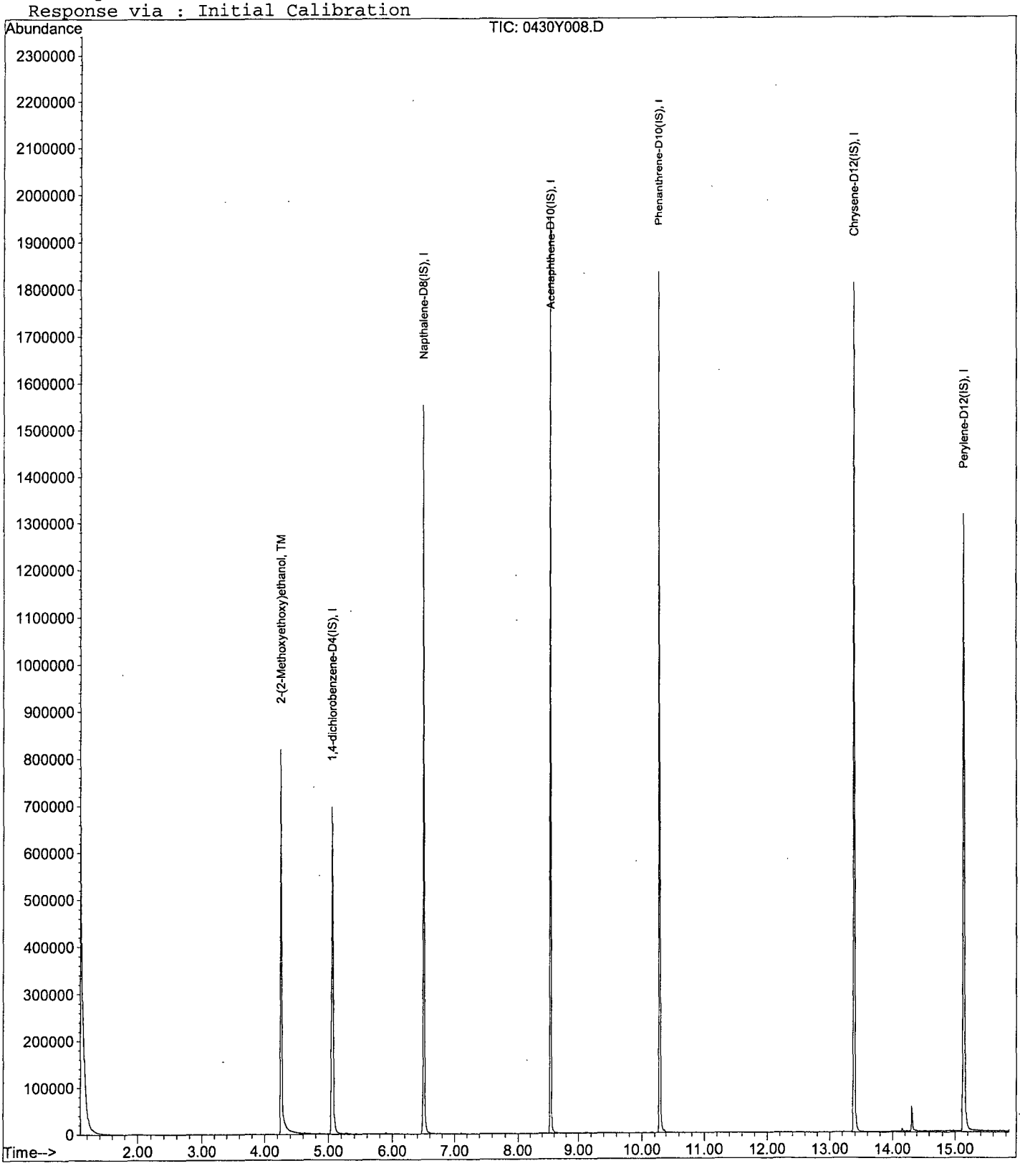
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y008.D Vial: 8
Acq On : 30 Apr 19 11:23 Operator: MA
Sample : 600ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y009.D Vial: 9
Acq On : 30 Apr 19 11:47 Operator: MA
Sample : 800ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:48 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:44:52 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	177494	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	809241	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	446680	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	765580	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	677822	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	648459	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.26	45	596711	1062.48599	ppb	99

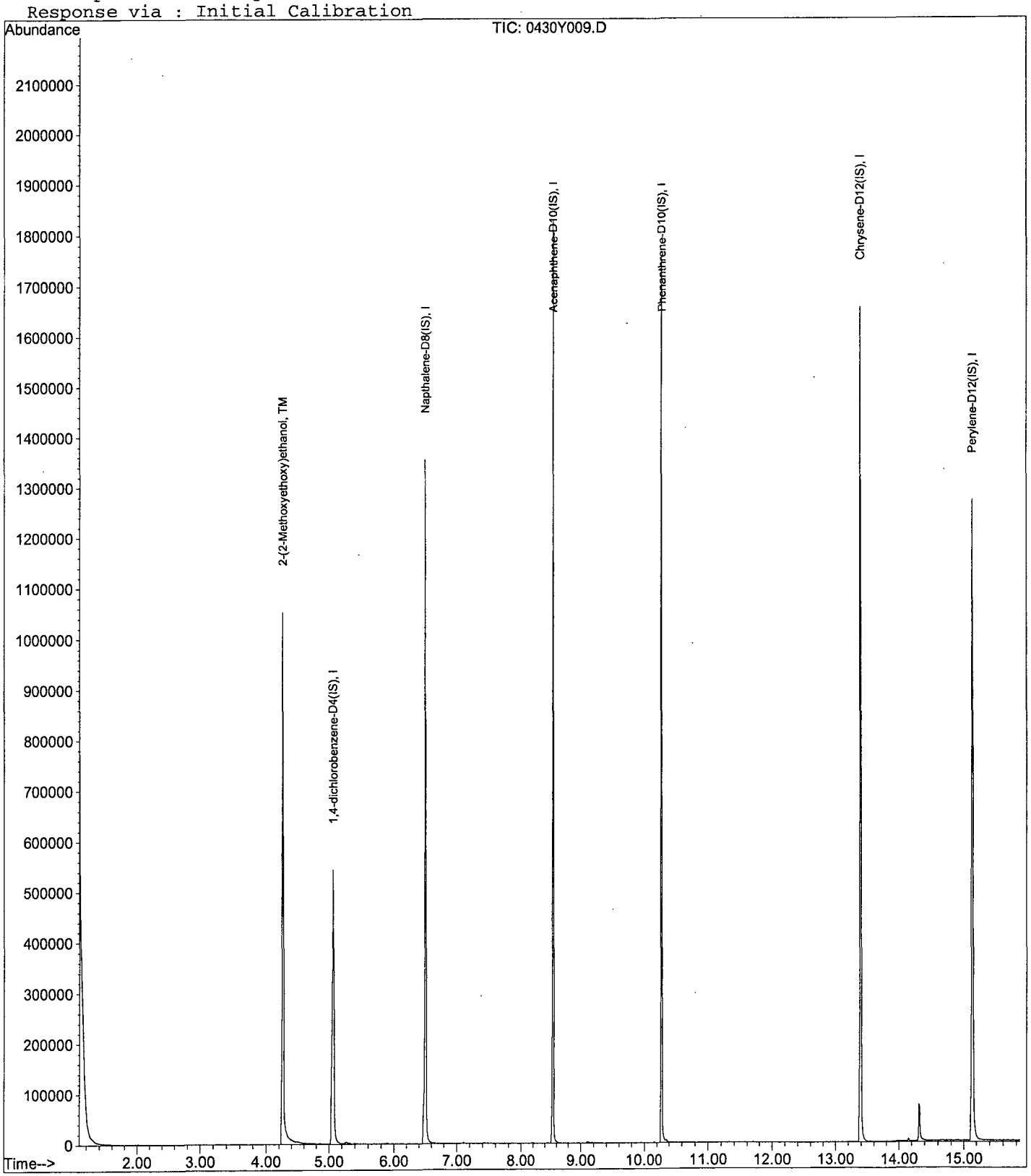
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y009.D Vial: 9
Acq On : 30 Apr 19 11:47 Operator: MA
Sample : 800ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:48 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y010.D Vial: 10
Acq On : 30 Apr 19 12:10 Operator: MA
Sample : 1000ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 12:15 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:49:24 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	194543	40.00000	ppb	0.01
3) Napthalene-D8(IS)	6.51	136	824746	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	455154	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.29	188	763926	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	675051	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	668405	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.29	45	764768	949.70790	ppb	98

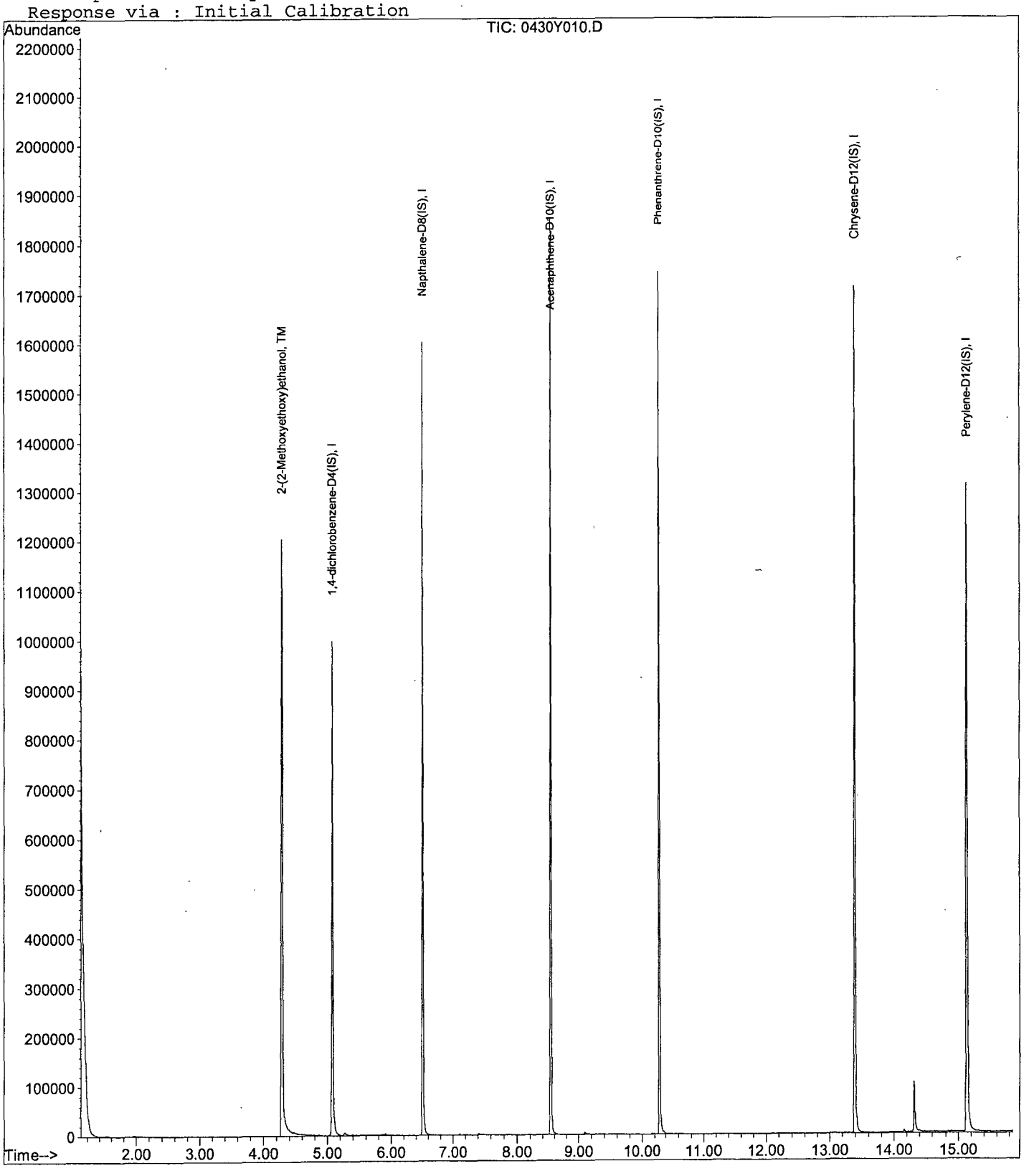
(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190430M\0430Y010.D
Acq On : 30 Apr 19 12:10
Sample : 1000ug/ml MEE 04/30/19
Misc : soil

Vial: 10
Operator: MA
Inst : Yoda
Multiplr: 1.00

Quant Time: Apr 30 12:15 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



2MEE
EPA 8270

Form 7

Second Source Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Date Analyzed: 04/30/19
Matrix: Instrument: Yoda
Initial Cal. Date: 04/30/19
Data File: 0430Y011.D

		Compound	MEAN	CCRF	%D	%Drift	
1	TML	2-(2-Methoxyethoxy)ethanol	0.1412	0.1842	30	TML	16
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			30.0		

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y011.D Vial: 11
Acq On : 30 Apr 19 13:30 Operator: MA
Sample : SS ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 13:31 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	176322	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	756659	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	427777	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	702800	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	636036	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.14	264	617157	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.26	45	406011	577.68332	ppb	99

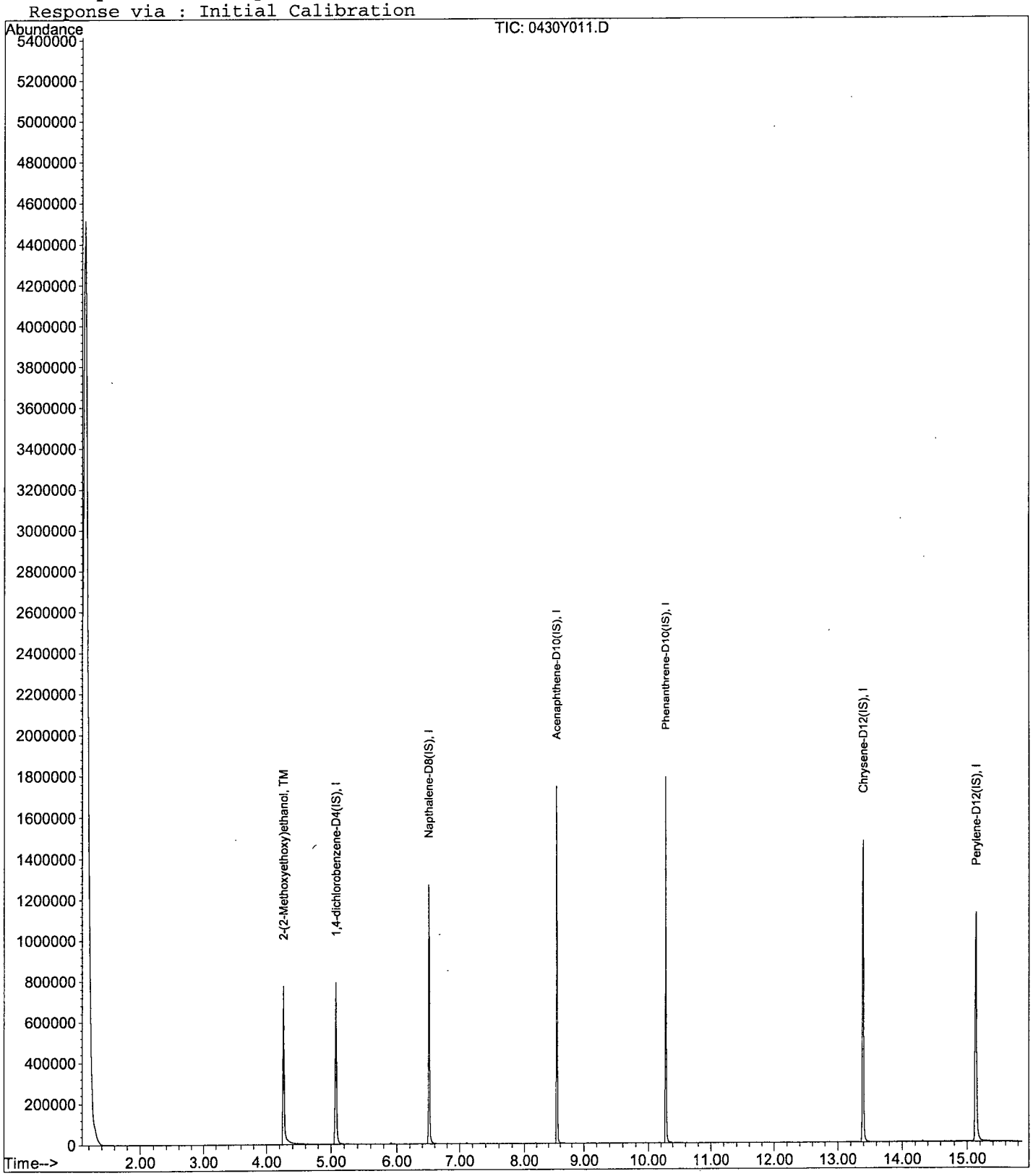
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y011.D Vial: 11
Acq On : 30 Apr 19 13:30 Operator: MA
Sample : SS ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 13:31 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



2MEE
EPA 8270

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 04/30/19
Instrument: Yoda
Initial Cal. Date: 04/30/19
Data File: 0430Y037.D

		Compound	MEAN	CCRF	%D	%Drift	
1	I	1,4-dichlorobenzene-D4(IS)	ISTD			I	
2	TML	2-(2-Methoxyethoxy)ethanol	0.1412	0.1831	30	TML	15
3	I	Napthalene-D8(IS)	ISTD			I	
4	I	Acenaphthene-D10(IS)	ISTD			I	
5	I	Phenanthrene-D10(IS)	ISTD			I	
6	I	Chrysene-D12(IS)	ISTD			I	
7	I	Perylene-D12(IS)	ISTD			I	
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
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25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			30.0		

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y037.D Vial: 37
Acq On : 30 Apr 19 23:38 Operator: MA
Sample : 500ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 1 8:39 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	148022	40.00000	ppb	0.01
3) Napthalene-D8(IS)	6.51	136	650008	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	364717	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	610351	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	544837	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	526754	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.28	45	338753	574.29385	ppb	97

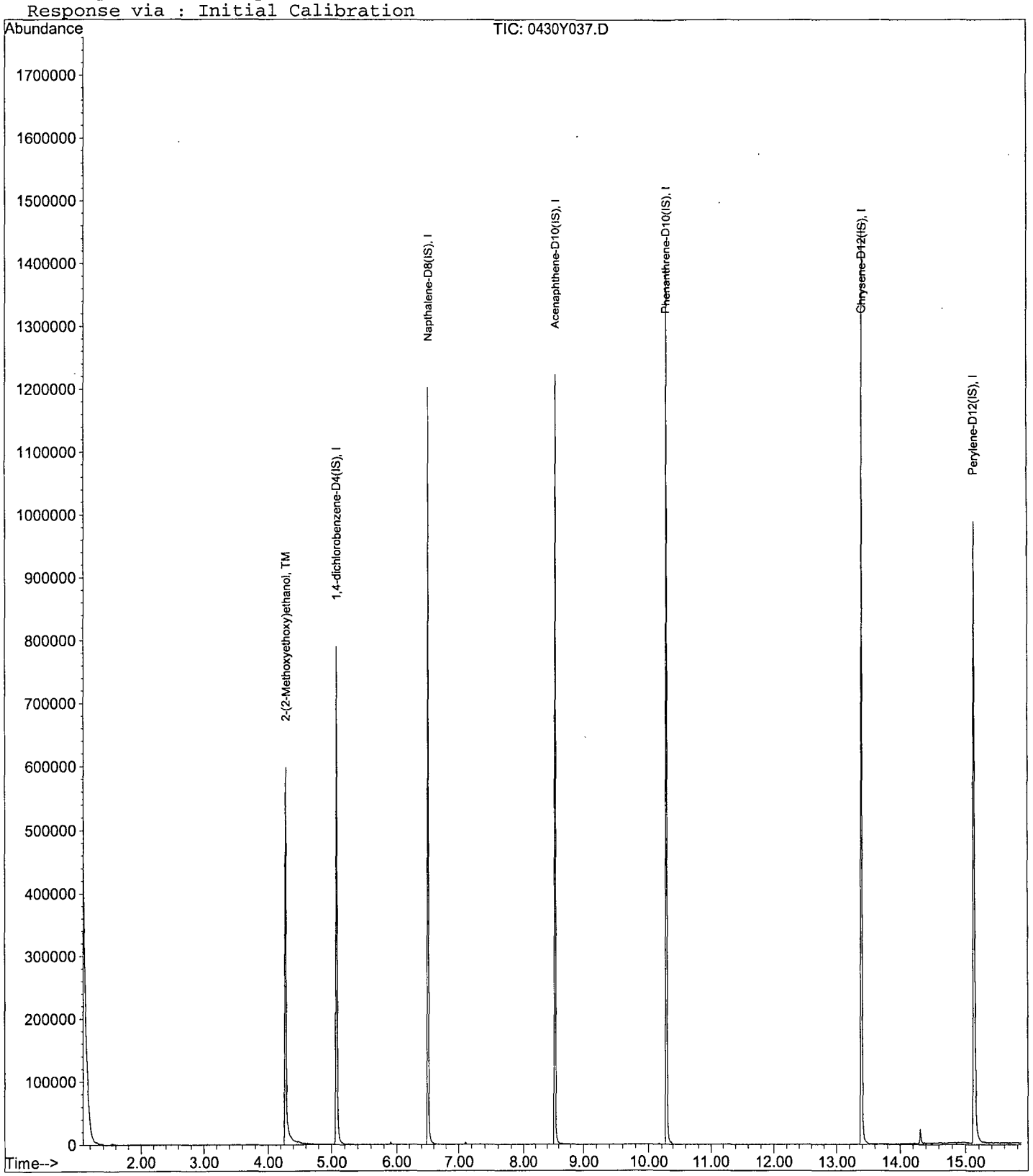
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y037.D Vial: 37
Acq On : 30 Apr 19 23:38 Operator: MA
Sample : 500ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 1 8:39 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



ORGANICS
Raw Data

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y035.D Vial: 35
Acq On : 30 Apr 19 22:51 Operator: MA
Sample : AZ90213W15 2/505 Inst : Yoda
Misc : soil Multiplr: 0.99

Quant Time: May 1 8:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	118555	40.0000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	547991	40.0000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	321786	40.0000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	541399	40.0000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	474368	40.0000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	466898	40.0000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

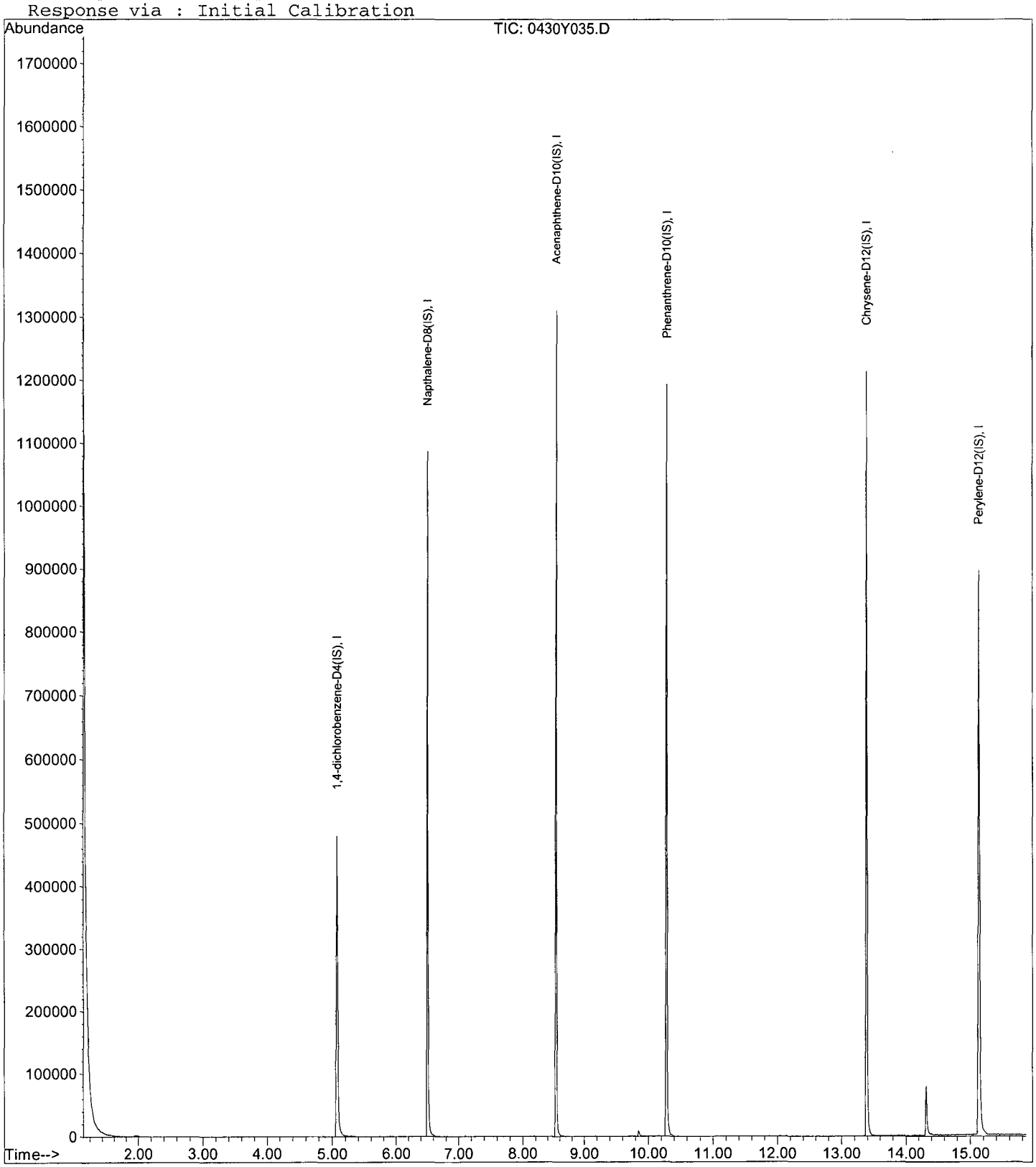
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y035.D Vial: 35
Acq On : 30 Apr 19 22:51 Operator: MA
Sample : AZ90213W15 2/505 Inst : Yoda
Misc : soil Multiplr: 0.99

Quant Time: May 1 8:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y036.D Vial: 36
Acq On : 30 Apr 19 23:14 Operator: MA
Sample : AZ90215W16 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 1 8:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	121719	40.0000	ppb	0.01
3) Napthalene-D8(IS)	6.51	136	552252	40.0000	ppb	0.00
4) Acenaphthene-D10(IS)	8.53	164	314928	40.0000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	539017	40.0000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	464472	40.0000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	449161	40.0000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

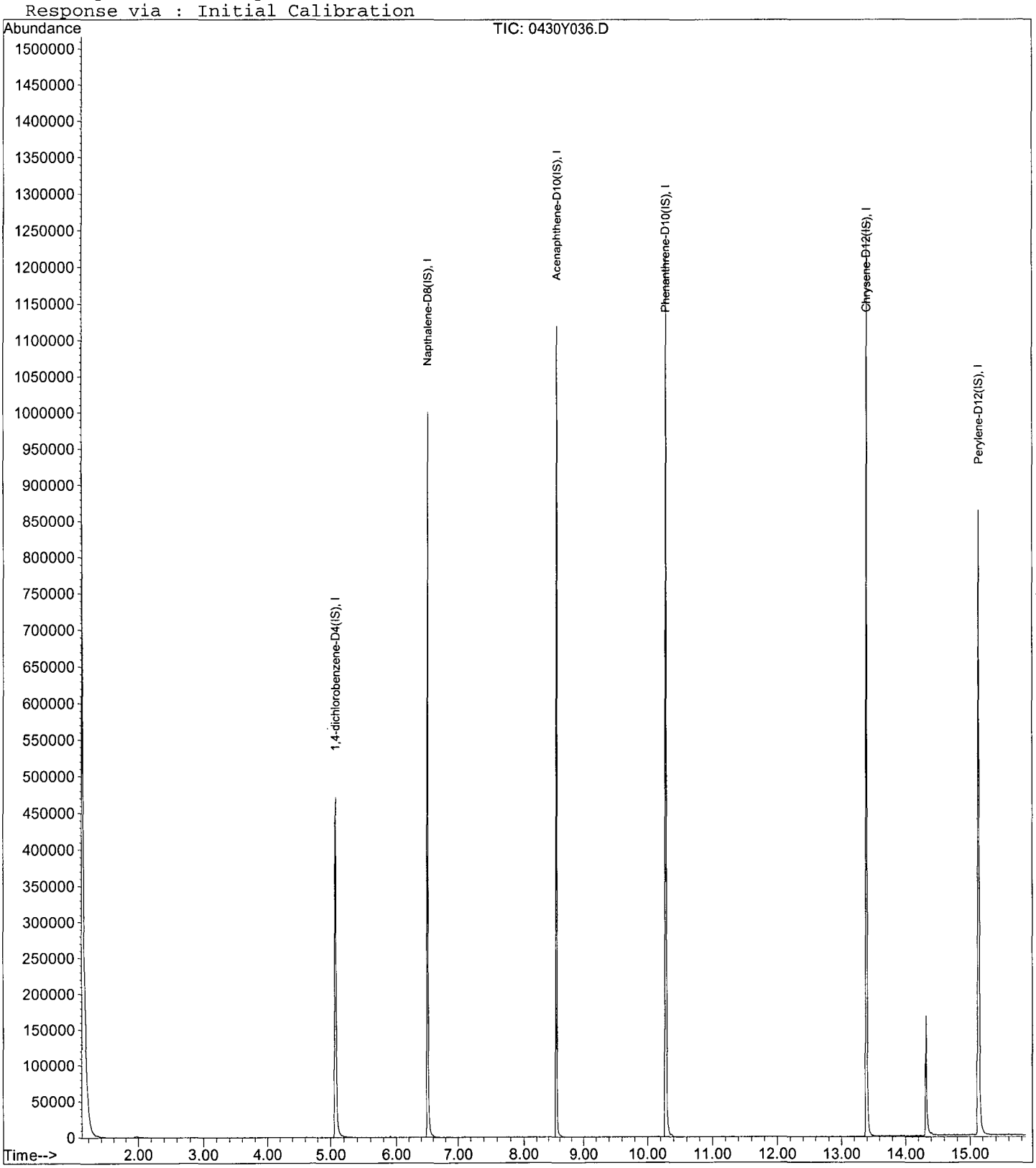
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y036.D Vial: 36
Acq On : 30 Apr 19 23:14 Operator: MA
Sample : AZ90215W16 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 1 8:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y013.D Vial: 13
Acq On : 30 Apr 19 14:13 Operator: MA
Sample : 190429A BLK 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 15:16 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	144443	40.0000 ppb	0.00
3) Napthalene-D8(IS)	6.51	136	680229	40.0000 ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	444226	40.0000 ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	771508	40.0000 ppb	0.00
6) Chrysene-D12(IS)	13.39	240	661861	40.0000 ppb	0.00
7) Perylene-D12(IS)	15.14	264	641475	40.0000 ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

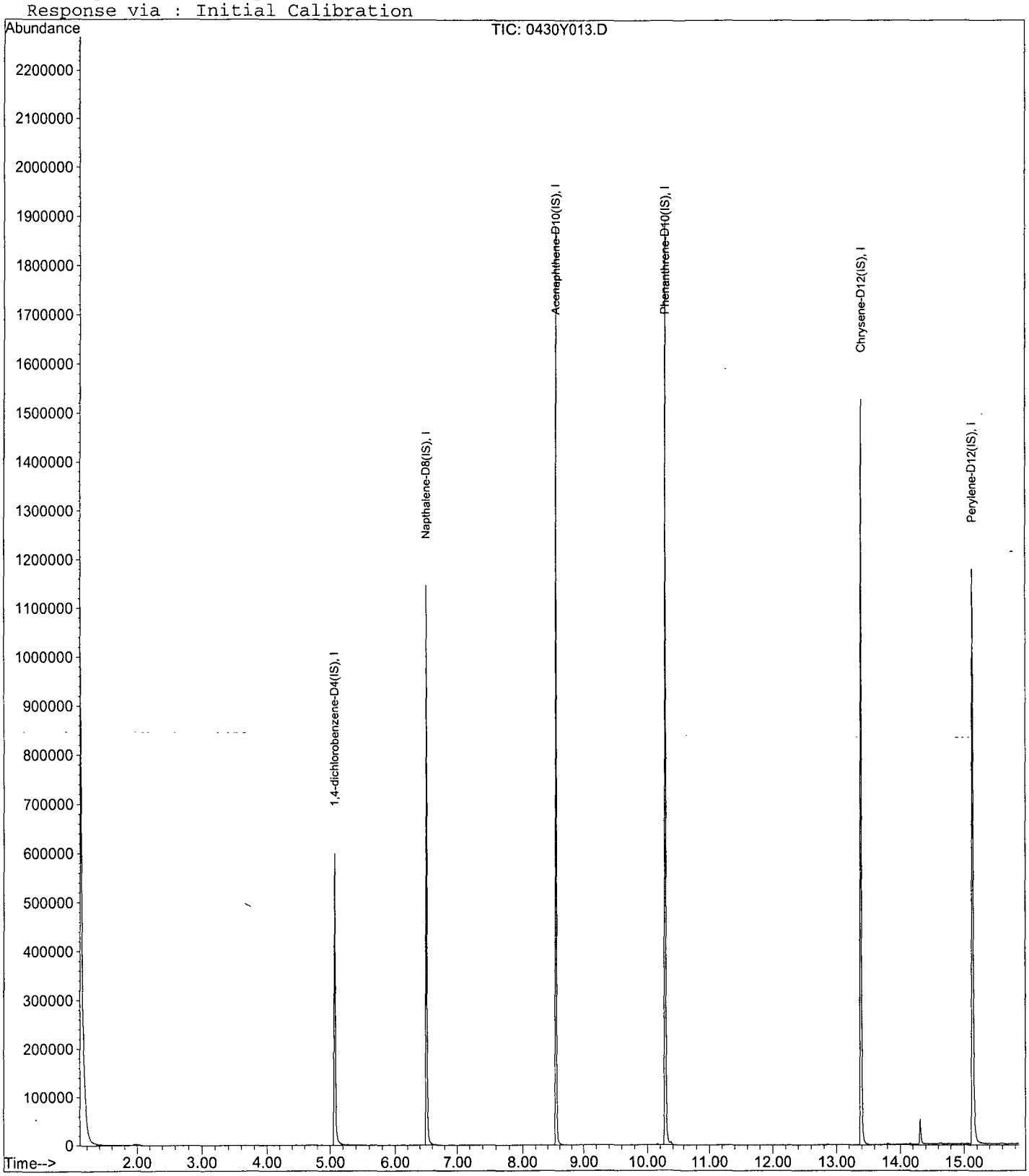
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y013.D Vial: 13
Acq On : 30 Apr 19 14:13 Operator: MA
Sample : 190429A BLK 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 15:16 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y014.D Vial: 14
Acq On : 30 Apr 19 14:37 Operator: MA
Sample : 190429A LCS-1 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 15:16 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	137259	40.0000	ppb	0.01
3) Napthalene-D8(IS)	6.51	136	622694	40.0000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	381830	40.0000	ppb	0.00
5) Phenanthrene-D10(IS)	10.29	188	657938	40.0000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	540582	40.0000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	562285	40.0000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.34	45	38771	93.3025	ppb	98

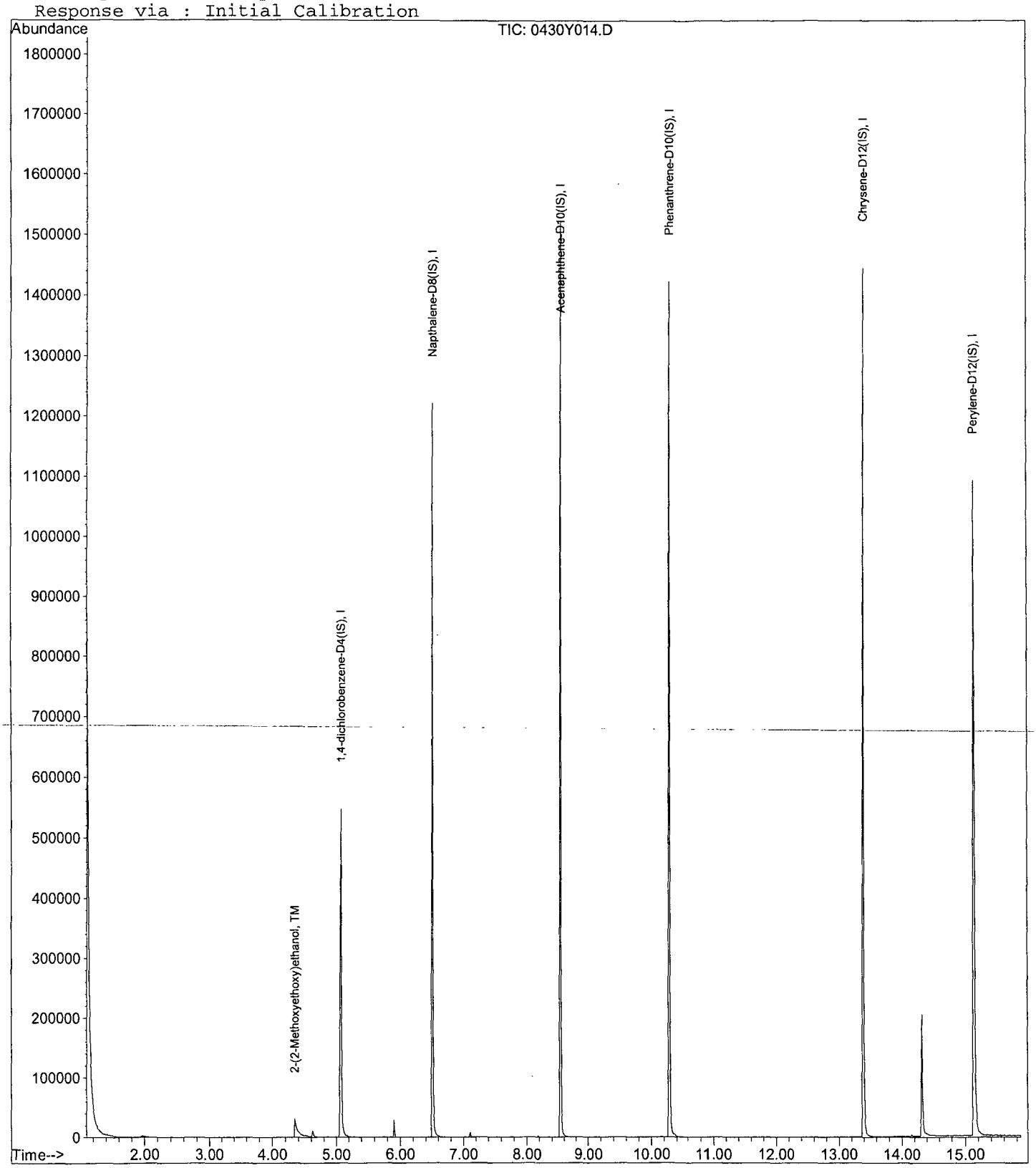
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y014.D Vial: 14
Acq On : 30 Apr 19 14:37 Operator: MA
Sample : 190429A LCS-1 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 15:16 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y015.D Vial: 15
Acq On : 30 Apr 19 15:01 Operator: MA
Sample : 190429A LCSD-1 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 15:16 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	114459	40.0000 ppb	0.01
3) Napthalene-D8(IS)	6.51	136	589204	40.0000 ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	427518	40.0000 ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	743005	40.0000 ppb	0.00
6) Chrysene-D12(IS)	13.39	240	629015	40.0000 ppb	0.00
7) Perylene-D12(IS)	15.13	264	587575	40.0000 ppb	0.00

System Monitoring Compounds

Target Compounds					Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.34	45	47160	124.3667 ppb	97

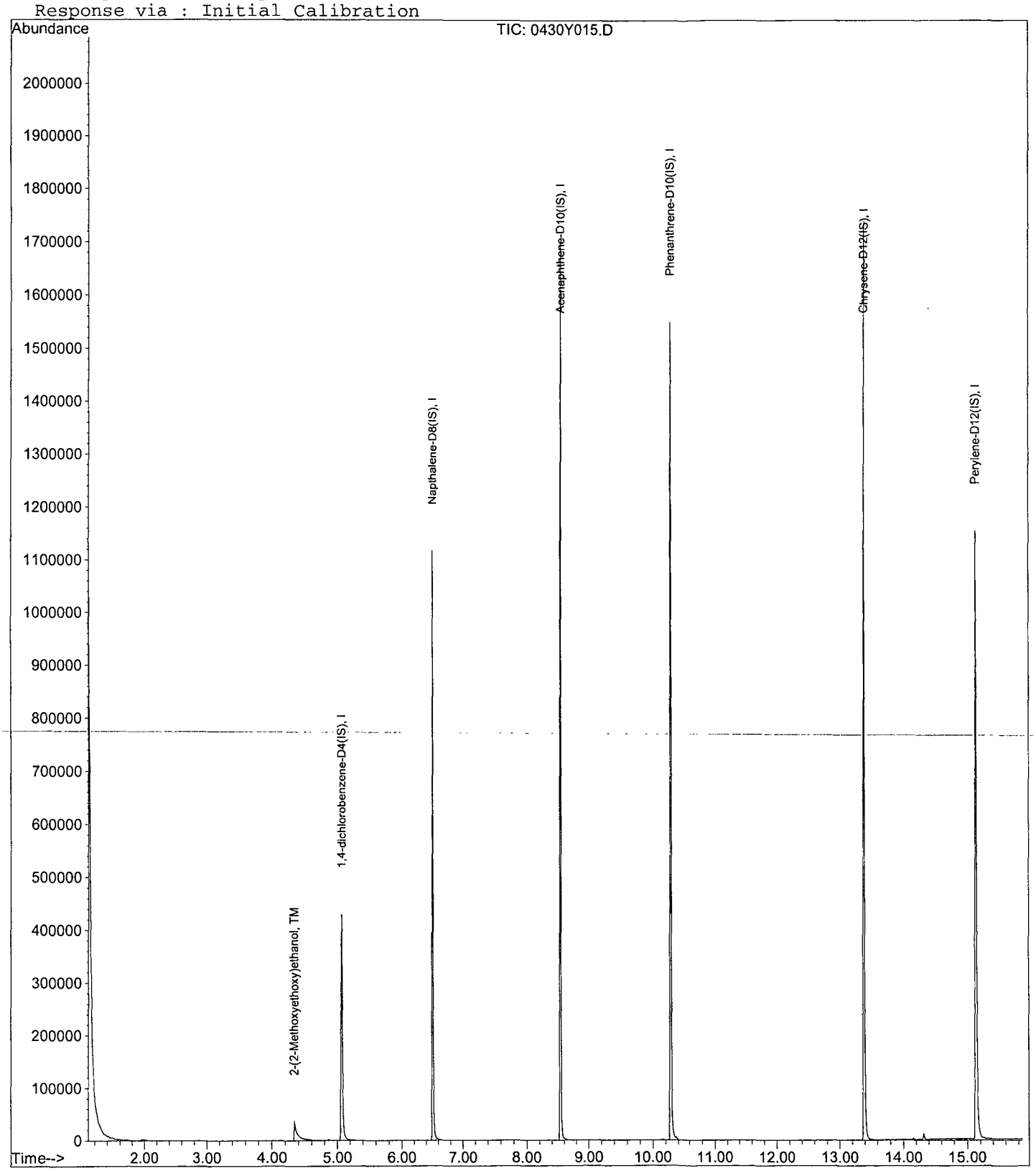
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y015.D Vial: 15
Acq On : 30 Apr 19 15:01 Operator: MA
Sample : 190429A LCSD-1 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 15:16 2019 Quant Results File: YMEE0430.RES

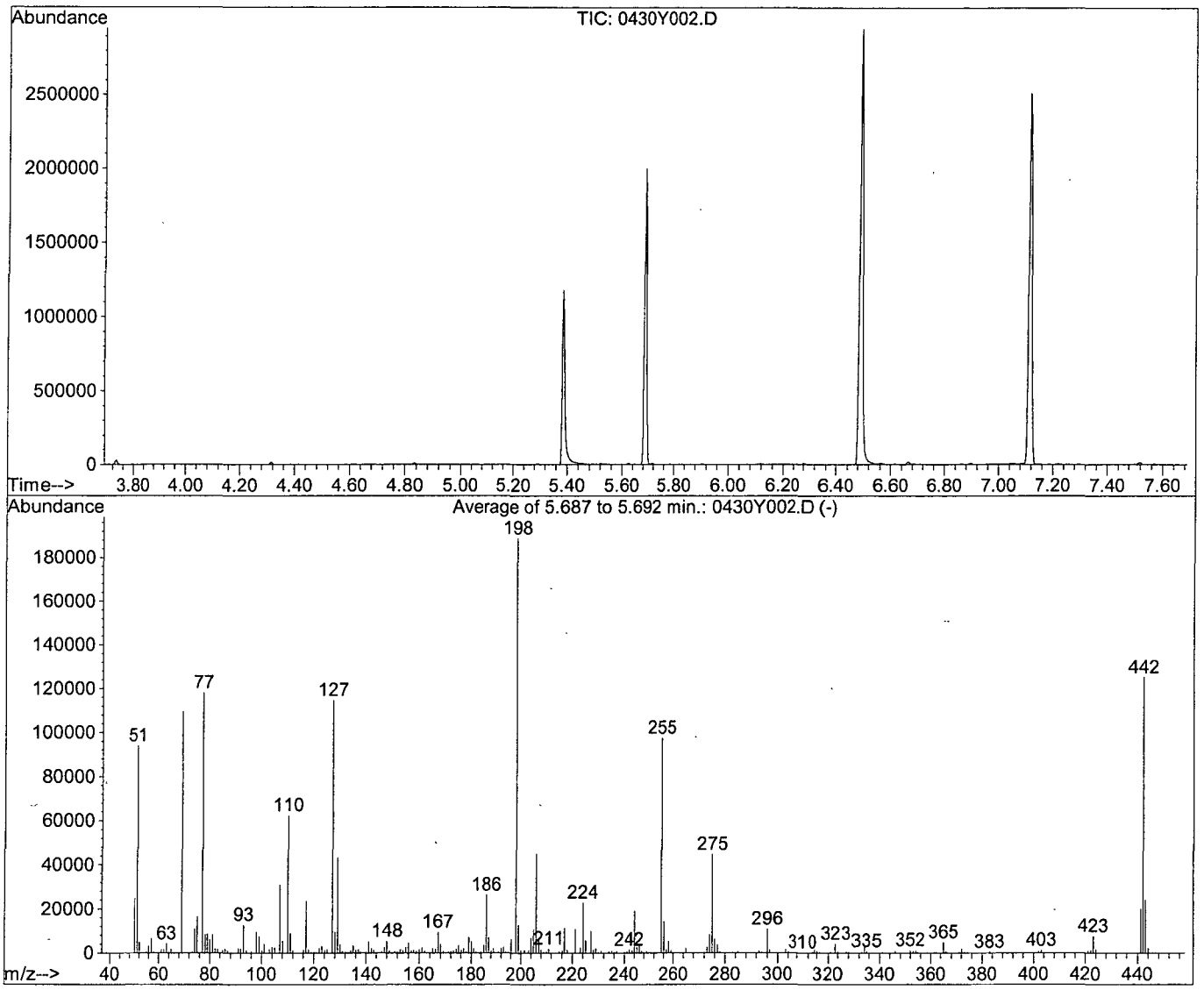
Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



DFTPP

Data File : M:\YODA\DATA\Y190430M\0430Y002.D Vial: 2
Acq On : 30 Apr 19 9:12 Operator: MA
Sample : SV Tune 03/07/18 Inst : Yoda
Misc : Multiplr: 1.00

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C



AutoFind: Scans 841, 842, 843; Background Corrected with Scan 833

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	49.7	93941	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.3	275	PASS
127	198	10	80	60.7	114675	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	189013	PASS
199	198	5	9	6.7	12705	PASS
275	198	10	60	23.7	44776	PASS
365	198	1	100	2.5	4785	PASS
441	442	0.01	24	16.0	20059	PASS
442	198	50	150	66.3	125365	PASS
443	442	15	24	19.3	24168	PASS

Data File Name:	**0430Y002.D**
Data File Path:	**M:\YODA\DATA\Y190430M**
Operator:	**MA**
Date Acquired:	**30 Apr 2019 09:12**
Method File:	**DFTPP2.M**
Sample Name:	**SV Tune 03/07/18**
Vial Number:	**2**
Instrument Name:	**Yoda**

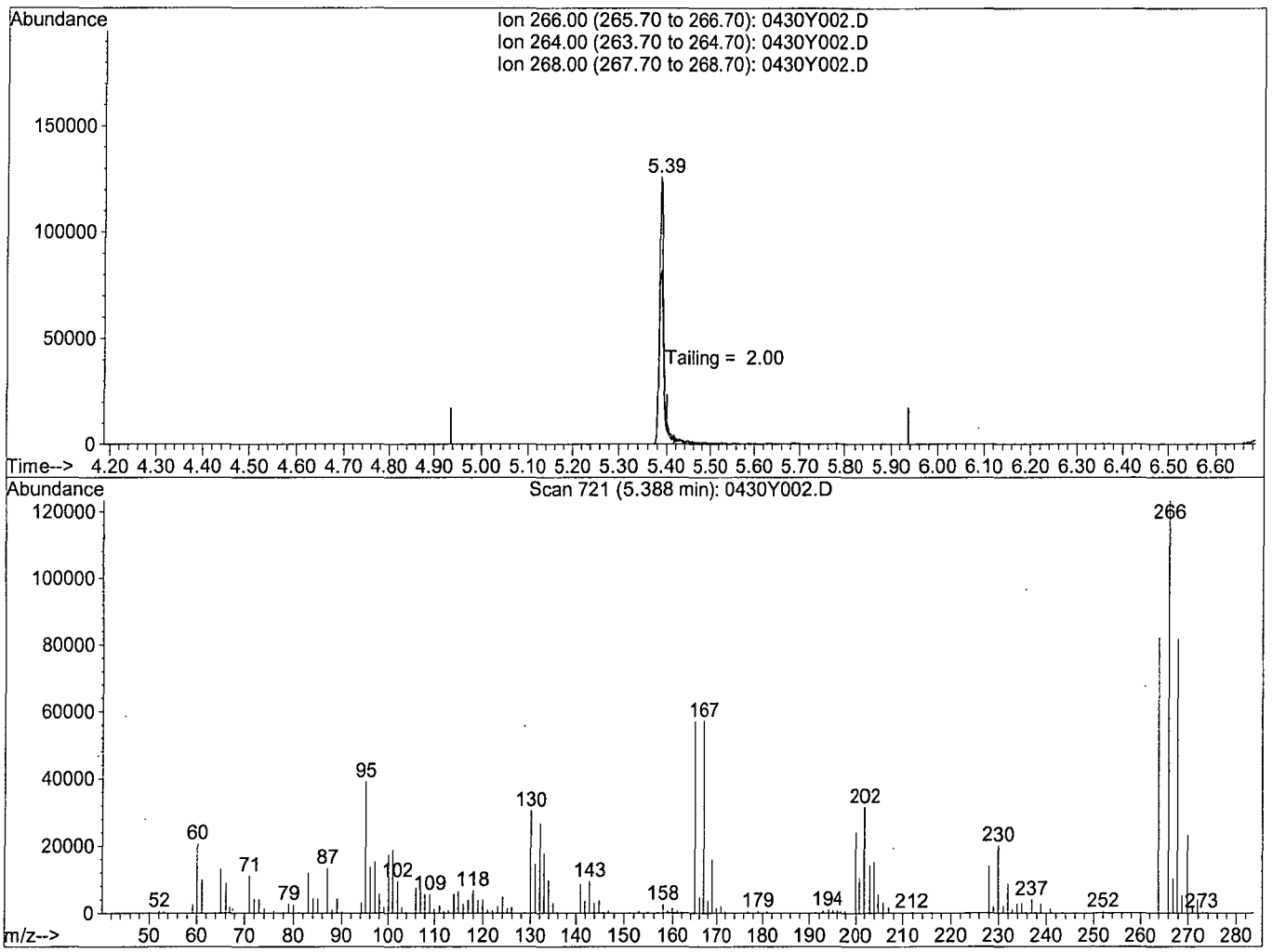
#	Name	Ret Time	Target Response
1)	DDT	7.08	19086100
2)	DDD	6.75	104656
3)	DDE	6.86	0

Breakdown **0.55**

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y002.D Vial: 2
Acq On : 30 Apr 19 9:12 Operator: MA
Sample : SV Tune 03/07/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: Apr 30 9:33 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190430M\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Mon Apr 22 13:05:57 2019
Response via : Single Level Calibration



TIC: 0430Y002.D

(5) Pentachlorophenol

5.39min 0.0000

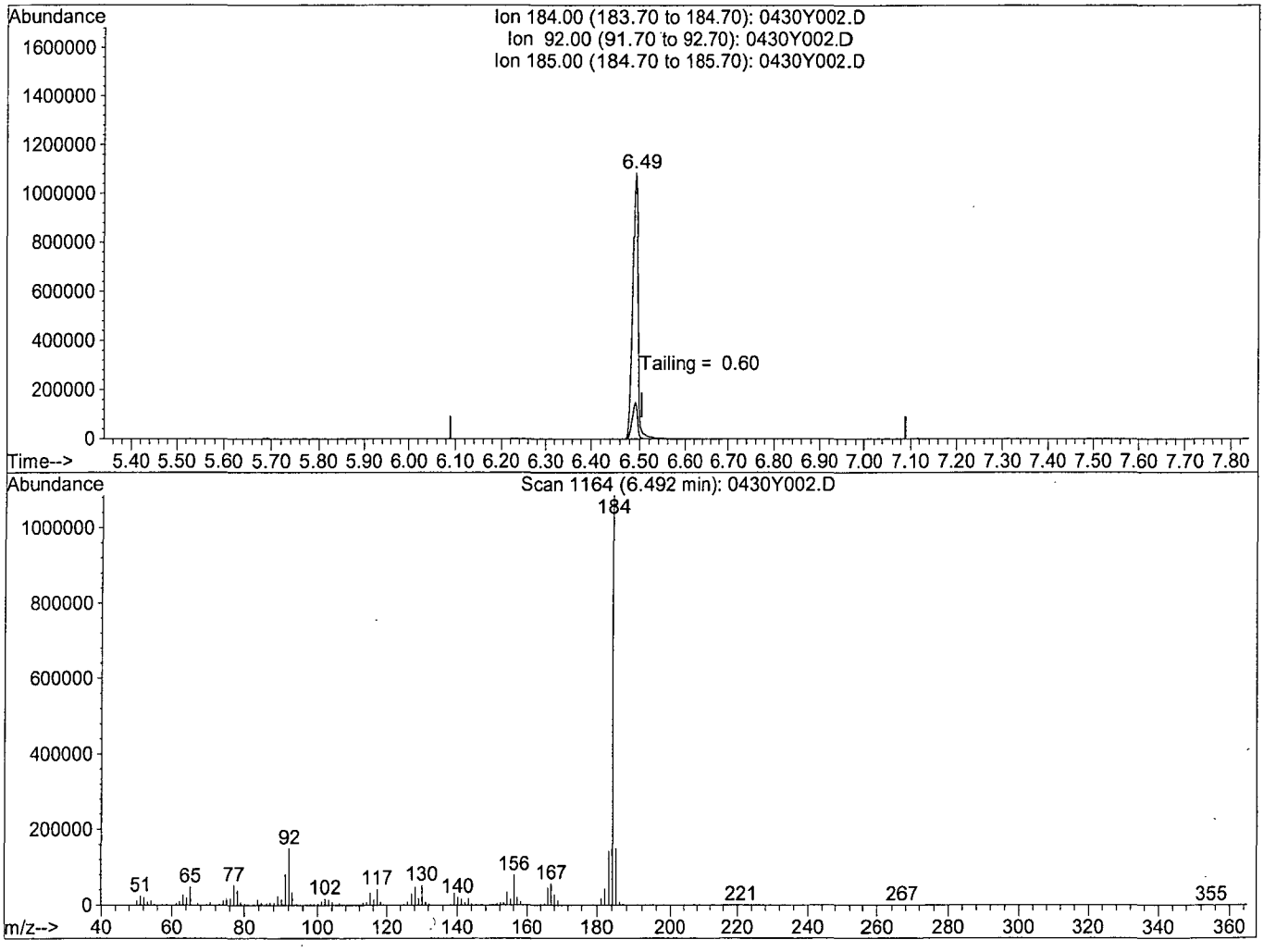
response 830307

Ion	Exp%	Act%
266.00	100	100
264.00	61.20	61.48
268.00	65.20	62.81
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y002.D Vial: 2
Acq On : 30 Apr 19 9:12 Operator: MA
Sample : SV Tune 03/07/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: Apr 30 9:33 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190430M\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Mon Apr 22 13:05:57 2019
Response via : Single Level Calibration



TIC: 0430Y002.D

(6) Benzidine

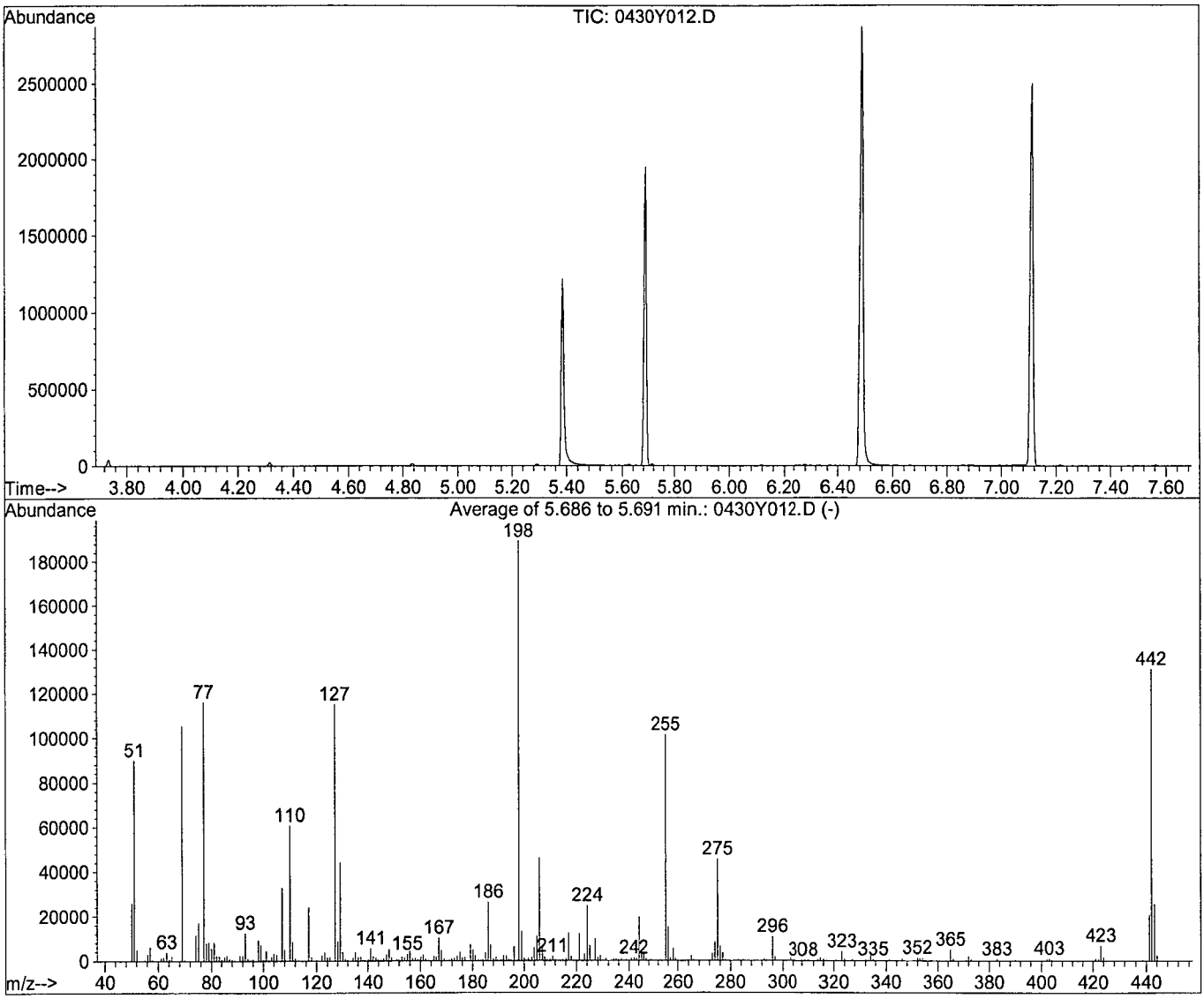
6.49min 0.0000

response 8412205

Ion	Exp%	Act%
184.00	100	100
92.00	13.60	13.24
185.00	14.10	13.47
0.00	0.00	0.00

Data File : M:\YODA\DATA\Y190430M\0430Y012.D Vial: 12
Acq On : 30 Apr 19 13:58 Operator: MA
Sample : SV Tune 03/07/18 Inst : Yoda
Misc : soil Multiplr: 1.00

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C



AutoFind: Scans 841, 842, 843; Background Corrected with Scan 833

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	47.4	89739	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.2	195	PASS
127	198	10	80	60.8	115021	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	189312	PASS
199	198	5	9	6.9	12995	PASS
275	198	10	60	24.1	45557	PASS
365	198	1	100	2.6	4955	PASS
441	442	0.01	24	15.7	20524	PASS
442	198	50	150	69.2	131056	PASS
443	442	15	24	19.4	25461	PASS

Data File Name:	**0430Y012.D**
Data File Path:	**M:\YODA\DATA\Y190430M**
Operator:	**MA**
Date Acquired:	**30 Apr 2019 13:58**
Method File:	**DFTPP2.M**
Sample Name:	**SV Tune 03/07/18**
Vial Number:	**12**
Instrument Name:	**Yoda**

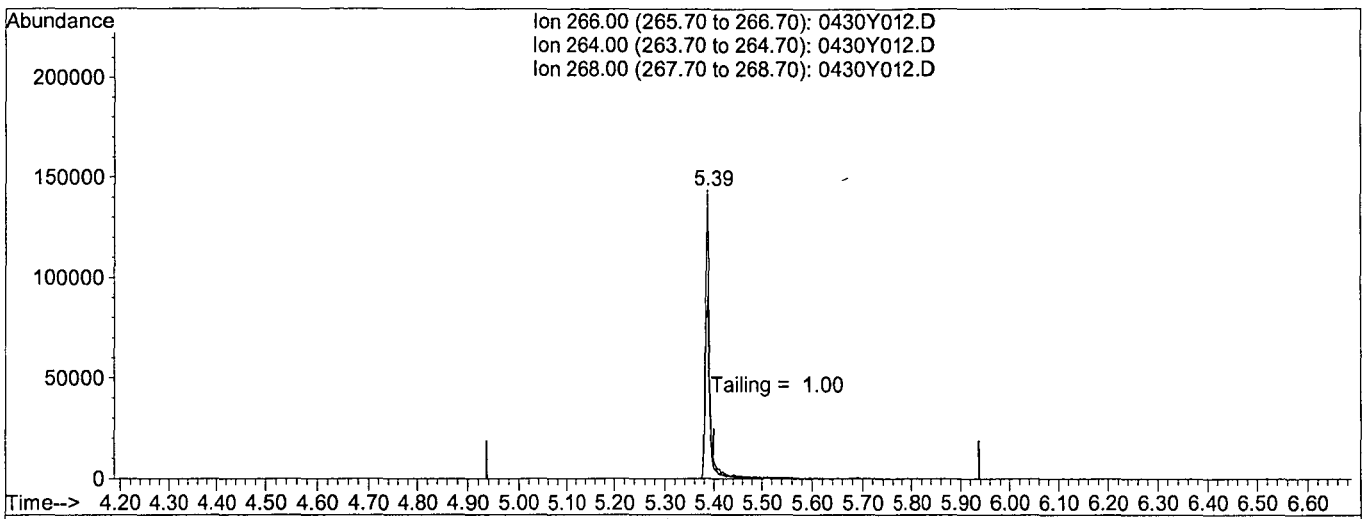
#	Name	Ret Time	Target Response
1)	DDT	7.08	18965500
2)	DDD	6.75	0
3)	DDE	6.86	0

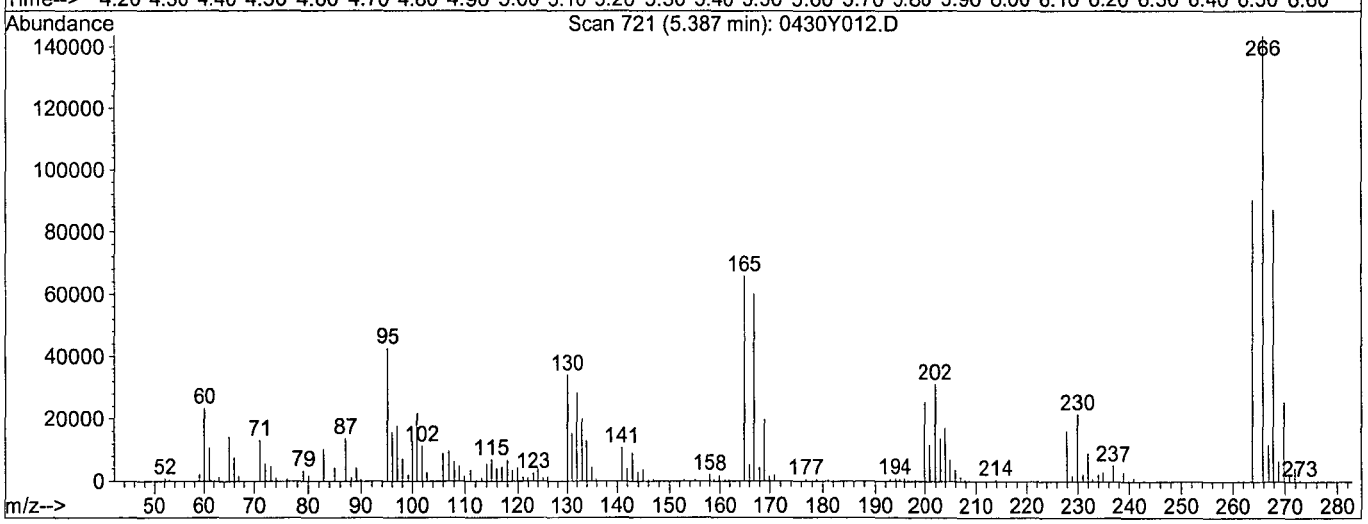
Breakdown **0.00**

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y012.D Vial: 12
Acq On : 30 Apr 19 13:58 Operator: MA
Sample : SV Tune 03/07/18 Inst : Yoda
Misc : soil Multiplr: 1.00
Quant Time: Apr 30 15:14 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190430M\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Mon Apr 22 13:05:57 2019
Response via : Single Level Calibration





TIC: 0430Y012.D

(5) Pentachlorophenol

5.39min 0.0000

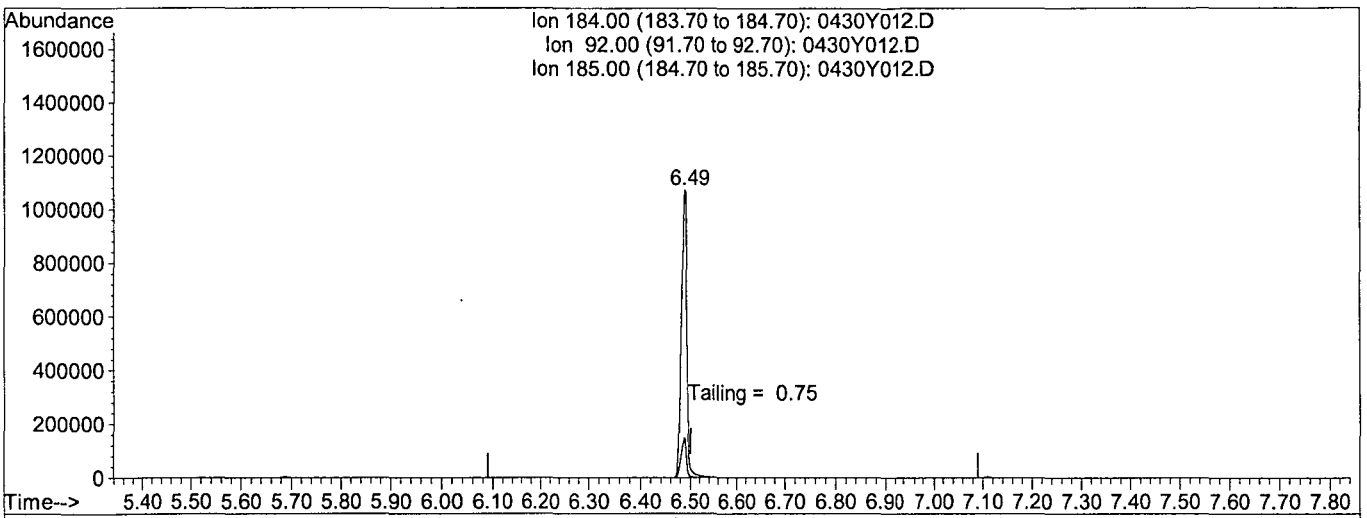
response 903595

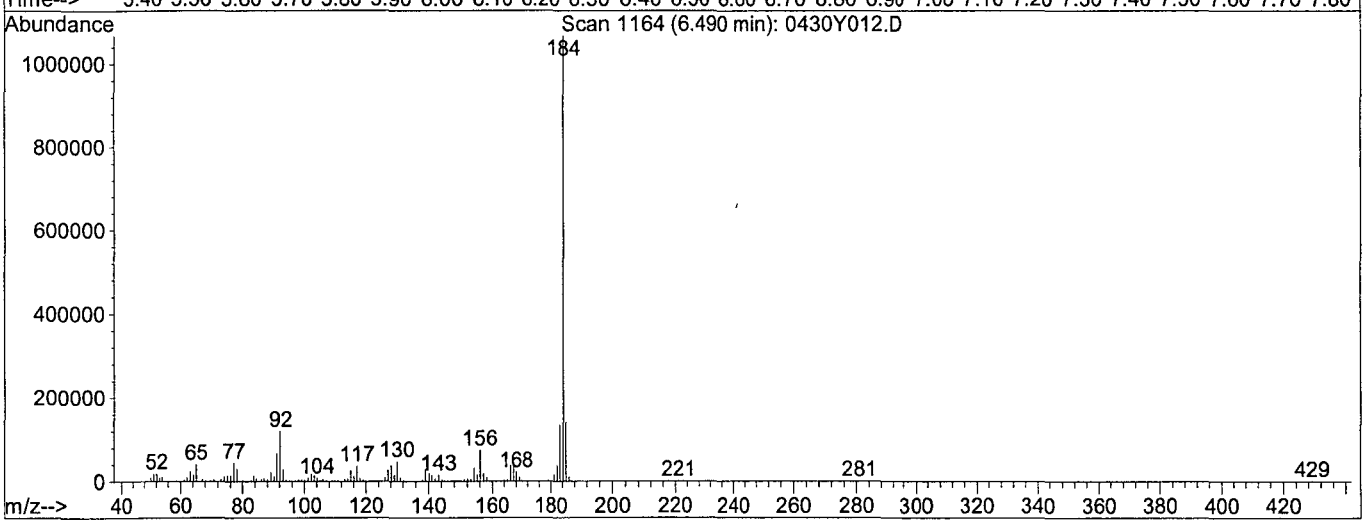
Ion	Exp%	Act%
266.00	100	100
264.00	61.20	63.20
268.00	65.20	62.05
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y012.D Vial: 12
Acq On : 30 Apr 19 13:58 Operator: MA
Sample : SV Tune 03/07/18 Inst : Yoda
Misc : soil Multiplr: 1.00
Quant Time: Apr 30 15:14 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190430M\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Mon Apr 22 13:05:57 2019
Response via : Single Level Calibration





TIC: 0430Y012.D

(6) Benzidine

6.49min 0.0000

response 8376584

Ion	Exp%	Act%
184.00	100	100
92.00	13.60	12.73
185.00	14.10	13.75
0.00	0.00	0.00

Name of Final Standard Diethylene Glycol **Prep'd By (Initials)** GA

Prep Date 01/31/19

Exp Date 01/31/20

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Diethylene glycol methyl ether	AccuStandard	S-72273	2000 ug/mL	**218101558-39888 39889**	**01/31/20**	2.0 mL	4 mL	**Methanol #042317C**	1000 ug/mL

Given to Extraction to do **MEE M STD Stock** (used for ICAL) Final concentration 2000ug/L

Name of Final Standard **2MEE Second Source Stock** **Prep'd By (Initials)** **GA**

Prep Date **08/03/18**

Exp Date **08/03/19**

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Methoxyethanol-Neat	Chem Service	N-12404-1G	Neat 99.5%	**7079100 - 39417**	**08/03/19**	0.1035g	10 mL	**MC #56258**	10320 ug/mL

Given to Extraction to do **MEE SS** (used for ICAL SS)

0.097ml were spiked in 500ml of water and extracted on 04/29/19 . Final concentration is 2000ug/L

Name of Final Standard MEE Curve
Prep Date 04/30/19
Exp Date 10/30/19

Prep'd By (Initials) SS

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	5 uL	200uL	Methanol 195uL Lot# 208858	50 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	4 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	5 uL	100uL	Methanol 95uL Lot# 208858	100 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	2 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	10 uL	100uL	Methanol 90uL Lot# 208858	200 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	2 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	20 uL	100uL	Methanol 80 uL Lot# 208858	400 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	2 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	50 uL	200 uL	Methanol 150 uL	500 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	4 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	30 uL	100uL	Methanol 70 uL Lot# 208858	600 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	2 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	40 uL	100uL	Methanol 60 uL Lot# 208858	800 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	2 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	50 uL	100uL	Methanol 50uL Lot# 208858	1000 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	2 uL	"	"	"

Name of Final Standard MEE Second Source
Prep Date 04/30/19
Exp Date 08/03/19

Prep'd By (Initials) SS

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
MEE SS	APPL		2000 ug/mL	04/29/19	08/03/19	50 uL	200uL	Methanol 150uL Lot# 208858	500 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	4 uL	"	"	"

Organic Extraction Worksheet

Method	Solid Phase Extraction of 2MEE in Water	Extraction Set	190429A	Extraction Method	MWE2MEE	Units	mL

Spiked ID 1	Diethylene Glycol 1-31-19 EXP 1-31-20		Surrogate ID 1		
Spiked ID 2	2MEE SS 10320ug/mL 8-3-18 exp 8-3-19		Surrogate ID 2		
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	YES	
Spiked ID 7			Ext. Start Time:	04/29/19 10:50	
Spiked ID 8			Ext. End Time:	04/29/19 16:40	
			GC Requires Extract By:	04/30/19 0:00	

pH1			Water Bath Temp Criteria
pH2			
pH3			

Spiked By: KY **Date** 04/29/19 **Witnessed By:** DL **Date** 04/29/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
1	190429A Blk				NA	NA equip	500	2	7	04/29/19 10:50	
2	190429A LCS-1		0.040	1	NA	NA equip	500	2	7	04/29/19 10:50	
3	190429A LCSD-1		0.040	1	NA	NA equip	500	2	7	04/29/19 10:50	
4	AZ89958 MS-1	AZ89958W23	0.040	1	NA	NA equip	510	2	7	04/29/19 10:50	88687
5	AZ89958 MSD-1	AZ89958W22	0.040	1	NA	NA equip	510	2	7	04/29/19 10:50	88687
6	AZ89958	AZ89958W24			NA	NA equip	500	2	7	04/29/19 10:50	88687
7	AZ89959	AZ89959W06			NA	NA equip	480	2	7	04/29/19 10:50	88687
8	AZ89961	AZ89961W22			NA	NA equip	510	2	7	04/29/19 10:50	88687
9	AZ90051 MS-1	AZ90051W21	0.040	1	NA	NA equip	500	2	7	04/29/19 10:50	88701
10	AZ90051 MSD-1	AZ90051W25	0.040	1	NA	NA equip	500	2	7	04/29/19 10:50	88701
11	AZ90051	AZ90051W22			NA	NA equip	500	2	7	04/29/19 10:50	88701
12	AZ90052	AZ90052W05			NA	NA equip	505	2	7	04/29/19 10:50	88701
13	AZ90054	AZ90054W16			NA	NA equip	510	2	7	04/29/19 10:50	88701
14	AZ90056	AZ90056W16			NA	NA equip	510	2	7	04/29/19 10:50	88701
15	AZ90058	AZ90058W17			NA	NA equip	500	2	7	04/29/19 10:50	88701
16	AZ90060	AZ90060W17			NA	NA equip	505	2	7	04/29/19 10:50	88701

Solvent and Lot#	
ENVI-Carb Plus 400MG/1ML	
Reverible Tube Lot:	11225702
PH Strip	HC 863463
Di Water	4-29-19
Dichloromethane	58240
Methanol	58179

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	SS
Date	4/30/19
Time	11:30
Refrigerator	6C-C

	Technician's Initials
Scanned By	DL
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	04/29/19 2:46:49 PM

Reviewed By: KY **Date** 4/30/19

_MWE2MEE

Organic Extraction Worksheet

Method	Solid Phase Extraction of 2MEE in Water	Extraction Set	190429A	Extraction Method	MWE2MEE	Units	mL

Spiked ID 1	Diethylene Glycol 1-31-19 EXP 1-31-20		Surrogate ID 1		
Spiked ID 2	2MEE SS 10320ug/mL 8-3-18 exp 8-3-19		Surrogate ID 2		
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	YES	
Spiked ID 7			Ext. Start Time:	04/29/19 10:50	
Spiked ID 8			Ext. End Time:	04/29/19 16:40	
			GC Requires Extract By:	04/30/19 0:00	

pH1			Water Bath Temp Criteria
pH2			
pH3			

Spiked By: KY **Date** 04/29/19 **Witnessed By:** DL **Date** 04/29/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
17	AZ90100	AZ90100W17			NA	NA equip	510	2	7	04/29/19 10:50	88714
18	AZ90102	AZ90102W16			NA	NA equip	395	2	7	04/29/19 10:50	88714
19	AZ90103	AZ90103W04			NA	NA equip	250	2	7	04/29/19 10:50	88714
20	AZ90105	AZ90105W16			NA	NA equip	500	2	7	04/29/19 10:50	88714
21	AZ90107	AZ90107W16			NA	NA equip	510	2	7	04/29/19 10:50	88714
22	AZ90109	AZ90109W17			NA	NA equip	505	2	7	04/29/19 10:50	88714
23	AZ90213	AZ90213W15			NA	NA equip	505	2	7	04/29/19 10:50	88736
24	AZ90215	AZ90215W16			NA	NA equip	500	2	7	04/29/19 10:50	88736
25	M STD		1	1	NA	NA equip	500	2	7	04/29/19 10:50	
26	SS		0.097	2	NA	NA equip	500	2	7	04/29/19 10:50	

KY 4/30/19

Solvent and Lot#	
ENVI-Carb Plus 400MG/1ML	
Reverible Tube Lot:	11225702
PH Strip	HC 863463
Di Water	4-29-19
Dichloromethane	58240
Methanol	58179

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	
Date	
Time	
Refrigerator	

	Technician's Initials
Scanned By	DL
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	04/29/19 2:46:49 PM

Reviewed By: KY **Date** 4/30/19

04/30/19 12:56:21 PM Ext_ID 62632

Injection Log

Directory: M:\YODA\DATA\Y190430M\

Vial	FileName	Multiplier	SampleName	Misc Info	Injected
2	0430Y002.D	1	SV Tune 03/07/18		30 Apr 19 9:12
3	0430Y003.D	1	50ug/ml MEE 04/30/19	soil	30 Apr 19 9:27
4	0430Y004.D	1	100ug/ml MEE 04/30/19	soil	30 Apr 19 9:50
5	0430Y005.D	1	200ug/ml MEE 04/30/19	soil	30 Apr 19 10:13
6	0430Y006.D	1	400ug/ml MEE 04/30/19	soil	30 Apr 19 10:37
7	0430Y007.D	1	500ug/ml MEE 04/30/19	soil	30 Apr 19 11:00
8	0430Y008.D	1	600ug/ml MEE 04/30/19	soil	30 Apr 19 11:23
9	0430Y009.D	1	800ug/ml MEE 04/30/19	soil	30 Apr 19 11:47
10	0430Y010.D	1	1000ug/ml MEE 04/30/19	soil	30 Apr 19 12:10
11	0430Y011.D	1	SS ug/ml MEE 04/30/19	soil	30 Apr 19 13:30
12	0430Y012.D	1	SV Tune 03/07/18	soil	30 Apr 19 13:58
13	0430Y013.D	1	190429A BLK 2/500	soil	30 Apr 19 14:13
14	0430Y014.D	1	190429A LCS-1 2/500	soil	30 Apr 19 14:37
15	0430Y015.D	1	190429A LCSD-1 2/500	soil	30 Apr 19 15:01
35	0430Y035.D	0.9901	AZ90213W15 2/505	soil	30 Apr 19 22:51
36	0430Y036.D	1	AZ90215W16 2/500	soil	30 Apr 19 23:14
37	0430Y037.D	1	500ug/ml MEE 04/30/19	soil	30 Apr 19 23:38

ORGANICS
Calibration Data

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/24/19
Matrix: water Instrument: Max
Initials: DG/LV

		Compound	1	2	3	4	5	6	7	8	9		Avg	%RSD	Type	r^2	Q	MRF
			0324M05.D	0324M06.D	0324M07.D	0324M08.D	0324M09.D	0324M10.D	0324M11.D	0324M12.D	0324M13.D							
1	I	Fluorobenzene (IS)																
2	TM	Dichlorodifluoromethane		0.0635	0.0693	0.0675	0.0762	0.0701	0.0732	0.0679	0.0629		0.07	6.5	TM			
3	TM	Freon 114		0.1012	0.0938	0.1001	0.0949	0.0941	0.0972	0.0920	0.0843		0.09	5.5	TM			
4	TM**L	Chloromethane		0.1465	0.1082	0.0912	0.1126	0.0971	0.1082	0.1038			0.11	16	TM**L	0.999		
5	TM*	Vinyl chloride		0.0921	0.1255	0.1141	0.1198	0.1125	0.1195	0.1149	0.1094		0.11	8.8	TM*			
6	TM	Bromomethane		0.0818	0.0854	0.0731	0.0733	0.0643	0.0669	0.0635	0.0624		0.07	12	TM			
7	TML	Chloroethane		0.2608	0.1278	0.1208	0.0863	0.0806	0.0784	0.0764			0.12	56	TML	1.000		
8	TM	Dichlorofluoromethane		0.2144	0.1899	0.1886	0.2066	0.1941	0.1977	0.1954	0.1869		0.20	4.8	TM			
9	TM	Trichlorofluoromethane		0.1220	0.1310	0.1535	0.1525	0.1474	0.1564	0.1458	0.1373		0.14	8.4	TM			
10	TM	Acrolein		0.0027	0.0027	0.0030	0.0033	0.0033	0.0033	0.0035	0.0038		0.00	12	TM			
11	TML	Acetone			0.0728	0.0437	0.0341	0.0279	0.0233	0.0223	0.0211		0.04	53	TML	1.000		
12	TM	Freon-113		0.0733	0.0795	0.0877	0.0905	0.0836	0.0867	0.0807	0.0749		0.08	7.5	TM			
13	TM*	1,1-DCE		0.1365	0.1369	0.1396	0.1471	0.1437	0.1492	0.1446	0.1392		0.14	3.3	TM*			
14	TM	Acetonitrile		0.0112	0.0108	0.0103	0.0109	0.0106	0.0101	0.0100	0.0104		0.01	3.8	TM			
15	TM	t-Butanol			0.0027	0.0061	0.0067	0.0066	0.0070	0.0081			0.01	29	TM		*	NT
16	TM	Methyl Acetate			0.0343	0.0339	0.0334	0.0337	0.0334	0.0341	0.0366		0.03	3.2	TM			
17	TML	Iodomethane			0.0380	0.0453	0.0823	0.0984	0.1177	0.1200	0.1246		0.09	40	TML	1.000		
18	TM	Acrylonitrile			0.0238	0.0269	0.0338	0.0338	0.0342	0.0327	0.0327		0.03	13	TM			
19	TM	Methylene chloride		0.1124	0.1130	0.1074	0.1110	0.1105	0.1131	0.1108	0.1078		0.11	2.0	TM			
20	TM	Carbon disulfide		0.2714	0.2784	0.2600	0.2731	0.2572	0.2695	0.2670	0.2589		0.27	2.8	TM			
21	TM	Methyl t-butyl ether (MtBE)		0.1080	0.1265	0.1233	0.1331	0.1368	0.1382	0.1365	0.1312		0.13	7.8	TM			
22	TM	Trans-1,2-DCE		0.0922	0.0912	0.1013	0.1079	0.0990	0.1071	0.1050	0.1002		0.10	6.3	TM			
23	TM	Diisopropyl Ether		0.3654	0.3588	0.3727	0.3917	0.3900	0.3978	0.3900	0.3787		0.38	3.7	TM			
24	TM**	1,1-DCA		0.1911	0.1986	0.1887	0.1987	0.1972	0.2065	0.2020	0.1969		0.20	2.9	TM**			
25	TM	Vinyl Acetate		0.1057	0.1017	0.0997	0.1034	0.0993	0.1021	0.0957	0.0928		0.10	4.2	TM			
26	TM	Ethyl tert Butyl Ether		0.2829	0.2984	0.3079	0.3469	0.3344	0.3473	0.3458	0.3331		0.32	7.7	TM			
27	TML	MEK (2-Butanone)			0.0418	0.0435	0.0341	0.0373	0.0367	0.0328	0.0307		0.04	13	TML	0.998		
28	TM	Cis-1,2-DCE		0.1286	0.1102	0.1136	0.1247	0.1221	0.1283	0.1235	0.1195		0.12	5.4	TM			
29	TM	2,2-Dichloropropane		0.1644	0.1669	0.1604	0.1758	0.1618	0.1659	0.1622	0.1561		0.16	3.5	TM			
30	TM*	Chloroform		0.1964	0.1951	0.1983	0.1965	0.1895	0.1967	0.1942	0.1916		0.19	1.5	TM*			
31	TM	Bromochloromethane		0.0572	0.0491	0.0591	0.0569	0.0568	0.0572	0.0577	0.0566		0.06	5.3	TM			
32	S	Dibromofluoromethane(S)	0.2250	0.2190	0.1683	0.1791	0.1920	0.1877	0.1903	0.1887	0.1712		0.19	10	S			
33	TM	1,1,1-TCA		0.1676	0.1700	0.1580	0.1656	0.1615	0.1700	0.1652	0.1589		0.16	2.9	TM			
34	TM	Cyclohexane		0.1238	0.1054	0.1110	0.0999	0.0994	0.1006	0.0952	0.0868		0.10	11	TM			
35	TM	1,1-Dichloropropene		0.1274	0.1225	0.1418	0.1441	0.1383	0.1430	0.1365	0.1317		0.14	5.8	TM			

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/24/19
Matrix: water Instrument: Max Initials:

		Compound	1	2	3	4	5	6	7	8	9		Avg	%RSD	Type		Q	MRF
36	TM	2,2,4-Trimethylpentane		0.2900	0.2859	0.2834	0.2934	0.2904	0.2956	0.2826	0.2625		0.29	3.6	TM			
37	S	1,2-DCA-D4(S)	0.2745	0.2518	0.1982	0.2074	0.2233	0.2148	0.2139	0.2111	0.1879		0.22	12	S			
38	TM	Carbon Tetrachloride		0.1036	0.0876	0.0946	0.1165	0.1108	0.1186	0.1230	0.1236		0.11	12	TM			
39	TM	Tert Amyl Methyl Ether		0.2612	0.2618	0.2601	0.2943	0.2946	0.2968	0.2906	0.2815		0.28	5.9	TM			
40	TM	1,2-DCA		0.1580	0.1390	0.1485	0.1564	0.1465	0.1506	0.1438	0.1389		0.15	4.9	TM			
41	TM	Benzene		0.4595	0.4486	0.4417	0.4619	0.4486	0.4553	0.4459	0.4341		0.45	2.1	TM			
42	TM	TCE		0.1094	0.1243	0.1104	0.1213	0.1164	0.1167	0.1154	0.1121		0.12	4.5	TM			
43	TM	2-Pentanone		0.0608	0.0558	0.0582	0.0625	0.0599	0.0614	0.0619	0.0590		0.06	3.7	TM			
44	TM*	1,2-Dichloropropane		0.1058	0.1126	0.1148	0.1142	0.1112	0.1144	0.1134	0.1097		0.11	2.7	TM*			
45	TM	Bromodichloromethane		0.1195	0.1215	0.1184	0.1328	0.1332	0.1346	0.1373	0.1426		0.13	6.9	TM			
46	TM	Methyl Cyclohexane		0.1706	0.1612	0.1645	0.1612	0.1596	0.1669	0.1614	0.1482		0.16	4.1	TM			
47	TM	Dibromomethane		0.0524	0.0523	0.0548	0.0612	0.0625	0.0609	0.0594	0.0574		0.06	7.0	TM			
48	TM	MIBK (methyl isobutyl ketone)		0.1016	0.0970	0.0727	0.0867	0.0805	0.0779	0.0764	0.0725		0.08	13	TM			
49	TM	1-Bromo-2-chloroethane		0.0789	0.0670	0.0676	0.0765	0.0725	0.0727	0.0724	0.0713		0.07	5.5	TM			
50	TM	2-Chloroethyl vinyl ether													TM			
51	TM	Cis-1,3-Dichloropropene		0.1663	0.1617	0.1587	0.1772	0.1789	0.1831	0.1824	0.1817		0.17	5.7	TM			
52	TM*	Toluene		0.4972	0.5110	0.5025	0.5105	0.5015	0.5148	0.5034	0.4921		0.50	1.5	TM*			
53	TM	Trans-1,3-Dichloropropene		0.1422	0.1303	0.1237	0.1466	0.1492	0.1569	0.1565	0.1575		0.15	8.7	TM			
54	TM	1,1,2-TCA		0.0660	0.0734	0.0673	0.0743	0.0721	0.0741	0.0732	0.0703		0.07	4.5	TM			
55	TM	2-Hexanone		0.0653	0.0549	0.0591	0.0564	0.0513	0.0500	0.0505	0.0463		0.05	11	TM			
56	I	Chlorobenzene-D5 (IS)																
57	S	Toluene-D8(S)	1.394	1.286	1.018	1.062	1.091	1.071	1.080	1.053	0.9367		1.1	13	S			
58	TM	1,2-EDB		0.1072	0.0990	0.1151	0.1223	0.1169	0.1185	0.1179	0.1118		0.11	6.5	TM			
59	TM	Tetrachloroethene		0.1523	0.1391	0.1369	0.1398	0.1349	0.1391	0.1320	0.1259		0.14	5.5	TM			
60	TM	1-Chlorohexane		0.1831	0.1948	0.1894	0.1920	0.1956	0.1983	0.1902	0.1801		0.19	3.3	TM			
61	TM	1,1,1,2-Tetrachloroethane		0.1278	0.1216	0.1226	0.1358	0.1371	0.1423	0.1472	0.1494		0.14	7.9	TM			
62	TM	m&p-Xylene		0.2826	0.2684	0.2631	0.2947	0.2836	0.2942	0.2860	0.2788		0.28	4.0	TM			
63	TM	o-Xylene		0.2816	0.2864	0.2793	0.2899	0.2899	0.2942	0.2872	0.2852		0.29	1.7	TM			
64	TM	Styrene		0.4550	0.4494	0.4297	0.4913	0.4738	0.4960	0.4861	0.4829		0.47	5.0	TM			
65	S	4-Bromofluorobenzene(S)	0.5102	0.4809	0.3610	0.3788	0.3957	0.3966	0.4009	0.3904	0.3516		0.41	13	S			
66	TM	1,3-Dichloropropane		0.2080	0.1956	0.2014	0.2199	0.2170	0.2165	0.2080	0.1968		0.21	4.5	TM			
67	TM	Dibromochloromethane		0.1050	0.0989	0.0879	0.1026	0.1069	0.1163	0.1191	0.1267		0.11	11	TM			
68	TM**	Chlorobenzene		0.4564	0.4155	0.4047	0.4545	0.4416	0.4497	0.4354	0.4311		0.44	4.2	TM**			
69	TM*	Ethylbenzene		0.6772	0.7012	0.6789	0.7466	0.7340	0.7446	0.7080	0.6930		0.71	4.0	TM*			
70	TM**L	Bromoform		0.0491	0.0562	0.0495	0.0546	0.0580	0.0640	0.0700	0.0774		0.06	17	TM**L	0.998		

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/24/19
Matrix: water Instrument: Max Initials:

		Compound	1	2	3	4	5	6	7	8	9		Avg	%RSD	Type		Q	MRF
71	I	1,4-Dichlorobenzene-D (IS)																
72	TM	Isopropylbenzene		1.387	1.372	1.385	1.421	1.361	1.388	1.352	1.319		1.4	2.2	TM			
73	TM**	1,1,2,2-Tetrachloroethane		0.3157	0.3309	0.3307	0.3468	0.3458	0.3351	0.3370	0.3415		0.34	3.0	TM**			
74	TM	1,2,3-Trichloropropane		0.0725	0.0794	0.0764	0.0889	0.0841	0.0838	0.0819	0.0763		0.08	6.6	TM			
75	TM	t-1,4-Dichloro-2-Butene			0.0382	0.0276	0.0301	0.0284	0.0303	0.0320	0.0303		0.03	11	TM			
76	TM	Bromobenzene		0.3670	0.3936	0.3568	0.3853	0.3711	0.3772	0.3683	0.3633		0.37	3.2	TM			
77	TM	n-Propylbenzene		1.569	1.539	1.580	1.559	1.529	1.547	1.507	1.461		1.5	2.5	TM			
78	TM	4-Ethyltoluene		1.305	1.346	1.365	1.395	1.380	1.390	1.355	1.322		1.4	2.4	TM			
79	TM	2-Chlorotoluene		0.9027	1.006	1.002	0.9602	0.9521	0.9493	0.9180	0.8984		0.95	4.3	TM			
80	TM	1,3,5-Trimethylbenzene		1.144	1.154	1.193	1.197	1.165	1.165	1.128	1.093		1.2	2.9	TM			
81	TM	4-Chlorotoluene		1.108	1.112	1.136	1.119	1.116	1.124	1.072	1.054		1.1	2.5	TM			
82	TM	Tert-Butylbenzene		0.9405	1.211	1.007	1.092	1.019	1.018	0.9872	0.9548		1.0	8.4	TM			
83	TM	1,2,4-Trimethylbenzene		1.178	1.136	1.152	1.199	1.188	1.177	1.154	1.128		1.2	2.2	TM			
84	TM	Sec-Butylbenzene		1.282	1.376	1.398	1.430	1.378	1.379	1.352	1.305		1.4	3.5	TM			
85	TM	p-Isopropyltoluene		0.5856	0.6249	0.6134	0.6694	0.6475	0.6492	0.6225	0.6144		0.63	4.2	TM			
86	TM	Benzyl Chloride		0.2555	0.2395	0.2479	0.2873	0.2808	0.3131	0.3202	0.3306		0.28	12	TM			
87	TM	1,3-DCB		0.6855	0.6569	0.6628	0.6869	0.6823	0.6942	0.6750	0.6746		0.68	1.9	TM			
88	TM	1,4-DCB		0.3624	0.3348	0.3208	0.3509	0.3475	0.3468	0.3505	0.3432		0.34	3.6	TM			
89	TM	n-Butylbenzene		0.4922	0.5100	0.4955	0.5388	0.5024	0.5237	0.5207	0.5078		0.51	3.1	TM			
90	TM	1,2-DCB		0.5627	0.5926	0.6208	0.6461	0.6553	0.6508	0.6445	0.6293		0.63	5.2	TM			
91	TML	Hexachloroethane		0.0561	0.0479	0.0556	0.0463	0.0447	0.0582	0.0613	0.0730		0.06	17	TML	0.995		
92	TM	1,2-Dibromo-3-chloropropane			0.0397	0.0356	0.0470	0.0461	0.0484	0.0521	0.0491		0.05	13	TM			
93	TM	1,2,4-Trichlorobenzene		0.3600	0.3690	0.3442	0.4149	0.3972	0.4184	0.4272	0.4113		0.39	7.9	TM			
94	TM	Hexachlorobutadiene		0.1929	0.2069	0.2007	0.2166	0.1970	0.2136	0.2059	0.1911		0.20	4.6	TM			
95	TM	Naphthalene		0.6138	0.5370	0.5736	0.6586	0.6984	0.7193	0.7531	0.6922		0.66	11	TM			
96	TM	1,2,3-Trichlorobenzene		0.3268	0.2954	0.3072	0.3453	0.3525	0.3672	0.3725	0.3520		0.34	8.1	TM			
97																		
98																		
99																		
100																		
101																		
102																		
103																		
104																		
105																		

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M05.D Vial: 3
Acq On : 24 Mar 19 12:56 Operator: PM,DG,SV,CMM,KV
Sample : 0.3ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.31	96	567297	25.000	ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	414490	25.000	ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	209079	25.000	ppb		0.00
System Monitoring Compounds							
32) Dibromofluoromethane(S)	4.60	111	25529	5.883	ppb		0.00
Spiked Amount 25.000			Recovery =	23.532%			
37) 1,2-DCA-D4(S)	4.95	65	31146	6.230	ppb		0.00
Spiked Amount 25.000			Recovery =	24.920%			
57) Toluene-D8(S)	7.13	98	115538	6.278	ppb		0.00
Spiked Amount 25.000			Recovery =	25.112%			
65) 4-Bromofluorobenzene(S)	10.52	95	42297	6.263	ppb		0.00
Spiked Amount 25.000			Recovery =	25.052%			
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.13	85	521	0.334	ppb		98
3) Freon 114	1.23	85	638	0.297	ppb	#	68
4) Chloromethane	1.27	50	1219	0.471	ppb	#	81
5) Vinyl chloride	1.36	62	684	0.266	ppb	#	1
6) Bromomethane	1.61	94	684	0.423	ppb	#	69
7) Chloroethane	1.70	64	5267	2.132	ppb		93
8) Dichlorofluoromethane	1.87	67	1440	0.323	ppb	#	82
9) Trichlorofluoromethane	1.91	101	999	0.307	ppb		99
10) Acrolein	2.30	56	723	9.988	ppb	#	81
11) Acetone	2.46	43	1016	-0.762	ppb		86
12) Freon-113	2.39	101	454	0.244	ppb	#	91
13) 1,1-DCE	2.37	61	896	0.278	ppb		98
14) Acetonitrile	2.71	41	2892	12.104	ppb	#	74
15) t-Butanol	3.03	59	550	3.905	ppb		94
16) Methyl Acetate	2.79	43	274	0.353	ppb	#	53
18) Acrylonitrile	3.10	53	107	0.151	ppb	#	18
19) Methylene chloride	2.83	84	730	0.291	ppb		87
20) Carbon disulfide	2.55	76	1906	0.315	ppb		96
21) Methyl t-butyl ether (MtBE	3.14	73	822	0.280	ppb	#	89
22) Trans-1,2-DCE	3.11	96	735	0.322	ppb	#	53
23) Diisopropyl Ether	3.64	45	2392	0.277	ppb	#	77
24) 1,1-DCA	3.50	63	1312	0.293	ppb	#	87
25) Vinyl Acetate	3.61	43	774	0.341	ppb		100
26) Ethyl tert Butyl Ether	4.00	59	2080	0.282	ppb		98
27) MEK (2-Butanone)	4.15	43	388	-1.150	ppb	#	46
28) Cis-1,2-DCE	4.10	96	838	0.304	ppb		90
29) 2,2-Dichloropropane	4.09	77	1154	0.310	ppb	#	88
30) Chloroform	4.44	83	1186	0.268	ppb		84
31) Bromochloromethane	4.34	128	248	0.194	ppb	#	67
33) 1,1,1-TCA	4.60	97	967	0.259	ppb	#	83
34) Cyclohexane	4.66	41	926	0.397	ppb	#	61
35) 1,1-Dichloropropene	4.79	75	825	0.268	ppb	#	68
36) 2,2,4-Trimethylpentane	5.12	57	2329	0.360	ppb	#	76
38) Carbon Tetrachloride	4.78	117	622	0.250	ppb	#	68
39) Tert Amyl Methyl Ether	5.18	73	1967	0.309	ppb	#	79
40) 1,2-DCA	5.03	62	894	0.267	ppb	#	65
41) Benzene	5.01	78	3056	0.300	ppb	#	87
42) TCE	5.73	95	1066	0.406	ppb	#	64
43) 2-Pentanone	5.97	43	14419	10.601	ppb		90

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M05.D Vial: 3
Acq On : 24 Mar 19 12:56 Operator: PM,DG,SV,CMM,KV
Sample : 0.3ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
44)	1,2-Dichloropropane	5.97	63	637	0.251 ppb	#	89
45)	Bromodichloromethane	6.28	83	905	0.307 ppb		84
46)	Methyl Cyclohexane	5.94	83	1260	0.343 ppb		99
47)	Dibromomethane	6.09	93	409	0.313 ppb	#	69
48)	MIBK (methyl isobutyl ket	7.06	43	523	0.277 ppb	#	47
49)	1-Bromo-2-chloroethane	6.64	63	494	0.301 ppb		94
51)	Cis-1,3-Dichloropropene	6.82	75	824	0.209 ppb	#	39
52)	Toluene	7.21	91	3481	0.304 ppb		92
53)	Trans-1,3-Dichloropropene	7.51	75	879	0.266 ppb		89
54)	1,1,2-TCA	7.71	83	473	0.292 ppb	#	90
55)	2-Hexanone	8.11	43	650	0.528 ppb	#	32
58)	1,2-EDB	8.32	107	581	0.309 ppb		93
59)	Tetrachloroethene	7.87	164	541	0.237 ppb	#	77
60)	1-Chlorohexane	8.99	91	904	0.286 ppb		84
61)	1,1,1,2-Tetrachloroethane	9.09	131	507	0.226 ppb	#	56
62)	m&p-Xylene	9.30	106	2560	0.549 ppb		91
63)	o-Xylene	9.82	106	1337	0.281 ppb		85
64)	Styrene	9.84	104	2251	0.289 ppb		96
66)	1,3-Dichloropropane	7.92	76	994	0.288 ppb	#	65
67)	Dibromochloromethane	8.19	129	428	0.239 ppb		90
68)	Chlorobenzene	8.97	112	2341	0.324 ppb		92
69)	Ethylbenzene	9.14	91	3488	0.296 ppb	#	80
70)	Bromoform	10.05	173	244	1.798 ppb	#	29
72)	Isopropylbenzene	10.34	105	3178	0.277 ppb		96
73)	1,1,2,2-Tetrachloroethane	6.28	83	905	0.323 ppb	#	84
74)	1,2,3-Trichloropropane	10.78	110	201	0.299 ppb	#	17
76)	Bromobenzene	10.70	156	784	0.251 ppb		75
77)	n-Propylbenzene	10.91	91	3937	0.306 ppb		95
78)	4-Ethyltoluene	11.06	105	3158	0.278 ppb		89
79)	2-Chlorotoluene	10.98	91	2361	0.298 ppb		92
80)	1,3,5-Trimethylbenzene	11.16	105	2869	0.297 ppb		81
81)	4-Chlorotoluene	11.14	91	2795	0.302 ppb		93
82)	Tert-Butylbenzene	11.61	119	2561	0.298 ppb		91
83)	1,2,4-Trimethylbenzene	11.68	105	2952	0.303 ppb		94
84)	Sec-Butylbenzene	11.91	105	3308	0.290 ppb		93
85)	p-Isopropyltoluene	12.14	119	1509	0.287 ppb		93
86)	Benzyl Chloride	12.36	91	632	0.266 ppb	#	62
87)	1,3-DCB	12.02	146	1645	0.290 ppb	#	80
88)	1,4-DCB	12.15	146	931	0.323 ppb	#	85
89)	n-Butylbenzene	12.72	91	1221	0.285 ppb		83
90)	1,2-DCB	12.67	146	1513	0.289 ppb		88
91)	Hexachloroethane	13.01	117	168	2.403 ppb	#	4
93)	1,2,4-Trichlorobenzene	14.99	180	796	0.242 ppb	#	85
94)	Hexachlorobutadiene	15.28	225	528	0.311 ppb	#	74
95)	Naphthalene	15.32	128	1254	0.229 ppb	#	75
96)	1,2,3-Trichlorobenzene	15.67	180	808	0.284 ppb		94

(#) = qualifier out of range (m) = manual integration

Quantitation Report

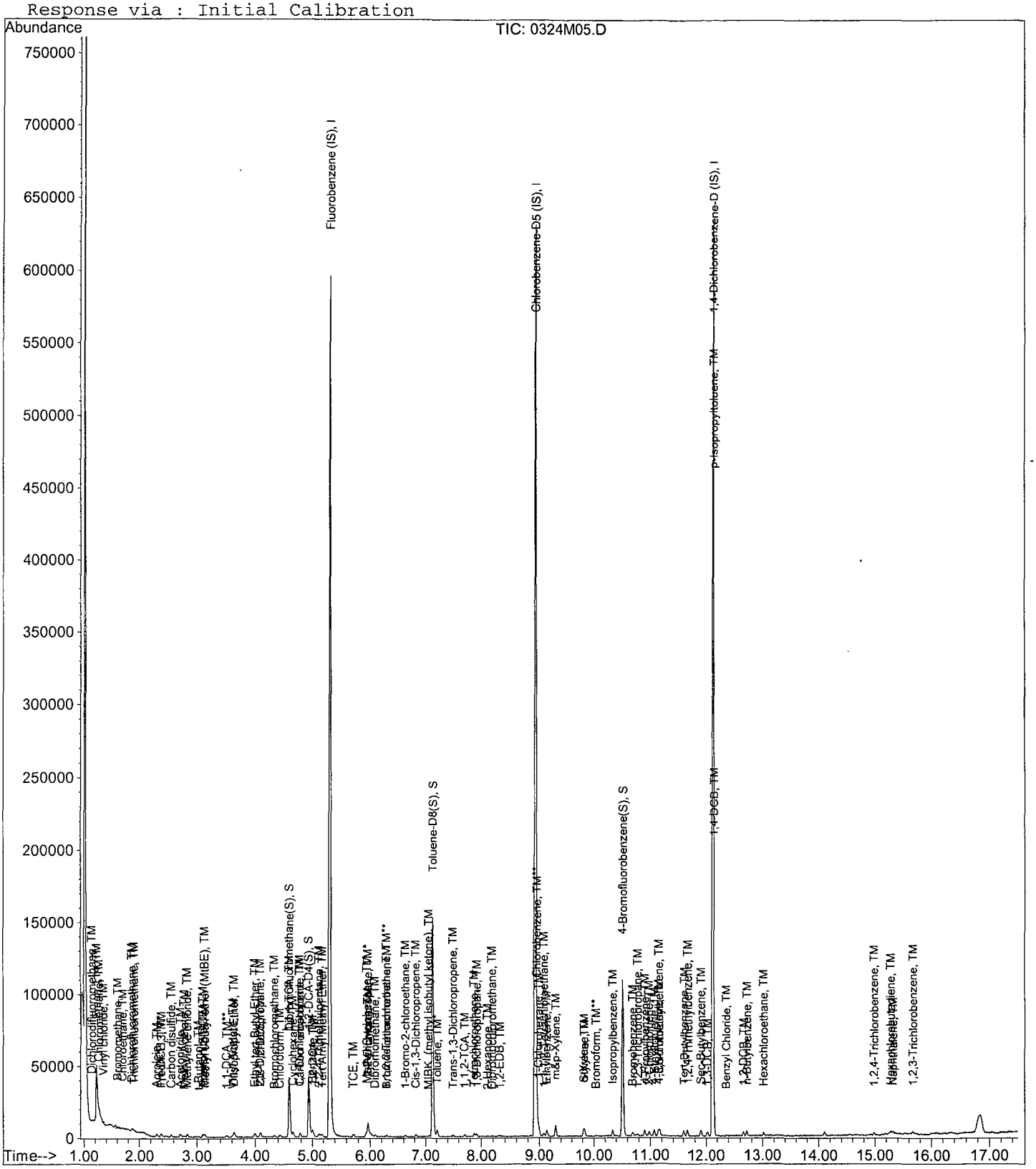
Data File : M:\MAX\DATA\M190324\0324M05.D
Acq On : 24 Mar 19 12:56
Sample : 0.3ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 3
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019

Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M06.D Vial: 4
Acq On : 24 Mar 19 13:25 Operator: PM,DG,SV,CMM,KV
Sample : 0.5ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.31	96	548649	25.000	ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	408005	25.000	ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	207647	25.000	ppb		0.00
System Monitoring Compounds							
32) Dibromofluoromethane(S)	4.60	111	24026	5.724	ppb		0.00
Spiked Amount 25.000			Recovery =	22.896%			
37) 1,2-DCA-D4(S)	4.95	65	27628	5.714	ppb		0.00
Spiked Amount 25.000			Recovery =	22.856%			
57) Toluene-D8(S)	7.13	98	104917	5.791	ppb		0.00
Spiked Amount 25.000			Recovery =	23.164%			
65) 4-Bromofluorobenzene(S)	10.52	95	39240	5.903	ppb		0.00
Spiked Amount 25.000			Recovery =	23.612%			
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.14	85	697	0.461	ppb	#	80
3) Freon 114	1.23	85	1110	0.534	ppb		98
4) Chloromethane	1.27	50	1607	0.658	ppb		96
5) Vinyl chloride	1.36	62	1011	0.406	ppb	#	1
6) Bromomethane	1.61	94	898	0.574	ppb		85
7) Chloroethane	1.69	64	2862	0.767	ppb	#	79
8) Dichlorofluoromethane	1.87	67	2353	0.545	ppb		86
9) Trichlorofluoromethane	1.91	101	1339	0.426	ppb		79
10) Acrolein	2.30	56	1455	20.784	ppb		95
11) Acetone	2.45	43	1189	-0.303	ppb		89
12) Freon-113	2.39	101	804	0.446	ppb	#	86
13) 1,1-DCE	2.37	61	1498	0.480	ppb		97
14) Acetonitrile	2.71	41	6123	26.498	ppb	#	83
15) t-Butanol	3.03	59	3404	24.991	ppb	#	75
16) Methyl Acetate	2.77	43	412	0.549	ppb	#	53
17) Iodomethane	2.50	142	127	1.552	ppb	#	45
18) Acrylonitrile	3.08	53	98	0.143	ppb	#	81
19) Methylene chloride	2.84	84	1233	0.507	ppb		94
20) Carbon disulfide	2.55	76	2978	0.508	ppb		97
21) Methyl t-butyl ether (MtBE	3.14	73	1185	0.418	ppb		91
22) Trans-1,2-DCE	3.10	96	1012	0.459	ppb		77
23) Diisopropyl Ether	3.63	45	4009	0.480	ppb		94
24) 1,1-DCA	3.51	63	2097	0.484	ppb		92
25) Vinyl Acetate	3.62	43	1160	0.528	ppb		100
26) Ethyl tert Butyl Ether	4.00	59	3104	0.436	ppb	#	86
27) MEK (2-Butanone)	4.14	43	656	-0.729	ppb	#	46
28) Cis-1,2-DCE	4.10	96	1411	0.530	ppb		87
29) 2,2-Dichloropropane	4.09	77	1804	0.501	ppb		93
30) Chloroform	4.44	83	2155	0.504	ppb		85
31) Bromochloromethane	4.34	128	628	0.508	ppb	#	66
33) 1,1,1-TCA	4.62	97	1839	0.509	ppb	#	89
34) Cyclohexane	4.67	41	1358	0.602	ppb		85
35) 1,1-Dichloropropene	4.79	75	1398	0.470	ppb	#	86
36) 2,2,4-Trimethylpentane	5.12	57	3182	0.508	ppb	#	72
38) Carbon Tetrachloride	4.78	117	1137	0.472	ppb		81
39) Tert Amyl Methyl Ether	5.17	73	2866	0.466	ppb	#	91
40) 1,2-DCA	5.03	62	1734	0.535	ppb	#	73
41) Benzene	5.00	78	5042	0.511	ppb		94
42) TCE	5.72	95	1200	0.472	ppb		93

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M06.D
Acq On : 24 Mar 19 13:25
Sample : 0.5ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 4
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
43)	2-Pentanone	5.97	43	33358	25.360	ppb		95
44)	1,2-Dichloropropane	5.96	63	1161	0.472	ppb	#	89
45)	Bromodichloromethane	6.29	83	1311	0.460	ppb		98
46)	Methyl Cyclohexane	5.94	83	1872	0.528	ppb		85
47)	Dibromomethane	6.09	93	575	0.455	ppb	#	69
48)	MIBK (methyl isobutyl ket	7.06	43	1115	0.611	ppb	#	47
49)	1-Bromo-2-chloroethane	6.63	63	866	0.545	ppb		93
51)	Cis-1,3-Dichloropropene	6.82	75	1825	0.479	ppb		88
52)	Toluene	7.21	91	5456	0.493	ppb		97
53)	Trans-1,3-Dichloropropene	7.50	75	1560	0.489	ppb		97
54)	1,1,2-TCA	7.71	83	724	0.463	ppb		73
55)	2-Hexanone	8.09	43	717	0.603	ppb	#	32
58)	1,2-EDB	8.30	107	875	0.472	ppb		87
59)	Tetrachloroethene	7.88	164	1243	0.554	ppb	#	79
60)	1-Chlorohexane	8.99	91	1494	0.481	ppb		85
61)	1,1,1,2-Tetrachloroethane	9.08	131	1043	0.472	ppb		89
62)	m&p-Xylene	9.30	106	4612	1.004	ppb		88
63)	o-Xylene	9.82	106	2298	0.491	ppb		66
64)	Styrene	9.85	104	3713	0.484	ppb		90
66)	1,3-Dichloropropane	7.91	76	1697	0.500	ppb		100
67)	Dibromochloromethane	8.19	129	857	0.487	ppb	#	71
68)	Chlorobenzene	8.97	112	3724	0.523	ppb		99
69)	Ethylbenzene	9.14	91	5526	0.477	ppb		88
70)	Bromoform	10.05	173	401	1.925	ppb		89
72)	Isopropylbenzene	10.34	105	5759	0.505	ppb		98
73)	1,1,2,2-Tetrachloroethane	6.29	83	1311	0.471	ppb	#	98
74)	1,2,3-Trichloropropane	10.79	110	301	0.451	ppb		86
75)	t-1,4-Dichloro-2-Butene	10.84	53	170	0.661	ppb	#	31
76)	Bromobenzene	10.69	156	1524	0.492	ppb		89
77)	n-Propylbenzene	10.90	91	6514	0.510	ppb		88
78)	4-Ethyltoluene	11.07	105	5419	0.481	ppb		94
79)	2-Chlorotoluene	10.98	91	3749	0.476	ppb		93
80)	1,3,5-Trimethylbenzene	11.16	105	4749	0.495	ppb		92
81)	4-Chlorotoluene	11.14	91	4601	0.501	ppb		100
82)	Tert-Butylbenzene	11.61	119	3906	0.457	ppb	#	90
83)	1,2,4-Trimethylbenzene	11.68	105	4891	0.506	ppb		88
84)	Sec-Butylbenzene	11.92	105	5324	0.471	ppb		91
85)	p-Isopropyltoluene	12.15	119	2432	0.466	ppb	#	87
86)	Benzyl Chloride	12.36	91	1061	0.449	ppb	#	85
87)	1,3-DCB	12.02	146	2847	0.506	ppb		90
88)	1,4-DCB	12.16	146	1505	0.526	ppb		92
89)	n-Butylbenzene	12.72	91	2044	0.481	ppb		98
90)	1,2-DCB	12.66	146	2337	0.450	ppb		95
91)	Hexachloroethane	13.03	117	233	2.512	ppb		92
92)	1,2-Dibromo-3-chloropropan	13.77	157	85	0.225	ppb	#	9
93)	1,2,4-Trichlorobenzene	14.98	180	1495	0.458	ppb		92
94)	Hexachlorobutadiene	15.27	225	801	0.475	ppb	#	72
95)	Naphthalene	15.31	128	2549	0.468	ppb		97
96)	1,2,3-Trichlorobenzene	15.67	180	1357	0.481	ppb	#	59

(#) = qualifier out of range (m) = manual integration

Quantitation Report

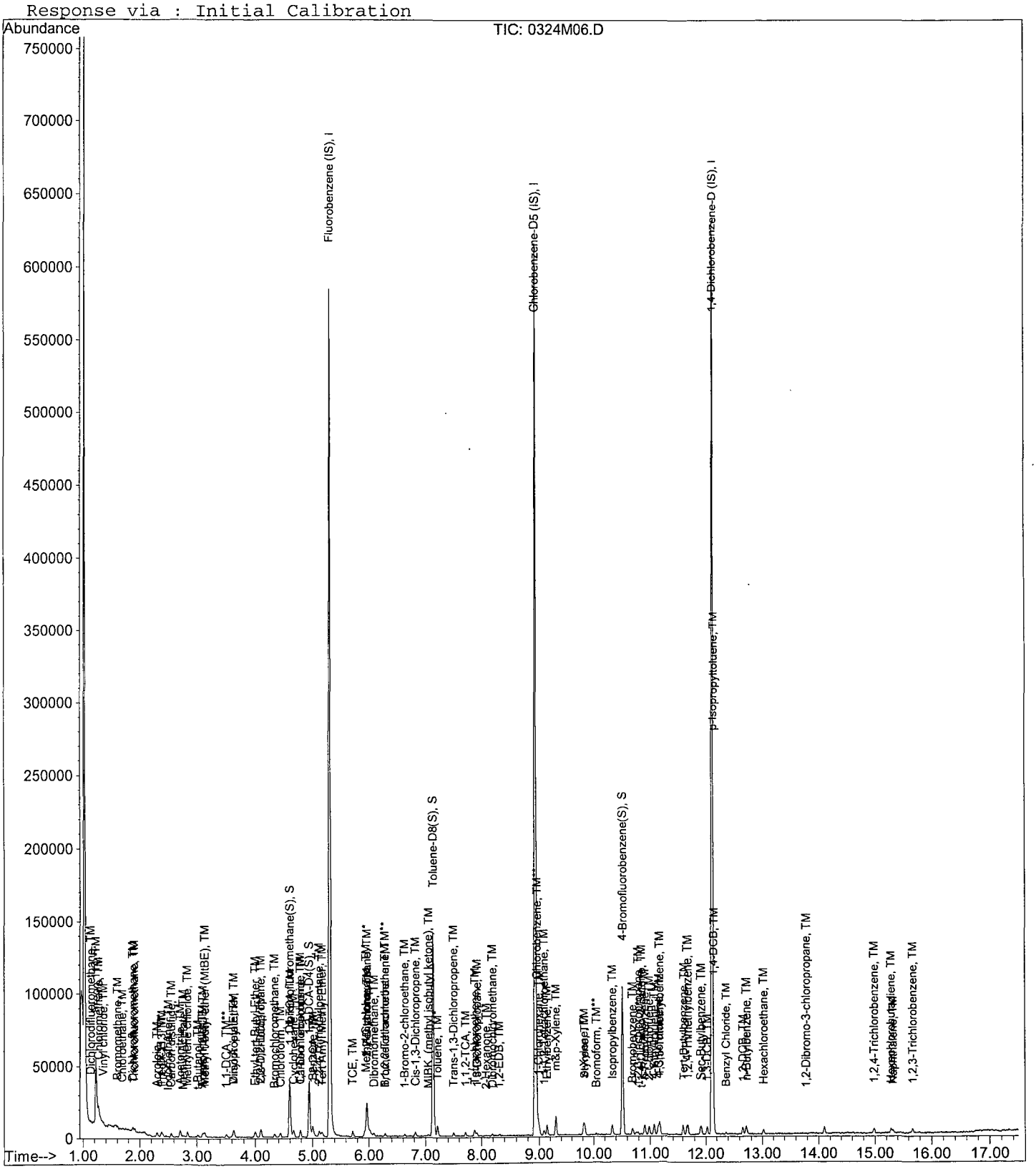
Data File : M:\MAX\DATA\M190324\0324M06.D
Acq On : 24 Mar 19 13:25
Sample : 0.5ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 4
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019

Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M07.D Vial: 5
Acq On : 24 Mar 19 13:54 Operator: PM,DG,SV,CMM,KV
Sample : 1.0ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.32	96	562637	25.000	ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	415204	25.000	ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	206662	25.000	ppb		0.00
System Monitoring Compounds							
32) Dibromofluoromethane(S)	4.60	111	37879	8.801	ppb		0.00
Spiked Amount 25.000			Recovery	=	35.204%		
37) 1,2-DCA-D4(S)	4.95	65	44603	8.995	ppb		0.00
Spiked Amount 25.000			Recovery	=	35.980%		
57) Toluene-D8(S)	7.14	98	169003	9.167	ppb		0.00
Spiked Amount 25.000			Recovery	=	36.668%		
65) 4-Bromofluorobenzene(S)	10.52	95	59950	8.862	ppb		0.00
Spiked Amount 25.000			Recovery	=	35.448%		
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.14	85	1559	1.006	ppb		95
3) Freon 114	1.24	85	2112	0.991	ppb		93
4) Chloromethane	1.27	50	2436	0.994	ppb		96
5) Vinyl chloride	1.36	62	2825	1.106	ppb		96
6) Bromomethane	1.61	94	1922	1.197	ppb		82
7) Chloroethane	1.70	64	2876	0.732	ppb		99
8) Dichlorofluoromethane	1.88	67	4274	0.965	ppb		94
9) Trichlorofluoromethane	1.92	101	2948	0.915	ppb		77
10) Acrolein	2.30	56	3055	42.554	ppb		98
11) Acetone	2.46	43	1639	0.605	ppb		87
12) Freon-113	2.40	101	1789	0.968	ppb		95
13) 1,1-DCE	2.38	61	3081	0.963	ppb		90
14) Acetonitrile	2.71	41	12157	51.302	ppb		88
15) t-Butanol	3.03	59	3092	22.136	ppb	#	53
16) Methyl Acetate	2.78	43	773	1.004	ppb		91
17) Iodomethane	2.51	142	856	1.808	ppb	#	86
18) Acrylonitrile	3.10	53	536	0.765	ppb		94
19) Methylene chloride	2.84	84	2542	1.020	ppb		97
20) Carbon disulfide	2.56	76	6265	1.043	ppb		97
21) Methyl t-butyl ether (MtBE	3.14	73	2848	0.980	ppb		99
22) Trans-1,2-DCE	3.10	96	2052	0.907	ppb		96
23) Diisopropyl Ether	3.64	45	8074	0.943	ppb		95
24) 1,1-DCA	3.51	63	4470	1.006	ppb		97
25) Vinyl Acetate	3.63	43	2288	1.016	ppb		100
26) Ethyl tert Butyl Ether	4.00	59	6716	0.919	ppb		94
27) MEK (2-Butanone)	4.16	43	940	-0.339	ppb	#	46
28) Cis-1,2-DCE	4.10	96	2479	0.908	ppb		98
29) 2,2-Dichloropropane	4.09	77	3757	1.017	ppb		95
30) Chloroform	4.44	83	4390	1.001	ppb		99
31) Bromochloromethane	4.34	128	1106	0.873	ppb		96
33) 1,1,1-TCA	4.62	97	3827	1.033	ppb	#	79
34) Cyclohexane	4.67	41	2373	1.026	ppb		91
35) 1,1-Dichloropropene	4.79	75	2757	0.903	ppb	#	88
36) 2,2,4-Trimethylpentane	5.13	57	6435	1.002	ppb	#	70
38) Carbon Tetrachloride	4.79	117	1972	0.798	ppb		82
39) Tert Amyl Methyl Ether	5.18	73	5893	0.935	ppb		94
40) 1,2-DCA	5.03	62	3129	0.941	ppb		99
41) Benzene	5.00	78	10097	0.998	ppb		96
42) TCE	5.72	95	2798	1.074	ppb		87

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M07.D Vial: 5
Acq On : 24 Mar 19 13:54 Operator: PM,DG,SV,CMM,KV
Sample : 1.0ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
43)	2-Pentanone	5.97	43	62762	46.528	ppb		98
44)	1,2-Dichloropropane	5.96	63	2533	1.005	ppb	#	89
45)	Bromodichloromethane	6.29	83	2735	0.935	ppb		92
46)	Methyl Cyclohexane	5.93	83	3627	0.997	ppb		86
47)	Dibromomethane	6.09	93	1178	0.908	ppb		95
48)	MIBK (methyl isobutyl ket	7.04	43	2183	1.166	ppb		97
49)	1-Bromo-2-chloroethane	6.64	63	1508	0.926	ppb		97
51)	Cis-1,3-Dichloropropene	6.82	75	3638	0.930	ppb		94
52)	Toluene	7.21	91	11501	1.014	ppb		94
53)	Trans-1,3-Dichloropropene	7.51	75	2933	0.897	ppb		99
54)	1,1,2-TCA	7.72	83	1653	1.030	ppb		81
55)	2-Hexanone	8.08	43	1236	1.013	ppb	#	65
58)	1,2-EDB	8.31	107	1645	0.872	ppb		89
59)	Tetrachloroethene	7.88	164	2311	1.012	ppb		88
60)	1-Chlorohexane	8.99	91	3236	1.023	ppb		88
61)	1,1,1,2-Tetrachloroethane	9.09	131	2020	0.898	ppb		95
62)	m&p-Xylene	9.30	106	8914	1.907	ppb		92
63)	o-Xylene	9.82	106	4756	0.999	ppb		88
64)	Styrene	9.85	104	7463	0.955	ppb		86
66)	1,3-Dichloropropane	7.92	76	3248	0.941	ppb		89
67)	Dibromochloromethane	8.19	129	1642	0.916	ppb	#	67
68)	Chlorobenzene	8.97	112	6900	0.953	ppb		99
69)	Ethylbenzene	9.14	91	11645	0.987	ppb		96
70)	Bromoform	10.04	173	934	2.333	ppb		96
72)	Isopropylbenzene	10.34	105	11343	0.999	ppb		95
73)	1,1,2,2-Tetrachloroethane	6.29	83	2735	0.986	ppb	#	92
74)	1,2,3-Trichloropropane	10.79	110	656	0.987	ppb		92
75)	t-1,4-Dichloro-2-Butene	10.84	53	316	1.234	ppb	#	31
76)	Bromobenzene	10.69	156	3254	1.056	ppb		95
77)	n-Propylbenzene	10.90	91	12720	1.002	ppb		96
78)	4-Ethyltoluene	11.07	105	11130	0.992	ppb		99
79)	2-Chlorotoluene	10.98	91	8319	1.061	ppb		98
80)	1,3,5-Trimethylbenzene	11.16	105	9540	0.999	ppb		92
81)	4-Chlorotoluene	11.14	91	9191	1.006	ppb		86
82)	Tert-Butylbenzene	11.61	119	10009	1.177	ppb		96
83)	1,2,4-Trimethylbenzene	11.68	105	9393	0.976	ppb		99
84)	Sec-Butylbenzene	11.92	105	11374	1.010	ppb		99
85)	p-Isopropyltoluene	12.14	119	5166	0.995	ppb		89
86)	Benzyl Chloride	12.36	91	1980	0.842	ppb	#	82
87)	1,3-DCB	12.02	146	5430	0.970	ppb		92
88)	1,4-DCB	12.16	146	2768	0.972	ppb		94
89)	n-Butylbenzene	12.72	91	4216	0.997	ppb		90
90)	1,2-DCB	12.66	146	4899	0.948	ppb		95
91)	Hexachloroethane	13.02	117	396	2.784	ppb		83
92)	1,2-Dibromo-3-chloropropan	13.78	157	328	0.873	ppb	#	49
93)	1,2,4-Trichlorobenzene	14.98	180	3050	0.939	ppb		82
94)	Hexachlorobutadiene	15.28	225	1710	1.019	ppb		81
95)	Naphthalene	15.31	128	4439	0.819	ppb	#	90
96)	1,2,3-Trichlorobenzene	15.67	180	2442	0.869	ppb		84

(#) = qualifier out of range (m) = manual integration

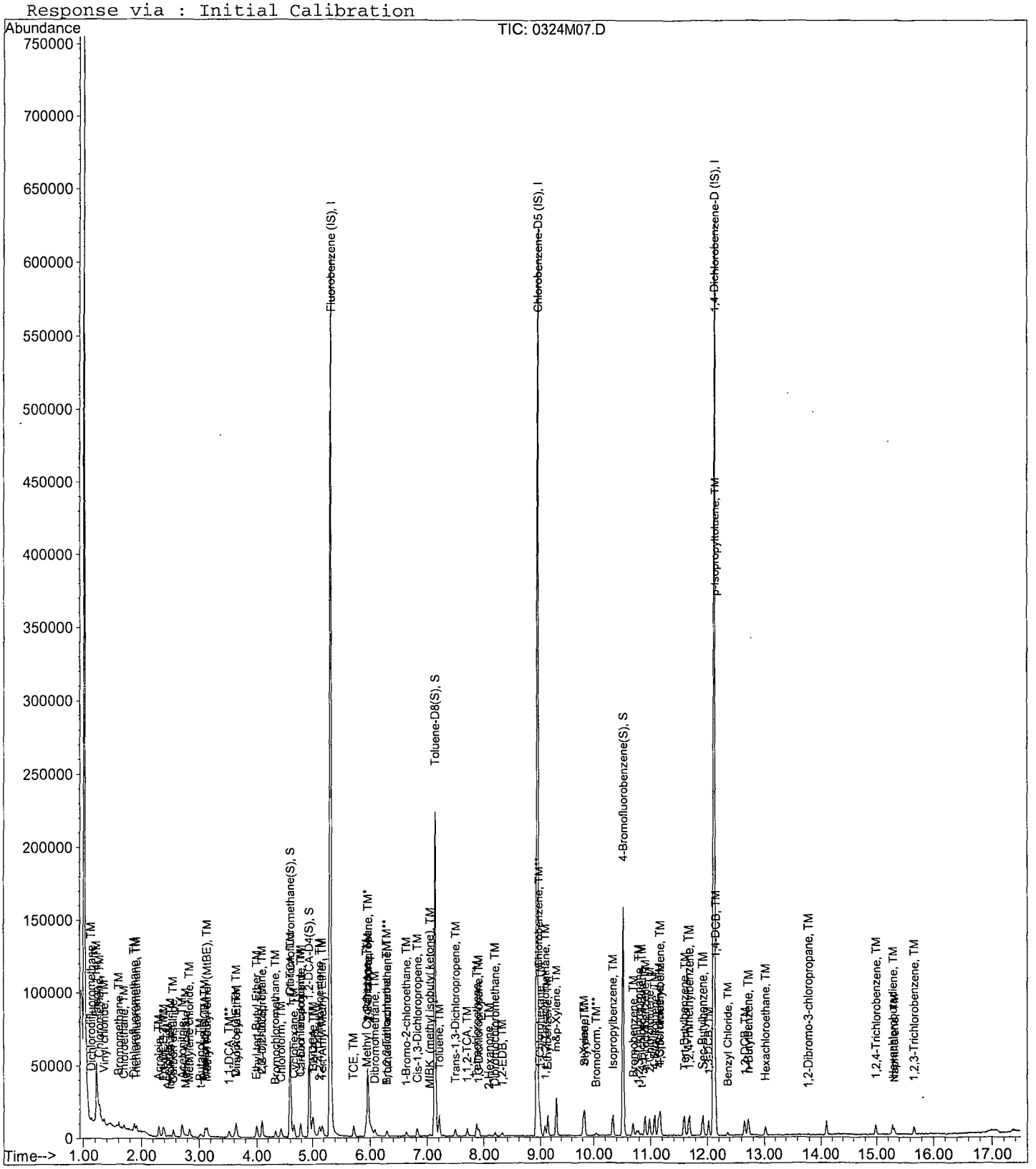
Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M07.D
Acq On : 24 Mar 19 13:54
Sample : 1.0ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 5
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M08.D Vial: 6
Acq On : 24 Mar 19 14:22 Operator: PM,DG,SV,CMM,KV
Sample : 2.0ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.32	96	588239	25.000 ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	428656	25.000 ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	210603	25.000 ppb		0.00
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.60	111	42136	9.364 ppb		0.00
Spiked Amount 25.000			Recovery	= 37.456%		
37) 1,2-DCA-D4(S)	4.95	65	48794	9.412 ppb		0.00
Spiked Amount 25.000			Recovery	= 37.648%		
57) Toluene-D8(S)	7.14	98	182083	9.567 ppb		0.00
Spiked Amount 25.000			Recovery	= 38.268%		
65) 4-Bromofluorobenzene(S)	10.52	95	64942	9.298 ppb		0.00
Spiked Amount 25.000			Recovery	= 37.192%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.14	85	3178	1.962 ppb		89
3) Freon 114	1.24	85	4711	2.114 ppb		100
4) Chloromethane	1.27	50	4290	1.705 ppb		95
5) Vinyl chloride	1.36	62	5368	2.010 ppb		91
6) Bromomethane	1.61	94	3440	2.049 ppb		93
7) Chloroethane	1.70	64	5687	2.261 ppb		95
8) Dichlorofluoromethane	1.87	67	8877	1.918 ppb		100
9) Trichlorofluoromethane	1.92	101	7224	2.143 ppb		97
10) Acrolein	2.30	56	5228	69.654 ppb		99
11) Acetone	2.46	43	2055	1.313 ppb	#	81
12) Freon-113	2.40	101	4128	2.137 ppb		95
13) 1,1-DCE	2.38	61	6569	1.965 ppb		94
14) Acetonitrile	2.71	41	18140	73.218 ppb		96
15) t-Butanol	3.02	59	10710	73.337 ppb	#	81
16) Methyl Acetate	2.77	43	1594	1.981 ppb		89
17) Iodomethane	2.50	142	2131	2.224 ppb		91
18) Acrylonitrile	3.09	53	1267	1.730 ppb	#	84
19) Methylene chloride	2.84	84	5054	1.940 ppb		93
20) Carbon disulfide	2.55	76	12237	1.948 ppb		99
21) Methyl t-butyl ether (MtBE	3.14	73	5803	1.909 ppb		98
22) Trans-1,2-DCE	3.10	96	4767	2.016 ppb		95
23) Diisopropyl Ether	3.63	45	17540	1.958 ppb		93
24) 1,1-DCA	3.51	63	8879	1.911 ppb		97
25) Vinyl Acetate	3.63	43	4691	1.993 ppb	#	100
26) Ethyl tert Butyl Ether	4.00	59	14488	1.897 ppb		96
27) MEK (2-Butanone)	4.15	43	2047	1.147 ppb		88
28) Cis-1,2-DCE	4.10	96	5346	1.873 ppb		82
29) 2,2-Dichloropropane	4.09	77	7550	1.954 ppb		98
30) Chloroform	4.44	83	9332	2.036 ppb		96
31) Bromochloromethane	4.34	128	2781	2.098 ppb		82
33) 1,1,1-TCA	4.61	97	7435	1.920 ppb	#	85
34) Cyclohexane	4.67	41	5222	2.160 ppb		87
35) 1,1-Dichloropropene	4.79	75	6674	2.091 ppb		98
36) 2,2,4-Trimethylpentane	5.12	57	13336	1.985 ppb	#	86
38) Carbon Tetrachloride	4.78	117	4451	1.723 ppb		96
39) Tert Amyl Methyl Ether	5.18	73	12240	1.857 ppb		98
40) 1,2-DCA	5.03	62	6987	2.010 ppb		98
41) Benzene	5.00	78	20785	1.965 ppb		98
42) TCE	5.72	95	5193	1.907 ppb		95

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M08.D Vial: 6
Acq On : 24 Mar 19 14:22 Operator: PM,DG,SV,CMM,KV
Sample : 2.0ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
43)	2-Pentanone	5.97	43	102655	72.789	ppb		99
44)	1,2-Dichloropropane	5.97	63	5402	2.050	ppb		97
45)	Bromodichloromethane	6.29	83	5572	1.822	ppb		90
46)	Methyl Cyclohexane	5.93	83	7740	2.034	ppb		87
47)	Dibromomethane	6.09	93	2579	1.902	ppb		99
48)	MIBK (methyl isobutyl ket	7.04	43	3419	1.747	ppb		95
49)	1-Bromo-2-chloroethane	6.64	63	3180	1.868	ppb		97
51)	Cis-1,3-Dichloropropene	6.82	75	7469	1.827	ppb		96
52)	Toluene	7.22	91	23646	1.993	ppb		96
53)	Trans-1,3-Dichloropropene	7.50	75	5820	1.702	ppb		95
54)	1,1,2-TCA	7.71	83	3165	1.886	ppb		96
55)	2-Hexanone	8.08	43	2780	2.179	ppb		90
58)	1,2-EDB	8.31	107	3946	2.026	ppb		96
59)	Tetrachloroethene	7.88	164	4696	1.992	ppb		97
60)	1-Chlorohexane	8.99	91	6496	1.989	ppb		96
61)	1,1,1,2-Tetrachloroethane	9.08	131	4204	1.810	ppb		97
62)	m&p-Xylene	9.30	106	18048	3.740	ppb		95
63)	o-Xylene	9.82	106	9578	1.948	ppb		89
64)	Styrene	9.84	104	14735	1.826	ppb		98
66)	1,3-Dichloropropane	7.92	76	6905	1.937	ppb		95
67)	Dibromochloromethane	8.19	129	3016	1.630	ppb		89
68)	Chlorobenzene	8.97	112	13877	1.856	ppb		88
69)	Ethylbenzene	9.14	91	23281	1.911	ppb		93
70)	Bromoform	10.05	173	1698	2.885	ppb		91
72)	Isopropylbenzene	10.34	105	23339	2.018	ppb		99
73)	1,1,2,2-Tetrachloroethane	6.29	83	5572	1.972	ppb	#	90
74)	1,2,3-Trichloropropane	10.79	110	1288	1.901	ppb	#	79
75)	t-1,4-Dichloro-2-Butene	10.84	53	465	1.782	ppb		84
76)	Bromobenzene	10.69	156	6011	1.914	ppb		91
77)	n-Propylbenzene	10.90	91	26618	2.057	ppb		99
78)	4-Ethyltoluene	11.07	105	23000	2.012	ppb		97
79)	2-Chlorotoluene	10.98	91	16881	2.112	ppb		92
80)	1,3,5-Trimethylbenzene	11.17	105	20103	2.066	ppb		95
81)	4-Chlorotoluene	11.14	91	19132	2.055	ppb		100
82)	Tert-Butylbenzene	11.60	119	16970	1.958	ppb		97
83)	1,2,4-Trimethylbenzene	11.67	105	19402	1.979	ppb		99
84)	Sec-Butylbenzene	11.92	105	23552	2.052	ppb		98
85)	p-Isopropyltoluene	12.14	119	10335	1.952	ppb		97
86)	Benzyl Chloride	12.36	91	4177	1.744	ppb	#	87
87)	1,3-DCB	12.02	146	11167	1.957	ppb		99
88)	1,4-DCB	12.15	146	5405	1.862	ppb		95
89)	n-Butylbenzene	12.72	91	8348	1.938	ppb		92
90)	1,2-DCB	12.67	146	10459	1.986	ppb		100
91)	Hexachloroethane	13.03	117	936	3.650	ppb	#	71
92)	1,2-Dibromo-3-chloropropan	13.78	157	599	1.565	ppb	#	81
93)	1,2,4-Trichlorobenzene	14.98	180	5799	1.753	ppb		100
94)	Hexachlorobutadiene	15.28	225	3382	1.977	ppb		93
95)	Naphthalene	15.32	128	9664	1.749	ppb		95
96)	1,2,3-Trichlorobenzene	15.67	180	5175	1.808	ppb		92

(#) = qualifier out of range (m) = manual integration

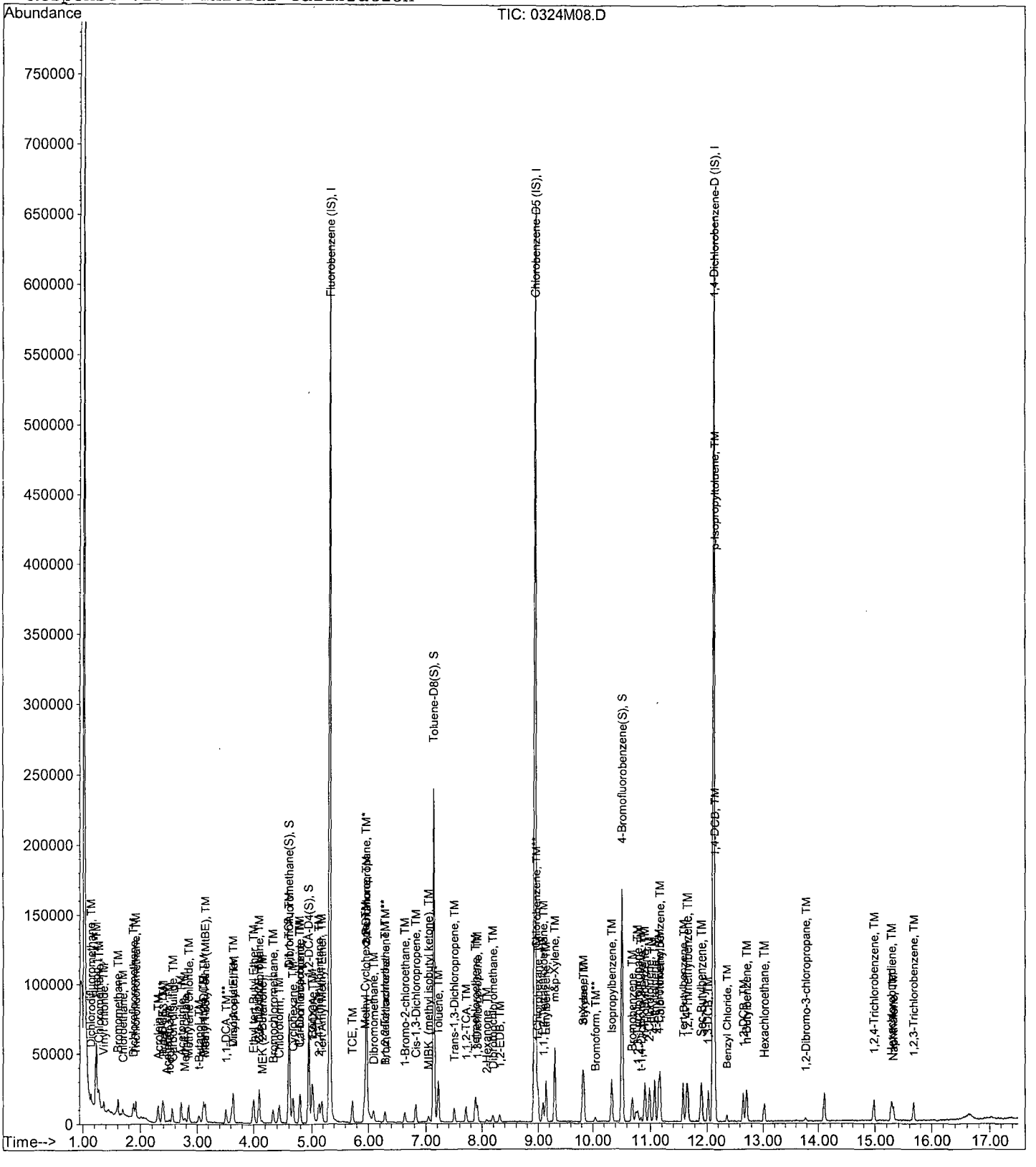
Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M08.D
Acq On : 24 Mar 19 14:22
Sample : 2.0ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 6
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M09.D
Acq On : 24 Mar 19 14:51
Sample : 5.0ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 7
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.32	96	551421	25.000	ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	414802	25.000	ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	211221	25.000	ppb		0.00
System Monitoring Compounds							
32) Dibromofluoromethane(S)	4.60	111	105862	25.096	ppb		0.00
Spiked Amount 25.000			Recovery	= 100.384%			
37) 1,2-DCA-D4(S)	4.95	65	123145	25.340	ppb		0.00
Spiked Amount 25.000			Recovery	= 101.360%			
57) Toluene-D8(S)	7.13	98	452516	24.569	ppb		0.00
Spiked Amount 25.000			Recovery	= 98.276%			
65) 4-Bromofluorobenzene(S)	10.52	95	164122	24.284	ppb		0.00
Spiked Amount 25.000			Recovery	= 97.136%			
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.14	85	8400	5.533	ppb		99
3) Freon 114	1.24	85	10470	5.012	ppb		98
4) Chloromethane	1.27	50	12414	5.356	ppb		98
5) Vinyl chloride	1.36	62	13216	5.280	ppb		99
6) Bromomethane	1.60	94	8082	5.137	ppb		90
7) Chloroethane	1.70	64	9504	4.801	ppb		88
8) Dichlorofluoromethane	1.88	67	22787	5.252	ppb		100
9) Trichlorofluoromethane	1.92	101	16814	5.322	ppb		96
10) Acrolein	2.30	56	7202	102.360	ppb		99
11) Acetone	2.46	43	3766	5.377	ppb		85
12) Freon-113	2.40	101	9986	5.514	ppb		96
13) 1,1-DCE	2.38	61	16225	5.176	ppb		98
14) Acetonitrile	2.71	41	23981	103.257	ppb		96
15) t-Butanol	3.03	59	14849	108.468	ppb	#	79
16) Methyl Acetate	2.78	43	3679	4.877	ppb		94
17) Iodomethane	2.50	142	9077	4.766	ppb		95
18) Acrylonitrile	3.09	53	3732	5.435	ppb		96
19) Methylene chloride	2.84	84	12241	5.012	ppb		93
20) Carbon disulfide	2.55	76	30123	5.116	ppb		99
21) Methyl t-butyl ether (MtBE	3.14	73	14677	5.150	ppb		98
22) Trans-1,2-DCE	3.10	96	11896	5.367	ppb		86
23) Diisopropyl Ether	3.63	45	43194	5.145	ppb		93
24) 1,1-DCA	3.51	63	21912	5.031	ppb		97
25) Vinyl Acetate	3.63	43	11403	5.167	ppb	#	100
26) Ethyl tert Butyl Ether	4.00	59	38262	5.344	ppb		97
27) MEK (2-Butanone)	4.15	43	3760	3.889	ppb	#	83
28) Cis-1,2-DCE	4.10	96	13750	5.139	ppb		99
29) 2,2-Dichloropropane	4.09	77	19384	5.352	ppb		97
30) Chloroform	4.44	83	21669	5.044	ppb		95
31) Bromochloromethane	4.33	128	6273	5.049	ppb		93
33) 1,1,1-TCA	4.61	97	18258	5.029	ppb		98
34) Cyclohexane	4.67	41	11019	4.862	ppb		83
35) 1,1-Dichloropropene	4.79	75	15895	5.312	ppb		93
36) 2,2,4-Trimethylpentane	5.13	57	32360	5.139	ppb		94
38) Carbon Tetrachloride	4.78	117	12850	5.307	ppb		99
39) Tert Amyl Methyl Ether	5.18	73	32453	5.253	ppb		98
40) 1,2-DCA	5.03	62	17247	5.293	ppb		96
41) Benzene	5.01	78	50937	5.138	ppb		96
42) TCE	5.72	95	13379	5.241	ppb		91

(#) = qualifier out of range (m) = manual integration

Data File : M:\MAX\DATA\M190324\0324M09.D
Acq On : 24 Mar 19 14:51
Sample : 5.0ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 7
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
43)	2-Pentanone	5.96	43	137846	104.268 ppb		97
44)	1,2-Dichloropropane	5.97	63	12592	5.097 ppb	#	94
45)	Bromodichloromethane	6.29	83	14651	5.110 ppb		100
46)	Methyl Cyclohexane	5.93	83	17775	4.984 ppb		98
47)	Dibromomethane	6.09	93	6749	5.311 ppb		93
48)	MIBK (methyl isobutyl ket	7.04	43	9566	5.214 ppb	#	88
49)	1-Bromo-2-chloroethane	6.63	63	8435	5.285 ppb		91
51)	Cis-1,3-Dichloropropene	6.82	75	19537	5.098 ppb		96
52)	Toluene	7.21	91	56304	5.063 ppb		95
53)	Trans-1,3-Dichloropropene	7.50	75	16165	5.042 ppb		94
54)	1,1,2-TCA	7.72	83	8189	5.205 ppb		95
55)	2-Hexanone	8.08	43	6221	5.202 ppb	#	87
58)	1,2-EDB	8.31	107	10143	5.382 ppb		96
59)	Tetrachloroethene	7.88	164	11596	5.082 ppb		97
60)	1-Chlorohexane	8.99	91	15925	5.040 ppb		92
61)	1,1,1,2-Tetrachloroethane	9.08	131	11268	5.012 ppb		97
62)	m&p-Xylene	9.30	106	48891	10.470 ppb		99
63)	o-Xylene	9.82	106	24051	5.056 ppb		95
64)	Styrene	9.84	104	40762	5.221 ppb		91
66)	1,3-Dichloropropane	7.92	76	18240	5.288 ppb		97
67)	Dibromochloromethane	8.19	129	8513	4.754 ppb		84
68)	Chlorobenzene	8.96	112	37706	5.211 ppb		96
69)	Ethylbenzene	9.14	91	61936	5.254 ppb		96
70)	Bromoform	10.04	173	4526	5.124 ppb		97
72)	Isopropylbenzene	10.34	105	60050	5.176 ppb		99
73)	1,1,2,2-Tetrachloroethane	6.29	83	14651	5.170 ppb	#	100
74)	1,2,3-Trichloropropane	10.79	110	3755	5.526 ppb		96
75)	t-1,4-Dichloro-2-Butene	10.84	53	1271	4.856 ppb		98
76)	Bromobenzene	10.69	156	16277	5.167 ppb		98
77)	n-Propylbenzene	10.90	91	65854	5.073 ppb		98
78)	4-Ethyltoluene	11.07	105	58921	5.138 ppb		98
79)	2-Chlorotoluene	10.98	91	40561	5.061 ppb		100
80)	1,3,5-Trimethylbenzene	11.17	105	50570	5.183 ppb		99
81)	4-Chlorotoluene	11.14	91	47268	5.063 ppb		96
82)	Tert-Butylbenzene	11.61	119	46125	5.307 ppb		96
83)	1,2,4-Trimethylbenzene	11.68	105	50665	5.152 ppb		97
84)	Sec-Butylbenzene	11.92	105	60389	5.247 ppb		99
85)	p-Isopropyltoluene	12.14	119	28280	5.327 ppb		98
86)	Benzyl Chloride	12.36	91	12136	5.051 ppb		97
87)	1,3-DCB	12.02	146	29019	5.071 ppb		96
88)	1,4-DCB	12.15	146	14822	5.091 ppb		99
89)	n-Butylbenzene	12.72	91	22760	5.268 ppb		96
90)	1,2-DCB	12.66	146	27296	5.167 ppb		96
91)	Hexachloroethane	13.02	117	1955	5.298 ppb		91
92)	1,2-Dibromo-3-chloropropan	13.79	157	1986	5.175 ppb	#	84
93)	1,2,4-Trichlorobenzene	14.98	180	17529	5.282 ppb		97
94)	Hexachlorobutadiene	15.28	225	9148	5.332 ppb		92
95)	Naphthalene	15.31	128	27823	5.022 ppb		99
96)	1,2,3-Trichlorobenzene	15.67	180	14585	5.080 ppb		93

(#) = qualifier out of range (m) = manual integration

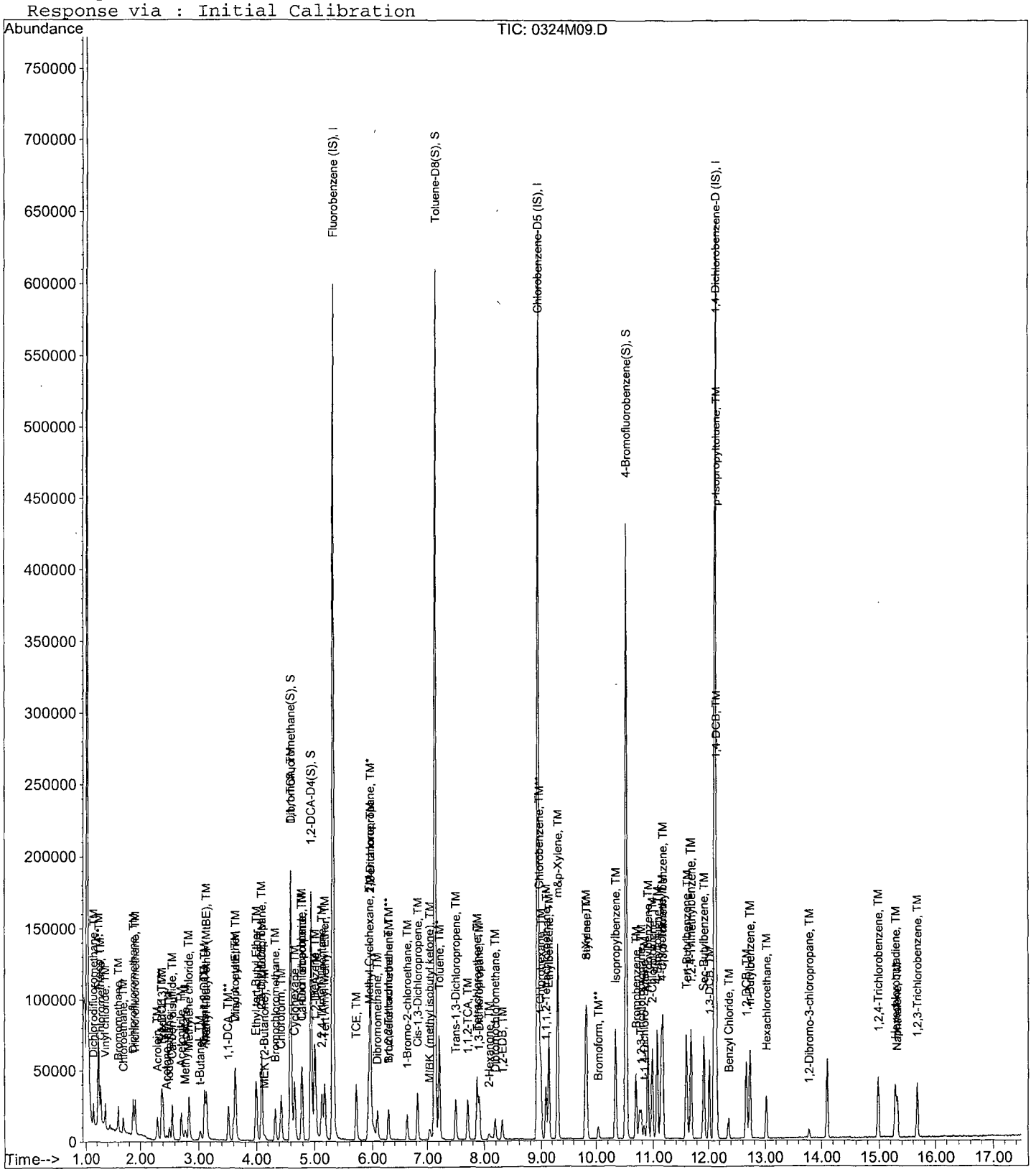
Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M09.D
Acq On : 24 Mar 19 14:51
Sample : 5.0ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 7
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M10.D Vial: 8
Acq On : 24 Mar 19 15:19 Operator: PM,DG,SV,CMM,KV
Sample : 10ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.32	96	563465	25.000	ppb	0.00
56) Chlorobenzene-D5 (IS)	8.93	117	422362	25.000	ppb	0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	217007	25.000	ppb	0.00
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.60	111	105764	24.536	ppb	0.00
Spiked Amount 25.000			Recovery =	98.144%		
37) 1,2-DCA-D4(S)	4.95	65	121024	24.371	ppb	0.00
Spiked Amount 25.000			Recovery =	97.484%		
57) Toluene-D8(S)	7.14	98	452289	24.118	ppb	0.00
Spiked Amount 25.000			Recovery =	96.472%		
65) 4-Bromofluorobenzene(S)	10.52	95	167493	24.339	ppb	0.00
Spiked Amount 25.000			Recovery =	97.356%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.14	85	15800	10.185	ppb	100
3) Freon 114	1.24	85	21216	9.939	ppb	100
4) Chloromethane	1.27	50	21888	9.274	ppb	100
5) Vinyl chloride	1.36	62	25361	9.915	ppb	100
6) Bromomethane	1.60	94	14483	9.008	ppb	100
7) Chloroethane	1.69	64	18171	9.839	ppb	100
8) Dichlorofluoromethane	1.87	67	43755	9.869	ppb	100
9) Trichlorofluoromethane	1.92	101	33228	10.293	ppb	100
10) Acrolein	2.30	56	9328	129.743	ppb	100
11) Acetone	2.46	43	6298	10.673	ppb	100
12) Freon-113	2.40	101	18841	10.181	ppb	100
13) 1,1-DCE	2.38	61	32398	10.115	ppb	100
14) Acetonitrile	2.71	41	29850	125.781	ppb	100
15) t-Butanol	3.03	59	18506	132.292	ppb	100
16) Methyl Acetate	2.77	43	7593	9.850	ppb	100
17) Iodomethane	2.50	142	22167	9.296	ppb	100
18) Acrylonitrile	3.08	53	7626	10.868	ppb	100
19) Methylene chloride	2.84	84	24902	9.977	ppb	100
20) Carbon disulfide	2.55	76	57963	9.635	ppb	100
21) Methyl t-butyl ether (MtBE	3.14	73	30824	10.586	ppb	100
22) Trans-1,2-DCE	3.10	96	22303	9.848	ppb	100
23) Diisopropyl Ether	3.63	45	87895	10.246	ppb	100
24) 1,1-DCA	3.51	63	44441	9.986	ppb	100
25) Vinyl Acetate	3.63	43	22384	9.927	ppb	100
26) Ethyl tert Butyl Ether	4.00	59	75361	10.301	ppb	100
27) MEK (2-Butanone)	4.15	43	8407	10.542	ppb	100
28) Cis-1,2-DCE	4.10	96	27525	10.068	ppb	100
29) 2,2-Dichloropropane	4.09	77	36458	9.852	ppb	100
30) Chloroform	4.44	83	42720	9.731	ppb	100
31) Bromochloromethane	4.34	128	12804	10.086	ppb	100
33) 1,1,1-TCA	4.61	97	36404	9.813	ppb	100
34) Cyclohexane	4.67	41	22400	9.672	ppb	100
35) 1,1-Dichloropropene	4.79	75	31180	10.197	ppb	100
36) 2,2,4-Trimethylpentane	5.12	57	65443	10.171	ppb	100
38) Carbon Tetrachloride	4.79	117	24974	10.093	ppb	100
39) Tert Amyl Methyl Ether	5.18	73	66393	10.516	ppb	100
40) 1,2-DCA	5.03	62	33023	9.919	ppb	100
41) Benzene	5.01	78	101103	9.981	ppb	100
42) TCE	5.72	95	26233	10.056	ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M10.D Vial: 8
Acq On : 24 Mar 19 15:19 Operator: PM,DG,SV,CMM,KV
Sample : 10ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
43)	2-Pentanone	5.96	43	168816	124.965	ppb	100
44)	1,2-Dichloropropane	5.96	63	25058	9.927	ppb	100
45)	Bromodichloromethane	6.29	83	30017	10.245	ppb	100
46)	Methyl Cyclohexane	5.93	83	35970	9.870	ppb	100
47)	Dibromomethane	6.09	93	14086	10.847	ppb	100
48)	MIBK (methyl isobutyl ket	7.04	43	18152	9.683	ppb	100
49)	1-Bromo-2-chloroethane	6.63	63	16331	10.013	ppb	100
51)	Cis-1,3-Dichloropropene	6.82	75	40326	10.297	ppb	100
52)	Toluene	7.21	91	113034	9.948	ppb	100
53)	Trans-1,3-Dichloropropene	7.50	75	33629	10.264	ppb	100
54)	1,1,2-TCA	7.71	83	16256	10.112	ppb	100
55)	2-Hexanone	8.08	43	11554	9.454	ppb	100
58)	1,2-EDB	8.31	107	19743	10.289	ppb	100
59)	Tetrachloroethene	7.88	164	22799	9.813	ppb	100
60)	1-Chlorohexane	8.99	91	33041	10.269	ppb	100
61)	1,1,1,2-Tetrachloroethane	9.08	131	23168	10.121	ppb	100
62)	m&p-Xylene	9.30	106	95832	20.155	ppb	100
63)	o-Xylene	9.82	106	48979	10.112	ppb	100
64)	Styrene	9.84	104	80042	10.069	ppb	100
66)	1,3-Dichloropropane	7.92	76	36664	10.440	ppb	100
67)	Dibromochloromethane	8.19	129	18059	9.904	ppb	100
68)	Chlorobenzene	8.96	112	74610	10.127	ppb	100
69)	Ethylbenzene	9.14	91	124010	10.332	ppb	100
70)	Bromoform	10.04	173	9803	9.087	ppb	100
72)	Isopropylbenzene	10.34	105	118164	9.913	ppb	100
73)	1,1,2,2-Tetrachloroethane	6.29	83	30017	10.309	ppb	100
74)	1,2,3-Trichloropropane	10.79	110	7302	10.460	ppb	100
75)	t-1,4-Dichloro-2-Butene	10.84	53	2461	9.152	ppb	100
76)	Bromobenzene	10.69	156	32214	9.954	ppb	100
77)	n-Propylbenzene	10.90	91	132686	9.950	ppb	100
78)	4-Ethyltoluene	11.07	105	119764	10.165	ppb	100
79)	2-Chlorotoluene	10.98	91	82647	10.037	ppb	100
80)	1,3,5-Trimethylbenzene	11.16	105	101151	10.090	ppb	100
81)	4-Chlorotoluene	11.14	91	96860	10.099	ppb	100
82)	Tert-Butylbenzene	11.61	119	88438	9.904	ppb	100
83)	1,2,4-Trimethylbenzene	11.67	105	103147	10.208	ppb	100
84)	Sec-Butylbenzene	11.92	105	119618	10.115	ppb	100
85)	p-Isopropyltoluene	12.14	119	56208	10.305	ppb	100
86)	Benzyl Chloride	12.36	91	24375	9.875	ppb	100
87)	1,3-DCB	12.02	146	59227	10.074	ppb	100
88)	1,4-DCB	12.15	146	30160	10.083	ppb	100
89)	n-Butylbenzene	12.72	91	43608	9.824	ppb	100
90)	1,2-DCB	12.66	146	56886	10.481	ppb	100
91)	Hexachloroethane	13.02	117	3883	8.257	ppb	100
92)	1,2-Dibromo-3-chloropropan	13.78	157	4000	10.144	ppb	100
93)	1,2,4-Trichlorobenzene	14.98	180	34480	10.113	ppb	100
94)	Hexachlorobutadiene	15.28	225	17104	9.703	ppb	100
95)	Naphthalene	15.32	128	60622	10.650	ppb	100
96)	1,2,3-Trichlorobenzene	15.67	180	30594	10.371	ppb	100

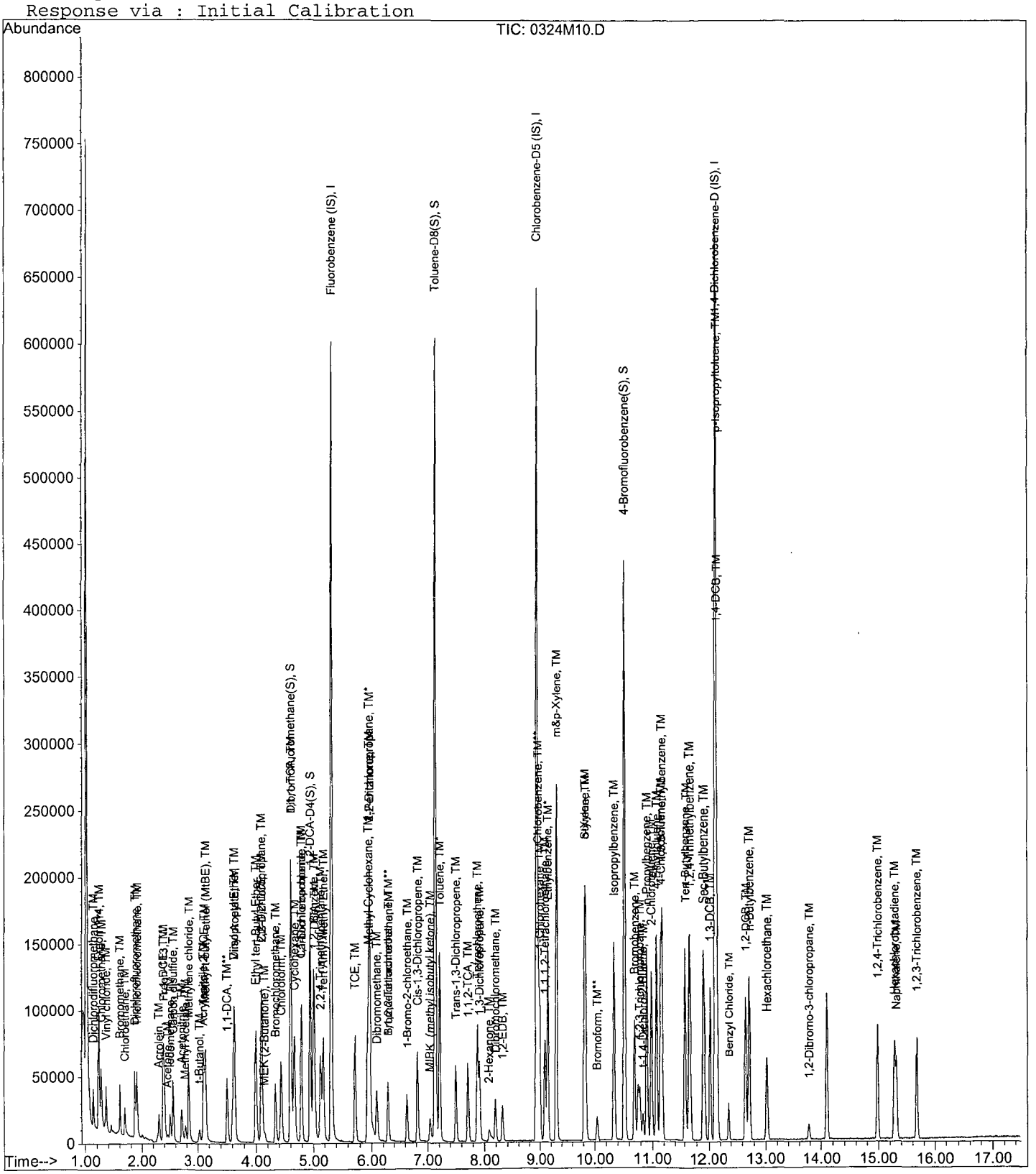
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M10.D Vial: 8
Acq On : 24 Mar 19 15:19 Operator: PM,DG,SV,CMM,KV
Sample : 10ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M11.D Vial: 9
Acq On : 24 Mar 19 15:48 Operator: PM,DG,SV,CMM,KV
Sample : 20ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.31	96	554172	25.000 ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	421724	25.000 ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	222616	25.000 ppb		0.00
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.60	111	210921	49.753 ppb		0.00
Spiked Amount 25.000			Recovery	= 199.012%		
37) 1,2-DCA-D4(S)	4.94	65	237117	48.550 ppb		0.00
Spiked Amount 25.000			Recovery	= 194.200%		
57) Toluene-D8(S)	7.14	98	910661	48.633 ppb		0.00
Spiked Amount 25.000			Recovery	= 194.532%		
65) 4-Bromofluorobenzene(S)	10.52	95	338144	49.211 ppb		0.00
Spiked Amount 25.000			Recovery	= 196.844%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.14	85	32456	21.273 ppb		97
3) Freon 114	1.23	85	43098	20.528 ppb		96
4) Chloromethane	1.27	50	47984	20.726 ppb		98
5) Vinyl chloride	1.36	62	52982	21.062 ppb		93
6) Bromomethane	1.60	94	29675	18.766 ppb		94
7) Chloroethane	1.69	64	34768	20.072 ppb		96
8) Dichlorofluoromethane	1.87	67	87633	20.098 ppb		100
9) Trichlorofluoromethane	1.91	101	69322	21.833 ppb		99
10) Acrolein	2.30	56	10928	154.546 ppb		91
11) Acetone	2.46	43	10315	19.732 ppb		98
12) Freon-113	2.39	101	38430	21.114 ppb		98
13) 1,1-DCE	2.37	61	66156	21.001 ppb		97
14) Acetonitrile	2.71	41	33503	143.541 ppb		96
15) t-Butanol	3.03	59	23389	170.002 ppb	#	89
16) Methyl Acetate	2.77	43	14827	19.556 ppb		96
17) Iodomethane	2.50	142	52162	20.144 ppb		97
18) Acrylonitrile	3.08	53	15159	21.967 ppb		97
19) Methylene chloride	2.84	84	50150	20.430 ppb		96
20) Carbon disulfide	2.55	76	119461	20.190 ppb		100
21) Methyl t-butyl ether (MtBE	3.13	73	61256	21.389 ppb		98
22) Trans-1,2-DCE	3.10	96	47491	21.321 ppb		98
23) Diisopropyl Ether	3.63	45	176365	20.903 ppb		98
24) 1,1-DCA	3.51	63	91543	20.915 ppb		98
25) Vinyl Acetate	3.63	43	45272	20.414 ppb	#	100
26) Ethyl tert Butyl Ether	4.00	59	153977	21.400 ppb		99
27) MEK (2-Butanone)	4.14	43	16260	22.386 ppb		90
28) Cis-1,2-DCE	4.10	96	56873	21.152 ppb		96
29) 2,2-Dichloropropane	4.09	77	73546	20.207 ppb		98
30) Chloroform	4.43	83	87196	20.194 ppb		97
31) Bromochloromethane	4.33	128	25339	20.295 ppb		99
33) 1,1,1-TCA	4.61	97	75383	20.660 ppb		95
34) Cyclohexane	4.67	41	44609	19.584 ppb		99
35) 1,1-Dichloropropene	4.79	75	63411	21.085 ppb		97
36) 2,2,4-Trimethylpentane	5.12	57	131033	20.707 ppb		99
38) Carbon Tetrachloride	4.78	117	52560	21.598 ppb		95
39) Tert Amyl Methyl Ether	5.18	73	131590	21.193 ppb		99
40) 1,2-DCA	5.03	62	66760	20.388 ppb		98
41) Benzene	5.00	78	201862	20.261 ppb		99
42) TCE	5.72	95	51727	20.162 ppb		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M11.D Vial: 9
Acq On : 24 Mar 19 15:48 Operator: PM,DG,SV,CMM,KV
Sample : 20ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
43)	2-Pentanone	5.96	43	204142	153.649	ppb	100
44)	1,2-Dichloropropane	5.96	63	50739	20.437	ppb	98
45)	Bromodichloromethane	6.29	83	59679	20.711	ppb	96
46)	Methyl Cyclohexane	5.93	83	74014	20.650	ppb	100
47)	Dibromomethane	6.09	93	27008	21.147	ppb	98
48)	MIBK (methyl isobutyl ket	7.04	43	34524	18.725	ppb	92
49)	1-Bromo-2-chloroethane	6.63	63	32240	20.100	ppb	99
51)	Cis-1,3-Dichloropropene	6.82	75	81196	21.081	ppb	99
52)	Toluene	7.21	91	228223	20.422	ppb	100
53)	Trans-1,3-Dichloropropene	7.50	75	69565	21.589	ppb	97
54)	1,1,2-TCA	7.71	83	32831	20.765	ppb	96
55)	2-Hexanone	8.08	43	22187	18.459	ppb	98
58)	1,2-EDB	8.31	107	39973	20.864	ppb	96
59)	Tetrachloroethene	7.88	164	46918	20.225	ppb	97
60)	1-Chlorohexane	8.99	91	66913	20.828	ppb	96
61)	1,1,1,2-Tetrachloroethane	9.08	131	48015	21.008	ppb	89
62)	m&p-Xylene	9.30	106	198547	41.822	ppb	98
63)	o-Xylene	9.82	106	99251	20.521	ppb	99
64)	Styrene	9.84	104	167349	21.084	ppb	96
66)	1,3-Dichloropropane	7.92	76	73028	20.826	ppb	99
67)	Dibromochloromethane	8.19	129	39222	21.543	ppb	92
68)	Chlorobenzene	8.97	112	151717	20.623	ppb	98
69)	Ethylbenzene	9.14	91	251207	20.961	ppb	97
70)	Bromoform	10.04	173	21577	18.095	ppb	100
72)	Isopropylbenzene	10.34	105	247238	20.219	ppb	98
73)	1,1,2,2-Tetrachloroethane	6.29	83	59679	19.980	ppb	96
74)	1,2,3-Trichloropropane	10.79	110	14930	20.848	ppb	95
75)	t-1,4-Dichloro-2-Butene	10.84	53	5394	19.553	ppb	99
76)	Bromobenzene	10.69	156	67184	20.236	ppb	99
77)	n-Propylbenzene	10.90	91	275598	20.145	ppb	97
78)	4-Ethyltoluene	11.07	105	247637	20.489	ppb	99
79)	2-Chlorotoluene	10.98	91	169070	20.015	ppb	100
80)	1,3,5-Trimethylbenzene	11.17	105	207449	20.173	ppb	96
81)	4-Chlorotoluene	11.14	91	200132	20.341	ppb	100
82)	Tert-Butylbenzene	11.61	119	181301	19.793	ppb	96
83)	1,2,4-Trimethylbenzene	11.68	105	209675	20.229	ppb	100
84)	Sec-Butylbenzene	11.92	105	245529	20.240	ppb	96
85)	p-Isopropyltoluene	12.14	119	115616	20.662	ppb	98
86)	Benzyl Chloride	12.36	91	55766	22.023	ppb	97
87)	1,3-DCB	12.02	146	123627	20.499	ppb	98
88)	1,4-DCB	12.15	146	61768	20.129	ppb	99
89)	n-Butylbenzene	12.72	91	93272	20.483	ppb	98
90)	1,2-DCB	12.66	146	115898	20.816	ppb	98
91)	Hexachloroethane	13.02	117	10369	18.082	ppb	85
92)	1,2-Dibromo-3-chloropropan	13.78	157	8622	21.315	ppb	89
93)	1,2,4-Trichlorobenzene	14.98	180	74515	21.305	ppb	99
94)	Hexachlorobutadiene	15.28	225	38038	21.035	ppb	90
95)	Naphthalene	15.32	128	128095	21.937	ppb	97
96)	1,2,3-Trichlorobenzene	15.67	180	65395	21.610	ppb	94

(#) = qualifier out of range (m) = manual integration

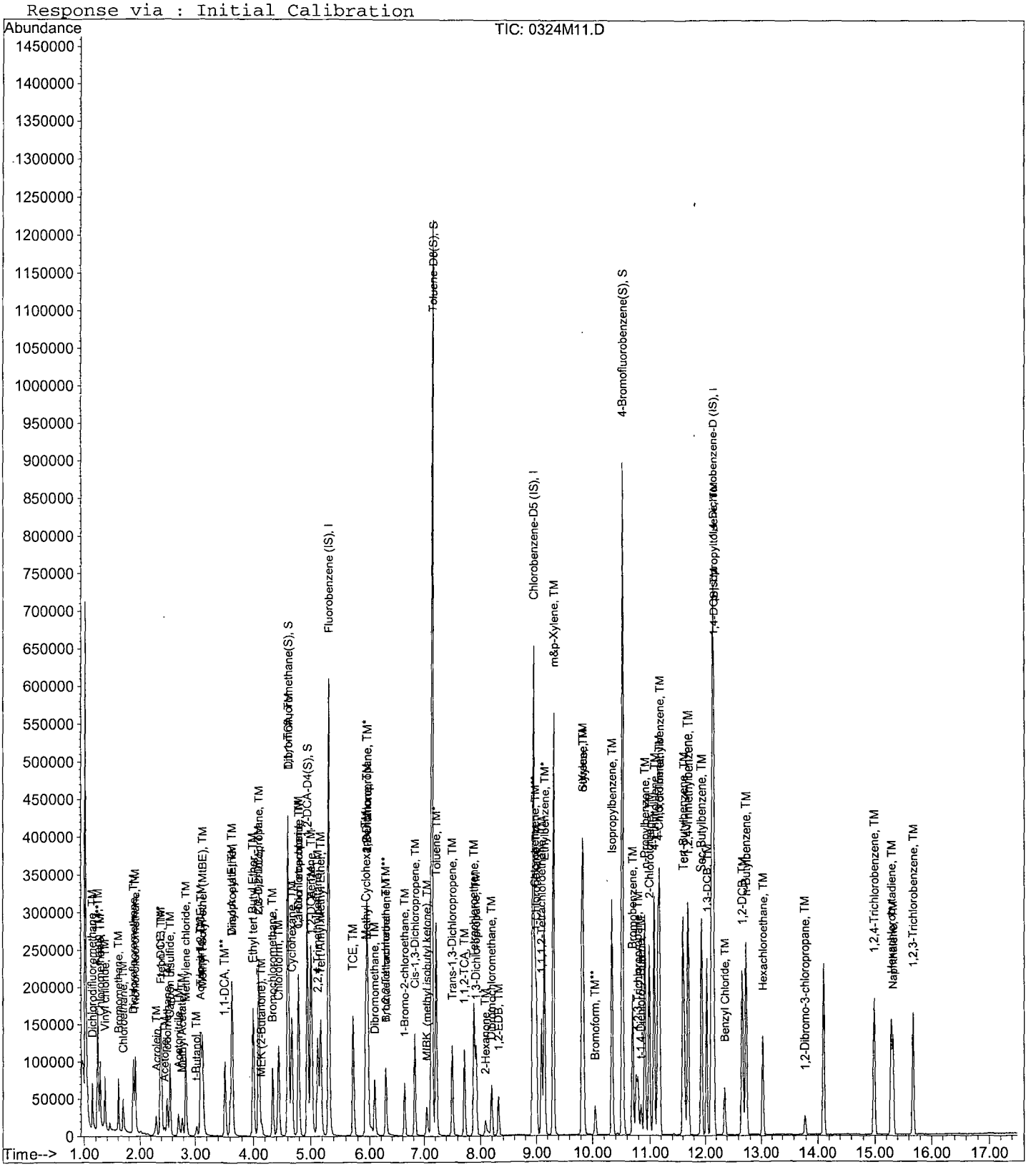
Data File : M:\MAX\DATA\M190324\0324M11.D
Acq On : 24 Mar 19 15:48
Sample : 20ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 9
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019

Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M12.D Vial: 10
Acq On : 24 Mar 19 16:17 Operator: PM,DG,SV,CMM,KV
Sample : 40ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.31	96	561800	25.000 ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	434917	25.000 ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	228943	25.000 ppb		0.00
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.60	111	212017	49.332 ppb		0.00
Spiked Amount 25.000			Recovery	= 197.328%		
37) 1,2-DCA-D4(S)	4.94	65	237213	47.910 ppb		0.00
Spiked Amount 25.000			Recovery	= 191.640%		
57) Toluene-D8(S)	7.14	98	916073	47.438 ppb		0.00
Spiked Amount 25.000			Recovery	= 189.752%		
65) 4-Bromofluorobenzene(S)	10.52	95	339596	47.923 ppb		0.00
Spiked Amount 25.000			Recovery	= 191.692%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.14	85	61040	39.465 ppb		98
3) Freon 114	1.23	85	82667	38.841 ppb		98
4) Chloromethane	1.27	50	93284	39.787 ppb		99
5) Vinyl chloride	1.36	62	103251	40.488 ppb		92
6) Bromomethane	1.60	94	57092	35.615 ppb		92
7) Chloroethane	1.68	64	68637	40.018 ppb		92
8) Dichlorofluoromethane	1.87	67	175602	39.726 ppb		100
9) Trichlorofluoromethane	1.91	101	131043	40.712 ppb		100
10) Acrolein	2.30	56	13694	191.034 ppb		99
11) Acetone	2.46	43	20045	40.524 ppb		95
12) Freon-113	2.39	101	72554	39.321 ppb		99
13) 1,1-DCE	2.37	61	129990	40.704 ppb		99
14) Acetonitrile	2.71	41	39413	166.569 ppb		96
15) t-Butanol	3.03	59	31806	228.042 ppb	#	85
16) Methyl Acetate	2.77	43	30692	39.932 ppb		100
17) Iodomethane	2.50	142	107903	39.536 ppb		100
18) Acrylonitrile	3.08	53	29354	41.959 ppb		93
19) Methylene chloride	2.83	84	99605	40.027 ppb		94
20) Carbon disulfide	2.55	76	239958	40.004 ppb		99
21) Methyl t-butyl ether (MtBE	3.13	73	122736	42.275 ppb		99
22) Trans-1,2-DCE	3.10	96	94398	41.805 ppb		96
23) Diisopropyl Ether	3.63	45	350532	40.982 ppb		97
24) 1,1-DCA	3.51	63	181585	40.923 ppb		99
25) Vinyl Acetate	3.63	43	86048	38.273 ppb		100
26) Ethyl tert Butyl Ether	4.00	59	310789	42.608 ppb		100
27) MEK (2-Butanone)	4.14	43	29468	41.368 ppb		97
28) Cis-1,2-DCE	4.09	96	110995	40.721 ppb		96
29) 2,2-Dichloropropane	4.09	77	145822	39.521 ppb		97
30) Chloroform	4.43	83	174599	39.888 ppb		95
31) Bromochloromethane	4.33	128	51826	40.946 ppb		96
33) 1,1,1-TCA	4.61	97	148474	40.140 ppb		96
34) Cyclohexane	4.67	41	85551	37.049 ppb		94
35) 1,1-Dichloropropene	4.79	75	122662	40.233 ppb		97
36) 2,2,4-Trimethylpentane	5.12	57	254047	39.601 ppb		99
38) Carbon Tetrachloride	4.78	117	110536	44.804 ppb		99
39) Tert Amyl Methyl Ether	5.17	73	261189	41.494 ppb		99
40) 1,2-DCA	5.03	62	129253	38.937 ppb		98
41) Benzene	5.00	78	400821	39.685 ppb		99
42) TCE	5.72	95	103735	39.885 ppb		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M12.D
Acq On : 24 Mar 19 16:17
Sample : 40ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 10
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
43)	2-Pentanone	5.96	43	243540	180.813	ppb		98
44)	1,2-Dichloropropane	5.96	63	101915	40.493	ppb		98
45)	Bromodichloromethane	6.29	83	123459	42.263	ppb		98
46)	Methyl Cyclohexane	5.93	83	145054	39.920	ppb		99
47)	Dibromomethane	6.09	93	53361	41.213	ppb		96
48)	MIBK (methyl isobutyl ket	7.04	43	68710	36.762	ppb		95
49)	1-Bromo-2-chloroethane	6.63	63	65064	40.013	ppb		98
51)	Cis-1,3-Dichloropropene	6.82	75	163972	41.995	ppb		98
52)	Toluene	7.21	91	452511	39.943	ppb		98
53)	Trans-1,3-Dichloropropene	7.50	75	140709	43.075	ppb		99
54)	1,1,2-TCA	7.71	83	65831	41.071	ppb		97
55)	2-Hexanone	8.08	43	45355	37.222	ppb		96
58)	1,2-EDB	8.31	107	82030	41.516	ppb		97
59)	Tetrachloroethene	7.88	164	91886	38.408	ppb		99
60)	1-Chlorohexane	8.99	91	132369	39.953	ppb		96
61)	1,1,1,2-Tetrachloroethane	9.09	131	102425	43.454	ppb		93
62)	m&p-Xylene	9.30	106	398084	81.308	ppb		98
63)	o-Xylene	9.82	106	199887	40.075	ppb		98
64)	Styrene	9.84	104	338288	41.327	ppb		96
66)	1,3-Dichloropropane	7.92	76	144730	40.021	ppb		98
67)	Dibromochloromethane	8.19	129	82867	44.135	ppb		89
68)	Chlorobenzene	8.97	112	302994	39.937	ppb		99
69)	Ethylbenzene	9.14	91	492702	39.865	ppb		96
70)	Bromoform	10.04	173	48718	37.705	ppb		99
72)	Isopropylbenzene	10.34	105	495168	39.375	ppb		99
73)	1,1,2,2-Tetrachloroethane	6.29	83	123459	40.190	ppb		98
74)	1,2,3-Trichloropropane	10.79	110	30003	40.739	ppb		97
75)	t-1,4-Dichloro-2-Butene	10.84	53	11730	41.346	ppb		91
76)	Bromobenzene	10.69	156	134922	39.517	ppb		96
77)	n-Propylbenzene	10.90	91	552100	39.241	ppb		97
78)	4-Ethyltoluene	11.07	105	496226	39.922	ppb		100
79)	2-Chlorotoluene	10.98	91	336270	38.708	ppb		100
80)	1,3,5-Trimethylbenzene	11.17	105	413065	39.057	ppb		100
81)	4-Chlorotoluene	11.14	91	392528	38.793	ppb		100
82)	Tert-Butylbenzene	11.61	119	361635	38.389	ppb		96
83)	1,2,4-Trimethylbenzene	11.68	105	422646	39.648	ppb		99
84)	Sec-Butylbenzene	11.92	105	495078	39.683	ppb		97
85)	p-Isopropyltoluene	12.14	119	228032	39.627	ppb		97
86)	Benzyl Chloride	12.36	91	117274	45.034	ppb		94
87)	1,3-DCB	12.02	146	247268	39.866	ppb		99
88)	1,4-DCB	12.15	146	128376	40.679	ppb		98
89)	n-Butylbenzene	12.72	91	190720	40.725	ppb		99
90)	1,2-DCB	12.66	146	236081	41.229	ppb		98
91)	Hexachloroethane	13.02	117	22456	35.726	ppb		91
92)	1,2-Dibromo-3-chloropropan	13.78	157	19089	45.888	ppb	#	86
93)	1,2,4-Trichlorobenzene	14.98	180	156495	43.508	ppb		99
94)	Hexachlorobutadiene	15.28	225	75416	40.552	ppb		94
95)	Naphthalene	15.31	128	275870	45.939	ppb		98
96)	1,2,3-Trichlorobenzene	15.67	180	136454	43.846	ppb		93

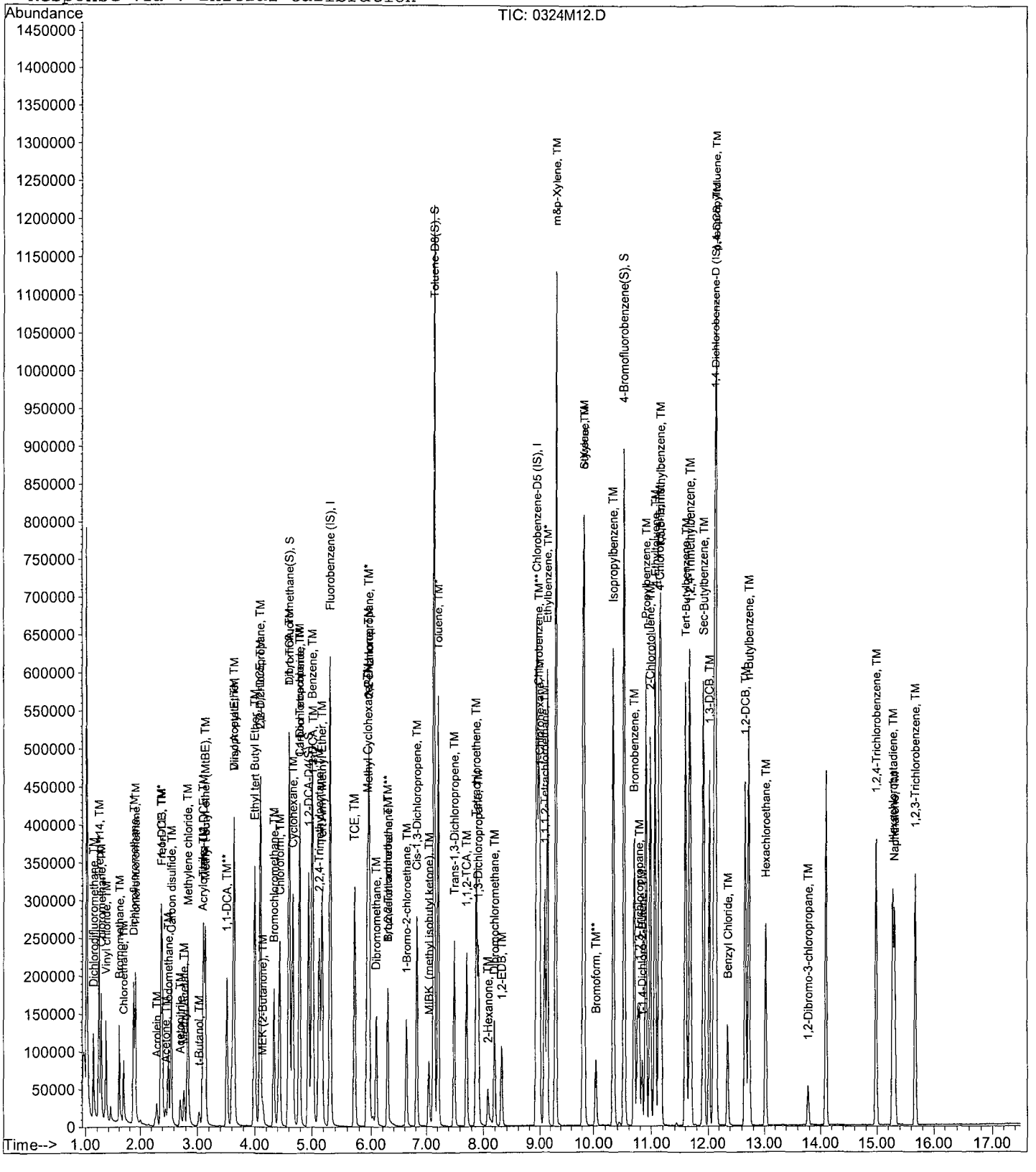
(#) = qualifier out of range (m) = manual integration

Data File : M:\MAX\DATA\M190324\0324M12.D
Acq On : 24 Mar 19 16:17
Sample : 40ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 10
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M13.D Vial: 11
Acq On : 24 Mar 19 16:45 Operator: PM,DG,SV,CMM,KV
Sample : 100ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.31	96	562288	25.000 ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	441644	25.000 ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	234726	25.000 ppb		0.00
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.60	111	385089	89.525 ppb		0.00
Spiked Amount 25.000			Recovery	= 358.100%		
37) 1,2-DCA-D4(S)	4.94	65	422708	85.300 ppb		0.00
Spiked Amount 25.000			Recovery	= 341.200%		
57) Toluene-D8(S)	7.14	98	1654770	84.385 ppb		0.00
Spiked Amount 25.000			Recovery	= 337.540%		
65) 4-Bromofluorobenzene(S)	10.52	95	621203	86.328 ppb		0.00
Spiked Amount 25.000			Recovery	= 345.312%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.14	85	141504	91.408 ppb		98
3) Freon 114	1.23	85	189686	89.046 ppb		96
4) Chloromethane	1.27	50	217005	92.534 ppb		100
5) Vinyl chloride	1.36	62	246040	96.396 ppb		93
6) Bromomethane	1.60	94	140237	87.406 ppb		95
7) Chloroethane	1.68	64	142292	83.944 ppb		95
8) Dichlorofluoromethane	1.87	67	420339	95.009 ppb		99
9) Trichlorofluoromethane	1.90	101	308827	95.863 ppb		99
10) Acrolein	2.30	56	17296	241.073 ppb		98
11) Acetone	2.46	43	47410	99.775 ppb		100
12) Freon-113	2.39	101	168362	91.165 ppb		98
13) 1,1-DCE	2.37	61	313029	97.935 ppb		99
14) Acetonitrile	2.71	41	46901	198.044 ppb		95
15) t-Butanol	3.04	59	24312	174.160 ppb	#	82
16) Methyl Acetate	2.77	43	82240	106.905 ppb		100
17) Iodomethane	2.50	142	280343	100.226 ppb		98
18) Acrylonitrile	3.08	53	73450	104.899 ppb		96
19) Methylene chloride	2.83	84	242384	97.318 ppb		98
20) Carbon disulfide	2.55	76	582222	96.980 ppb		100
21) Methyl t-butyl ether (MtBE	3.14	73	294976	101.513 ppb		98
22) Trans-1,2-DCE	3.10	96	225377	99.723 ppb		99
23) Diisopropyl Ether	3.63	45	851835	99.504 ppb		98
24) 1,1-DCA	3.51	63	442785	99.703 ppb		99
25) Vinyl Acetate	3.63	43	208640	92.720 ppb		100
26) Ethyl tert Butyl Ether	4.00	59	749297	102.638 ppb		100
27) MEK (2-Butanone)	4.15	43	68956	99.007 ppb		97
28) Cis-1,2-DCE	4.09	96	268688	98.488 ppb		98
29) 2,2-Dichloropropane	4.09	77	351154	95.088 ppb		98
30) Chloroform	4.43	83	430922	98.360 ppb		95
31) Bromochloromethane	4.33	128	127342	100.522 ppb		99
33) 1,1,1-TCA	4.61	97	357387	96.535 ppb		96
34) Cyclohexane	4.67	41	195213	84.465 ppb		94
35) 1,1-Dichloropropene	4.79	75	296173	97.060 ppb		97
36) 2,2,4-Trimethylpentane	5.12	57	590419	91.955 ppb		99
38) Carbon Tetrachloride	4.78	117	278015	112.591 ppb		98
39) Tert Amyl Methyl Ether	5.18	73	633172	100.502 ppb		99
40) 1,2-DCA	5.03	62	312479	94.052 ppb		99
41) Benzene	5.00	78	976315	96.581 ppb		100
42) TCE	5.72	95	252098	96.844 ppb		98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M13.D Vial: 11
Acq On : 24 Mar 19 16:45 Operator: PM,DG,SV,CMM,KV
Sample : 100ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
43)	2-Pentanone	5.97	43	265459	196.916 ppb	100
44)	1,2-Dichloropropane	5.96	63	246652	97.915 ppb	98
45)	Bromodichloromethane	6.29	83	320630	109.664 ppb	99
46)	Methyl Cyclohexane	5.93	83	333414	91.679 ppb	99
47)	Dibromomethane	6.09	93	129115	99.635 ppb	98
48)	MIBK (methyl isobutyl ket	7.04	43	163137	87.207 ppb	94
49)	1-Bromo-2-chloroethane	6.63	63	160448	98.585 ppb	99
51)	Cis-1,3-Dichloropropene	6.82	75	408670	104.574 ppb	99
52)	Toluene	7.21	91	1106799	97.612 ppb	98
53)	Trans-1,3-Dichloropropene	7.50	75	354248	108.352 ppb	97
54)	1,1,2-TCA	7.71	83	158016	98.499 ppb	98
55)	2-Hexanone	8.08	43	104066	85.332 ppb	98
58)	1,2-EDB	8.31	107	197465	98.417 ppb	98
59)	Tetrachloroethene	7.88	164	222398	91.546 ppb	99
60)	1-Chlorohexane	8.99	91	318198	94.579 ppb	97
61)	1,1,1,2-Tetrachloroethane	9.09	131	263958	110.280 ppb	95
62)	m&p-Xylene	9.30	106	984994	198.120 ppb	99
63)	o-Xylene	9.82	106	503762	99.460 ppb	97
64)	Styrene	9.84	104	853008	102.621 ppb	94
66)	1,3-Dichloropropane	7.92	76	347648	94.668 ppb	98
67)	Dibromochloromethane	8.19	129	223894	117.429 ppb	93
68)	Chlorobenzene	8.97	112	761539	98.849 ppb	99
69)	Ethylbenzene	9.14	91	1224261	97.548 ppb	97
70)	Bromoform	10.05	173	136695	101.346 ppb	100
72)	Isopropylbenzene	10.34	105	1238296	96.042 ppb	99
73)	1,1,2,2-Tetrachloroethane	6.29	83	320630	101.805 ppb	99
74)	1,2,3-Trichloropropane	10.79	110	71676	94.925 ppb	94
75)	t-1,4-Dichloro-2-Butene	10.84	53	28432	97.749 ppb	87
76)	Bromobenzene	10.69	156	341099	97.442 ppb	97
77)	n-Propylbenzene	10.91	91	1372090	95.121 ppb	98
78)	4-Ethyltoluene	11.07	105	1241665	97.432 ppb	98
79)	2-Chlorotoluene	10.98	91	843554	94.709 ppb	99
80)	1,3,5-Trimethylbenzene	11.17	105	1026534	94.671 ppb	98
81)	4-Chlorotoluene	11.14	91	989465	95.379 ppb	99
82)	Tert-Butylbenzene	11.61	119	896498	92.822 ppb	95
83)	1,2,4-Trimethylbenzene	11.68	105	1058993	96.896 ppb	100
84)	Sec-Butylbenzene	11.92	105	1225293	95.794 ppb	97
85)	p-Isopropyltoluene	12.15	119	576832	97.771 ppb	98
86)	Benzyl Chloride	12.36	91	310395	116.258 ppb	96
87)	1,3-DCB	12.02	146	633430	99.610 ppb	100
88)	1,4-DCB	12.15	146	322240	99.594 ppb	99
89)	n-Butylbenzene	12.72	91	476800	99.305 ppb	99
90)	1,2-DCB	12.66	146	590836	100.641 ppb	99
91)	Hexachloroethane	13.02	117	68568	102.192 ppb	90
92)	1,2-Dibromo-3-chloropropan	13.78	157	46126	108.150 ppb	89
93)	1,2,4-Trichlorobenzene	14.99	180	386125	104.705 ppb	99
94)	Hexachlorobutadiene	15.28	225	179423	94.101 ppb	93
95)	Naphthalene	15.32	128	649926	105.562 ppb	97
96)	1,2,3-Trichlorobenzene	15.67	180	330464	103.569 ppb	95

(#) = qualifier out of range (m) = manual integration

Quantitation Report

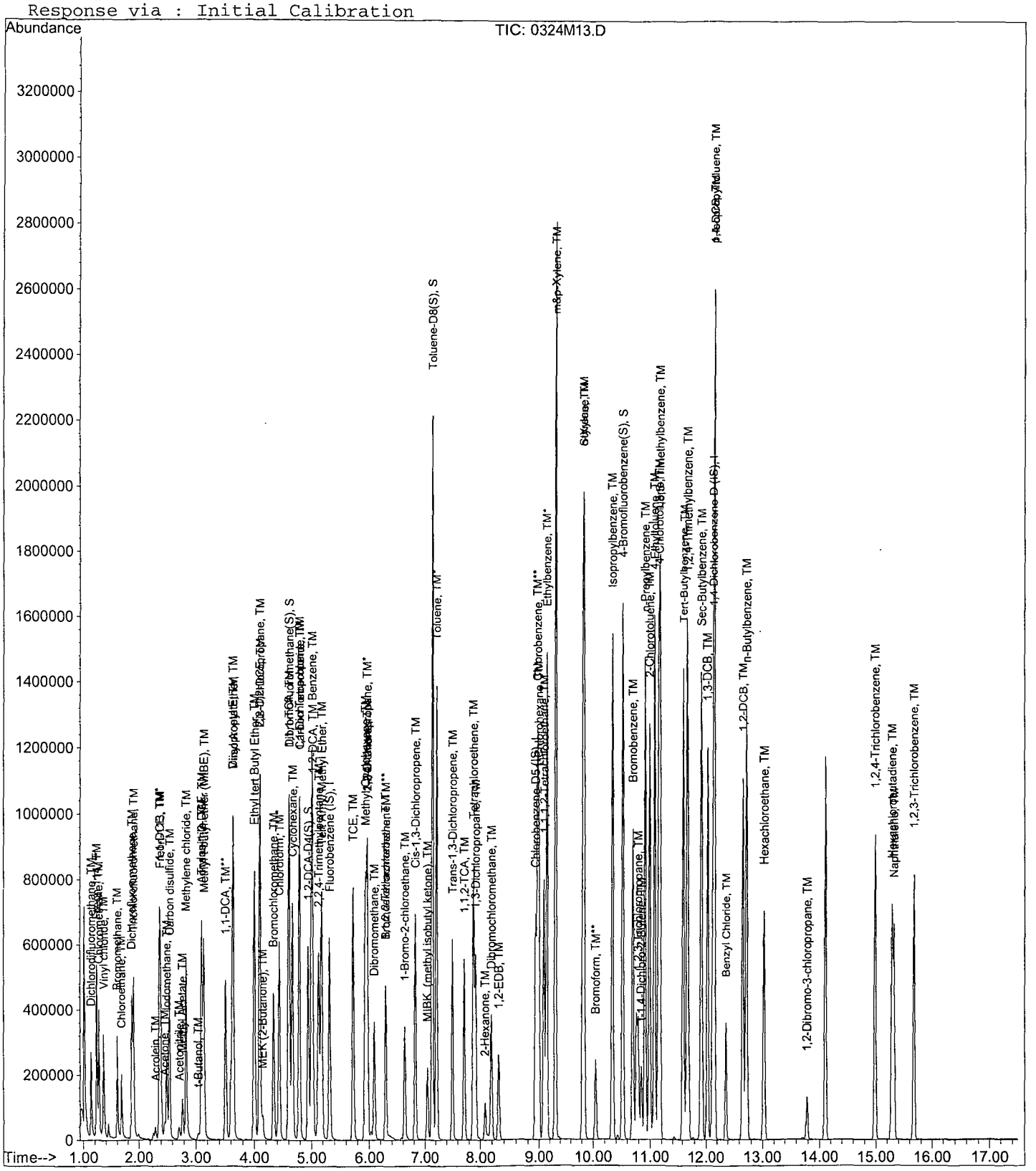
Data File : M:\MAX\DATA\M190324\0324M13.D
Acq On : 24 Mar 19 16:45
Sample : 100ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

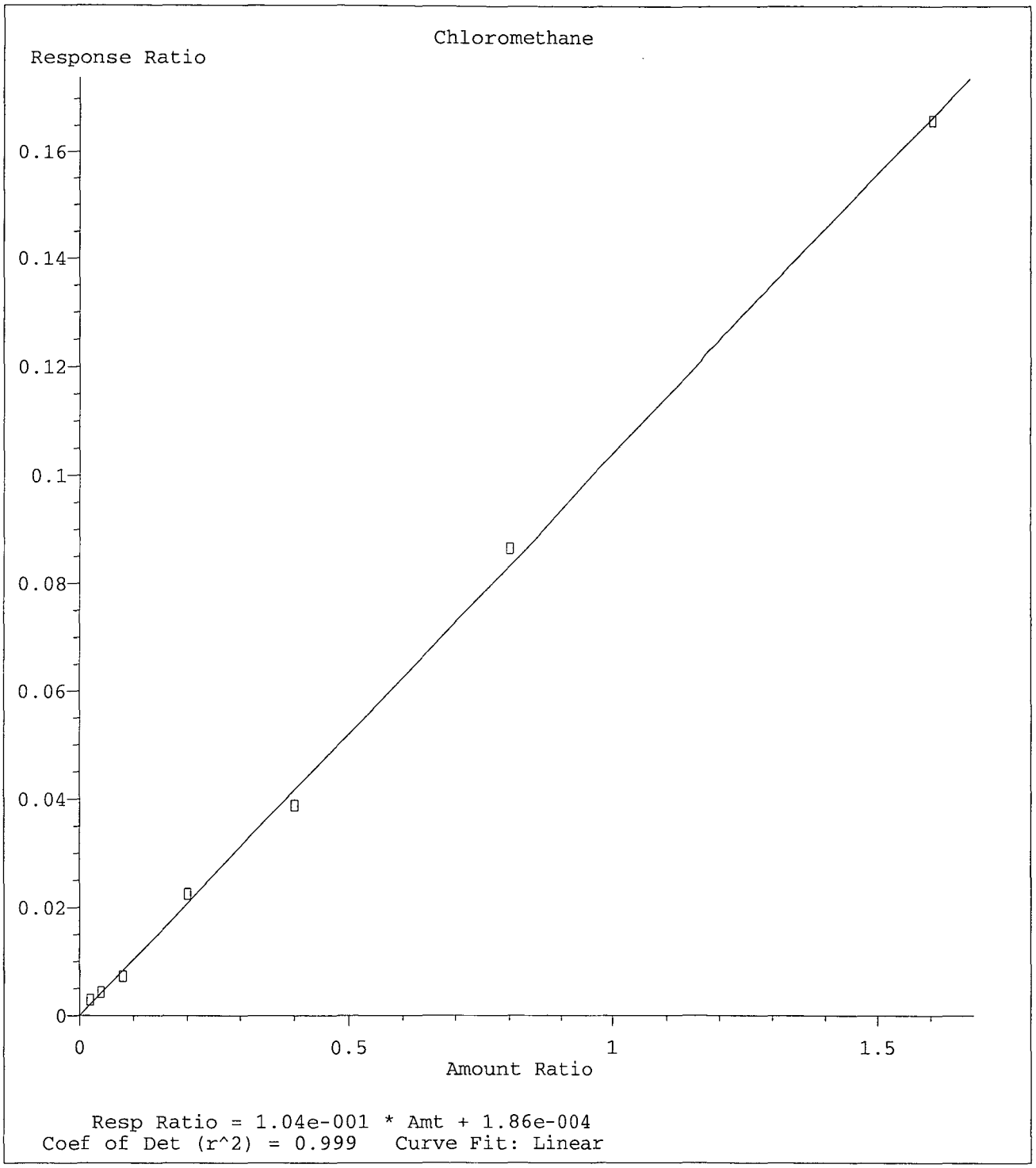
Vial: 11
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019

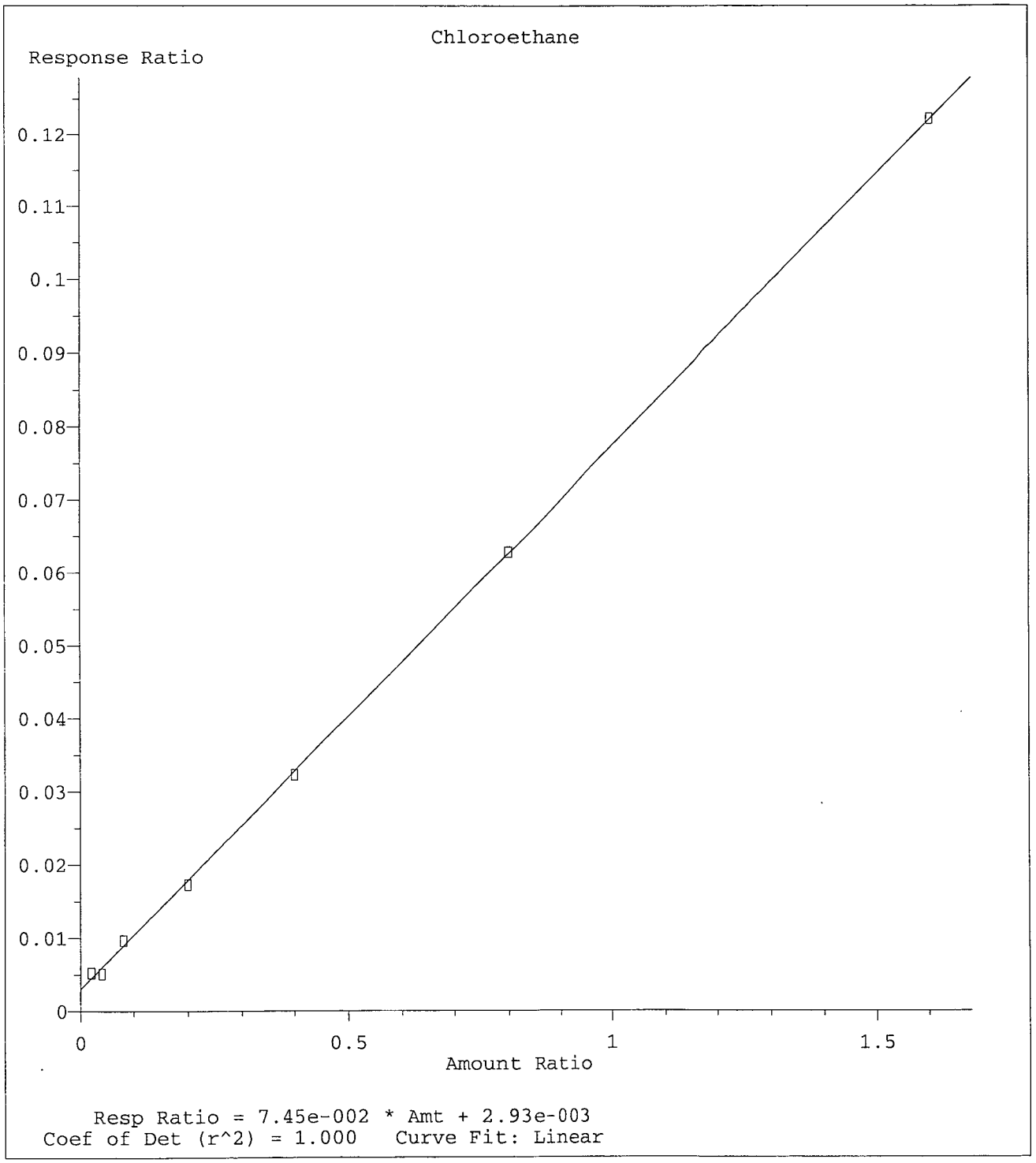
Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration

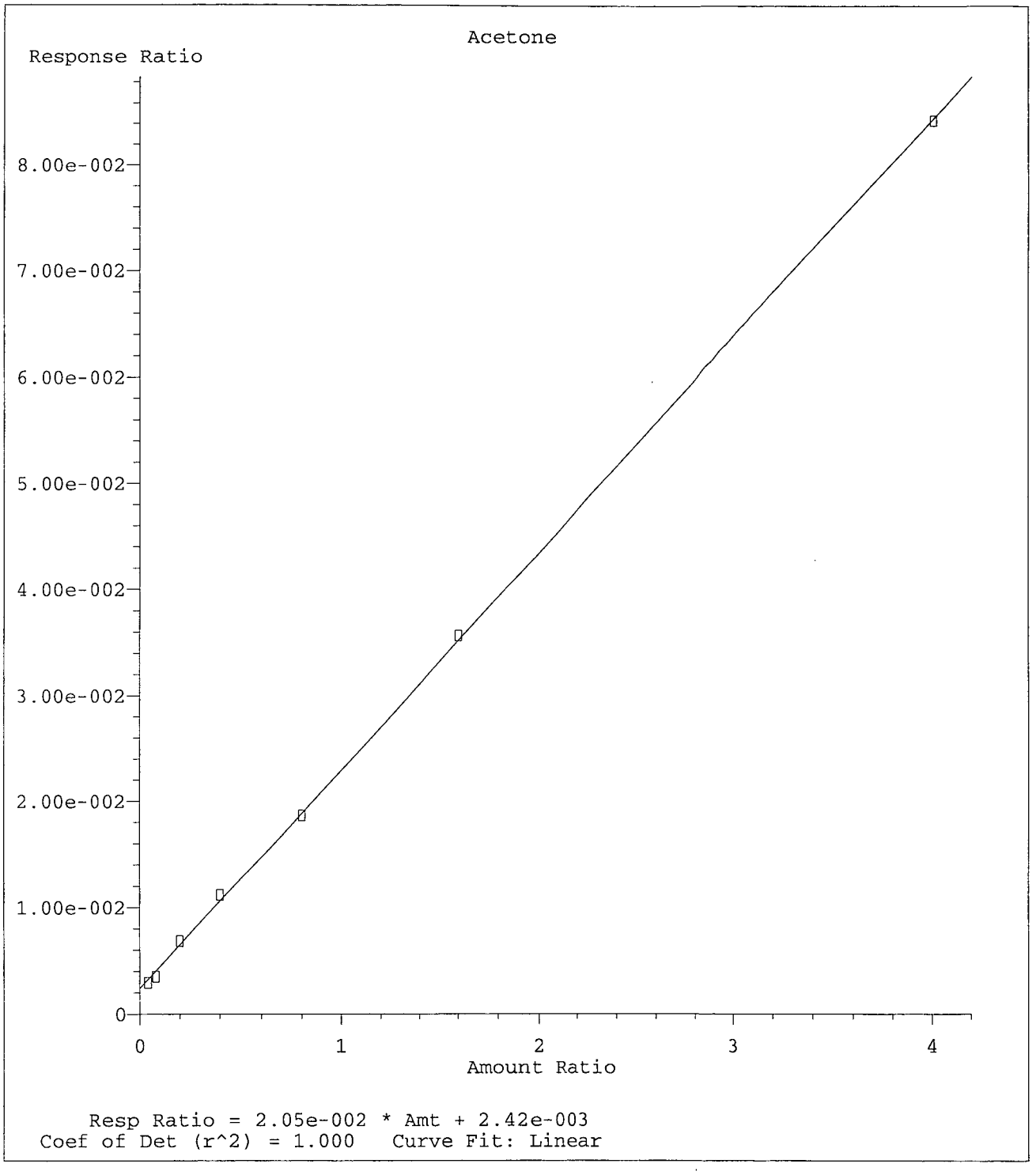




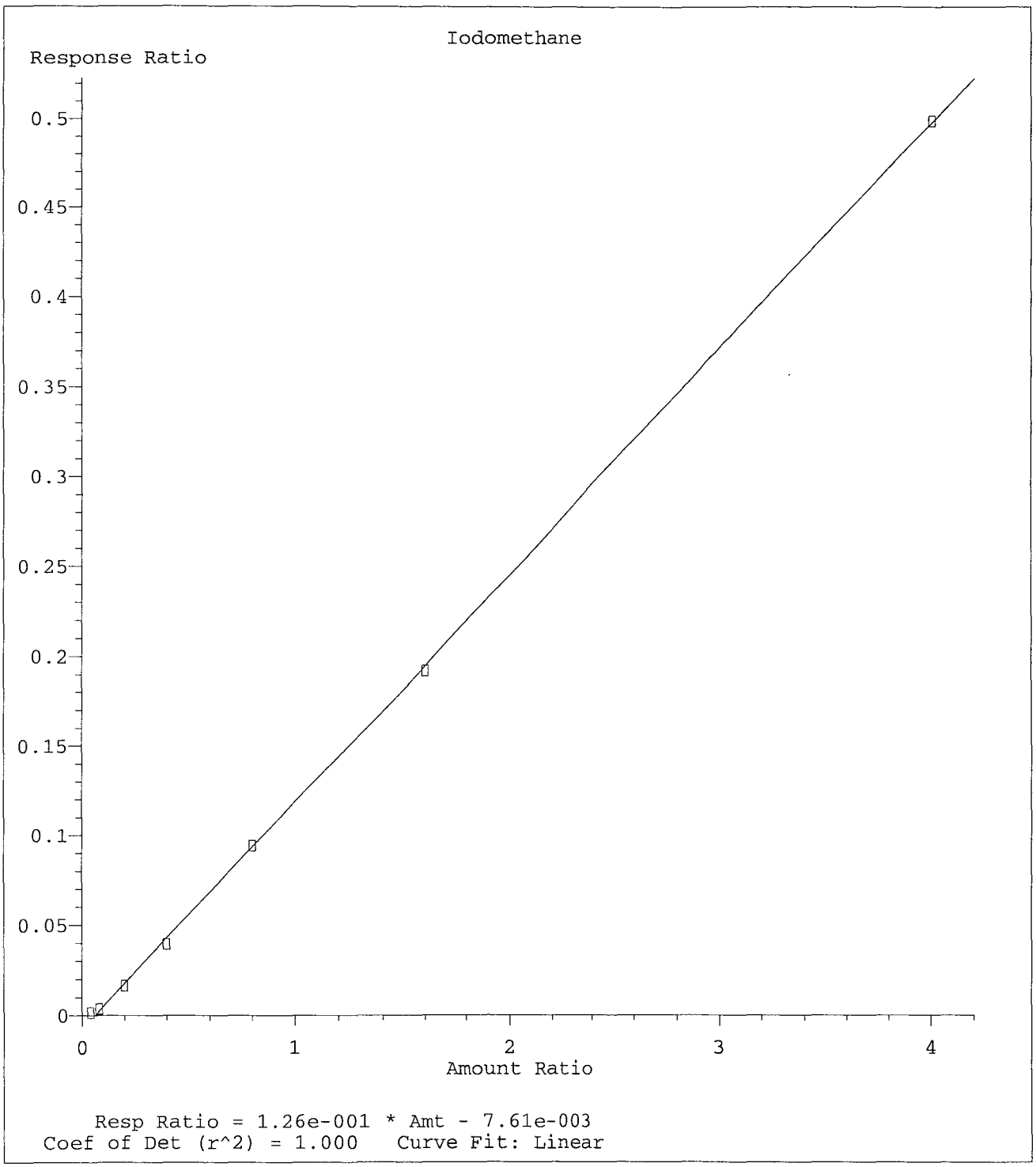
Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019



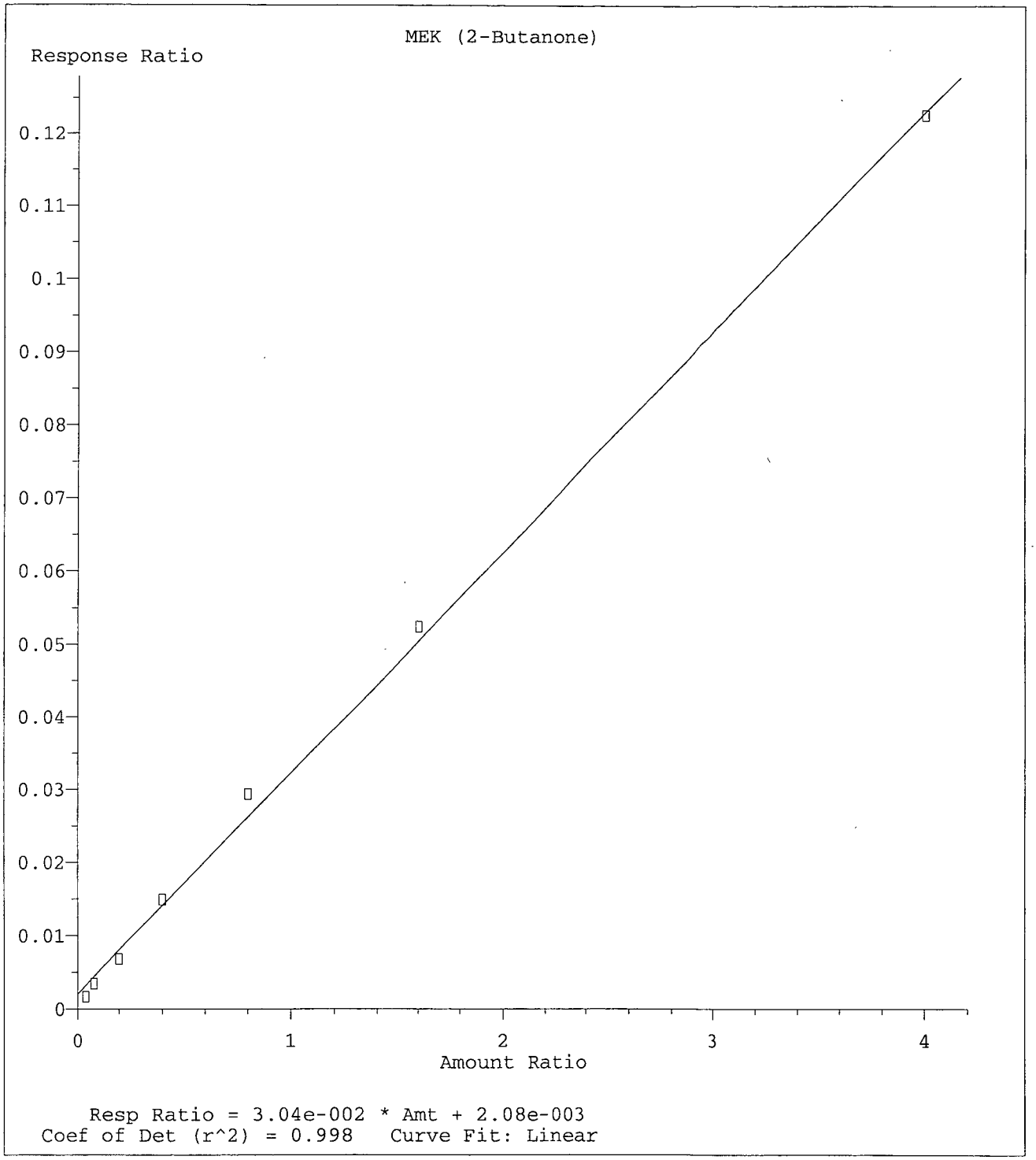
Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019



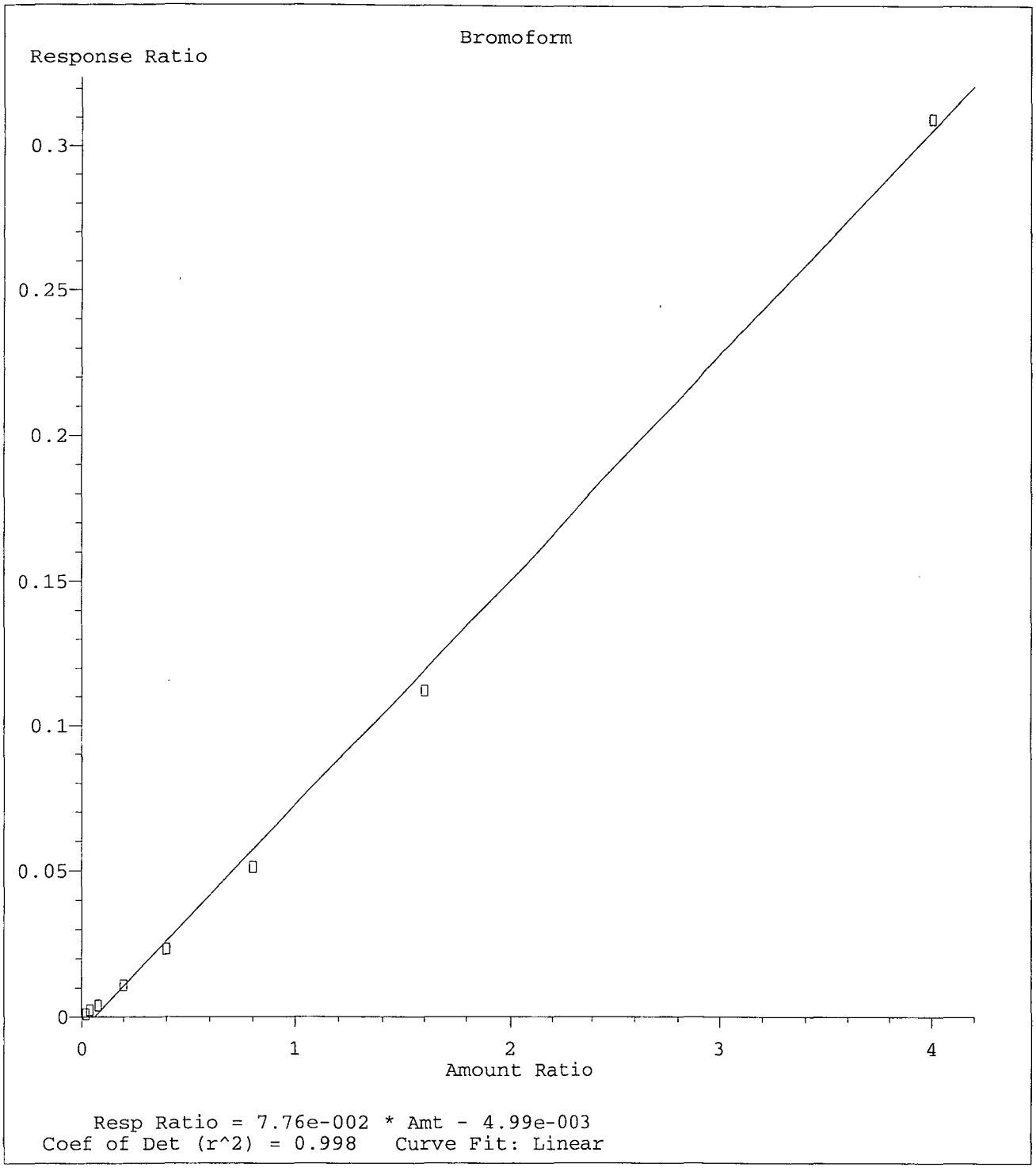
Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019



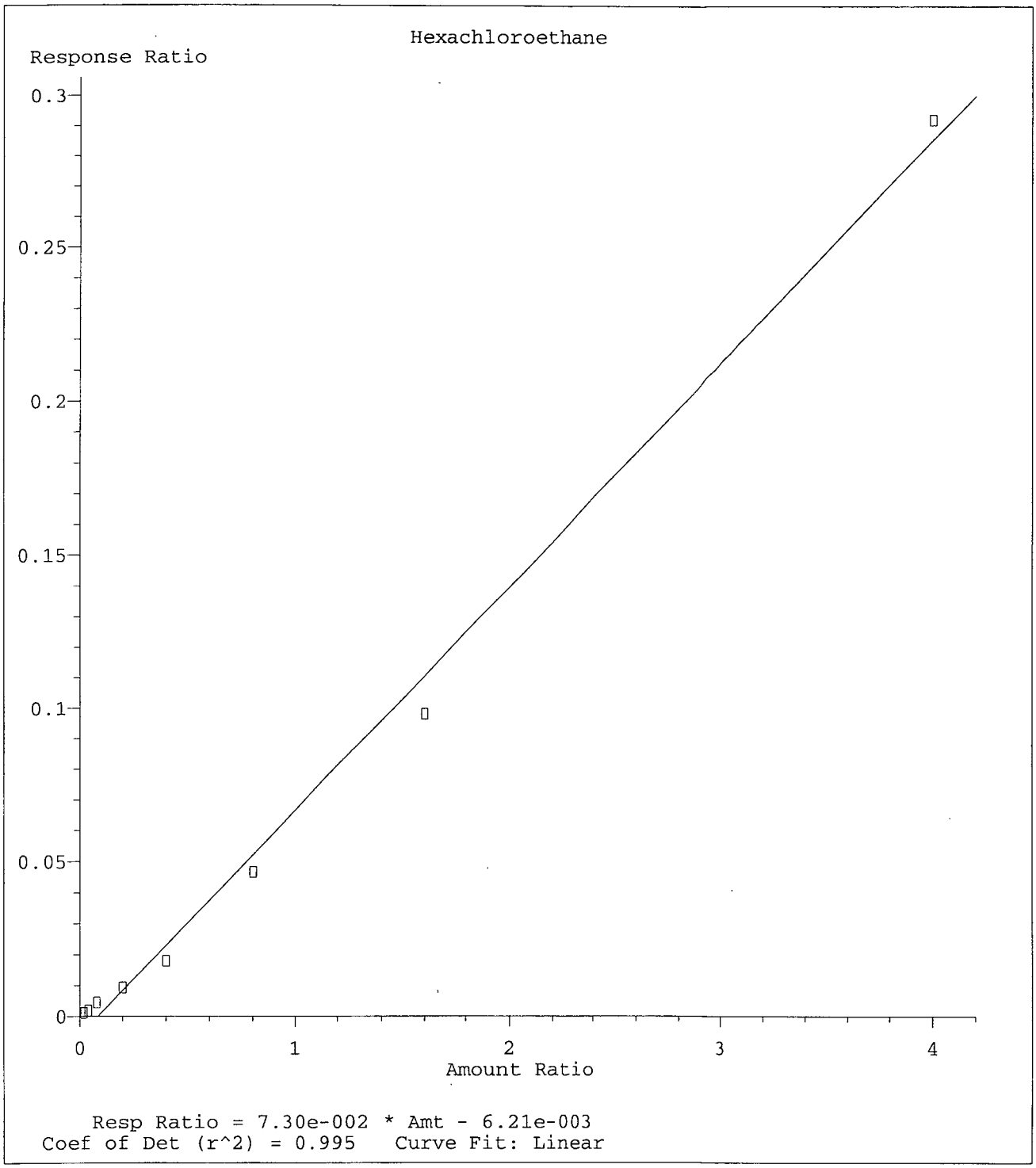
Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019



Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019



Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019



Method Name: M:\MAX\DATA\M190324\M0324.M
Calibration Table Last Updated: Mon Mar 25 09:13:52 2019

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: water

SDG No:
Date Analyzed: 03/24/19
Instrument: Max
Initial Cal. Date: 03/24/19
Data File: 0324M16.D

		Compound	MEAN	CCRF	%D		%Drift	
1	TM	Dichlorodifluoromethane	0.0688	0.0632	8.2	TM		
2	TM	Freon 114	0.0947	0.0851	10	TM		
3	TM**L	Chloromethane	0.1096	0.0838	24	TM**L	20	
4	TM*	Vinyl chloride	0.1135	0.1122	1.1	TM*		
5	TM	Bromomethane	0.0713	0.0802	12	TM		
6	TML	Chloroethane	0.1187	0.0822	31	TML	0.49	
7	TM	Dichlorofluoromethane	0.1967	0.1749	11	TM		
8	TM	Trichlorofluoromethane	0.1432	0.1484	3.6	TM		
9	TM	Acrolein	0.0032	0.0026	17	TM		
10	TML	Acetone	0.0350	0.0292	17	TML	13	
11	TM	Freon-113	0.0821	0.0785	4.4	TM		
12	TM*	1,1-DCE	0.1421	0.1449	1.9	TM*		
13	TM	Acetonitrile	0.0105	0.0109	3.3	TM		
14	TM	t-Butanol	0.0062	0.0070	12	TM		
15	TM	Methyl Acetate	0.0342	0.0326	4.8	TM		
16	TML	Iodomethane	0.0895	0.0495	45	TML	46	*NT
17	TM	Acrylonitrile	0.0311	0.0313	0.47	TM		
18	TM	Methylene chloride	0.1107	0.1106	0.17	TM		
19	TM	Carbon disulfide	0.2669	0.2543	4.7	TM		
20	TM	Methyl t-butyl ether (MtBE)	0.1292	0.1199	7.2	TM		
21	TM	Trans-1,2-DCE	0.1005	0.1049	4.4	TM		
22	TM	Diisopropyl Ether	0.3806	0.3636	4.5	TM		
23	TM**	1,1-DCA	0.1975	0.1948	1.4	TM**		
24	TM	Vinyl Acetate	0.1000	0.0921	8.0	TM		
25	TM	Ethyl tert Butyl Ether	0.3246	0.2397	26	TM		*NT
26	TML	MEK (2-Butanone)	0.0367	0.0325	12	TML	10	
27	TM	Cis-1,2-DCE	0.1213	0.1200	1.1	TM		
28	TM	2,2-Dichloropropane	0.1642	0.1398	15	TM		
29	TM*	Chloroform	0.1948	0.1876	3.7	TM*		
30	TM	Bromochloromethane	0.0563	0.0564	0.09	TM		
31	TM	1,1,1-TCA	0.1646	0.1562	5.1	TM		
32	TM	Cyclohexane	0.1028	0.0880	14	TM		
33	TM	1,1-Dichloropropene	0.1357	0.1368	0.87	TM		
34	TM	2,2,4-Trimethylpentane	0.2855	0.2538	11	TM		
35	TM	Carbon Tetrachloride	0.1098	0.1132	3.1	TM		
36	TM	Tert Amyl Methyl Ether	0.2801	0.1964	30	TM		*NT
37	TM	1,2-DCA	0.1477	0.1455	1.5	TM		
38	TM	Benzene	0.4494	0.4446	1.1	TM		
39	TM	TCE	0.1157	0.1144	1.1	TM		
40	TM	2-Pentanone	0.0599	0.0589	1.8	TM		
		Average			9.1			

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: water

SDG No:
Date Analyzed: 03/24/19
Instrument: Max
Cal. Date: 03/24/19
Data File: 0324M16.D

		Compound	MEAN	CCRF	%D		%Drift
81	TM	n-Butylbenzene	0.5114	0.5051	1.2	TM	
82	TM	1,2-DCB	0.6253	0.6438	3.0	TM	
83	TML	Hexachloroethane	0.0554	0.0491	11	TML	12
84	TM	1,2-Dibromo-3-chloropropane	0.0454	0.0499	9.8	TM	
85	TM	1,2,4-Trichlorobenzene	0.3928	0.4060	3.4	TM	
86	TM	Hexachlorobutadiene	0.2031	0.2008	1.1	TM	
87	TM	Naphthalene	0.6557	0.7529	15	TM	
88	TM	1,2,3-Trichlorobenzene	0.3398	0.3644	7.2	TM	
89							
90							
91							
92							
93							
94							
95							
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113							
114							
115							
116							
117							
118							
119							
120							
		Average			6.5		

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M16.D Vial: 14
Acq On : 24 Mar 19 18:11 Operator: PM,DG,SV,CMM,KV
Sample : (SS)10ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.31	96	636618	25.000	ppb		0.00
56) Chlorobenzene-D5 (IS)	8.93	117	461911	25.000	ppb		0.00
71) 1,4-Dichlorobenzene-D (IS)	12.12	152	230470	25.000	ppb		0.00
System Monitoring Compounds							
32) Dibromofluoromethane(S)	4.60	111	117539	24.135	ppb		0.00
Spiked Amount 25.000			Recovery =	96.540%			
37) 1,2-DCA-D4(S)	4.95	65	135697	24.186	ppb		0.00
Spiked Amount 25.000			Recovery =	96.744%			
57) Toluene-D8(S)	7.13	98	501525	24.453	ppb		0.00
Spiked Amount 25.000			Recovery =	97.812%			
65) 4-Bromofluorobenzene(S)	10.52	95	179120	23.800	ppb		0.00
Spiked Amount 25.000			Recovery =	95.200%			
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.14	85	16084	9.177	ppb		97
3) Freon 114	1.24	85	21659	8.980	ppb		99
4) Chloromethane	1.28	50	21328	7.992	ppb		98
5) Vinyl chloride	1.36	62	28568	9.886	ppb		96
6) Bromomethane	1.60	94	20431	11.247	ppb		93
7) Chloroethane	1.69	64	20929	10.049	ppb		94
8) Dichlorofluoromethane	1.87	67	44537	8.891	ppb		99
9) Trichlorofluoromethane	1.92	101	37802	10.364	ppb		99
10) Acrolein	2.30	56	8386	103.237	ppb		94
11) Acetone	2.46	43	7441	11.296	ppb		97
12) Freon-113	2.39	101	19990	9.560	ppb		98
13) 1,1-DCE	2.37	61	36891	10.194	ppb		98
14) Acetonitrile	2.71	41	34637	129.181	ppb		93
15) t-Butanol	3.03	59	22188	140.387	ppb	#	80
16) Methyl Acetate	2.78	43	8294	9.523	ppb		99
17) Iodomethane	2.50	142	12595	5.424	ppb		98
18) Acrylonitrile	3.09	53	7965	10.047	ppb		96
19) Methylene chloride	2.84	84	28152	9.983	ppb		99
20) Carbon disulfide	2.55	76	64768	9.529	ppb		99
21) Methyl t-butyl ether (MtBE	3.14	73	30536	9.282	ppb		100
22) Trans-1,2-DCE	3.10	96	26725	10.444	ppb		93
23) Diisopropyl Ether	3.63	45	92593	9.553	ppb		99
24) 1,1-DCA	3.51	63	49597	9.864	ppb		99
25) Vinyl Acetate	3.63	43	23448	9.204	ppb	#	100
26) Ethyl tert Butyl Ether	4.00	59	61028	7.384	ppb		99
27) MEK (2-Butanone)	4.15	43	8266	8.952	ppb		91
28) Cis-1,2-DCE	4.10	96	30548	9.890	ppb		98
29) 2,2-Dichloropropane	4.09	77	35610	8.517	ppb		97
30) Chloroform	4.44	83	47761	9.629	ppb		96
31) Bromochloromethane	4.34	128	14356	10.009	ppb		97
33) 1,1,1-TCA	4.61	97	39788	9.492	ppb		97
34) Cyclohexane	4.67	41	22404	8.562	ppb		96
35) 1,1-Dichloropropene	4.79	75	34848	10.087	ppb		97
36) 2,2,4-Trimethylpentane	5.12	57	64625	8.890	ppb		99
38) Carbon Tetrachloride	4.78	117	28832	10.313	ppb		99
39) Tert Amyl Methyl Ether	5.18	73	50015	7.012	ppb		98
40) 1,2-DCA	5.03	62	37055	9.851	ppb		98
41) Benzene	5.00	78	113225	9.893	ppb		99
42) TCE	5.72	95	29142	9.888	ppb		98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M16.D Vial: 14
Acq On : 24 Mar 19 18:11 Operator: PM,DG,SV,CMM,KV
Sample : (SS)10ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Mar 25 9:18 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
43) 2-Pentanone	5.97	43	187364	122.758 ppb	99
44) 1,2-Dichloropropane	5.96	63	27668	9.701 ppb	100
45) Bromodichloromethane	6.29	83	32690	9.875 ppb	96
46) Methyl Cyclohexane	5.93	83	37429	9.090 ppb	99
47) Dibromomethane	6.09	93	14892	10.150 ppb	99
48) MIBK (methyl isobutyl ket	7.04	43	19621	9.264 ppb	93
49) 1-Bromo-2-chloroethane	6.63	63	18312	9.938 ppb	96
51) Cis-1,3-Dichloropropene	6.82	75	42580	9.624 ppb	100
52) Toluene	7.21	91	123036	9.584 ppb	100
53) Trans-1,3-Dichloropropene	7.50	75	36570	9.879 ppb	98
54) 1,1,2-TCA	7.72	83	18027	9.925 ppb	94
55) 2-Hexanone	8.08	43	13468	9.754 ppb	89
58) 1,2-EDB	8.31	107	21337	10.168 ppb	97
59) Tetrachloroethene	7.88	164	26511	10.434 ppb	93
60) 1-Chlorohexane	8.99	91	33310	9.466 ppb	98
61) 1,1,1,2-Tetrachloroethane	9.08	131	25196	10.065 ppb	91
62) m&p-Xylene	9.30	106	102776	19.765 ppb	97
63) o-Xylene	9.82	106	52622	9.934 ppb	99
64) Styrene	9.84	104	85774	9.866 ppb	99
66) 1,3-Dichloropropane	7.92	76	39295	10.231 ppb	99
67) Dibromochloromethane	8.19	129	21631	10.847 ppb	88
68) Chlorobenzene	8.96	112	79083	9.815 ppb	98
69) Ethylbenzene	9.14	91	128459	9.786 ppb	95
70) Bromoform	10.04	173	11268	9.469 ppb	97
72) Isopropylbenzene	10.34	105	124478	9.833 ppb	98
73) 1,1,2,2-Tetrachloroethane	6.29	83	32690	10.571 ppb	96
74) 1,2,3-Trichloropropane	10.79	110	7863	10.606 ppb	86
75) t-1,4-Dichloro-2-Butene	10.84	53	2350	8.228 ppb	100
76) Bromobenzene	10.69	156	34936	10.164 ppb	93
77) n-Propylbenzene	10.90	91	138882	9.806 ppb	99
78) 4-Ethyltoluene	11.07	105	120672	9.644 ppb	98
79) 2-Chlorotoluene	10.98	91	86335	9.872 ppb	97
80) 1,3,5-Trimethylbenzene	11.16	105	104342	9.801 ppb	99
81) 4-Chlorotoluene	11.14	91	102394	10.053 ppb	99
82) Tert-Butylbenzene	11.61	119	88695	9.353 ppb	97
83) 1,2,4-Trimethylbenzene	11.67	105	106379	9.913 ppb	98
84) Sec-Butylbenzene	11.92	105	121287	9.657 ppb	95
85) p-Isopropyltoluene	12.14	119	55632	9.604 ppb	98
86) Benzyl Chloride	12.36	91	21564	8.226 ppb	97
87) 1,3-DCB	12.02	146	62314	9.980 ppb	97
88) 1,4-DCB	12.15	146	31360	9.871 ppb	99
89) n-Butylbenzene	12.72	91	46560	9.876 ppb	97
90) 1,2-DCB	12.66	146	59351	10.296 ppb	99
91) Hexachloroethane	13.02	117	4522	8.848 ppb	95
92) 1,2-Dibromo-3-chloropropan	13.78	157	4599	10.982 ppb	90
93) 1,2,4-Trichlorobenzene	14.98	180	37424	10.336 ppb	99
94) Hexachlorobutadiene	15.28	225	18511	9.888 ppb	92
95) Naphthalene	15.31	128	69409	11.482 ppb	97
96) 1,2,3-Trichlorobenzene	15.67	180	33589	10.721 ppb	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

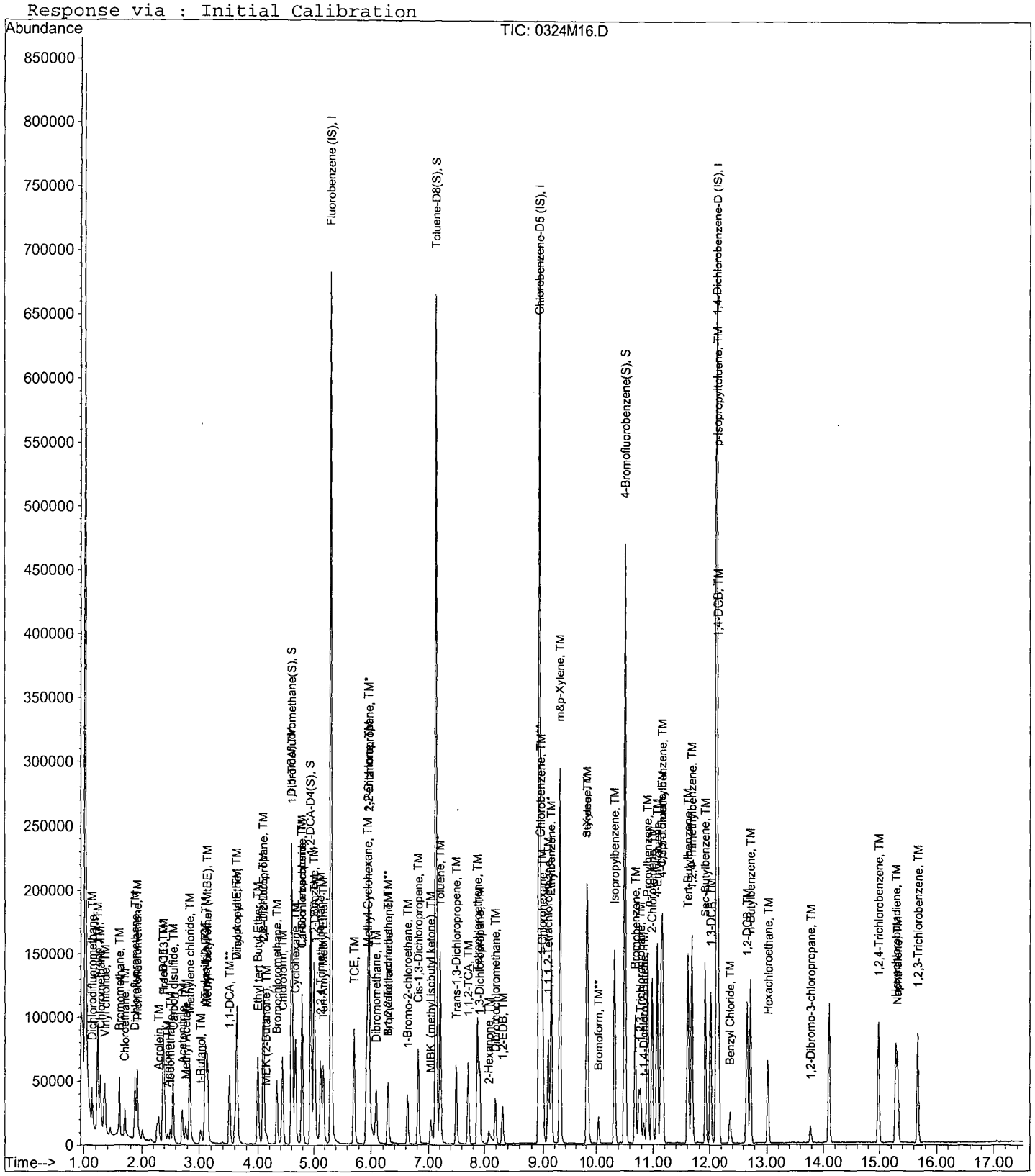
Data File : M:\MAX\DATA\M190324\0324M16.D
Acq On : 24 Mar 19 18:11
Sample : (SS)10ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 14
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Mar 25 9:18 2019

Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration



VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Continuing Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Date Analyzed: 04/29/19
Matrix: water Instrument: Max
Initial Cal. Date: 03/24/19
Data File: 0429M03.D

		Compound	MEAN	CCRF	%D		%Drift	
1	I	Fluorobenzene (IS)	ISTD			I		
2	TM	Dichlorodifluoromethane	0.0688	0.0751	9.1	TM		
3	TM	Freon 114	0.0947	0.0973	2.7	TM		
4	TM**L	Chloromethane	0.1096	0.1313	20	TM**L	26	*NT
5	TM*	Vinyl chloride	0.1135	0.1385	22	TM*		*NT
6	TM	Bromomethane	0.0713	0.0927	30	TM		*NT
7	TML	Chloroethane	0.1187	0.0857	28	TML	5.2	
8	TM	Dichlorofluoromethane	0.1967	0.1964	0.17	TM		
9	TM	Trichlorofluoromethane	0.1432	0.1585	11	TM		
10	TM	Acrolein	0.0032	0.0042	31	TM		*NT
11	TML	Acetone	0.0350	0.0003	99	TML	128	*NT
12	TM*	1,1-DCE	0.1421	0.1338	5.8	TM*		
13	TM	Acetonitrile	0.0105	0.0105	0.20	TM		
14	TM	t-Butanol	0.0062	0.0064	3.8	TM		
15	TM	Methyl Acetate	0.0342	0.0333	2.6	TM		
16	TML	Iodomethane	0.0895	0.0866	3.2	TML	16	
17	TM	Acrylonitrile	0.0311	0.0340	9.1	TM		
18	TM	Methylene chloride	0.1107	0.1103	0.38	TM		
19	TM	Carbon disulfide	0.2669	0.2670	0.04	TM		
20	TM	Methyl t-butyl ether (MtBE)	0.1292	0.1371	6.1	TM		
21	TM	Trans-1,2-DCE	0.1005	0.1034	2.9	TM		
22	TM	Diisopropyl Ether	0.3806	0.3833	0.70	TM		
23	TM**	1,1-DCA	0.1975	0.1981	0.31	TM**		
24	TM	Vinyl Acetate	0.1000	0.0986	1.4	TM		
25	TM	Ethyl tert Butyl Ether	0.3246	0.3561	9.7	TM		
26	TML	MEK (2-Butanone)	0.0367	0.0373	1.7	TML	5.4	
27	TM	Cis-1,2-DCE	0.1213	0.1266	4.4	TM		
28	TM	2,2-Dichloropropane	0.1642	0.1757	7.0	TM		
29	TM*	Chloroform	0.1948	0.1896	2.7	TM*		
30	TM	Bromochloromethane	0.0563	0.0603	7.1	TM		
31	S	Dibromofluoromethane(S)	0.1912	0.2003	4.7	S		
32	TM	1,1,1-TCA	0.1646	0.1629	1.0	TM		
33	TM	Cyclohexane	0.1028	0.0925	10	TM		
34	TM	1,1-Dichloropropene	0.1357	0.1351	0.39	TM		
35	TM	2,2,4-Trimethylpentane	0.2855	0.2813	1.4	TM		
36	S	1,2-DCA-D4(S)	0.2203	0.2053	6.8	S		
37	TM	Carbon Tetrachloride	0.1098	0.1270	16	TM		
38	TM	Tert Amyl Methyl Ether	0.2801	0.3242	16	TM		
39	TM	1,2-DCA	0.1477	0.1354	8.4	TM		
40	TM	Benzene	0.4494	0.4562	1.5	TM		
		Average			10.0			

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: water

SDG No:
Date Analyzed: 04/29/19
Instrument: Max
Cal. Date: 03/24/19
Data File: 0429M03.D

		Compound	MEAN	CCRF	%D		%Drift
41	TM	TCE	0.1157	0.1105	4.5	TM	
42	TM	2-Pentanone	0.0599	0.0579	3.5	TM	
43	TM*	1,2-Dichloropropane	0.1120	0.1092	2.5	TM*	
44	TM	Bromodichloromethane	0.1300	0.1391	7.0	TM	
45	TM	Methyl Cyclohexane	0.1617	0.1582	2.2	TM	
46	TM	Dibromomethane	0.0576	0.0595	3.2	TM	
47	TM	MIBK (methyl isobutyl ketone)	0.0832	0.0735	12	TM	
48	TM	1-Bromo-2-chloroethane	0.0724	0.0727	0.48	TM	
49	TM	Cis-1,3-Dichloropropene	0.1738	0.1771	2.0	TM	
50	TM*	Toluene	0.5041	0.5119	1.5	TM*	
51	TM	Trans-1,3-Dichloropropene	0.1454	0.1510	3.9	TM	
52	TM	1,1,2-TCA	0.0713	0.0718	0.71	TM	
53	TM	2-Hexanone	0.0542	0.0499	8.0	TM	
54	I	Chlorobenzene-D5 (IS)	ISTD			I	
55	S	Toluene-D8(S)	1.110	1.093	1.5	S	
56	TM	1,2-EDB	0.1136	0.1136	0.03	TM	
57	TM	Tetrachloroethene	0.1375	0.1355	1.5	TM	
58	TM	1-Chlorohexane	0.1904	0.1880	1.3	TM	
59	TM	1,1,1,2-Tetrachloroethane	0.1355	0.1441	6.3	TM	
60	TM	m&p-Xylene	0.2814	0.2855	1.4	TM	
61	TM	o-Xylene	0.2867	0.2916	1.7	TM	
62	TM	Styrene	0.4705	0.4768	1.3	TM	
63	S	4-Bromofluorobenzene(S)	0.4073	0.4192	2.9	S	
64	TM	1,3-Dichloropropane	0.2079	0.2035	2.1	TM	
65	TM	Dibromochloromethane	0.1079	0.1217	13	TM	
66	TM**	Chlorobenzene	0.4361	0.4315	1.1	TM**	
67	TM*	Ethylbenzene	0.7104	0.7088	0.23	TM*	
68	TM**L	Bromoform	0.0599	0.0772	29	TM**L	16
69	I	1,4-Dichlorobenzene-D (IS)	ISTD			I	
70	TM	Isopropylbenzene	1.373	1.297	5.6	TM	
71	TM**	1,1,2,2-Tetrachloroethane	0.3354	0.3263	2.7	TM**	
72	TM	1,2,3-Trichloropropane	0.0804	0.0778	3.2	TM	
73	TM	t-1,4-Dichloro-2-Butene	0.0310	0.0302	2.6	TM	
74	TM	Bromobenzene	0.3728	0.3564	4.4	TM	
75	TM	n-Propylbenzene	1.536	1.413	8.0	TM	
76	TM	4-Ethyltoluene	1.357	1.306	3.8	TM	
77	TM	2-Chlorotoluene	0.9486	0.8726	8.0	TM	
78	TM	1,3,5-Trimethylbenzene	1.155	1.064	7.8	TM	
79	TM	4-Chlorotoluene	1.105	1.027	7.0	TM	
80	TM	Tert-Butylbenzene	1.029	0.9443	8.2	TM	
		Average			4.6		

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: water

SDG No:
Date Analyzed: 04/29/19
Instrument: Max
Cal. Date: 03/24/19
Data File: 0429M03.D

		Compound	MEAN	CCRF	%D		%Drift	
81	TM	1,2,4-Trimethylbenzene	1.164	1.083	7.0	TM		
82	TM	Sec-Butylbenzene	1.362	1.252	8.1	TM		
83	TM	p-Isopropyltoluene	0.6284	0.5751	8.5	TM		
84	TM	Benzyl Chloride	0.2844	0.0737	74	TM		*NT
85	TM	1,3-DCB	0.6773	0.6490	4.2	TM		
86	TM	1,4-DCB	0.3446	0.3288	4.6	TM		
87	TM	n-Butylbenzene	0.5114	0.4484	12	TM		
88	TM	1,2-DCB	0.6253	0.6137	1.8	TM		
89	TML	Hexachloroethane	0.0554	0.0642	16	TML	9.3	
90	TM	1,2-Dibromo-3-chloropropane	0.0454	0.0469	3.3	TM		
91	TM	1,2,4-Trichlorobenzene	0.3928	0.3431	13	TM		
92	TM	Hexachlorobutadiene	0.2031	0.1880	7.4	TM		
93	TM	Naphthalene	0.6557	0.4556	31	TM		*NT
94	TM	1,2,3-Trichlorobenzene	0.3398	0.2547	25	TM		*NT
95								
96								
97								
98								
99								
100								
101								
102								
103								
104								
105								
106								
107								
108								
109								
110								
111								
112								
113								
114								
115								
116								
117								
118								
119								
120								
		Average			15.4			

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0429M03.D Vial: 2
Acq On : 29 Apr 19 10:05 Operator: PM,DG,CMM,LP
Sample : 190429A CCV 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 10:28 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.20	96	821353	25.000 ppb		-0.12
56) Chlorobenzene-D5 (IS)	8.80	117	645755	25.000 ppb		-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	350193	25.000 ppb		-0.13
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.49	111	164544	26.187 ppb		-0.11
Spiked Amount 25.000			Recovery = 104.748%			
37) 1,2-DCA-D4(S)	4.83	65	168645	23.298 ppb		-0.12
Spiked Amount 25.000			Recovery = 93.192%			
57) Toluene-D8(S)	7.01	98	706112	24.627 ppb		-0.12
Spiked Amount 25.000			Recovery = 98.508%			
65) 4-Bromofluorobenzene(S)	10.39	95	270672	25.725 ppb		-0.13
Spiked Amount 25.000			Recovery = 102.900%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.10	85	24664	10.907 ppb		93
3) Freon 114	1.19	85	31951	10.268 ppb		91
4) Chloromethane	1.23	50	43138	12.554 ppb		98
5) Vinyl chloride	1.31	62	45496	12.203 ppb		90
6) Bromomethane	1.54	94	30449	12.992 ppb		95
7) Chloroethane	1.63	64	28152	10.519 ppb		97
8) Dichlorofluoromethane	1.80	67	64515	9.983 ppb		98
9) Trichlorofluoromethane	1.84	101	52086	11.068 ppb		98
10) Acrolein	2.21	56	17208	164.196 ppb		98
11) Acetone	2.44	43	103	-2.791 ppb	#	43
13) 1,1-DCE	2.29	61	43966	9.417 ppb		96
14) Acetonitrile	2.62	41	43157	124.755 ppb		96
15) t-Butanol	2.93	59	26451	129.718 ppb	#	93
16) Methyl Acetate	2.68	43	10948	9.743 ppb		98
17) Iodomethane	2.42	142	28448	8.364 ppb		99
18) Acrylonitrile	2.99	53	11160	10.911 ppb		97
19) Methylene chloride	2.75	84	36244	9.962 ppb		95
20) Carbon disulfide	2.46	76	87728	10.004 ppb		99
21) Methyl t-butyl ether (MtBE	3.03	73	45040	10.611 ppb		96
22) Trans-1,2-DCE	3.00	96	33983	10.294 ppb		93
23) Diisopropyl Ether	3.53	45	125925	10.070 ppb		98
24) 1,1-DCA	3.40	63	65075	10.031 ppb		100
25) Vinyl Acetate	3.53	43	32394	9.855 ppb	#	100
26) Ethyl tert Butyl Ether	3.89	59	116995	10.971 ppb		100
27) MEK (2-Butanone)	4.04	43	12256	10.544 ppb		89
28) Cis-1,2-DCE	3.99	96	41604	10.440 ppb		90
29) 2,2-Dichloropropane	3.98	77	57724	10.701 ppb		98
30) Chloroform	4.33	83	62290	9.733 ppb		100
31) Bromochloromethane	4.23	128	19820	10.711 ppb		91
33) 1,1,1-TCA	4.50	97	53511	9.895 ppb		95
34) Cyclohexane	4.55	41	30383	9.000 ppb		85
35) 1,1-Dichloropropene	4.68	75	44401	9.961 ppb		99
36) 2,2,4-Trimethylpentane	5.02	57	92431	9.855 ppb		99
38) Carbon Tetrachloride	4.67	117	41737	11.571 ppb		99
39) Tert Amyl Methyl Ether	5.06	73	106513	11.574 ppb		96
40) 1,2-DCA	4.91	62	44469	9.163 ppb		100
41) Benzene	4.89	78	149882	10.150 ppb		99
42) TCE	5.60	95	36300	9.546 ppb		97
43) 2-Pentanone	5.85	43	237627	120.672 ppb		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0429M03.D Vial: 2
Acq On : 29 Apr 19 10:05 Operator: PM,DG,CMM,LP
Sample : 190429A CCV 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 10:28 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
44)	1,2-Dichloropropane	5.84	63	35867	9.747	ppb		97
45)	Bromodichloromethane	6.17	83	45711	10.703	ppb		97
46)	Methyl Cyclohexane	5.81	83	51966	9.782	ppb		97
47)	Dibromomethane	5.97	93	19540	10.323	ppb		95
48)	MIBK (methyl isobutyl ket	6.92	43	24147	8.837	ppb	#	88
49)	1-Bromo-2-chloroethane	6.51	63	23888	10.048	ppb		99
51)	Cis-1,3-Dichloropropene	6.70	75	58200	10.195	ppb		96
52)	Toluene	7.09	91	168173	10.154	ppb		98
53)	Trans-1,3-Dichloropropene	7.38	75	49622	10.390	ppb		99
54)	1,1,2-TCA	7.60	83	23601	10.071	ppb		96
55)	2-Hexanone	7.96	43	16389	9.200	ppb		97
58)	1,2-EDB	8.19	107	29347	10.003	ppb		97
59)	Tetrachloroethene	7.76	164	35005	9.855	ppb		95
60)	1-Chlorohexane	8.87	91	48567	9.873	ppb		99
61)	1,1,1,2-Tetrachloroethane	8.96	131	37212	10.633	ppb		90
62)	m&p-Xylene	9.17	106	147493	20.289	ppb		98
63)	o-Xylene	9.69	106	75311	10.169	ppb		97
64)	Styrene	9.71	104	123165	10.134	ppb		98
66)	1,3-Dichloropropane	7.79	76	52555	9.788	ppb		99
67)	Dibromochloromethane	8.06	129	31429	11.274	ppb		94
68)	Chlorobenzene	8.84	112	111460	9.895	ppb		98
69)	Ethylbenzene	9.01	91	183087	9.977	ppb		100
70)	Bromoform	9.92	173	19951	11.564	ppb		100
72)	Isopropylbenzene	10.21	105	181637	9.443	ppb		99
73)	1,1,2,2-Tetrachloroethane	6.17	83	45711	9.728	ppb		97
74)	1,2,3-Trichloropropane	10.66	110	10900	9.676	ppb		95
75)	t-1,4-Dichloro-2-Butene	10.71	53	4227	9.741	ppb		81
76)	Bromobenzene	10.56	156	49917	9.558	ppb		98
77)	n-Propylbenzene	10.78	91	197991	9.200	ppb		96
78)	4-Ethyltoluene	10.94	105	182977	9.624	ppb		100
79)	2-Chlorotoluene	10.85	91	122233	9.199	ppb		94
80)	1,3,5-Trimethylbenzene	11.04	105	149077	9.215	ppb		95
81)	4-Chlorotoluene	11.01	91	143917	9.299	ppb		95
82)	Tert-Butylbenzene	11.48	119	132280	9.180	ppb		93
83)	1,2,4-Trimethylbenzene	11.55	105	151639	9.300	ppb		99
84)	Sec-Butylbenzene	11.79	105	175436	9.193	ppb		97
85)	p-Isopropyltoluene	12.01	119	80560	9.152	ppb		99
86)	Benzyl Chloride	12.23	91	10321	2.591	ppb		91
87)	1,3-DCB	11.89	146	90913	9.583	ppb		99
88)	1,4-DCB	12.02	146	46064	9.543	ppb		99
89)	n-Butylbenzene	12.59	91	62816	8.769	ppb		99
90)	1,2-DCB	12.53	146	85967	9.815	ppb		99
91)	Hexachloroethane	12.88	117	8995	10.926	ppb		91
92)	1,2-Dibromo-3-chloropropan	13.64	157	6571	10.327	ppb		88
93)	1,2,4-Trichlorobenzene	14.85	180	48062	8.736	ppb		98
94)	Hexachlorobutadiene	15.15	225	26335	9.258	ppb		97
95)	Naphthalene	15.18	128	63826	6.949	ppb		97
96)	1,2,3-Trichlorobenzene	15.53	180	35672	7.494	ppb		97

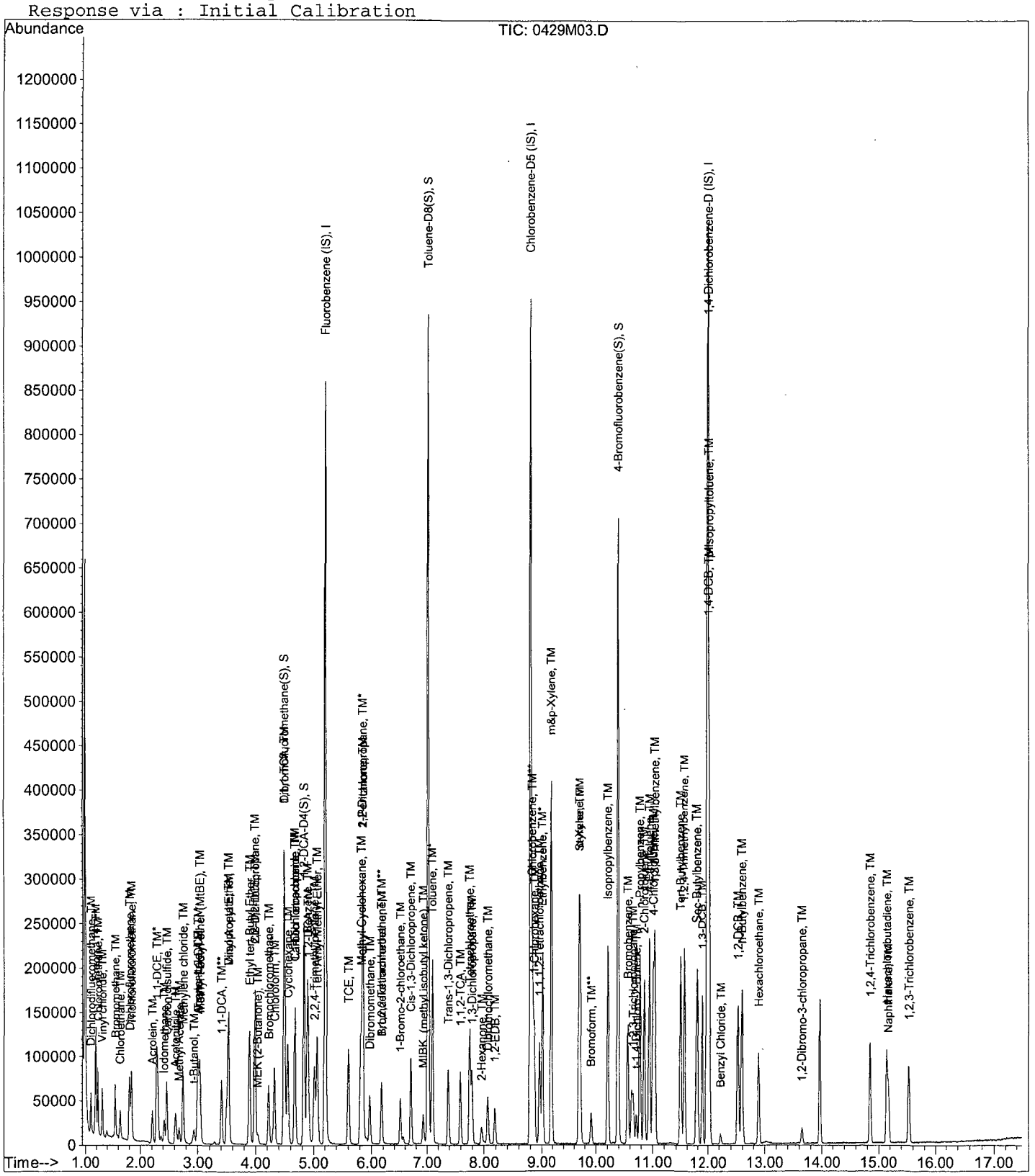
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190401\0429M03.D Vial: 2
Acq On : 29 Apr 19 10:05 Operator: PM,DG,CMM,LP
Sample : 190429A CCV 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 29 10:28 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 01 09:43:56 2019
Response via : Initial Calibration



VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Date Analyzed: 04/29/19
Matrix: water Instrument: Max
Initial Cal. Date: 03/24/19
Data File: 0429M15.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	Fluorobenzene (IS)	ISTD			I	
2	TM	Dichlorodifluoromethane	0.0688	0.0786	14	TM	
3	TM	Freon 114	0.0947	0.0988	4.3	TM	
4	TM**L	Chloromethane	0.1096	0.1193	8.8	TM**L	14
5	TM*	Vinyl chloride	0.1135	0.1343	18	TM*	
6	TM	Bromomethane	0.0713	0.0891	25	TM	
7	TML	Chloroethane	0.1187	0.0841	29	TML	3.0
8	TM	Dichlorofluoromethane	0.1967	0.1972	0.23	TM	
9	TM	Trichlorofluoromethane	0.1432	0.1646	15	TM	
10	TM	Acrolein	0.0032	0.0043	35	TM	
11	TM*	1,1-DCE	0.1421	0.1412	0.67	TM*	
12	TM	Acetonitrile	0.0105	0.0113	7.6	TM	
13	TM	t-Butanol	0.0062	0.0071	14	TM	
14	TM	Methyl Acetate	0.0342	0.0341	0.27	TM	
15	TML	Iodomethane	0.0895	0.0810	9.5	TML	21
16	TM	Acrylonitrile	0.0311	0.0338	8.5	TM	
17	TM	Methylene chloride	0.1107	0.1149	3.7	TM	
18	TM	Carbon disulfide	0.2669	0.2708	1.5	TM	
19	TM	Methyl t-butyl ether (MtBE)	0.1292	0.1448	12	TM	
20	TM	Trans-1,2-DCE	0.1005	0.1057	5.2	TM	
21	TM	Diisopropyl Ether	0.3806	0.4012	5.4	TM	
22	TM**	1,1-DCA	0.1975	0.2068	4.7	TM**	
23	TM	Vinyl Acetate	0.1000	0.1000	0.09	TM	
24	TM	Ethyl tert Butyl Ether	0.3246	0.3651	12	TM	
25	TML	MEK (2-Butanone)	0.0367	0.0338	7.9	TML	6.1
26	TM	Cis-1,2-DCE	0.1213	0.1291	6.4	TM	
27	TM	2,2-Dichloropropane	0.1642	0.1621	1.3	TM	
28	TM*	Chloroform	0.1948	0.1997	2.5	TM*	
29	TM	Bromochloromethane	0.0563	0.0619	10.0	TM	
30	S	Dibromofluoromethane(S)	0.1912	0.2074	8.4	S	
31	TM	1,1,1-TCA	0.1646	0.1701	3.3	TM	
32	TM	Cyclohexane	0.1028	0.0963	6.3	TM	
33	TM	1,1-Dichloropropene	0.1357	0.1434	5.7	TM	
34	TM	2,2,4-Trimethylpentane	0.2855	0.2773	2.9	TM	
35	S	1,2-DCA-D4(S)	0.2203	0.2163	1.9	S	
36	TM	Carbon Tetrachloride	0.1098	0.1285	17	TM	
37	TM	Tert Amyl Methyl Ether	0.2801	0.3297	18	TM	
38	TM	1,2-DCA	0.1477	0.1481	0.28	TM	
39	TM	Benzene	0.4494	0.4713	4.9	TM	
40	TM	TCE	0.1157	0.1173	1.3	TM	
		Average			8.5		

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Date Analyzed: 04/29/19
Matrix: water Instrument: Max
Cal. Date: 03/24/19
Data File: 0429M15.D

		Compound	MEAN	CCRF	%D		%Drift
41	TM	2-Pentanone	0.0599	0.0607	1.2	TM	
42	TM*	1,2-Dichloropropane	0.1120	0.1194	6.6	TM*	
43	TM	Bromodichloromethane	0.1300	0.1388	6.8	TM	
44	TM	Methyl Cyclohexane	0.1617	0.1705	5.4	TM	
45	TM	Dibromomethane	0.0576	0.0617	7.0	TM	
46	TM	MIBK (methyl isobutyl ketone)	0.0832	0.0805	3.3	TM	
47	TM	1-Bromo-2-chloroethane	0.0724	0.0783	8.3	TM	
48	TM	Cis-1,3-Dichloropropene	0.1738	0.1889	8.7	TM	
49	TM*	Toluene	0.5041	0.5342	6.0	TM*	
50	TM	Trans-1,3-Dichloropropene	0.1454	0.1520	4.6	TM	
51	TM	1,1,2-TCA	0.0713	0.0729	2.2	TM	
52	TM	2-Hexanone	0.0542	0.0527	2.9	TM	
53	I	Chlorobenzene-D5 (IS)	ISTD			I	
54	S	Toluene-D8(S)	1.110	1.128	1.6	S	
55	TM	1,2-EDB	0.1136	0.1166	2.7	TM	
56	TM	Tetrachloroethene	0.1375	0.1430	4.0	TM	
57	TM	1-Chlorohexane	0.1904	0.1977	3.8	TM	
58	TM	1,1,1,2-Tetrachloroethane	0.1355	0.1498	11	TM	
59	TM	m&p-Xylene	0.2814	0.3002	6.7	TM	
60	TM	o-Xylene	0.2867	0.3079	7.4	TM	
61	TM	Styrene	0.4705	0.5069	7.7	TM	
62	S	4-Bromofluorobenzene(S)	0.4073	0.4278	5.0	S	
63	TM	1,3-Dichloropropane	0.2079	0.2108	1.4	TM	
64	TM	Dibromochloromethane	0.1079	0.1255	16	TM	
65	TM**	Chlorobenzene	0.4361	0.4570	4.8	TM**	
66	TM*	Ethylbenzene	0.7104	0.7489	5.4	TM*	
67	TM**L	Bromoform	0.0599	0.0746	25	TM**L	12
68	I	1,4-Dichlorobenzene-D (IS)	ISTD			I	
69	TM	Isopropylbenzene	1.373	1.361	0.85	TM	
70	TM**	1,1,2,2-Tetrachloroethane	0.3354	0.3314	1.2	TM**	
71	TM	1,2,3-Trichloropropane	0.0804	0.0810	0.72	TM	
72	TM	t-1,4-Dichloro-2-Butene	0.0310	0.0318	2.7	TM	
73	TM	Bromobenzene	0.3728	0.3790	1.7	TM	
74	TM	n-Propylbenzene	1.536	1.510	1.7	TM	
75	TM	4-Ethyltoluene	1.357	1.395	2.8	TM	
76	TM	2-Chlorotoluene	0.9486	0.9353	1.4	TM	
77	TM	1,3,5-Trimethylbenzene	1.155	1.133	1.9	TM	
78	TM	4-Chlorotoluene	1.105	1.098	0.66	TM	
79	TM	Tert-Butylbenzene	1.029	1.008	2.0	TM	
80	TM	1,2,4-Trimethylbenzene	1.164	1.167	0.27	TM	
		Average			4.8		

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: water

SDG No:
Date Analyzed: 04/29/19
Instrument: Max
Cal. Date: 03/24/19
Data File: 0429M15.D

		Compound	MEAN	CCRF	%D		%Drift	
81	TM	Sec-Butylbenzene	1.362	1.355	0.56	TM		
82	TM	p-Isopropyltoluene	0.6284	0.6334	0.79	TM		
83	TM	Benzyl Chloride	0.2844	0.0552	81	TM		*NT
84	TM	1,3-DCB	0.6773	0.7063	4.3	TM		
85	TM	1,4-DCB	0.3446	0.3645	5.8	TM		
86	TM	n-Butylbenzene	0.5114	0.4701	8.1	TM		
87	TM	1,2-DCB	0.6253	0.6645	6.3	TM		
88	TML	Hexachloroethane	0.0554	0.0583	5.2	TML	1.1	
89	TM	1,2-Dibromo-3-chloropropane	0.0454	0.0511	12	TM		
90	TM	1,2,4-Trichlorobenzene	0.3928	0.3727	5.1	TM		
91	TM	Hexachlorobutadiene	0.2031	0.1973	2.8	TM		
92	TM	Naphthalene	0.6557	0.4577	30	TM		
93	TM	1,2,3-Trichlorobenzene	0.3398	0.2771	18	TM		
94								
95								
96								
97								
98								
99								
100								
101								
102								
103								
104								
105								
106								
107								
108								
109								
110								
111								
112								
113								
114								
115								
116								
117								
118								
119								
120								
		Average			13.8			

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0429M15.D Vial: 14
Acq On : 29 Apr 19 15:48 Operator: PM,DG,CMM,LP
Sample : Ending CCV 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:44 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.21	96	744152	25.000 ppb		-0.11
56) Chlorobenzene-D5 (IS)	8.80	117	579087	25.000 ppb		-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	311674	25.000 ppb		-0.13
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.49	111	154313	27.107 ppb		-0.11
Spiked Amount 25.000			Recovery = 108.428%			
37) 1,2-DCA-D4(S)	4.83	65	160924	24.537 ppb		-0.11
Spiked Amount 25.000			Recovery = 98.148%			
57) Toluene-D8(S)	7.01	98	653311	25.408 ppb		-0.12
Spiked Amount 25.000			Recovery = 101.632%			
65) 4-Bromofluorobenzene(S)	10.39	95	247761	26.259 ppb		-0.13
Spiked Amount 25.000			Recovery = 105.036%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.10	85	23384	11.414 ppb		95
3) Freon 114	1.19	85	29397	10.427 ppb		96
4) Chloromethane	1.23	50	35512	11.403 ppb		99
5) Vinyl chloride	1.31	62	39980	11.836 ppb		96
6) Bromomethane	1.55	94	26520	12.490 ppb		96
7) Chloroethane	1.64	64	25021	10.300 ppb		89
8) Dichlorofluoromethane	1.81	67	58685	10.023 ppb		98
9) Trichlorofluoromethane	1.85	101	48994	11.491 ppb		100
10) Acrolein	2.22	56	16034	168.866 ppb		98
13) 1,1-DCE	2.29	61	42016	9.933 ppb		97
14) Acetonitrile	2.62	41	42137	134.443 ppb		91
15) t-Butanol	2.93	59	26270	142.195 ppb	#	87
16) Methyl Acetate	2.68	43	10153	9.973 ppb		96
17) Iodomethane	2.42	142	24109	7.921 ppb		97
18) Acrylonitrile	2.99	53	10053	10.849 ppb	#	88
19) Methylene chloride	2.75	84	34196	10.374 ppb		97
20) Carbon disulfide	2.47	76	80613	10.146 ppb		99
21) Methyl t-butyl ether (MtBE	3.04	73	43104	11.209 ppb		99
22) Trans-1,2-DCE	3.01	96	31455	10.517 ppb		98
23) Diisopropyl Ether	3.53	45	119417	10.540 ppb		98
24) 1,1-DCA	3.41	63	61565	10.475 ppb		98
25) Vinyl Acetate	3.53	43	29753	9.991 ppb		100
26) Ethyl tert Butyl Ether	3.90	59	108682	11.249 ppb		99
27) MEK (2-Butanone)	4.04	43	10056	9.387 ppb		96
28) Cis-1,2-DCE	3.99	96	38427	10.643 ppb		96
29) 2,2-Dichloropropane	3.99	77	48249	9.872 ppb		99
30) Chloroform	4.33	83	59432	10.250 ppb		96
31) Bromochloromethane	4.23	128	18435	10.996 ppb		93
33) 1,1,1-TCA	4.50	97	50631	10.334 ppb		93
34) Cyclohexane	4.56	41	28654	9.368 ppb		91
35) 1,1-Dichloropropene	4.68	75	42673	10.567 ppb		96
36) 2,2,4-Trimethylpentane	5.02	57	82529	9.712 ppb		100
38) Carbon Tetrachloride	4.68	117	38251	11.705 ppb		98
39) Tert Amyl Methyl Ether	5.06	73	98148	11.771 ppb		97
40) 1,2-DCA	4.91	62	44091	10.028 ppb		99
41) Benzene	4.89	78	140295	10.487 ppb		98
42) TCE	5.61	95	34907	10.132 ppb		97
43) 2-Pentanone	5.85	43	225724	126.520 ppb		98
44) 1,2-Dichloropropane	5.85	63	35547	10.663 ppb		98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0429M15.D Vial: 14
Acq On : 29 Apr 19 15:48 Operator: PM,DG,CMM,LP
Sample : Ending CCV 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:44 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
45)	Bromodichloromethane	6.17	83	41310	10.676 ppb	96
46)	Methyl Cyclohexane	5.81	83	50737	10.542 ppb	93
47)	Dibromomethane	5.97	93	18355	10.703 ppb	94
48)	MIBK (methyl isobutyl ket	6.92	43	23951	9.674 ppb	96
49)	1-Bromo-2-chloroethane	6.51	63	23320	10.827 ppb	99
51)	Cis-1,3-Dichloropropene	6.70	75	56242	10.874 ppb	96
52)	Toluene	7.09	91	158999	10.596 ppb	99
53)	Trans-1,3-Dichloropropene	7.38	75	45251	10.458 ppb	96
54)	1,1,2-TCA	7.59	83	21705	10.223 ppb	98
55)	2-Hexanone	7.96	43	15679	9.714 ppb	96
58)	1,2-EDB	8.19	107	27019	10.270 ppb	97
59)	Tetrachloroethene	7.76	164	33126	10.399 ppb	98
60)	1-Chlorohexane	8.87	91	45798	10.382 ppb	98
61)	1,1,1,2-Tetrachloroethane	8.96	131	34690	11.053 ppb	92
62)	m&p-Xylene	9.17	106	139054	21.331 ppb	97
63)	o-Xylene	9.69	106	71328	10.740 ppb	93
64)	Styrene	9.71	104	117422	10.774 ppb	93
66)	1,3-Dichloropropane	7.79	76	48833	10.142 ppb	99
67)	Dibromochloromethane	8.07	129	29065	11.626 ppb	96
68)	Chlorobenzene	8.84	112	105849	10.478 ppb	99
69)	Ethylbenzene	9.01	91	173474	10.542 ppb	99
70)	Bromoform	9.92	173	17276	11.222 ppb	99
72)	Isopropylbenzene	10.21	105	169737	9.915 ppb	98
73)	1,1,2,2-Tetrachloroethane	6.17	83	41310	9.878 ppb	96
74)	1,2,3-Trichloropropane	10.66	110	10098	10.072 ppb	97
75)	t-1,4-Dichloro-2-Butene	10.71	53	3968	10.274 ppb	90
76)	Bromobenzene	10.56	156	47251	10.166 ppb	95
77)	n-Propylbenzene	10.78	91	188212	9.827 ppb	95
78)	4-Ethyltoluene	10.94	105	173950	10.280 ppb	98
79)	2-Chlorotoluene	10.85	91	116607	9.860 ppb	98
80)	1,3,5-Trimethylbenzene	11.04	105	141205	9.807 ppb	94
81)	4-Chlorotoluene	11.01	91	136838	9.934 ppb	97
82)	Tert-Butylbenzene	11.48	119	125624	9.796 ppb	93
83)	1,2,4-Trimethylbenzene	11.55	105	145515	10.027 ppb	100
84)	Sec-Butylbenzene	11.79	105	168888	9.944 ppb	96
85)	p-Isopropyltoluene	12.01	119	78960	10.079 ppb	98
86)	Benzyl Chloride	12.23	91	6880	1.941 ppb	98
87)	1,3-DCB	11.89	146	88058	10.429 ppb	99
88)	1,4-DCB	12.02	146	45440	10.577 ppb	99
89)	n-Butylbenzene	12.59	91	58608	9.193 ppb	99
90)	1,2-DCB	12.53	146	82848	10.628 ppb	99
91)	Hexachloroethane	12.89	117	7262	10.109 ppb	97
92)	1,2-Dibromo-3-chloropropan	13.64	157	6367	11.243 ppb	87
93)	1,2,4-Trichlorobenzene	14.85	180	46466	9.489 ppb	98
94)	Hexachlorobutadiene	15.15	225	24602	9.717 ppb	90
95)	Naphthalene	15.18	128	57064	6.980 ppb	97
96)	1,2,3-Trichlorobenzene	15.53	180	34541	8.153 ppb	94

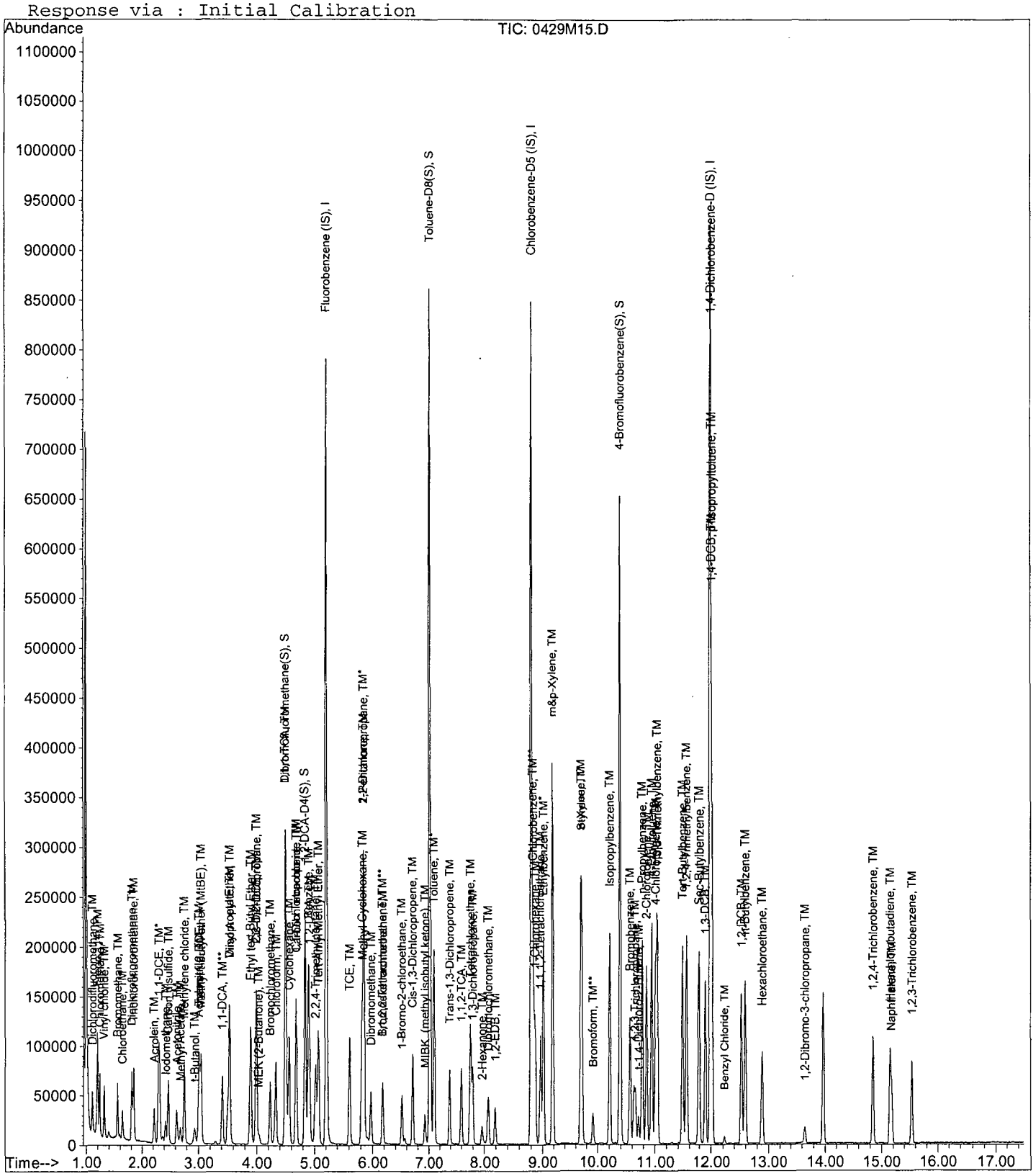
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190401\0429M15.D Vial: 14
Acq On : 29 Apr 19 15:48 Operator: PM,DG,CMM,LP
Sample : Ending CCV 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:44 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 01 09:43:56 2019
Response via : Initial Calibration



ORGANICS
Raw Data

Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0429M11.D Vial: 10
Acq On : 29 Apr 19 13:54 Operator: PM,DG,CMM,LP
Sample : AZ90212W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:45 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.20	96	756840	25.000	ppb	-0.12
56) Chlorobenzene-D5 (IS)	8.80	117	586270	25.000	ppb	-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	315541	25.000	ppb	-0.13
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.49	111	149298	25.786	ppb	-0.11
Spiked Amount 25.000			Recovery = 103.144%			
37) 1,2-DCA-D4(S)	4.83	65	160540	24.068	ppb	-0.11
Spiked Amount 25.000			Recovery = 96.272%			
57) Toluene-D8(S)	7.01	98	648298	24.905	ppb	-0.12
Spiked Amount 25.000			Recovery = 99.620%			
65) 4-Bromofluorobenzene(S)	10.39	95	245522	25.703	ppb	-0.13
Spiked Amount 25.000			Recovery = 102.812%			

Target Compounds Qvalue

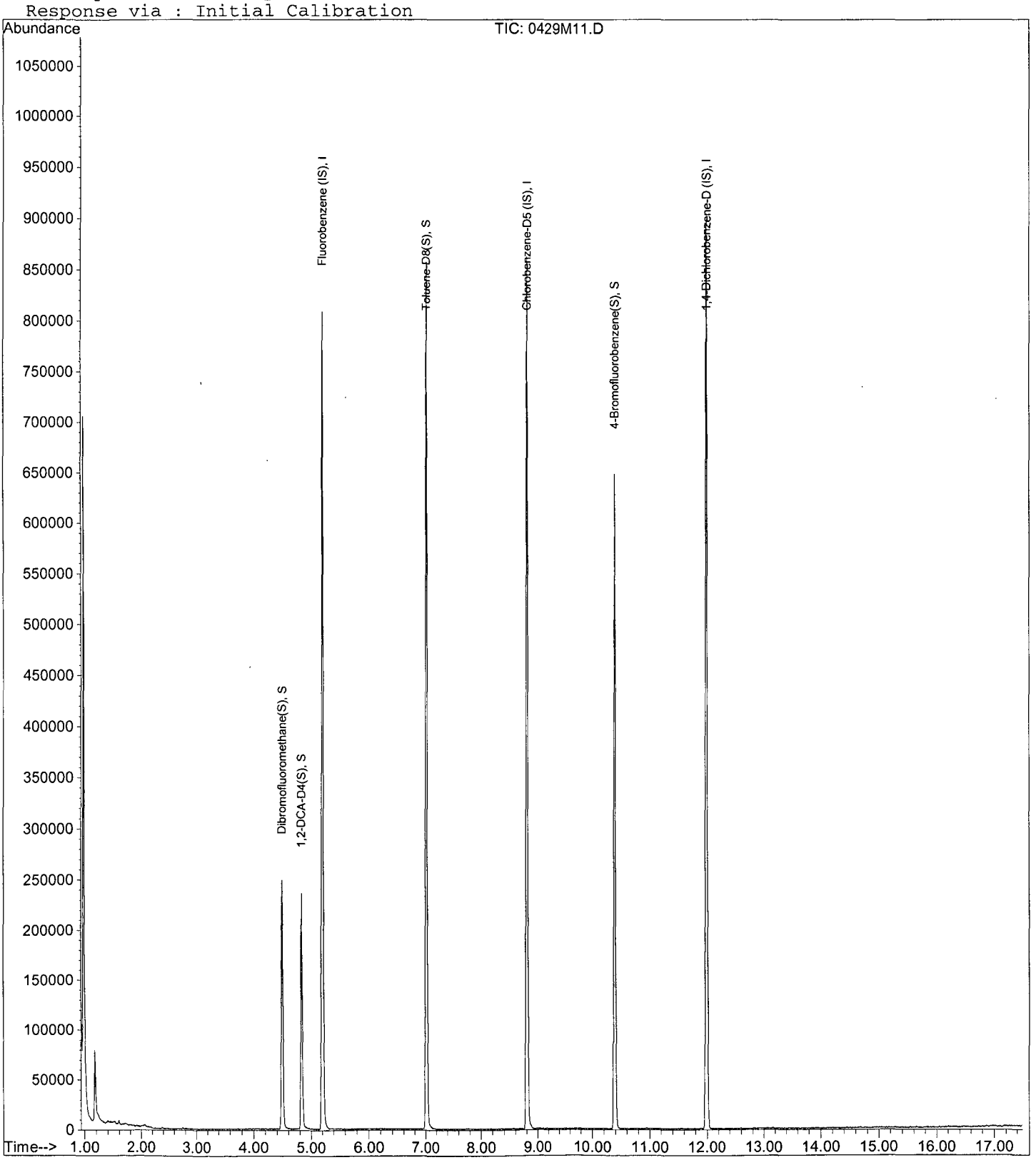
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190401\0429M11.D Vial: 10
Acq On : 29 Apr 19 13:54 Operator: PM,DG,CMM,LP
Sample : AZ90212W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:45 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 01 09:43:56 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0429M12.D Vial: 11
Acq On : 29 Apr 19 14:22 Operator: PM,DG,CMM,LP
Sample : AZ90213W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:46 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	761111	25.000 ppb	-0.11
56) Chlorobenzene-D5 (IS)	8.80	117	585777	25.000 ppb	-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	308806	25.000 ppb	-0.13
System Monitoring Compounds					
32) Dibromofluoromethane(S)	4.49	111	152605	26.210 ppb	-0.11
Spiked Amount 25.000			Recovery = 104.840%		
37) 1,2-DCA-D4(S)	4.83	65	157847	23.532 ppb	-0.11
Spiked Amount 25.000			Recovery = 94.128%		
57) Toluene-D8(S)	7.01	98	646414	24.853 ppb	-0.12
Spiked Amount 25.000			Recovery = 99.412%		
65) 4-Bromofluorobenzene(S)	10.39	95	245439	25.716 ppb	-0.13
Spiked Amount 25.000			Recovery = 102.864%		

Target Compounds Qvalue

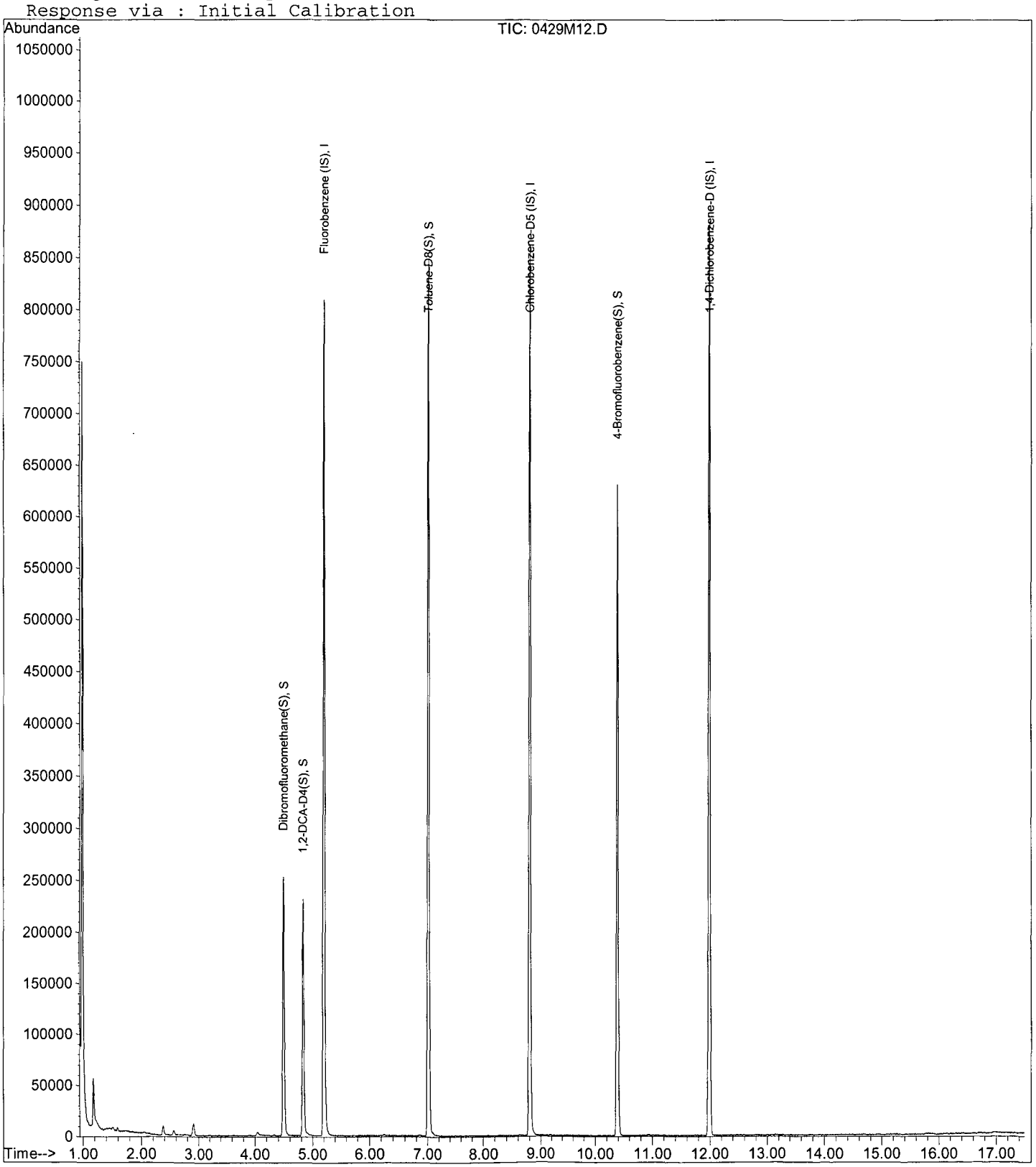
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190401\0429M12.D Vial: 11
Acq On : 29 Apr 19 14:22 Operator: PM,DG,CMM,LP
Sample : AZ90213W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:46 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 01 09:43:56 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0429M13.D Vial: 12
Acq On : 29 Apr 19 14:51 Operator: PM,DG,CMM,LP
Sample : AZ90214W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:47 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	763221	25.000 ppb	-0.11
56) Chlorobenzene-D5 (IS)	8.80	117	585307	25.000 ppb	-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	311190	25.000 ppb	-0.13
System Monitoring Compounds					
32) Dibromofluoromethane(S)	4.49	111	154606	26.480 ppb	-0.11
Spiked Amount 25.000			Recovery = 105.920%		
37) 1,2-DCA-D4(S)	4.83	65	163635	24.327 ppb	-0.11
Spiked Amount 25.000			Recovery = 97.308%		
57) Toluene-D8(S)	7.02	98	660011	25.396 ppb	-0.12
Spiked Amount 25.000			Recovery = 101.584%		
65) 4-Bromofluorobenzene(S)	10.39	95	250575	26.275 ppb	-0.13
Spiked Amount 25.000			Recovery = 105.100%		

Target Compounds Qvalue

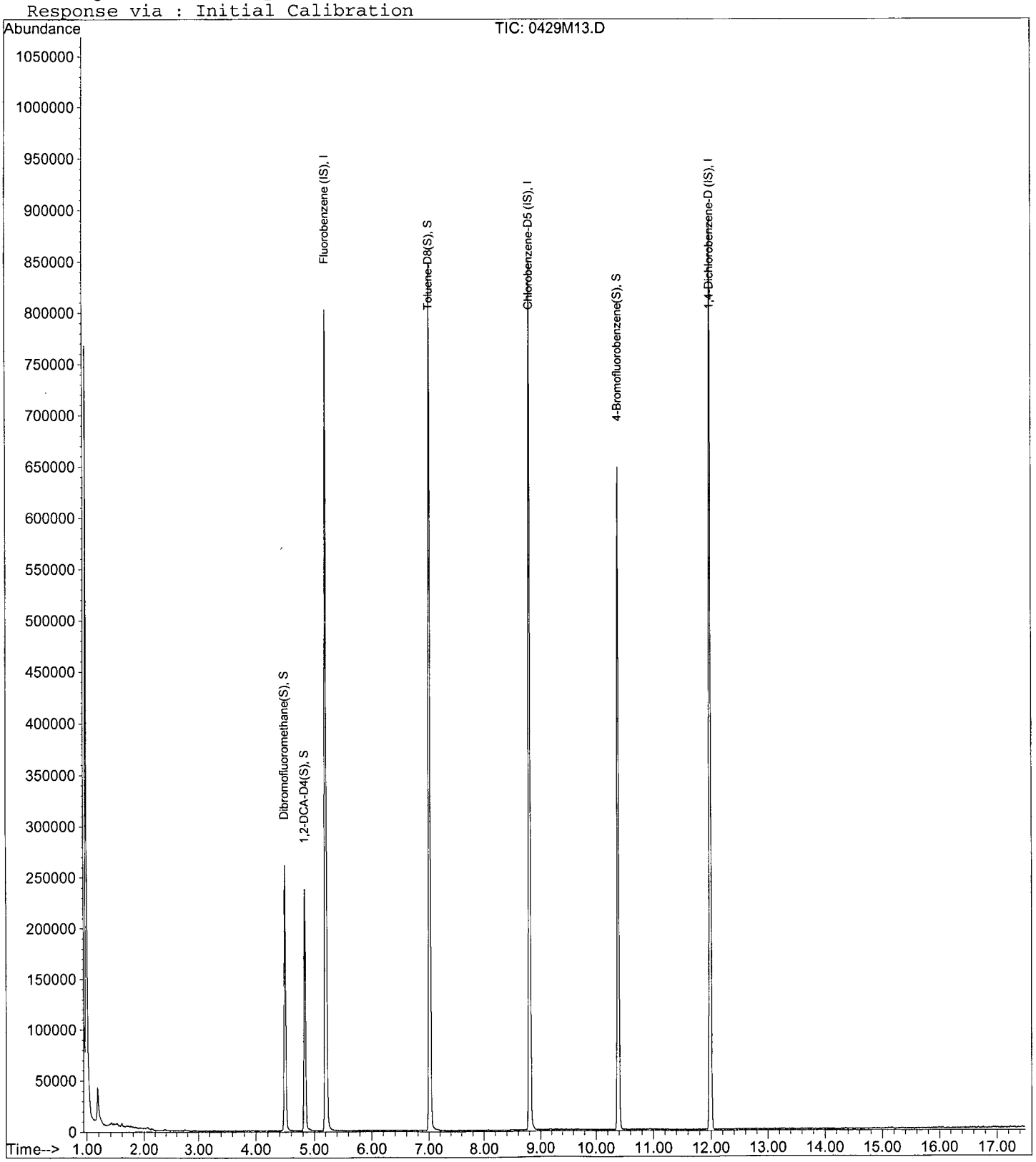
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190401\0429M13.D Vial: 12
Acq On : 29 Apr 19 14:51 Operator: PM,DG,CMM,LP
Sample : AZ90214W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:47 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 01 09:43:56 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0429M14.D Vial: 13
Acq On : 29 Apr 19 15:20 Operator: PM,DG,CMM,LP
Sample : AZ90215W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:48 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	733724	25.000 ppb	-0.11
56) Chlorobenzene-D5 (IS)	8.80	117	565569	25.000 ppb	-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	303029	25.000 ppb	-0.13
System Monitoring Compounds					
32) Dibromofluoromethane(S)	4.49	111	151717	27.030 ppb	-0.11
Spiked Amount 25.000			Recovery = 108.120%		
37) 1,2-DCA-D4(S)	4.83	65	159261	24.629 ppb	-0.11
Spiked Amount 25.000			Recovery = 98.516%		
57) Toluene-D8(S)	7.01	98	649255	25.854 ppb	-0.12
Spiked Amount 25.000			Recovery = 103.416%		
65) 4-Bromofluorobenzene(S)	10.39	95	243629	26.438 ppb	-0.13
Spiked Amount 25.000			Recovery = 105.752%		

Target Compounds Qvalue

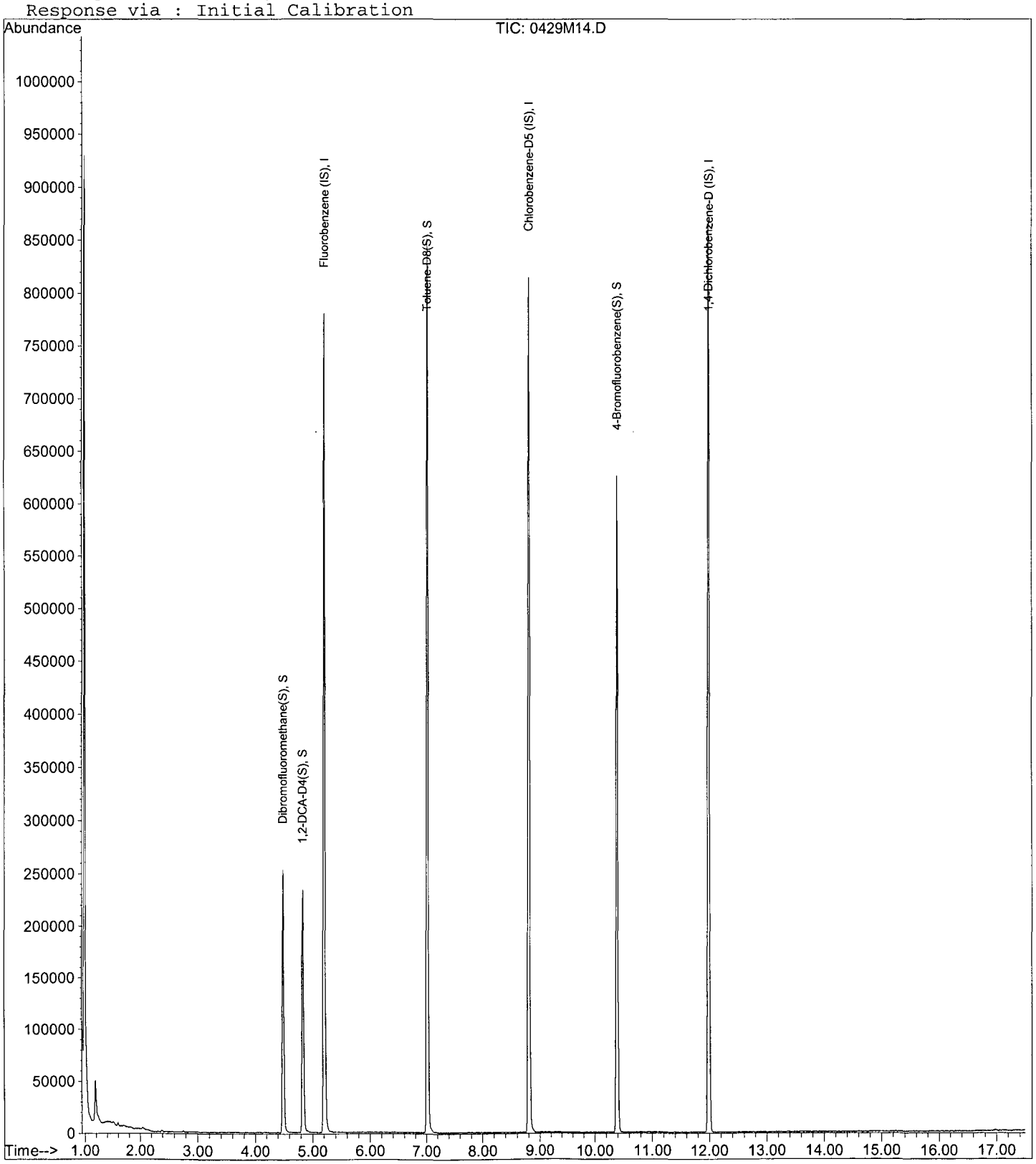
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190401\0429M14.D Vial: 13
Acq On : 29 Apr 19 15:20 Operator: PM,DG,CMM,LP
Sample : AZ90215W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:48 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 01 09:43:56 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0429M10.D Vial: 9
Acq On : 29 Apr 19 13:25 Operator: PM,DG,CMM,LP
Sample : 190429A blk Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:45 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	757692	25.000 ppb	-0.11
56) Chlorobenzene-D5 (IS)	8.80	117	589246	25.000 ppb	-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	307170	25.000 ppb	-0.13
System Monitoring Compounds					
32) Dibromofluoromethane(S)	4.49	111	146272	25.235 ppb	-0.11
Spiked Amount 25.000			Recovery = 100.940%		
37) 1,2-DCA-D4(S)	4.83	65	154454	23.130 ppb	-0.11
Spiked Amount 25.000			Recovery = 92.520%		
57) Toluene-D8(S)	7.01	98	633232	24.203 ppb	-0.12
Spiked Amount 25.000			Recovery = 96.812%		
65) 4-Bromofluorobenzene(S)	10.39	95	242477	25.256 ppb	-0.13
Spiked Amount 25.000			Recovery = 101.024%		

Target Compounds Qvalue

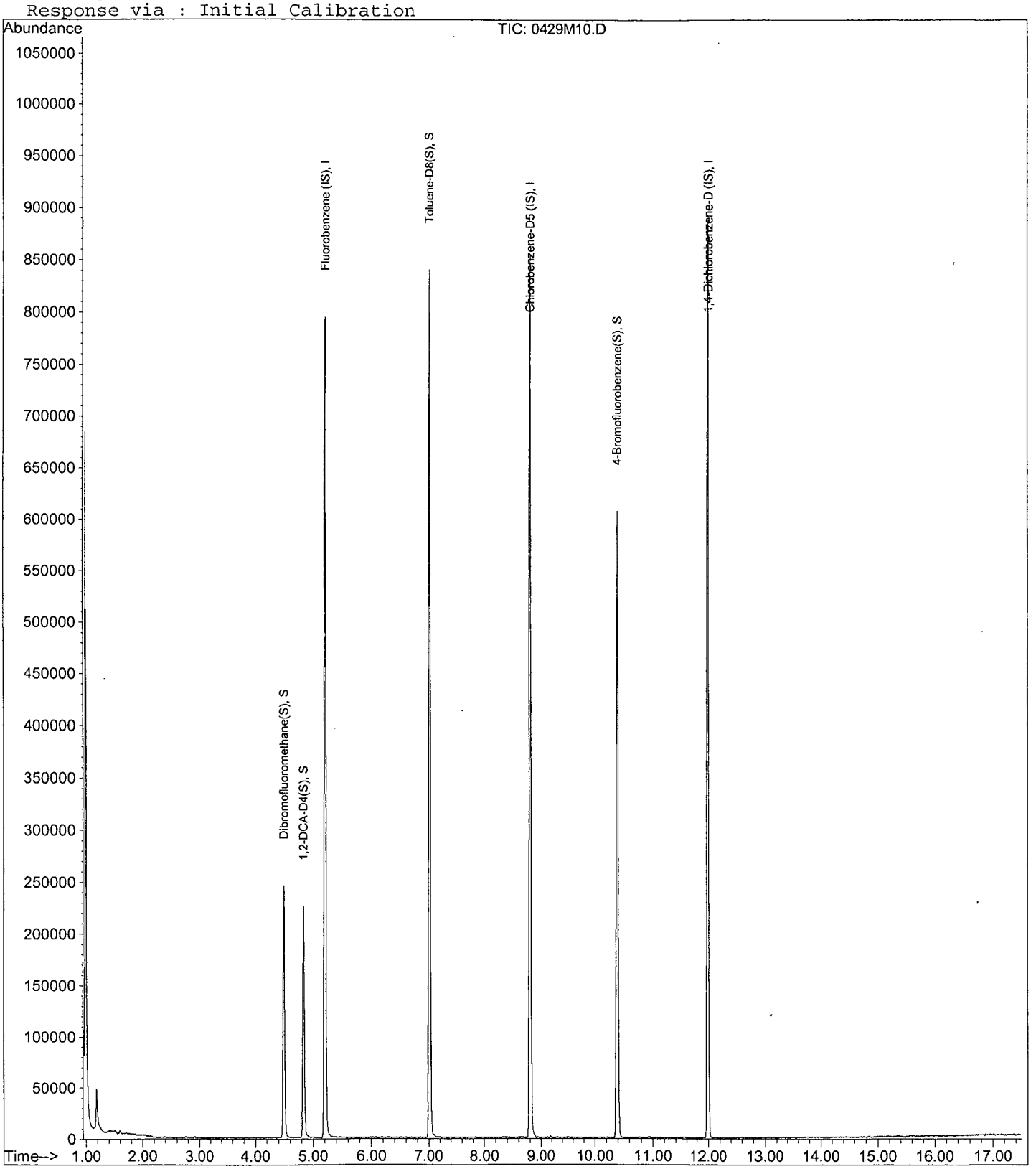
(#) = qualifier out of range (m) = manual integration

Data File : M:\MAX\DATA\M190401\0429M10.D
Acq On : 29 Apr 19 13:25
Sample : 190429A blk
Misc : IS,Surr 03/24/19

Vial: 9
Operator: PM,DG,CMM,LP
Inst : Max
Multiplr: 1.00

Quant Time: Apr 30 7:45 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 01 09:43:56 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0429M04.D Vial: 3
Acq On : 29 Apr 19 10:34 Operator: PM,DG,CMM,LP
Sample : 190429A LCS 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:44 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.20	96	766881	25.000 ppb		-0.12
56) Chlorobenzene-D5 (IS)	8.80	117	614548	25.000 ppb		-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	343039	25.000 ppb		-0.13
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.49	111	153065	26.091 ppb		-0.11
Spiked Amount 25.000			Recovery = 104.364%			
37) 1,2-DCA-D4(S)	4.83	65	157319	23.277 ppb		-0.12
Spiked Amount 25.000			Recovery = 93.108%			
57) Toluene-D8(S)	7.02	98	657202	24.085 ppb		-0.12
Spiked Amount 25.000			Recovery = 96.340%			
65) 4-Bromofluorobenzene(S)	10.39	95	257220	25.688 ppb		-0.13
Spiked Amount 25.000			Recovery = 102.752%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.10	85	23504	11.132 ppb		93
3) Freon 114	1.19	85	29097	10.015 ppb		97
4) Chloromethane	1.23	50	39128	12.195 ppb		100
5) Vinyl chloride	1.31	62	41954	12.052 ppb		94
6) Bromomethane	1.55	94	26934	12.309 ppb		91
7) Chloroethane	1.63	64	25772	10.295 ppb		91
8) Dichlorofluoromethane	1.81	67	59016	9.781 ppb		96
9) Trichlorofluoromethane	1.84	101	47992	10.923 ppb		98
10) Acrolein	2.21	56	17192	175.695 ppb		100
11) Acetone	2.46	43	178	-2.661 ppb	#	43
13) 1,1-DCE	2.29	61	40246	9.232 ppb		95
14) Acetonitrile	2.62	41	41163	127.443 ppb		98
15) t-Butanol	2.93	59	26906	141.322 ppb	#	87
16) Methyl Acetate	2.68	43	10826	10.318 ppb		97
17) Iodomethane	2.42	142	30510	9.384 ppb		97
18) Acrylonitrile	2.98	53	10484	10.978 ppb		98
19) Methylene chloride	2.75	84	34085	10.034 ppb		94
20) Carbon disulfide	2.46	76	79515	9.711 ppb		99
21) Methyl t-butyl ether (MtBE	3.04	73	43816	11.056 ppb		98
22) Trans-1,2-DCE	3.00	96	29988	9.729 ppb		92
23) Diisopropyl Ether	3.53	45	119166	10.206 ppb		97
24) 1,1-DCA	3.41	63	59691	9.855 ppb		96
25) Vinyl Acetate	3.53	43	30465	9.927 ppb	#	100
26) Ethyl tert Butyl Ether	3.89	59	109394	10.987 ppb		99
27) MEK (2-Butanone)	4.03	43	11895	11.028 ppb		94
28) Cis-1,2-DCE	3.99	96	37846	10.171 ppb		94
29) 2,2-Dichloropropane	3.98	77	50497	10.026 ppb		98
30) Chloroform	4.33	83	58990	9.873 ppb		96
31) Bromochloromethane	4.23	128	18540	10.731 ppb		95
33) 1,1,1-TCA	4.50	97	48838	9.672 ppb		97
34) Cyclohexane	4.55	41	27460	8.712 ppb		93
35) 1,1-Dichloropropene	4.68	75	40378	9.702 ppb		99
36) 2,2,4-Trimethylpentane	5.02	57	86371	9.863 ppb		98
38) Carbon Tetrachloride	4.67	117	37712	11.198 ppb		97
39) Tert Amyl Methyl Ether	5.06	73	99592	11.591 ppb		98
40) 1,2-DCA	4.91	62	41049	9.059 ppb		97
41) Benzene	4.89	78	135693	9.842 ppb		99
42) TCE	5.60	95	33733	9.501 ppb		96
43) 2-Pentanone	5.85	43	235946	128.329 ppb		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0429M04.D Vial: 3
Acq On : 29 Apr 19 10:34 Operator: PM,DG,CMM,LP
Sample : 190429A LCS 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:44 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
44)	1,2-Dichloropropane	5.84	63	34573	10.063	ppb	#	96
45)	Bromodichloromethane	6.17	83	43684	10.955	ppb		100
46)	Methyl Cyclohexane	5.81	83	47819	9.641	ppb		98
47)	Dibromomethane	5.97	93	18261	10.332	ppb		89
48)	MIBK (methyl isobutyl ket	6.86	43	349	0.137	ppb	#	47
49)	1-Bromo-2-chloroethane	6.51	63	23128	10.420	ppb		97
51)	Cis-1,3-Dichloropropene	6.70	75	56589	10.617	ppb		94
52)	Toluene	7.09	91	156898	10.146	ppb		100
53)	Trans-1,3-Dichloropropene	7.38	75	47137	10.571	ppb		97
54)	1,1,2-TCA	7.59	83	22559	10.311	ppb		98
55)	2-Hexanone	7.96	43	17684	10.632	ppb		98
58)	1,2-EDB	8.18	107	28430	10.183	ppb		97
59)	Tetrachloroethene	7.76	164	33619	9.945	ppb		97
60)	1-Chlorohexane	8.87	91	45099	9.633	ppb		95
61)	1,1,1,2-Tetrachloroethane	8.96	131	34452	10.344	ppb		92
62)	m&p-Xylene	9.17	106	139084	20.104	ppb		96
63)	o-Xylene	9.69	106	69822	9.907	ppb		95
64)	Styrene	9.71	104	121045	10.465	ppb		95
66)	1,3-Dichloropropane	7.79	76	48451	9.482	ppb		98
67)	Dibromochloromethane	8.07	129	30523	11.505	ppb		84
68)	Chlorobenzene	8.84	112	106437	9.929	ppb		96
69)	Ethylbenzene	9.01	91	172880	9.899	ppb		96
70)	Bromoform	9.92	173	20018	12.105	ppb		100
72)	Isopropylbenzene	10.21	105	173490	9.207	ppb		97
73)	1,1,2,2-Tetrachloroethane	6.17	83	43684	9.491	ppb		100
74)	1,2,3-Trichloropropane	10.66	110	11008	9.975	ppb		94
75)	t-1,4-Dichloro-2-Butene	10.71	53	4370	10.280	ppb		85
76)	Bromobenzene	10.56	156	48640	9.508	ppb		97
77)	n-Propylbenzene	10.78	91	188684	8.950	ppb		97
78)	4-Ethyltoluene	10.94	105	179238	9.624	ppb		98
79)	2-Chlorotoluene	10.85	91	116927	8.983	ppb		98
80)	1,3,5-Trimethylbenzene	11.04	105	145156	9.160	ppb		97
81)	4-Chlorotoluene	11.01	91	140530	9.269	ppb		98
82)	Tert-Butylbenzene	11.48	119	126048	8.930	ppb		95
83)	1,2,4-Trimethylbenzene	11.55	105	145817	9.129	ppb		98
84)	Sec-Butylbenzene	11.79	105	169667	9.076	ppb		93
85)	p-Isopropyltoluene	12.01	119	79360	9.204	ppb		98
86)	Benzyl Chloride	12.23	91	9846	2.523	ppb		97
87)	1,3-DCB	11.89	146	90863	9.777	ppb		98
88)	1,4-DCB	12.02	146	47200	9.982	ppb		99
89)	n-Butylbenzene	12.59	91	63592	9.063	ppb		99
90)	1,2-DCB	12.53	146	84534	9.853	ppb		99
91)	Hexachloroethane	12.89	117	8447	10.562	ppb		96
92)	1,2-Dibromo-3-chloropropan	13.65	157	7079	11.357	ppb	#	86
93)	1,2,4-Trichlorobenzene	14.84	180	51236	9.507	ppb		99
94)	Hexachlorobutadiene	15.14	225	25688	9.219	ppb		92
95)	Naphthalene	15.18	128	70832	7.872	ppb		98
96)	1,2,3-Trichlorobenzene	15.53	180	39199	8.406	ppb		95

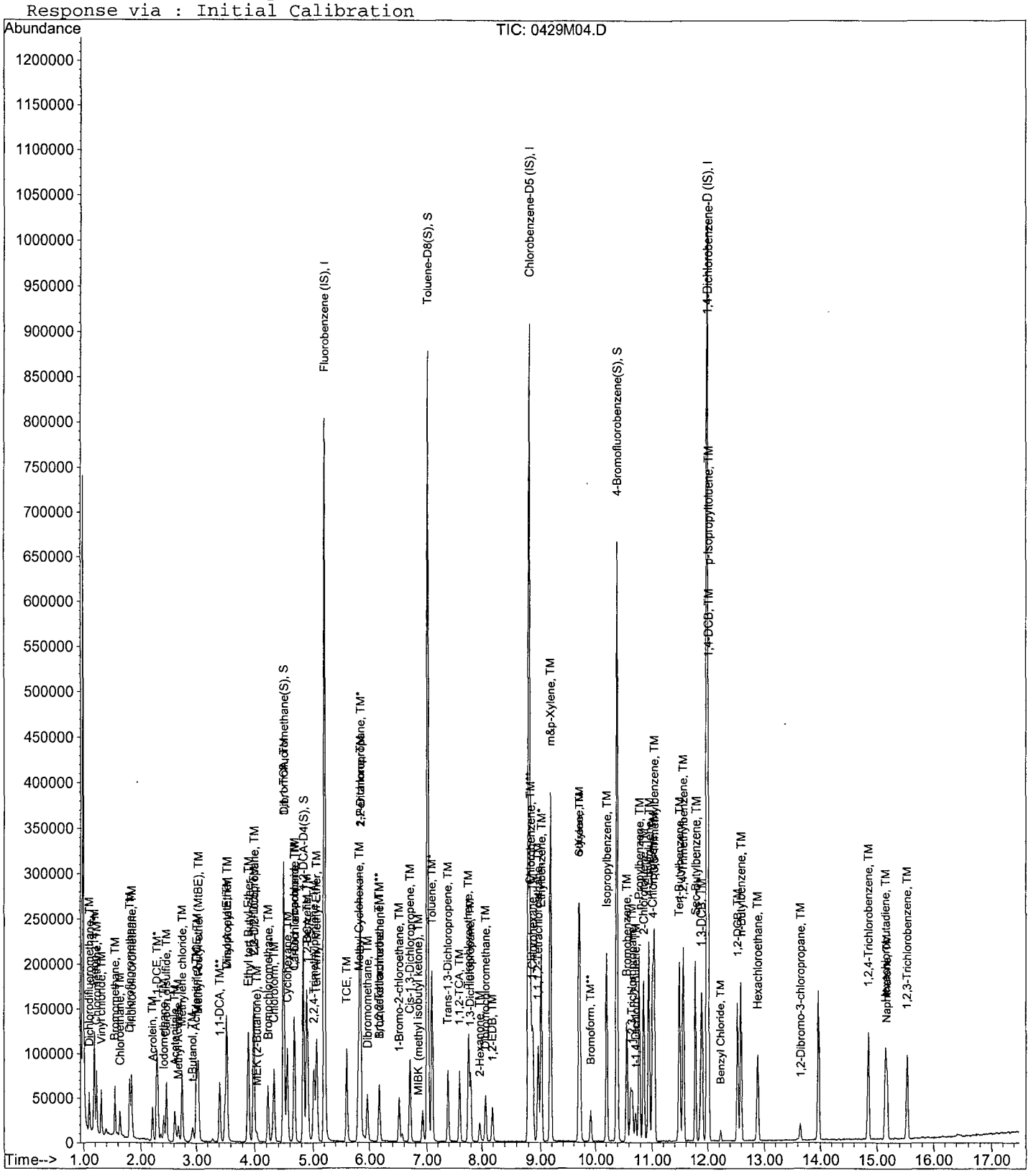
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190401\0429M04.D Vial: 3
Acq On : 29 Apr 19 10:34 Operator: PM,DG,CMM,LP
Sample : 190429A LCS 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:44 2019 Quant Results File: M0324.RES

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 01 09:43:56 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0429M05.D Vial: 4
Acq On : 29 Apr 19 11:02 Operator: PM,DG,CMM,LP
Sample : 190429A LCSD 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:44 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.20	96	747613	25.000 ppb		-0.12
56) Chlorobenzene-D5 (IS)	8.80	117	592158	25.000 ppb		-0.13
71) 1,4-Dichlorobenzene-D (IS)	11.99	152	327439	25.000 ppb		-0.13
System Monitoring Compounds						
32) Dibromofluoromethane(S)	4.49	111	155652	27.216 ppb		-0.11
Spiked Amount 25.000			Recovery = 108.864%			
37) 1,2-DCA-D4(S)	4.83	65	160418	24.347 ppb		-0.12
Spiked Amount 25.000			Recovery = 97.388%			
57) Toluene-D8(S)	7.01	98	669217	25.453 ppb		-0.12
Spiked Amount 25.000			Recovery = 101.812%			
65) 4-Bromofluorobenzene(S)	10.39	95	260748	27.025 ppb		-0.13
Spiked Amount 25.000			Recovery = 108.100%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.10	85	23424	11.380 ppb		97
3) Freon 114	1.19	85	28233	9.968 ppb		87
4) Chloromethane	1.23	50	38936	12.449 ppb		99
5) Vinyl chloride	1.31	62	41103	12.112 ppb		91
6) Bromomethane	1.55	94	26218	12.290 ppb		94
7) Chloroethane	1.64	64	23766	9.685 ppb		91
8) Dichlorofluoromethane	1.81	67	60047	10.208 ppb		98
9) Trichlorofluoromethane	1.84	101	48564	11.338 ppb		96
10) Acrolein	2.21	56	29640	310.715 ppb		95
11) Acetone	2.48	43	41	-2.877 ppb	#	43
13) 1,1-DCE	2.29	61	41851	9.848 ppb		96
14) Acetonitrile	2.62	41	41673	132.347 ppb		98
15) t-Butanol	2.93	59	25122	135.352 ppb		94
16) Methyl Acetate	2.68	43	10683	10.445 ppb		98
17) Iodomethane	2.42	142	34181	10.559 ppb		97
18) Acrylonitrile	2.98	53	10845	11.649 ppb		96
19) Methylene chloride	2.74	84	33894	10.235 ppb		95
20) Carbon disulfide	2.46	76	81852	10.254 ppb		99
21) Methyl t-butyl ether (MtBE	3.03	73	43344	11.219 ppb		97
22) Trans-1,2-DCE	3.00	96	31650	10.533 ppb		93
23) Diisopropyl Ether	3.53	45	121509	10.675 ppb		96
24) 1,1-DCA	3.41	63	60987	10.328 ppb		99
25) Vinyl Acetate	3.49	43	30748	10.277 ppb	#	100
26) Ethyl tert Butyl Ether	3.89	59	109496	11.281 ppb		99
27) MEK (2-Butanone)	4.04	43	11757	11.204 ppb		97
28) Cis-1,2-DCE	3.99	96	38397	10.586 ppb		96
29) 2,2-Dichloropropane	3.98	77	52941	10.782 ppb		98
30) Chloroform	4.33	83	59825	10.270 ppb		96
31) Bromochloromethane	4.23	128	18184	10.796 ppb		94
33) 1,1,1-TCA	4.50	97	51304	10.423 ppb		90
34) Cyclohexane	4.55	41	27919	9.086 ppb		90
35) 1,1-Dichloropropene	4.68	75	43365	10.688 ppb		95
36) 2,2,4-Trimethylpentane	5.01	57	85394	10.003 ppb		99
38) Carbon Tetrachloride	4.67	117	38913	11.853 ppb		100
39) Tert Amyl Methyl Ether	5.06	73	98928	11.810 ppb		98
40) 1,2-DCA	4.91	62	42826	9.695 ppb		99
41) Benzene	4.89	78	140107	10.424 ppb		99
42) TCE	5.61	95	33799	9.765 ppb		95
43) 2-Pentanone	5.85	43	235967	131.649 ppb		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0429M05.D Vial: 4
Acq On : 29 Apr 19 11:02 Operator: PM,DG,CMM,LP
Sample : 190429A LCSD 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:44 2019 Quant Results File: M0324.RES

Quant Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Mar 25 09:13:52 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
44)	1,2-Dichloropropane	5.84	63	34984	10.445	ppb		97
45)	Bromodichloromethane	6.17	83	43504	11.191	ppb		99
46)	Methyl Cyclohexane	5.81	83	48390	10.007	ppb		100
47)	Dibromomethane	5.97	93	18209	10.568	ppb		96
48)	MIBK (methyl isobutyl ket	6.93	43	24632	9.903	ppb		95
49)	1-Bromo-2-chloroethane	6.51	63	23456	10.840	ppb		99
51)	Cis-1,3-Dichloropropene	6.70	75	57434	11.054	ppb		93
52)	Toluene	7.09	91	157841	10.470	ppb		97
53)	Trans-1,3-Dichloropropene	7.38	75	49156	11.308	ppb		98
54)	1,1,2-TCA	7.59	83	22816	10.697	ppb		93
55)	2-Hexanone	7.96	43	17154	10.579	ppb	#	86
58)	1,2-EDB	8.19	107	28259	10.504	ppb		93
59)	Tetrachloroethene	7.76	164	33981	10.432	ppb		97
60)	1-Chlorohexane	8.87	91	48114	10.666	ppb		98
61)	1,1,1,2-Tetrachloroethane	8.96	131	36164	11.269	ppb		94
62)	m&p-Xylene	9.17	106	142728	21.411	ppb		95
63)	o-Xylene	9.69	106	71827	10.577	ppb		97
64)	Styrene	9.71	104	121462	10.898	ppb		96
66)	1,3-Dichloropropane	7.79	76	50195	10.194	ppb		96
67)	Dibromochloromethane	8.06	129	30868	12.075	ppb		93
68)	Chlorobenzene	8.84	112	108854	10.538	ppb		98
69)	Ethylbenzene	9.01	91	177682	10.559	ppb		95
70)	Bromoform	9.92	173	19979	12.480	ppb		88
72)	Isopropylbenzene	10.21	105	172910	9.614	ppb		99
73)	1,1,2,2-Tetrachloroethane	6.17	83	43504	9.902	ppb		99
74)	1,2,3-Trichloropropane	10.66	110	11286	10.715	ppb		92
75)	t-1,4-Dichloro-2-Butene	10.71	53	4306	10.612	ppb		87
76)	Bromobenzene	10.56	156	49124	10.060	ppb		93
77)	n-Propylbenzene	10.78	91	193219	9.602	ppb		97
78)	4-Ethyltoluene	10.94	105	179444	10.094	ppb		99
79)	2-Chlorotoluene	10.85	91	120438	9.693	ppb		99
80)	1,3,5-Trimethylbenzene	11.04	105	145618	9.627	ppb		96
81)	4-Chlorotoluene	11.01	91	141442	9.774	ppb		99
82)	Tert-Butylbenzene	11.48	119	127459	9.460	ppb		94
83)	1,2,4-Trimethylbenzene	11.55	105	147135	9.651	ppb		99
84)	Sec-Butylbenzene	11.79	105	172587	9.672	ppb		96
85)	p-Isopropyltoluene	12.02	119	78088	9.488	ppb		97
86)	Benzyl Chloride	12.23	91	10299	2.765	ppb		96
87)	1,3-DCB	11.89	146	91831	10.352	ppb		99
88)	1,4-DCB	12.02	146	46824	10.374	ppb		100
89)	n-Butylbenzene	12.59	91	62960	9.400	ppb		98
90)	1,2-DCB	12.53	146	85696	10.464	ppb		99
91)	Hexachloroethane	12.88	117	9121	11.669	ppb		86
92)	1,2-Dibromo-3-chloropropan	13.65	157	7038	11.829	ppb		85
93)	1,2,4-Trichlorobenzene	14.85	180	51176	9.948	ppb		98
94)	Hexachlorobutadiene	15.15	225	25876	9.728	ppb		94
95)	Naphthalene	15.18	128	71480	8.323	ppb		98
96)	1,2,3-Trichlorobenzene	15.53	180	39180	8.802	ppb		95

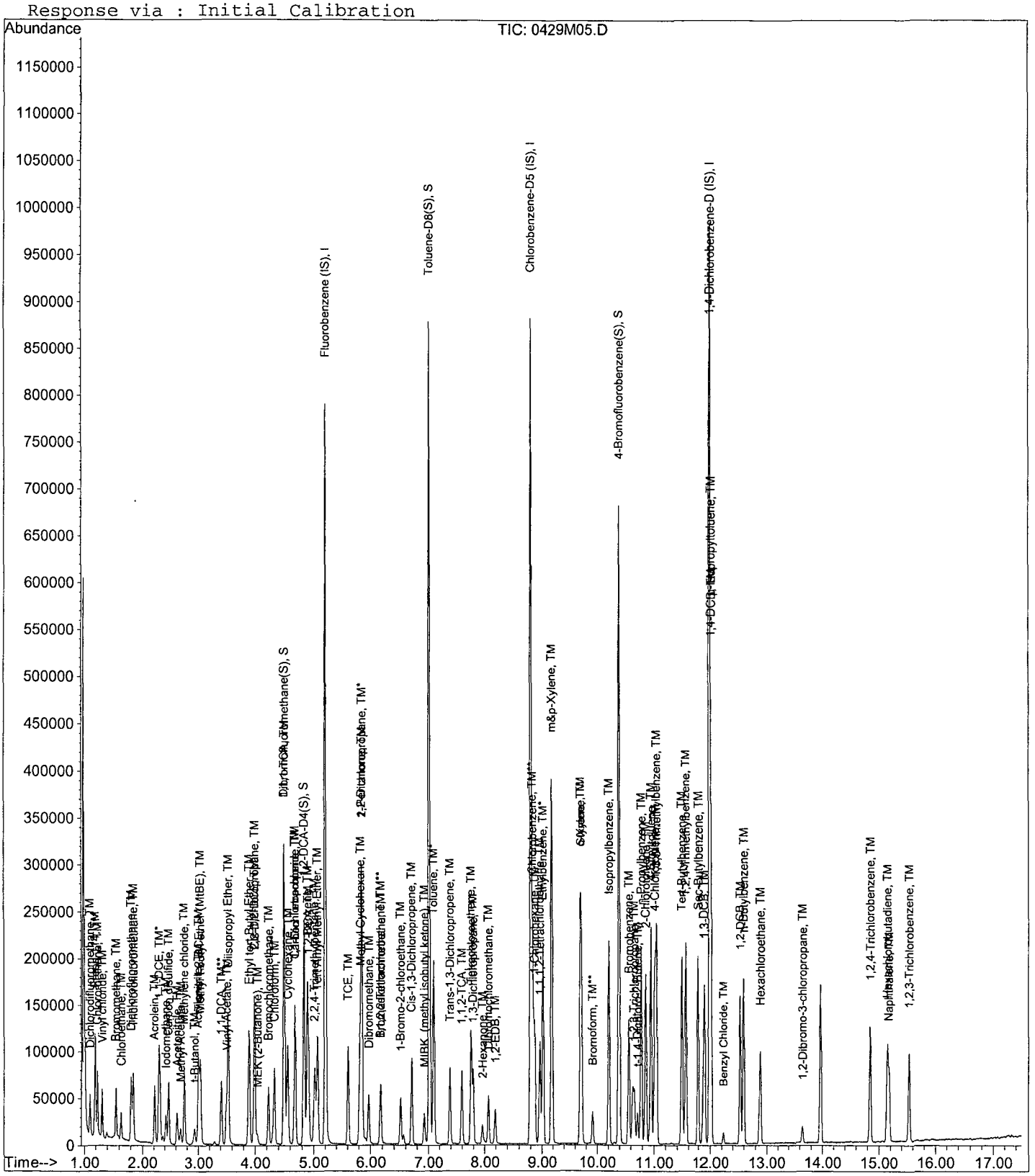
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190401\0429M05.D Vial: 4
Acq On : 29 Apr 19 11:02 Operator: PM,DG,CMM,LP
Sample : 190429A LCSD 10ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:44 2019 Quant Results File: M0324.RES

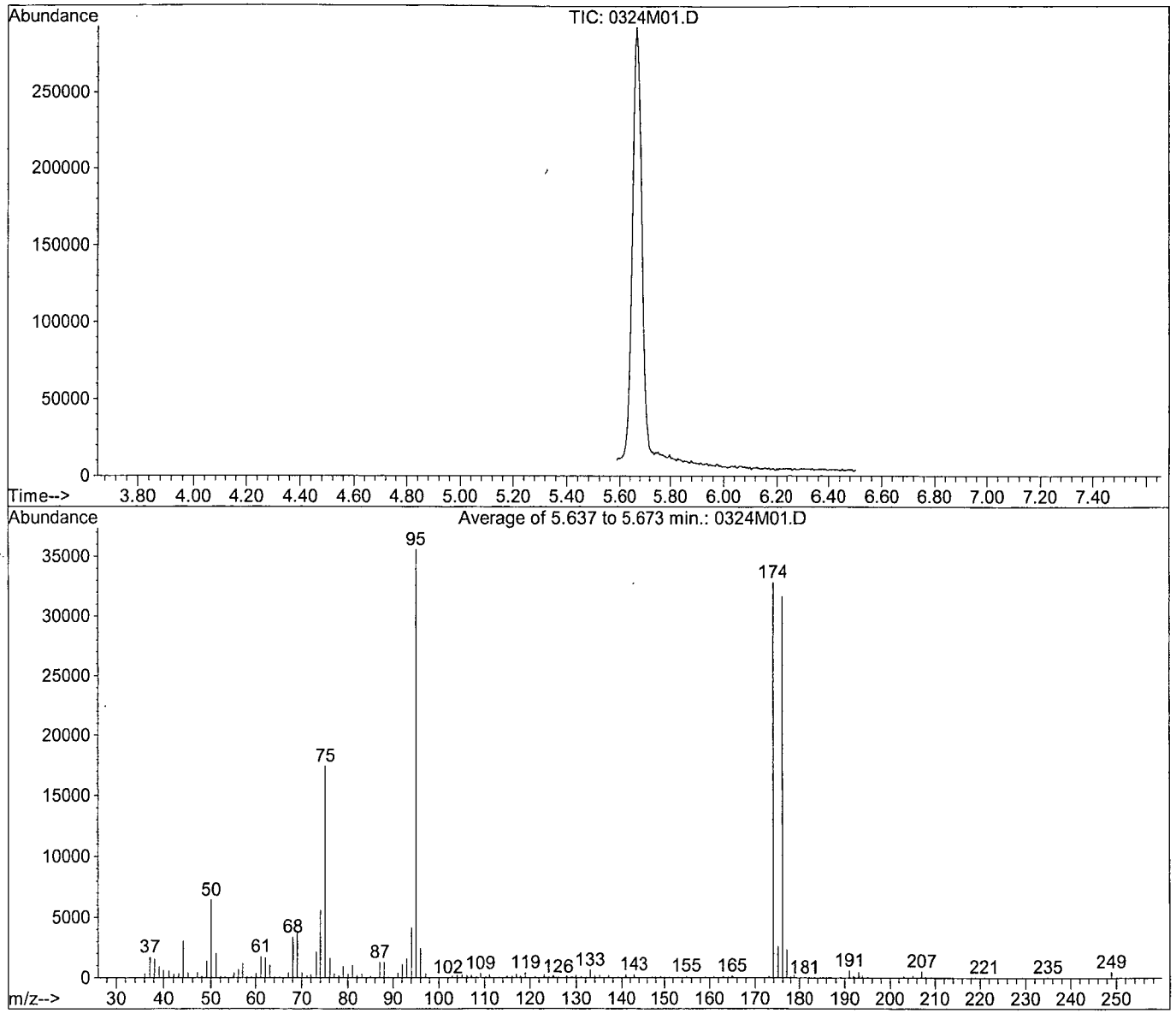
Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 01 09:43:56 2019
Response via : Initial Calibration



Data File : M:\MAX\DATA\M190324\0324M01.D
Acq On : 24 Mar 19 10:39
Sample : 25ug/L BFB 3/11/19
Misc : 2ul

Vial: 1
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Method : M:\MAX\DATA\M190324\M0324.M (RTE Integrator)
Title : METHOD 8260B



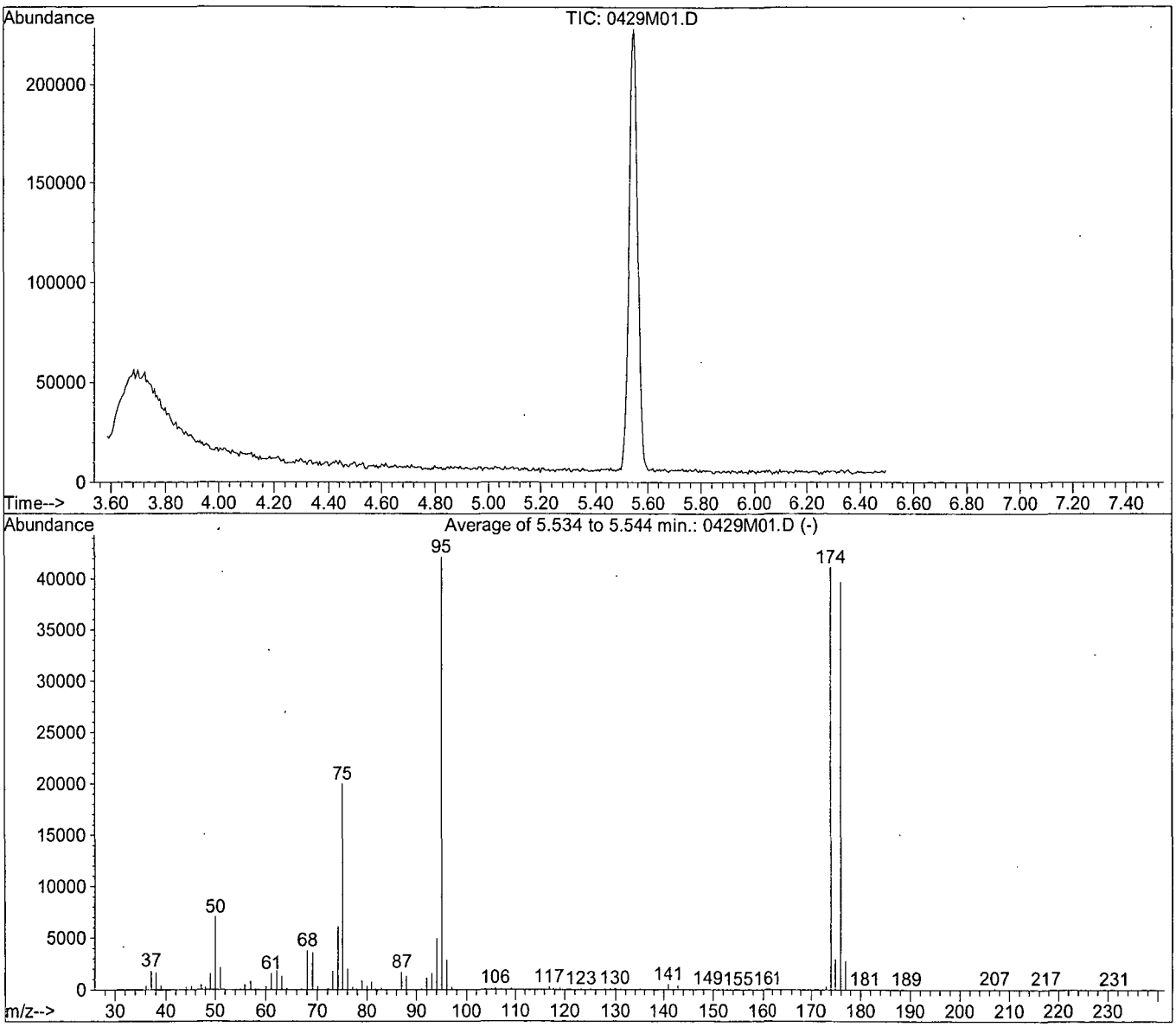
Spectrum Information: Average of 5.637 to 5.673 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	18.1	6437	PASS
75	95	30	60	49.1	17449	PASS
95	95	100	100	100.0	35572	PASS
96	95	5	9	6.9	2445	PASS
173	174	0.00	2	0.4	130	PASS
174	95	50	100	92.4	32863	PASS
175	174	5	9	7.8	2572	PASS
176	174	95	101	96.4	31664	PASS
177	176	5	9	7.4	2328	PASS

Data File : M:\MAX\DATA\M190401\0429M01.D
Acq On : 29 Apr 19 9:11
Sample : 25ug/L BFB 3/11/19
Misc : 2ul

Vial: 1
Operator: PM,DG,CMM,LP
Inst : Max
Multiplr: 1.00

Method : M:\THOR\DATA\T190402B\T0402S.M (RTE Integrator)
Title : METHOD 8260B



AutoFind: Scans 389, 390, 391; Background Corrected with Scan 378

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	16.7	7035	PASS
75	95	30	60	47.4	19984	PASS
95	95	100	100	100.0	42155	PASS
96	95	5	9	6.9	2899	PASS
173	174	0.00	2	0.8	337	PASS
174	95	50	100	97.6	41149	PASS
175	174	5	9	7.2	2979	PASS
176	174	95	100	96.5	39717	PASS
177	176	5	9	7.1	2829	PASS

Max 8260 Standard Prep

Max 8260 Water Calibration Curve

0.3ug/L

Prepared By (Initials): DG

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	0.3ug/L	5	Prepared 03/21/19	05/20/19	N/A	3uL	50mL	P&T Water	0.3
VOA STD. 10	O2SI		5	Prepared 03/21/19	05/20/19	N/A	3uL			0.3
VOA STD. 12	O2SI		5	Prepared 03/21/19	05/20/19	N/A	3uL			0.3
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	2uL			10

0.5ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	0.5ug/L	5	Prepared 03/21/19	05/20/19	N/A	5uL	50mL	P&T Water	0.5
VOA STD. 10	O2SI		5	Prepared 03/21/19	05/20/19	N/A	5uL			0.5
VOA STD 12	O2SI		5	Prepared 03/21/19	05/20/19	N/A	5uL			0.5
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	5uL			25

1.0ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	1.0ug/L	5	Prepared 03/21/19	05/20/19	N/A	10uL	50mL	P&T Water	1
VOA STD. 10	O2SI		5	Prepared 03/21/19	05/20/19	N/A	10uL			1
VOA STD. 12	O2SI		5	Prepared 03/21/19	05/20/19	N/A	10uL			1
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	10uL			50

2.0ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	2.0ug/L	5	Prepared 03/21/19	05/20/19	N/A	20uL	50mL	P&T Water	2
VOA STD. 10	O2SI		5	Prepared 03/21/19	05/20/19	N/A	20uL			2
VOA STD. 12	O2SI		5	Prepared 03/21/19	05/20/19	N/A	20uL			2
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	15uL			75

5ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	5ug/L	50	Prepared 03/21/19	05/20/19	N/A	5uL	50mL	P&T Water	5
VOA STD. 8	Phenova		50	Prepared 03/21/19	03/27/19	N/A	5uL			5
VOA STD. 1	O2SI		50	Prepared 03/21/19	05/20/19	N/A	5uL			5
VOA STD. 2	O2SI		50	Prepared 03/21/19	05/20/19	N/A	5uL			5
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	20uL			100

10ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	10ug/L	50	Prepared 03/21/19	05/20/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 8	Phenova		50	Prepared 03/21/19	03/27/19	N/A	10uL			10
VOA STD. 1	O2SI		50	Prepared 03/21/19	05/20/19	N/A	10uL			10
VOA STD. 2	O2SI		50	Prepared 03/21/19	05/20/19	N/A	10uL			10
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	25uL			125

20ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	20ug/L	50	Prepared 03/21/19	05/20/19	N/A	20uL	50mL	P&T Water	20
VOA STD. 8	Phenova		50	Prepared 03/21/19	03/27/19	N/A	20uL			20
VOA STD. 1	O2SI		50	Prepared 03/21/19	05/20/19	N/A	20uL			20
VOA STD. 2	O2SI		50	Prepared 03/21/19	05/20/19	N/A	20uL			20
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	30uL			150

40ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	40ug/L	50	Prepared 03/21/19	05/20/19	N/A	40uL	50mL	P&T Water	40
VOA STD. 8	Phenova		50	Prepared 03/21/19	03/27/19	N/A	40uL			40
VOA STD. 1	O2SI		50	Prepared 03/21/19	05/20/19	N/A	40uL			40
VOA STD. 2	O2SI		50	Prepared 03/21/19	05/20/19	N/A	40uL			40
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	35uL			175

100ug/L

Prepared: 03/24/19

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	100ug/L	50	Prepared 03/21/19	05/20/19	N/A	100uL	50mL	P&T Water	100
VOA STD. 8	Phenova		50	Prepared 03/21/19	03/27/19	N/A	100uL			100
VOA STD. 1	O2SI		50	Prepared 03/21/19	05/20/19	N/A	100uL			100
VOA STD. 2	O2SI		50	Prepared 03/21/19	05/20/19	N/A	100uL			100
VOA STD. TBA	Various		250	Prepared 03/21/19	03/27/19	N/A	40uL			200

Max 8260 Water Second Source (SS)

Prepared: 03/24/19

Prepared By (Initials): DG

Expires: 04/23/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 4	Phenova	8260 Water SS	50	Prepared 03/21/19	05/20/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 5	O2SI	8260 Water SS	50	Prepared 03/21/19	05/20/19	N/A	10uL			10
VOA STD. 6	Various	8260 Water SS	50	Prepared 03/21/19	03/13/19	N/A	10uL			10
Voa STD. TBA	Various	8260 Water SS	250	Prepared 03/21/19	03/13/19	N/A	25uL			250

8260 Water Continuing Calibrations (CCV)/ Lab Control Spikes (LCS)

Prepared: 03/24/19

Prepared By (Initials): DG

Expires: 03/25/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	CCV/ LCS	50	Prepared 03/21/19	05/20/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 8	Phenova	CCV/ LCS	50	Prepared 03/21/19	03/27/19	N/A	10uL			10
VOA STD. 1	O2SI	CCV/ LCS	50	Prepared 03/21/19	05/20/19	N/A	10uL			10
VOA STD. 2	O2SI	CCV/ LCS	50	Prepared 03/21/19	05/20/19	N/A	10uL			10
VOA STD. TBA	Various	CCV/ LCS	250	Prepared 03/21/19	03/27/19	N/A	25uL			125

LCS (X4 Ketones)

Prepared: 03/24/19

Prepared By (Initials): DG

Expires: 03/25/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	LCS X4 Ketones	50	Prepared 03/21/19	05/20/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 8	Phenova	LCS X4 Ketones	50	Prepared 03/21/19	03/27/19	N/A	10uL			10
VOA STD. 1	O2SI	LCS X4 Ketones	50	Prepared 03/21/19	05/20/19	N/A	10uL			10
VOA STD. 2	O2SI	LCS X4 Ketones	50	Prepared 03/21/19	05/20/19	N/A	40uL			40
VOA STD. TBA	Various	LCS X4 Ketones	250	Prepared 03/21/19	03/27/19	N/A	25uL			125

Max 8260 Water Surrogate

Prepared: 03/24/19 **Prepared By (Initials):** DG

Expires: 03/23/20

Methanol Lot No: 58019

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
8260 Surrogate Solution	O2SI	120002-01	2,000	**348756-39342**	**03/24/20**	**02/10/22**	375uL	15mL	Methanol	50

Max 8260 Water Internal Standard

Prepared: 03/24/19 **Prepared By (Initials):** DG

Expires: 03/23/20

Methanol Lot No: 58019

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Internal Standard Solution	O2SI	120004-02	2,000	**326533-38436**	**03/24/20**	**04/27/21**	375uL	15mL	Methanol	50

Injection Log

Directory: M:\MAX\DATA\M190324\

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	0324M01.D	1	25ug/L BFB 3/11/19	2ul	24 Mar 19 10:39
2	3	0324M05.D	1	0.3ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 12:56
3	4	0324M06.D	1	0.5ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 13:25
4	5	0324M07.D	1	1.0ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 13:54
5	6	0324M08.D	1	2.0ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 14:22
6	7	0324M09.D	1	5.0ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 14:51
7	8	0324M10.D	1	10ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 15:19
8	9	0324M11.D	1	20ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 15:48
9	10	0324M12.D	1	40ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 16:17
10	11	0324M13.D	1	100ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 16:45
11	14	0324M16.D	1	(SS)10ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 18:11
12	1	0429M01.D	1	25ug/L BFB 3/11/19	2ul	29 Apr 19 9:11
13	2	0429M03.D	1	190429A CCV 10ug/L	IS,Surr 03/24/19	29 Apr 19 10:05
14	3	0429M04.D	1	190429A LCS 10ug/L	IS,Surr 03/24/19	29 Apr 19 10:34
15	4	0429M05.D	1	190429A LCSD 10ug/L	IS,Surr 03/24/19	29 Apr 19 11:02
16	9	0429M10.D	1	190429A blk	IS,Surr 03/24/19	29 Apr 19 13:25
17	10	0429M11.D	1	AZ90212W01	IS,Surr 03/24/19	29 Apr 19 13:54
18	11	0429M12.D	1	AZ90213W01	IS,Surr 03/24/19	29 Apr 19 14:22
19	12	0429M13.D	1	AZ90214W01	IS,Surr 03/24/19	29 Apr 19 14:51
20	13	0429M14.D	1	AZ90215W01	IS,Surr 03/24/19	29 Apr 19 15:20
21	14	0429M15.D	1	Ending CCV 10ug/L	IS,Surr 03/24/19	29 Apr 19 15:48

ORGANICS
Calibration Data

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/24/19
Matrix: water Instrument: Max
Initials: DG/LP

			0324M05 D	0324M06.D	0324M07.D	0324M08.D	0324M09.D	0324M10 D	0324M11.D	0324M12.D	0324M13.D							
		Compound	1	2	3	4	5	6	7	8	9		Avg	%RSD	Type	r^2	Q	MRF
1	I	Fluorobenzene (IS)																
2	S	Dibromofluoromethane(S)	0.2250	0.2190	0.1683	0.1791	0.1920	0.1877	0.1903	0.1887	0.1712		0.19	10	S			
3	S	1,2-DCA-D4(S)	0.2745	0.2518	0.1982	0.2074	0.2233	0.2148	0.2139	0.2111	0.1879		0.22	12	S			
4	I	Chlorobenzene-D5 (IS)																
5	S	Toluene-D8(S)	1.394	1.286	1.018	1.062	1.091	1.071	1.080	1.053	0.9367		1.1	13	S			
6	S	4-Bromofluorobenzene(S)	0.5102	0.4809	0.3610	0.3788	0.3957	0.3966	0.4009	0.3904	0.3516		0.41	13	S			
7	I	1,4-Dichlorobenzene-D (IS)																
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10																		
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Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M05.D Vial: 3
Acq On : 24 Mar 19 12:56 Operator: PM,DG,SV,CMM,KV
Sample : 0.3ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Apr 2 7:59 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190324\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.31	96	567297	25.000	ppb	0.00
4) Chlorobenzene-D5 (IS)	8.93	117	414490	25.000	ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	12.12	152	209079	25.000	ppb	0.00
System Monitoring Compounds						
2) Dibromofluoromethane(S)	4.60	111	25529	5.883	ppb	0.00
Spiked Amount 25.000			Recovery =	23.532%		
3) 1,2-DCA-D4(S)	4.95	65	31146	6.230	ppb	0.00
Spiked Amount 25.000			Recovery =	24.920%		
5) Toluene-D8(S)	7.13	98	115538	6.278	ppb	0.00
Spiked Amount 25.000			Recovery =	25.112%		
6) 4-Bromofluorobenzene(S)	10.52	95	42297	6.263	ppb	0.00
Spiked Amount 25.000			Recovery =	25.052%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

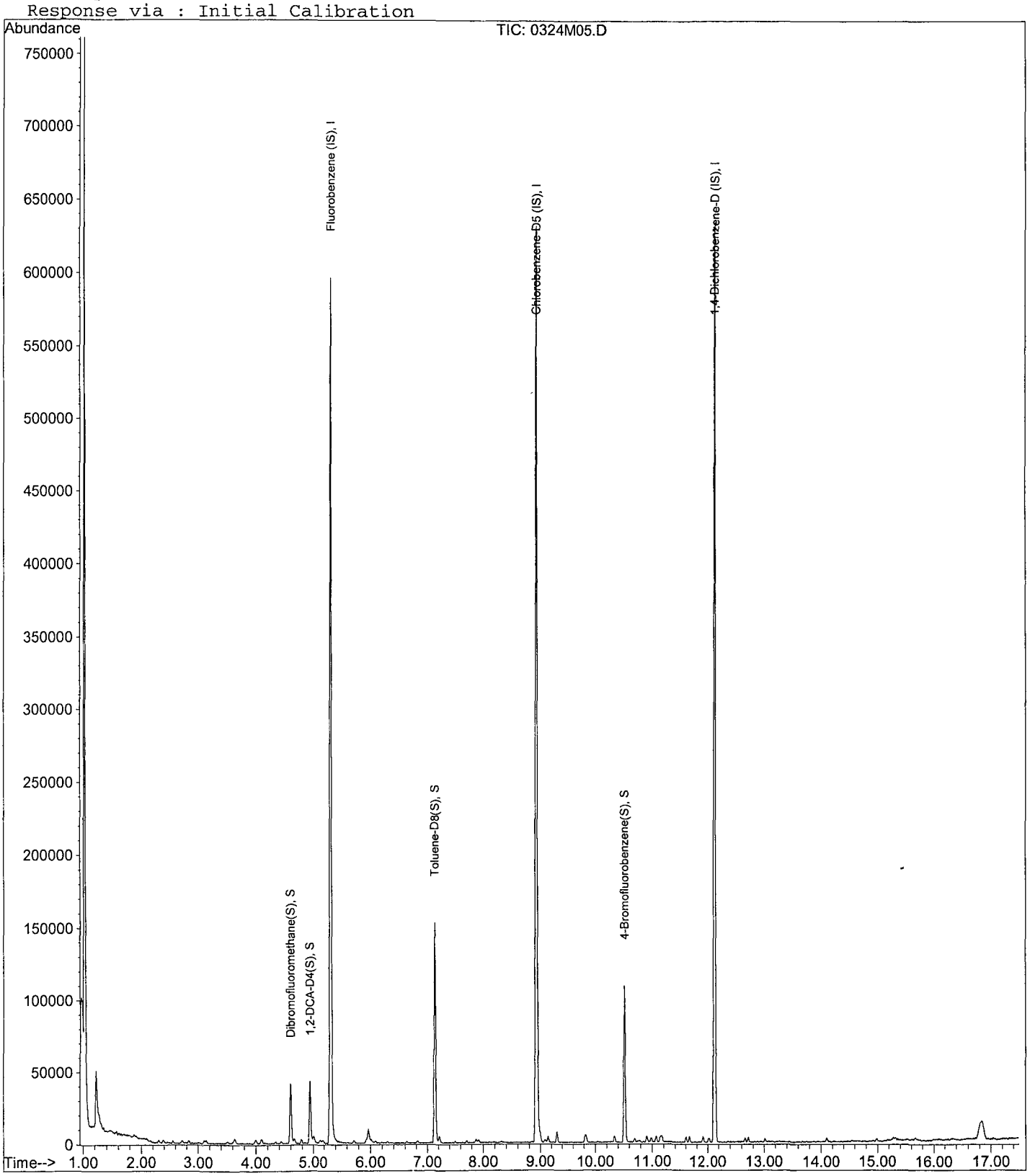
Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M05.D
Acq On : 24 Mar 19 12:56
Sample : 0.3ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 3
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 2 7:59 2019 Quant Results File: MSUR324.RES

Method : M:\MAX\DATA\M190324\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M06.D
Acq On : 24 Mar 19 13:25
Sample : 0.5ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 4
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 2 7:59 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190324\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.31	96	548649	25.000	ppb	0.00
4) Chlorobenzene-D5 (IS)	8.93	117	408005	25.000	ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	12.12	152	207647	25.000	ppb	0.00
System Monitoring Compounds						
2) Dibromofluoromethane(S)	4.60	111	24026	5.724	ppb	0.00
Spiked Amount 25.000			Recovery =	22.896%		
3) 1,2-DCA-D4(S)	4.95	65	27628	5.714	ppb	0.00
Spiked Amount 25.000			Recovery =	22.856%		
5) Toluene-D8(S)	7.13	98	104917	5.791	ppb	0.00
Spiked Amount 25.000			Recovery =	23.164%		
6) 4-Bromofluorobenzene(S)	10.52	95	39240	5.903	ppb	0.00
Spiked Amount 25.000			Recovery =	23.612%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

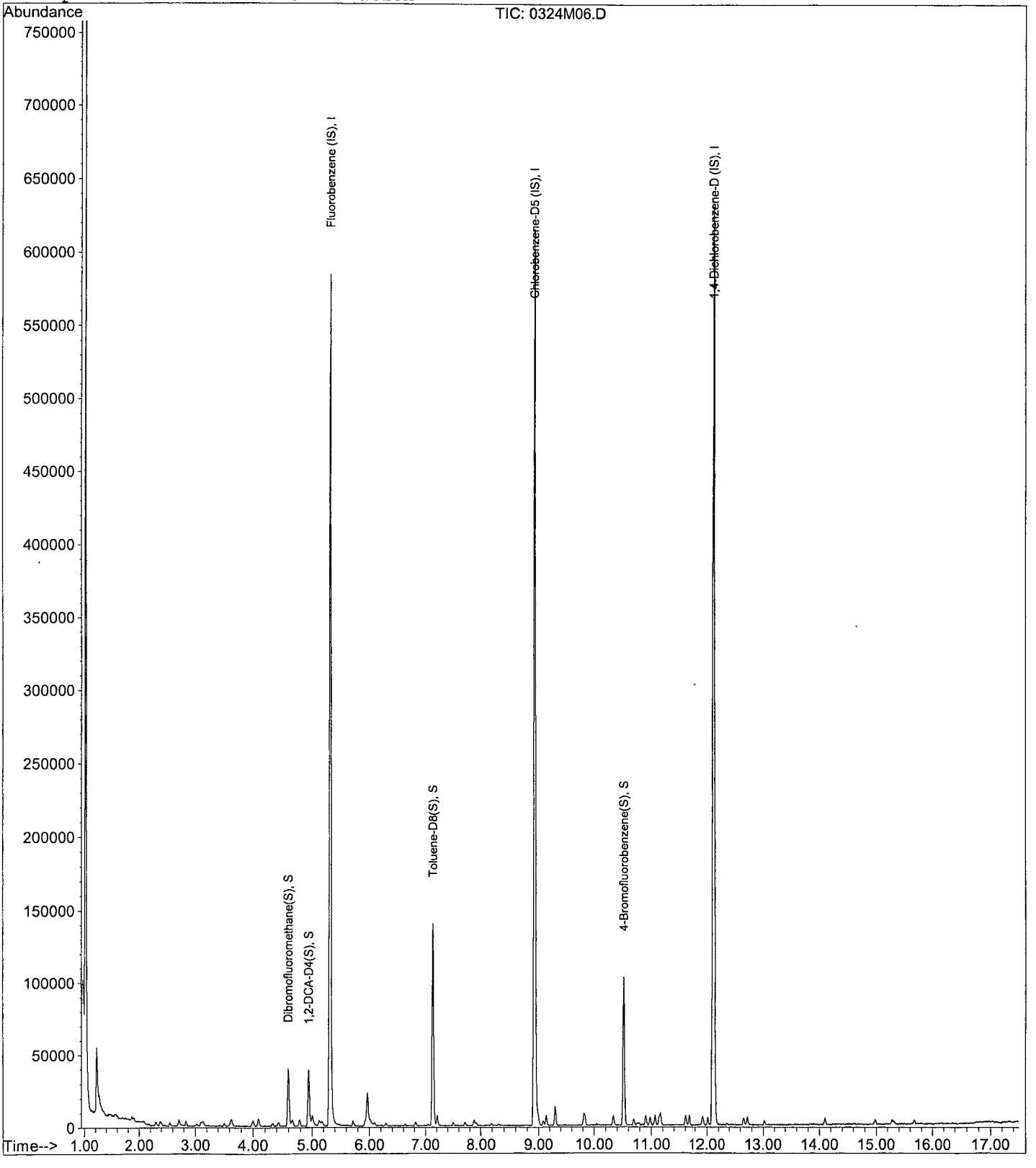
Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M06.D
Acq On : 24 Mar 19 13:25
Sample : 0.5ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 4
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 2 7:59 2019 Quant Results File: MSUR324.RES

Method : M:\MAX\DATA\M190324\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M07.D Vial: 5
Acq On : 24 Mar 19 13:54 Operator: PM,DG,SV,CMM,KV
Sample : 1.0ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Apr 2 7:59 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190324\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.32	96	562637	25.000	ppb	0.00
4) Chlorobenzene-D5 (IS)	8.93	117	415204	25.000	ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	12.12	152	206662	25.000	ppb	0.00
System Monitoring Compounds						
2) Dibromofluoromethane(S)	4.60	111	37879	8.801	ppb	0.00
Spiked Amount 25.000			Recovery =	35.204%		
3) 1,2-DCA-D4(S)	4.95	65	44603	8.995	ppb	0.00
Spiked Amount 25.000			Recovery =	35.980%		
5) Toluene-D8(S)	7.14	98	169003	9.167	ppb	0.00
Spiked Amount 25.000			Recovery =	36.668%		
6) 4-Bromofluorobenzene(S)	10.52	95	59950	8.862	ppb	0.00
Spiked Amount 25.000			Recovery =	35.448%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

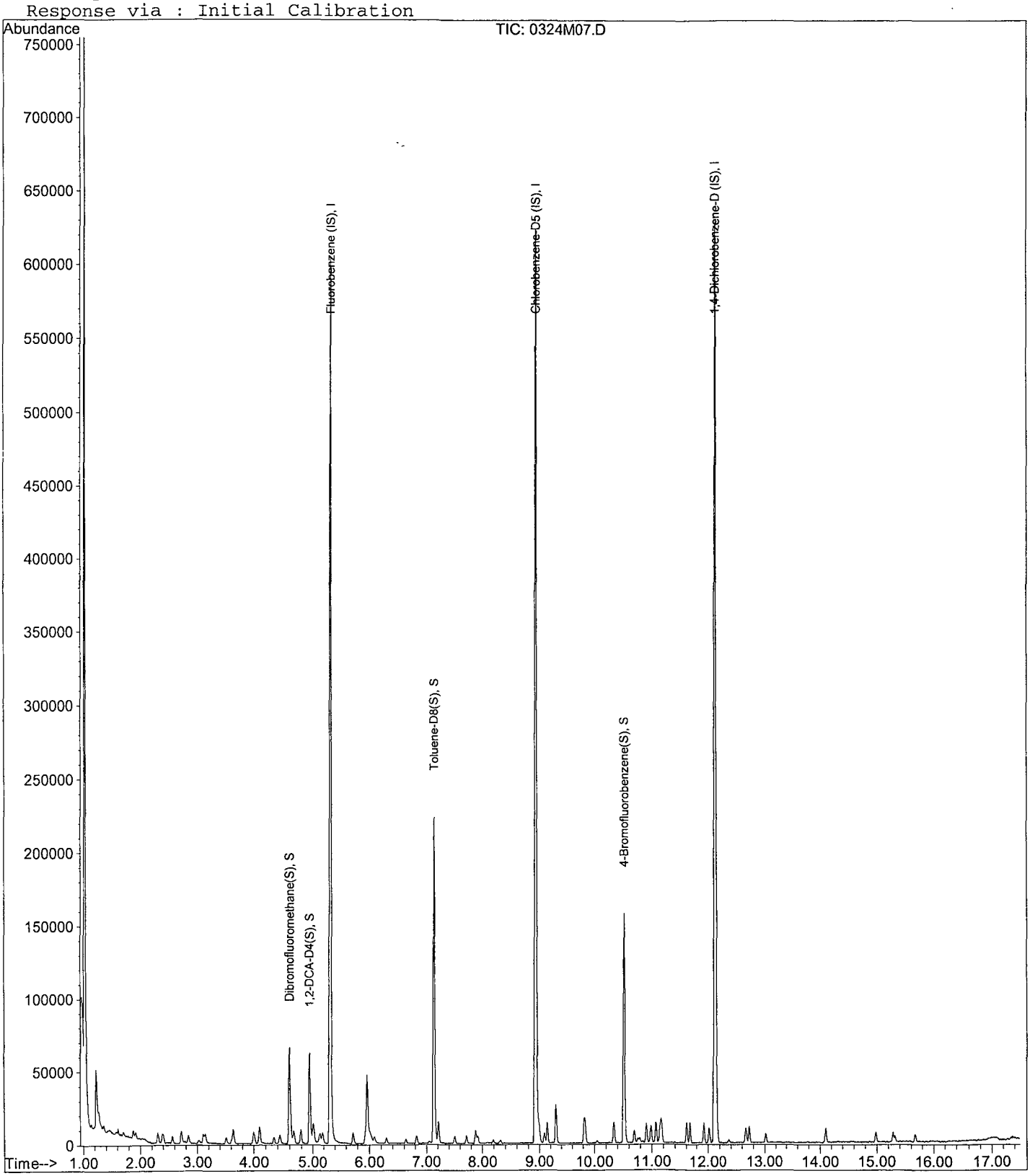
Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M07.D
Acq On : 24 Mar 19 13:54
Sample : 1.0ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 5
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 2 7:59 2019 Quant Results File: MSUR324.RES

Method : M:\MAX\DATA\M190324\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M08.D Vial: 6
Acq On : 24 Mar 19 14:22 Operator: PM,DG,SV,CMM,KV
Sample : 2.0ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Apr 2 7:59 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190324\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.32	96	588239	25.000	ppb	0.00
4) Chlorobenzene-D5 (IS)	8.93	117	428656	25.000	ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	12.12	152	210603	25.000	ppb	0.00
System Monitoring Compounds						
2) Dibromofluoromethane(S)	4.60	111	42136	9.364	ppb	0.00
Spiked Amount 25.000			Recovery =	37.456%		
3) 1,2-DCA-D4(S)	4.95	65	48794	9.412	ppb	0.00
Spiked Amount 25.000			Recovery =	37.648%		
5) Toluene-D8(S)	7.14	98	182083	9.567	ppb	0.00
Spiked Amount 25.000			Recovery =	38.268%		
6) 4-Bromofluorobenzene(S)	10.52	95	64942	9.298	ppb	0.00
Spiked Amount 25.000			Recovery =	37.192%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

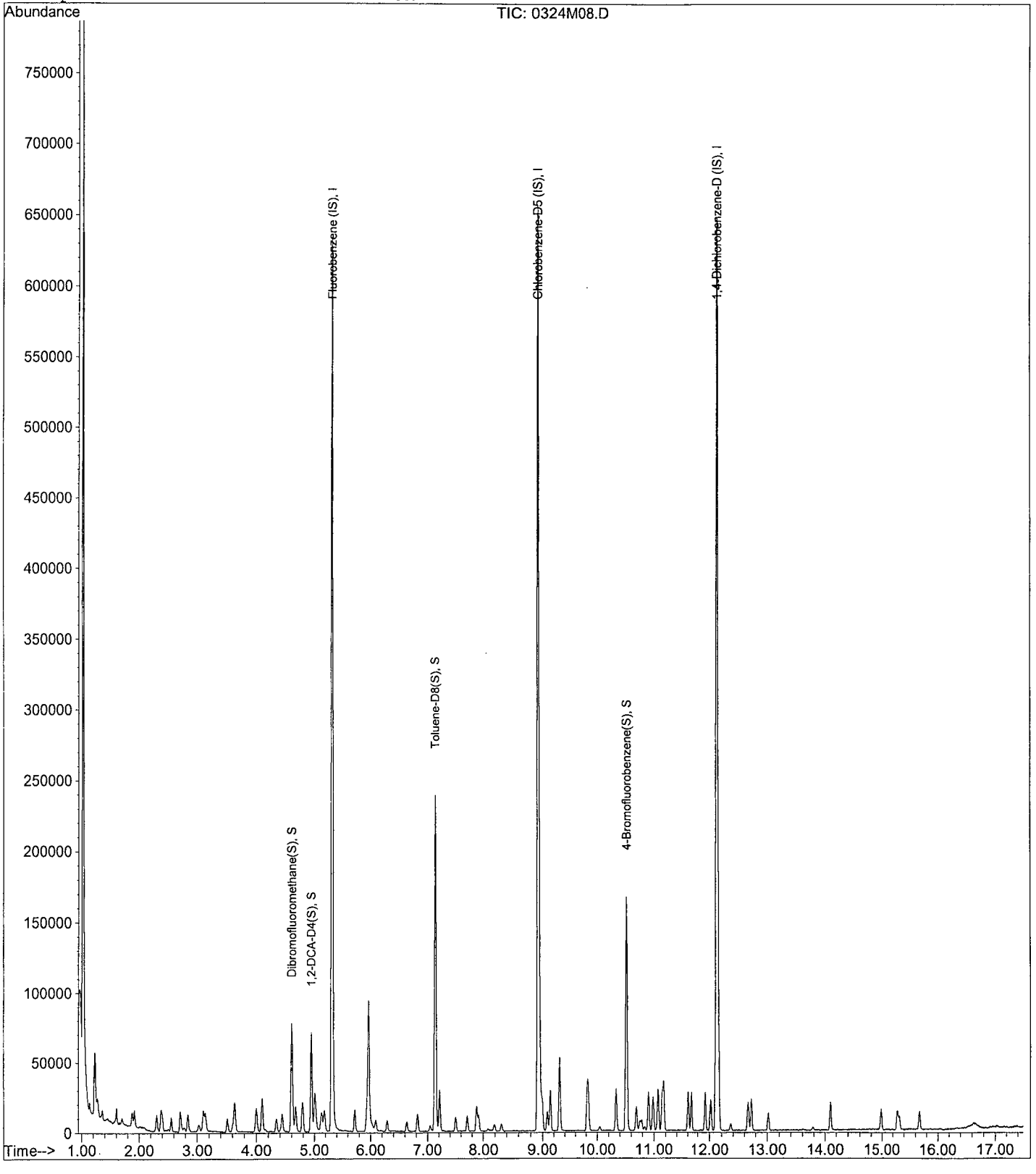
Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M08.D
Acq On : 24 Mar 19 14:22
Sample : 2.0ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 6
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 2 7:59 2019 Quant Results File: MSUR324.RES

Method : M:\MAX\DATA\M190324\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M09.D Vial: 7
Acq On : 24 Mar 19 14:51 Operator: PM,DG,SV,CMM,KV
Sample : 5.0ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Apr 2 7:59 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190324\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.32	96	551421	25.000 ppb	0.00
4) Chlorobenzene-D5 (IS)	8.93	117	414802	25.000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	12.12	152	211221	25.000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.60	111	105862	25.096 ppb	0.00
Spiked Amount 25.000			Recovery = 100.384%		
3) 1,2-DCA-D4(S)	4.95	65	123145	25.340 ppb	0.00
Spiked Amount 25.000			Recovery = 101.360%		
5) Toluene-D8(S)	7.13	98	452516	24.569 ppb	0.00
Spiked Amount 25.000			Recovery = 98.276%		
6) 4-Bromofluorobenzene(S)	10.52	95	164122	24.284 ppb	0.00
Spiked Amount 25.000			Recovery = 97.136%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

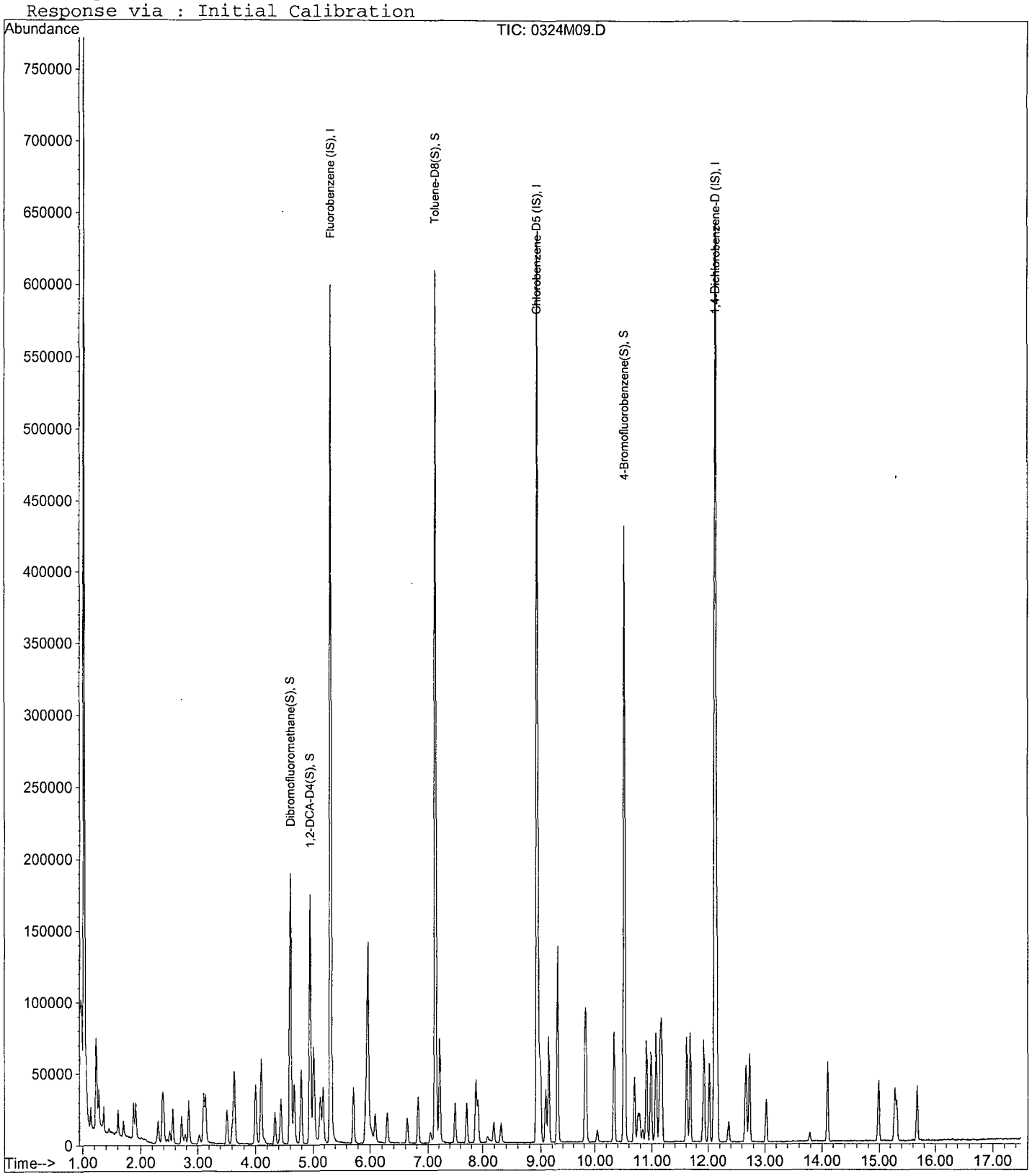
Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M09.D
Acq On : 24 Mar 19 14:51
Sample : 5.0ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 7
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 2 7:59 2019 Quant Results File: MSUR324.RES

Method : M:\MAX\DATA\M190324\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M10.D
Acq On : 24 Mar 19 15:19
Sample : 10ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 8
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 2 8:00 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190324\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.32	96	563465	25.000	ppb	0.00
4) Chlorobenzene-D5 (IS)	8.93	117	422362	25.000	ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	12.12	152	217007	25.000	ppb	0.00
System Monitoring Compounds						
2) Dibromofluoromethane(S)	4.60	111	105764	24.536	ppb	0.00
Spiked Amount 25.000			Recovery =	98.144%		
3) 1,2-DCA-D4(S)	4.95	65	121024	24.371	ppb	0.00
Spiked Amount 25.000			Recovery =	97.484%		
5) Toluene-D8(S)	7.14	98	452289	24.118	ppb	0.00
Spiked Amount 25.000			Recovery =	96.472%		
6) 4-Bromofluorobenzene(S)	10.52	95	167493	24.339	ppb	0.00
Spiked Amount 25.000			Recovery =	97.356%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

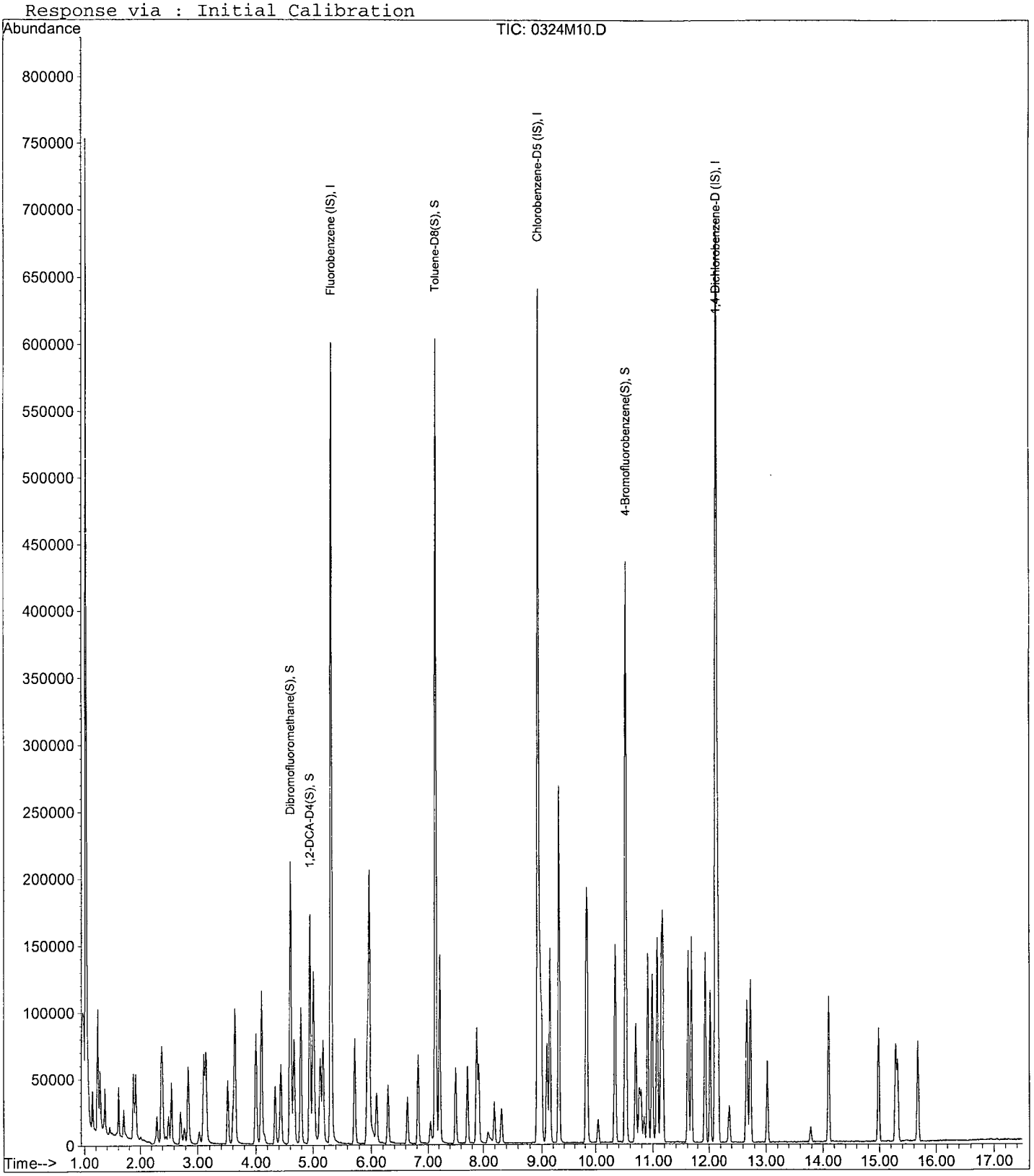
Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M10.D
Acq On : 24 Mar 19 15:19
Sample : 10ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 8
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 2 8:00 2019 Quant Results File: MSUR324.RES

Method : M:\MAX\DATA\M190324\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M11.D Vial: 9
Acq On : 24 Mar 19 15:48 Operator: PM,DG,SV,CMM,KV
Sample : 20ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Apr 2 8:00 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190324\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.31	96	554172	25.000 ppb	0.00
4) Chlorobenzene-D5 (IS)	8.93	117	421724	25.000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	12.12	152	222616	25.000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.60	111	210921	49.753 ppb	0.00
Spiked Amount 25.000			Recovery	= 199.012%	
3) 1,2-DCA-D4(S)	4.94	65	237117	48.550 ppb	0.00
Spiked Amount 25.000			Recovery	= 194.200%	
5) Toluene-D8(S)	7.14	98	910661	48.633 ppb	0.00
Spiked Amount 25.000			Recovery	= 194.532%	
6) 4-Bromofluorobenzene(S)	10.52	95	338144	49.211 ppb	0.00
Spiked Amount 25.000			Recovery	= 196.844%	

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

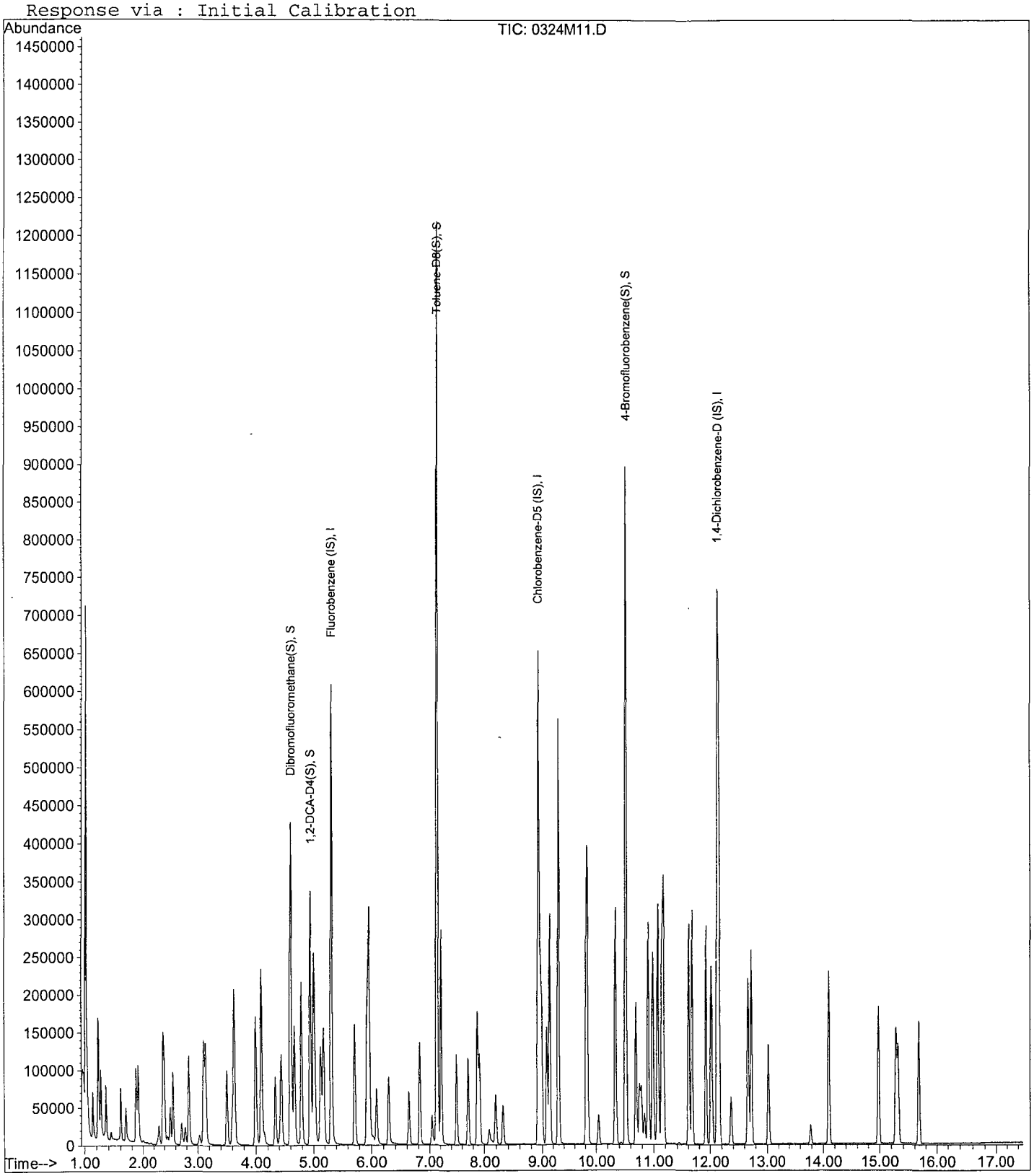
Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M11.D
Acq On : 24 Mar 19 15:48
Sample : 20ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 9
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 2 8:00 2019 Quant Results File: MSUR324.RES

Method : M:\MAX\DATA\M190324\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M12.D Vial: 10
Acq On : 24 Mar 19 16:17 Operator: PM,DG,SV,CMM,KV
Sample : 40ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Apr 2 8:00 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190324\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.31	96	561800	25.000 ppb	0.00
4) Chlorobenzene-D5 (IS)	8.93	117	434917	25.000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	12.12	152	228943	25.000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.60	111	212017	49.332 ppb	0.00
Spiked Amount 25.000			Recovery	= 197.328%	
3) 1,2-DCA-D4(S)	4.94	65	237213	47.910 ppb	0.00
Spiked Amount 25.000			Recovery	= 191.640%	
5) Toluene-D8(S)	7.14	98	916073	47.438 ppb	0.00
Spiked Amount 25.000			Recovery	= 189.752%	
6) 4-Bromofluorobenzene(S)	10.52	95	339596	47.923 ppb	0.00
Spiked Amount 25.000			Recovery	= 191.692%	

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

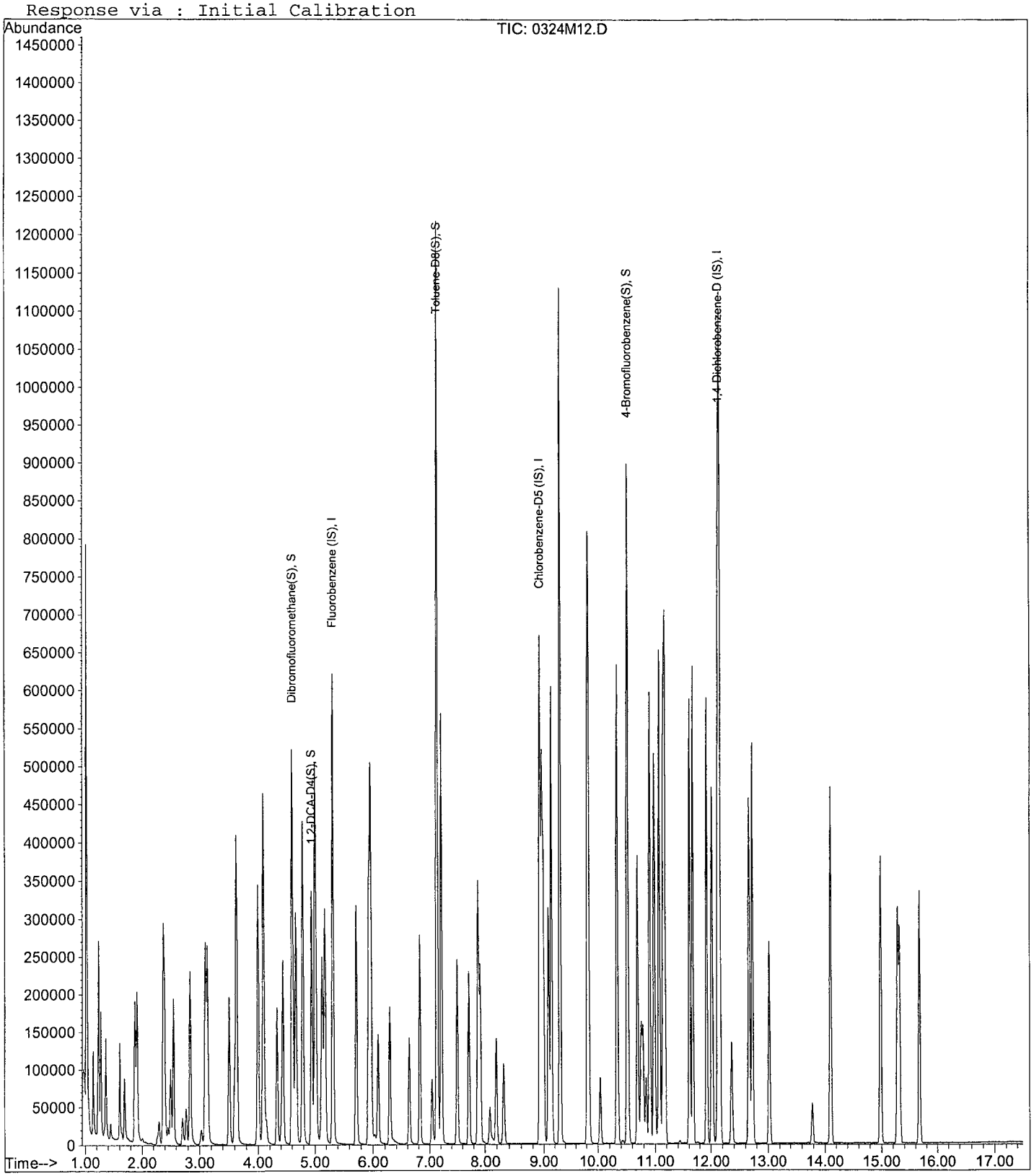
Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M12.D
Acq On : 24 Mar 19 16:17
Sample : 40ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 10
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 2 8:00 2019 Quant Results File: MSUR324.RES

Method : M:\MAX\DATA\M190324\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190324\0324M13.D Vial: 11
Acq On : 24 Mar 19 16:45 Operator: PM,DG,SV,CMM,KV
Sample : 100ug/L VOC STD 3/24/19 Inst : Max
Misc : Is,Surr 3/24/19 Multiplr: 1.00

Quant Time: Apr 2 8:00 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190324\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.31	96	562288	25.000 ppb	0.00
4) Chlorobenzene-D5 (IS)	8.93	117	441644	25.000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	12.12	152	234726	25.000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.60	111	385089	89.525 ppb	0.00
Spiked Amount 25.000			Recovery	= 358.100%	
3) 1,2-DCA-D4(S)	4.94	65	422708	85.300 ppb	0.00
Spiked Amount 25.000			Recovery	= 341.200%	
5) Toluene-D8(S)	7.14	98	1654770	84.385 ppb	0.00
Spiked Amount 25.000			Recovery	= 337.540%	
6) 4-Bromofluorobenzene(S)	10.52	95	621203	86.328 ppb	0.00
Spiked Amount 25.000			Recovery	= 345.312%	

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

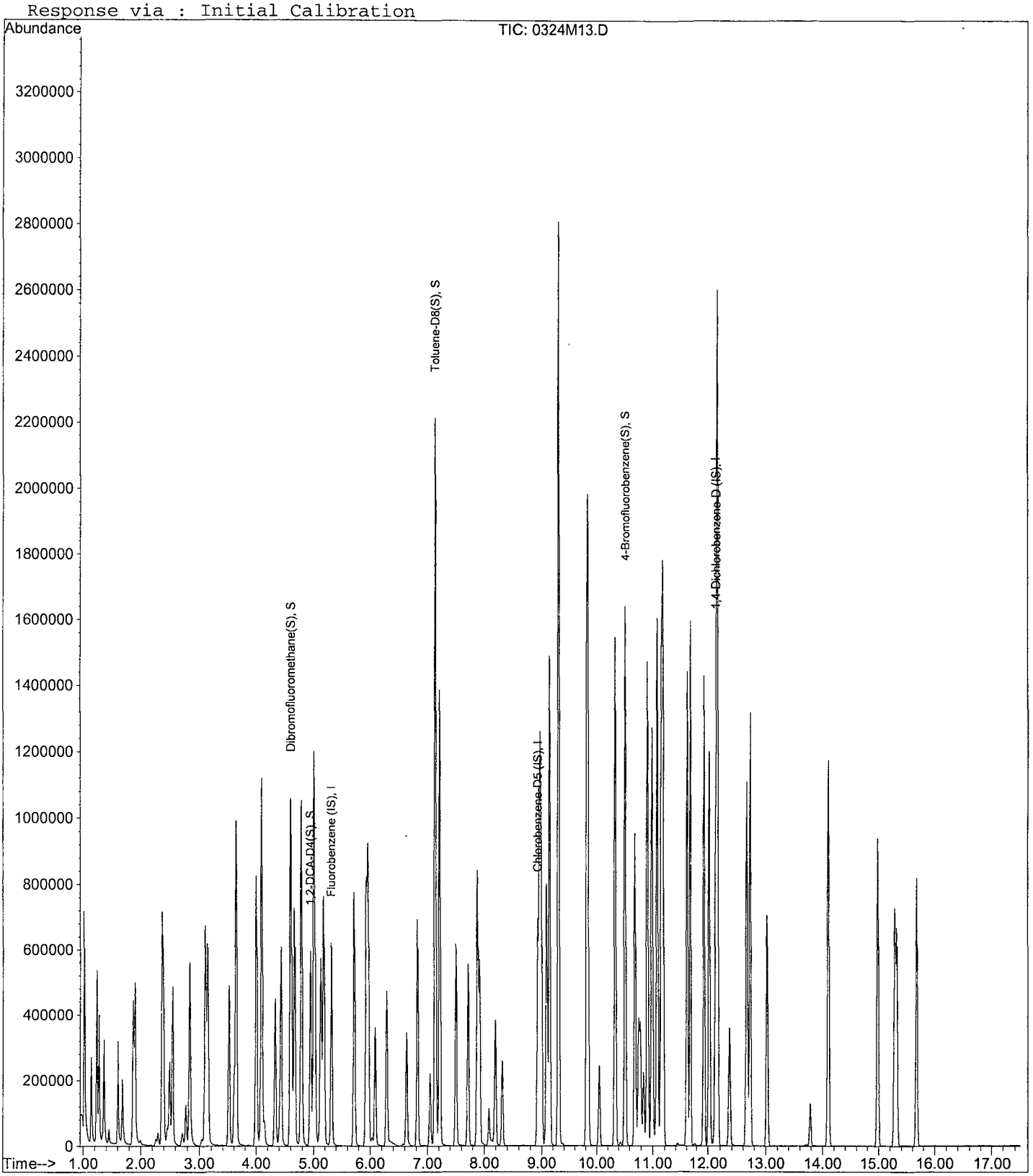
Quantitation Report

Data File : M:\MAX\DATA\M190324\0324M13.D
Acq On : 24 Mar 19 16:45
Sample : 100ug/L VOC STD 3/24/19
Misc : Is,Surr 3/24/19

Vial: 11
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 2 8:00 2019 Quant Results File: MSUR324.RES

Method : M:\MAX\DATA\M190324\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration



VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 04/01/19
Matrix: water Instrument: Max Initials:

			0401M04.D	0401M05 D	0401M06.D	0401M07 D	0401M08 D	0401M09.D	0401M10.D									
		Compound	1	2	3	4	5	6	7				Avg	%RSD	Type	r^2	Q	MRF
1	I	Fluorobenzene (IS)																
2	TMHBL	Gasoline C6-C10	11.0	4.649	2.597	1.206	0.8368	0.7215	0.6807				3.1	122	TMHBL	0.999		
3	TMHB	Chlorobenzene-D5 (IS)																
4	TMHB	1,4-Dichlorobenzene (IS)																
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6																		
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Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0401M04.D Vial: 3
Acq On : 1 Apr 19 10:31 Operator: PM,DG,SV,CMM,KV
Sample : 20ug/L GAS STD 4/01/19 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 1 15:17 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:16:42 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	598255	25.000 ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	117	338283m	25.000 ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	152	187311m	25.000 ppb	0.00
System Monitoring Compounds					
Target Compounds					Qvalue
2) Gasoline C6-C10	8.80	TIC	5271420m	26.591 ppb	100

(#) = qualifier out of range (m) = manual integration

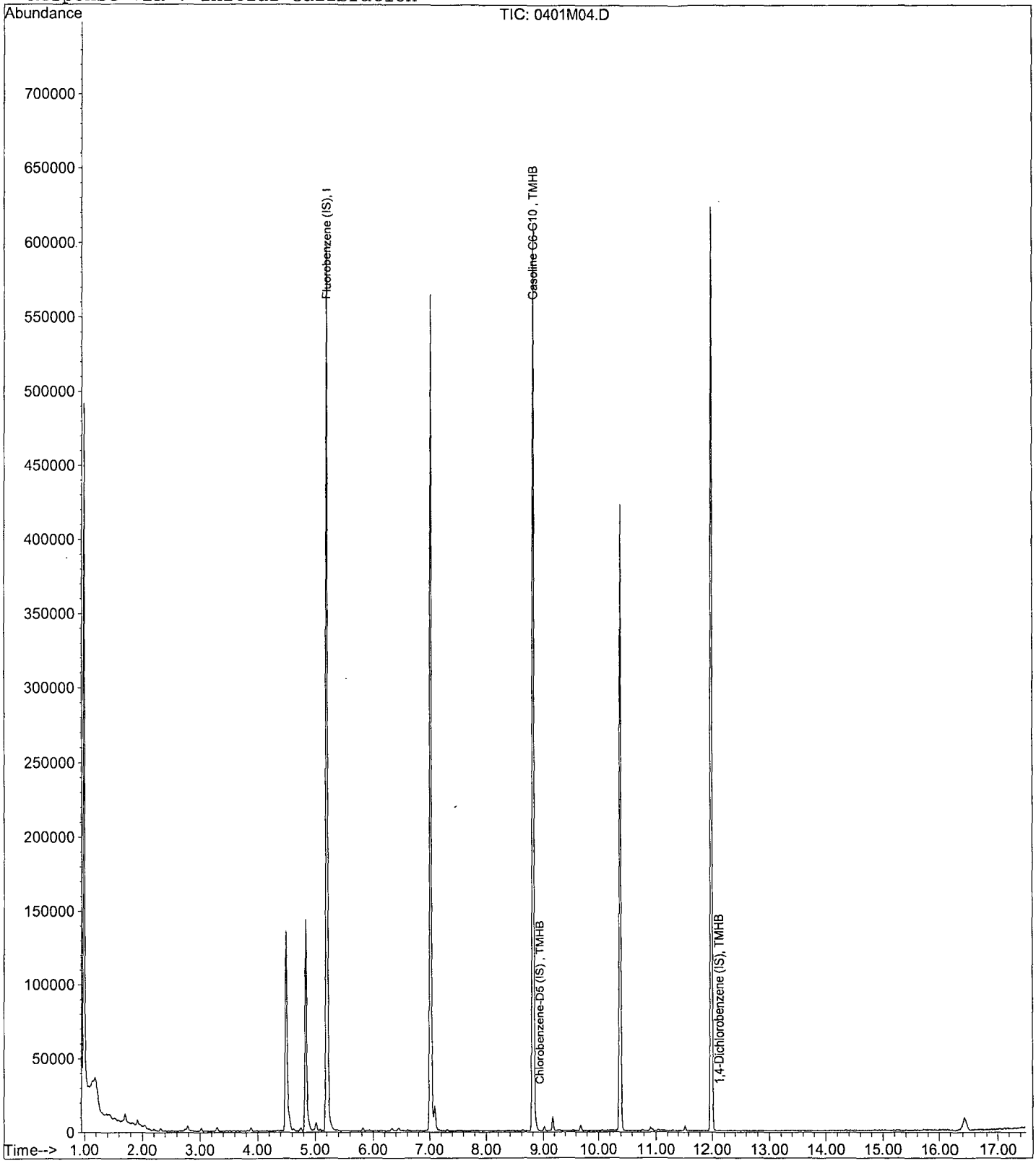
Quantitation Report

Data File : M:\MAX\DATA\M190401\0401M04.D
Acq On : 1 Apr 19 10:31
Sample : 20ug/L GAS STD 4/01/19
Misc : IS,Surr 03/24/19

Vial: 3
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 1 15:17 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:19:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0401M05.D Vial: 4
Acq On : 1 Apr 19 11:00 Operator: PM,DG,SV,CMM,KV
Sample : 50ug/L GAS STD 4/01/19 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 1 15:17 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:16:42 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.20	TIC	587568	25.000 ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	117	330094m	25.000 ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	152	190101m	25.000 ppb	0.00

System Monitoring Compounds

Target Compounds					Qvalue
2) Gasoline C6-C10	8.80	TIC	5463157m	51.914 ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

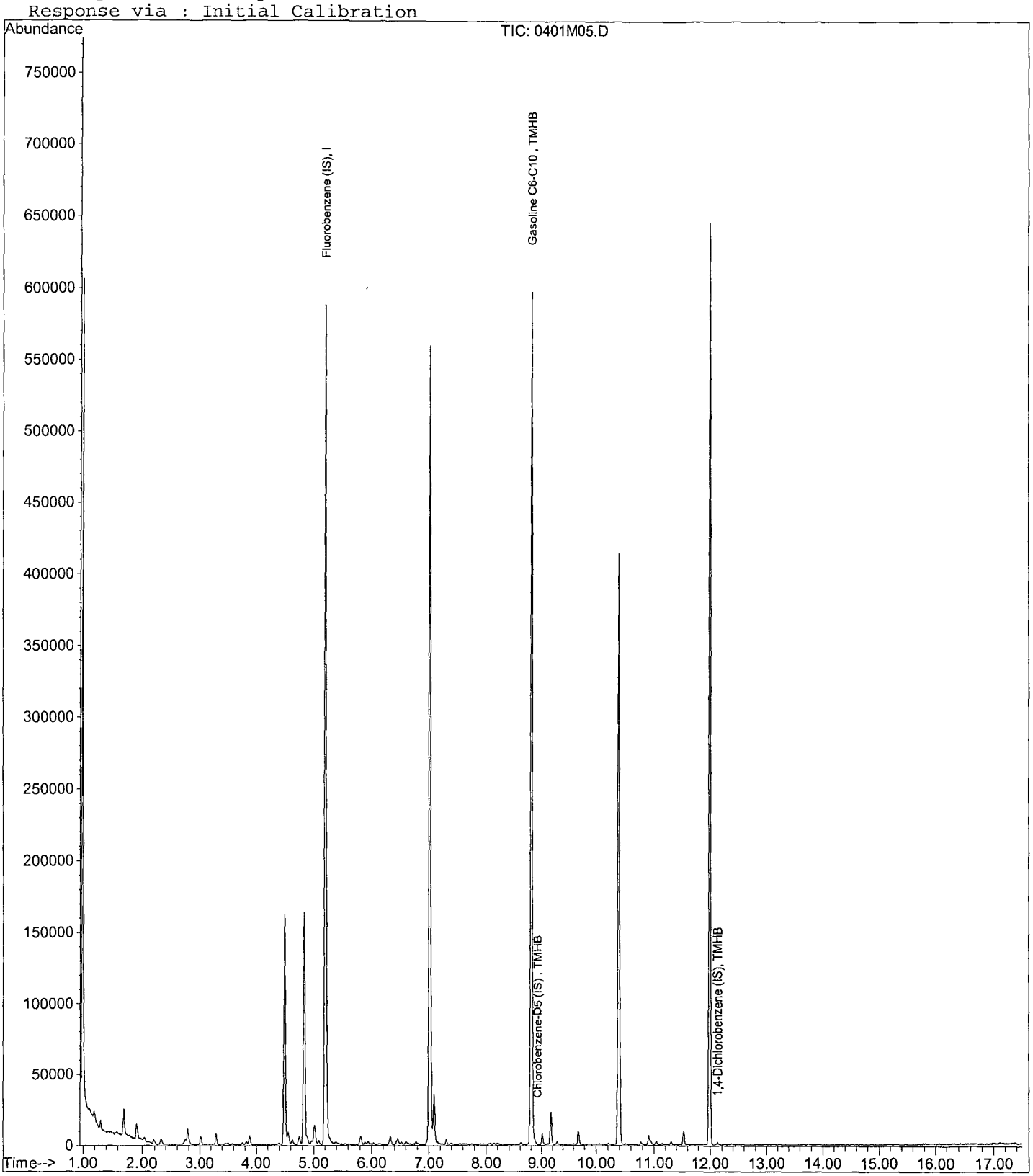
Data File : M:\MAX\DATA\M190401\0401M05.D
Acq On : 1 Apr 19 11:00
Sample : 50ug/L GAS STD 4/01/19
Misc : IS,Surr 03/24/19

Vial: 4
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 1 15:17 2019

Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:19:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0401M06.D Vial: 5
Acq On : 1 Apr 19 11:28 Operator: PM,DG,SV,CMM,KV
Sample : 100ug/L GAS STD 4/01/19 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 1 15:18 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:16:42 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	575257	25.000 ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	117	323893m	25.000 ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	152	181396m	25.000 ppb	0.00
System Monitoring Compounds					
Target Compounds					Qvalue
2) Gasoline C6-C10	8.80	TIC	5976508m	108.711 ppb	100

(#) = qualifier out of range (m) = manual integration

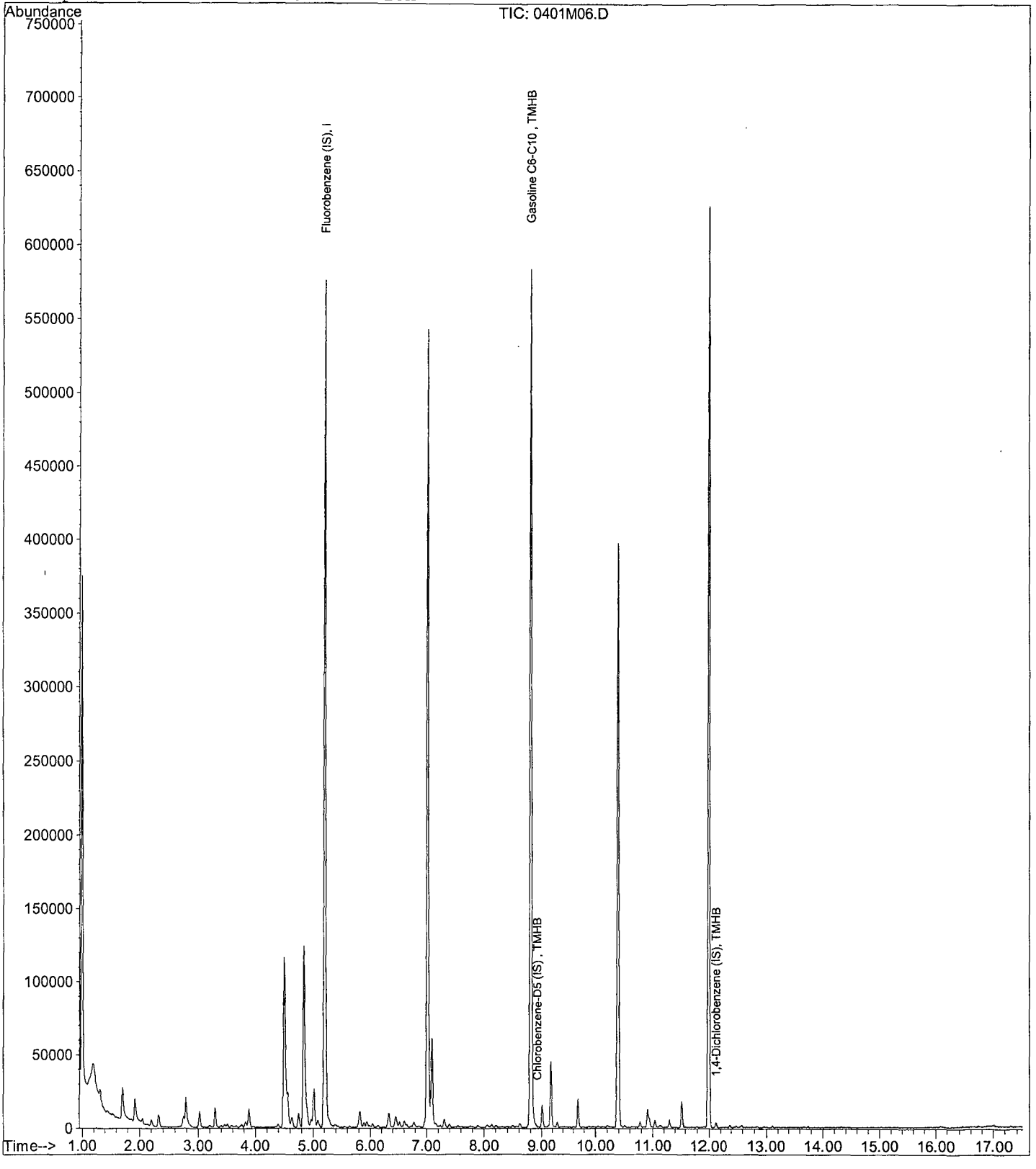
Quantitation Report

Data File : M:\MAX\DATA\M190401\0401M06.D
Acq On : 1 Apr 19 11:28
Sample : 100ug/L GAS STD 4/01/19
Misc : IS,Surr 03/24/19

Vial: 5
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 1 15:18 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:19:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0401M07.D Vial: 6
Acq On : 1 Apr 19 11:57 Operator: PM,DG,SV,CMM,KV
Sample : 300ug/L GAS STD 4/01/19 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 1 15:18 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:16:42 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	573184	25.000 ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	117	333476m	25.000 ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	152	189443m	25.000 ppb	0.00

System Monitoring Compounds

Target Compounds					Qvalue
2) Gasoline C6-C10	8.80	TIC	8295201m	321.192 ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

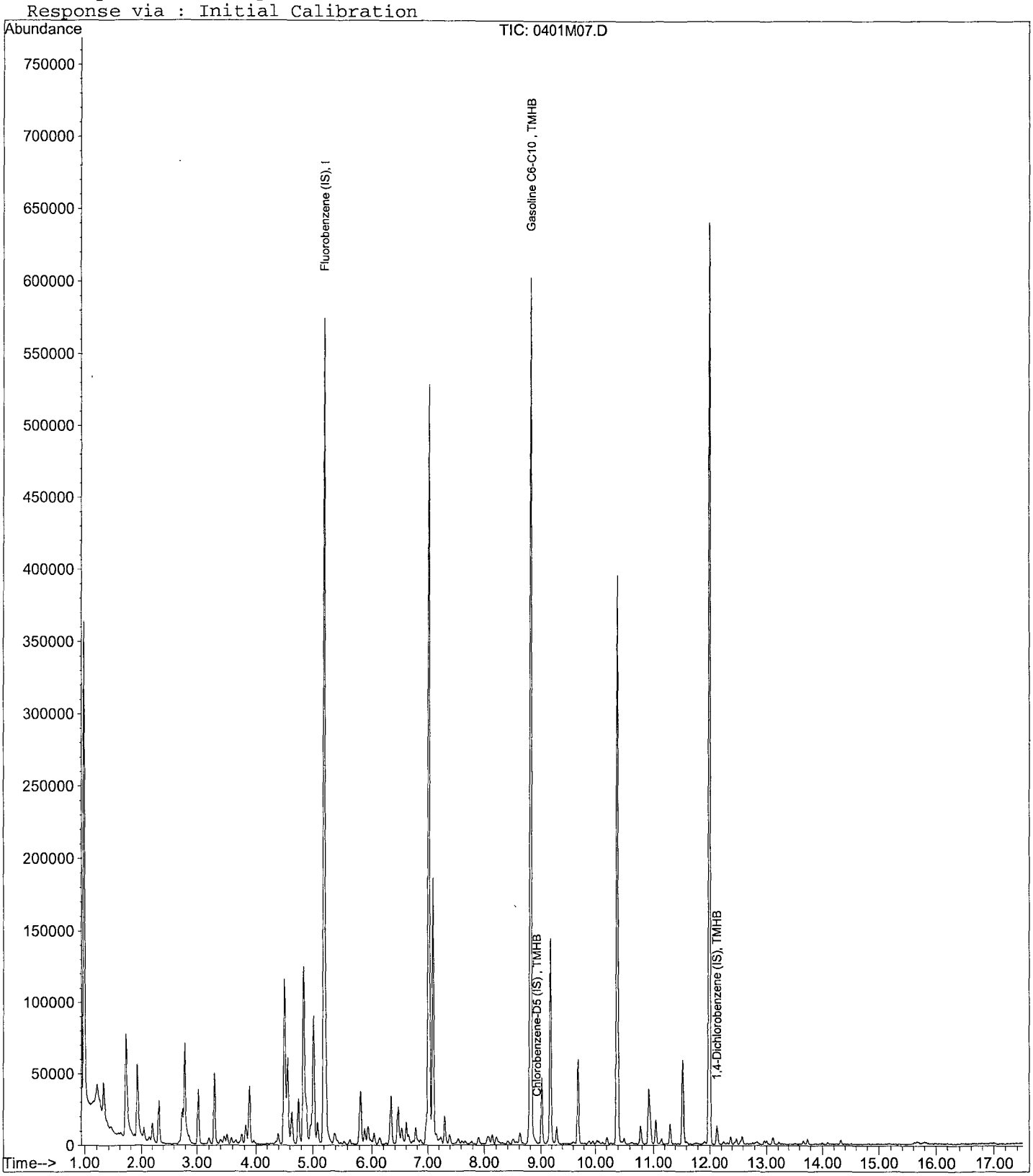
Data File : M:\MAX\DATA\M190401\0401M07.D
Acq On : 1 Apr 19 11:57
Sample : 300ug/L GAS STD 4/01/19
Misc : IS,Surr 03/24/19

Vial: 6
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 1 15:18 2019

Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:19:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0401M08.D Vial: 7
Acq On : 1 Apr 19 12:25 Operator: PM,DG,SV,CMM,KV
Sample : 600ug/L GAS STD 4/01/19 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 1 15:18 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:16:42 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	576087	25.000 ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	117	330146m	25.000 ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	152	190295m	25.000 ppb	0.00

System Monitoring Compounds

Target Compounds					Qvalue
2) Gasoline C6-C10	8.80	TIC	11569749m	613.209 ppb	100

(#) = qualifier out of range (m) = manual integration

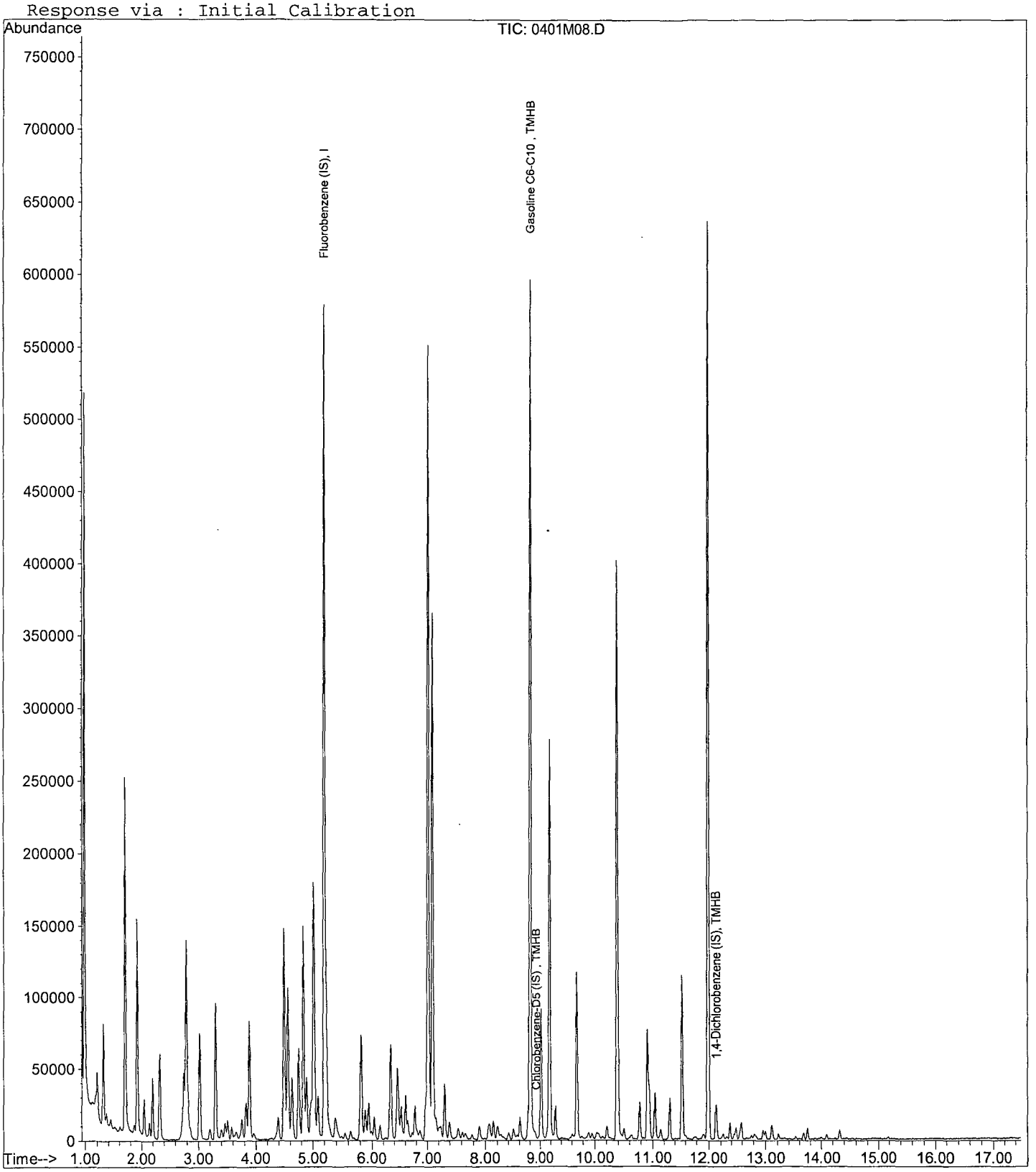
Quantitation Report

Data File : M:\MAX\DATA\M190401\0401M08.D
Acq On : 1 Apr 19 12:25
Sample : 600ug/L GAS STD 4/01/19
Misc : IS,Surr 03/24/19

Vial: 7
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 1 15:18 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:19:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0401M09.D Vial: 8
Acq On : 1 Apr 19 12:54 Operator: PM,DG,SV,CMM,KV
Sample : 800ug/L GAS STD 4/01/19 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 1 15:18 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:16:42 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	579649	25.000 ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	117	326637m	25.000 ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	152	190935m	25.000 ppb	0.00
System Monitoring Compounds					
Target Compounds					Qvalue
2) Gasoline C6-C10	8.80	TIC	13383194m	769.601 ppb	100

(#) = qualifier out of range (m) = manual integration
0401M09.D MGAS401.M Mon Apr 01 15:18:59 2019

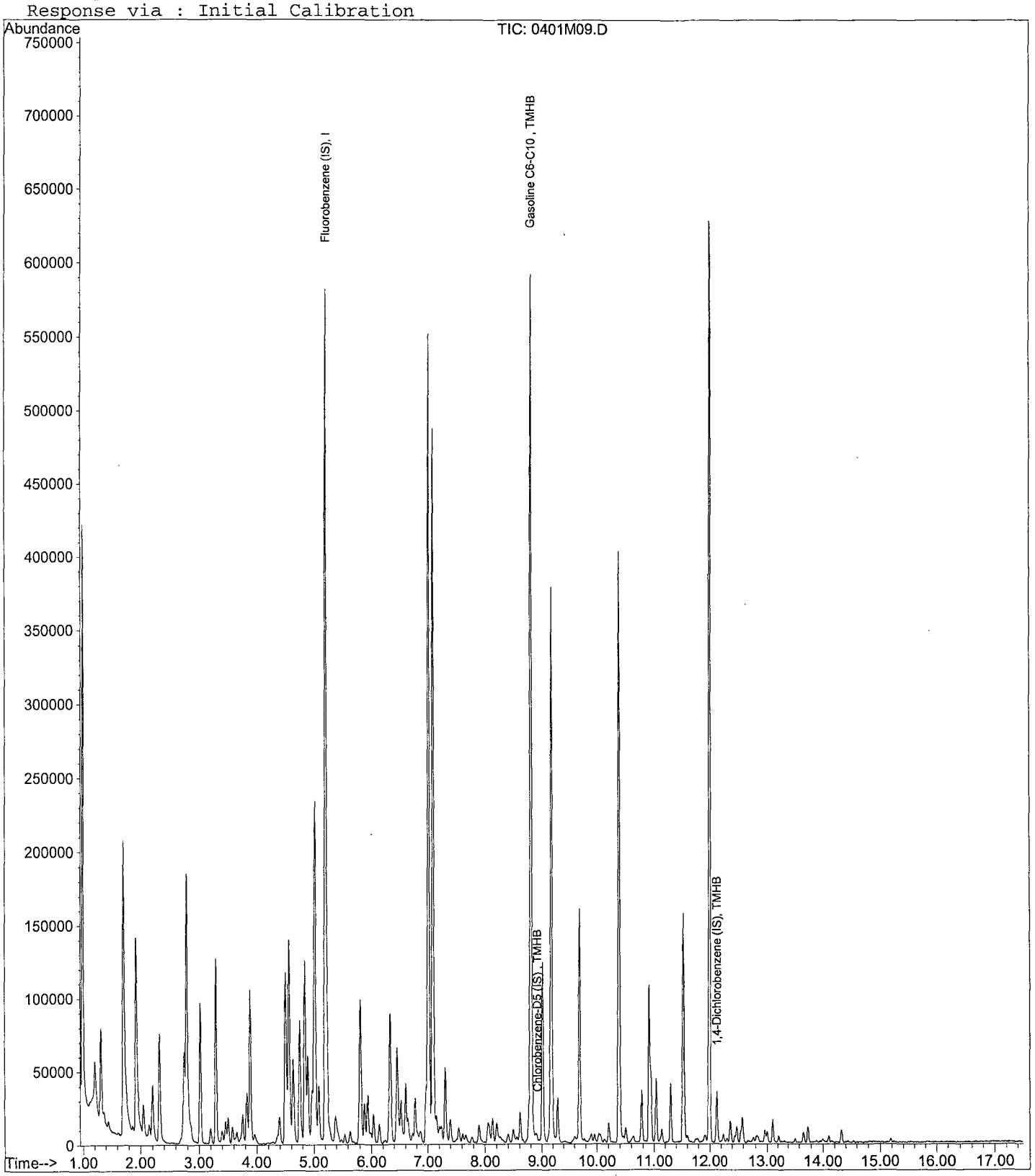
Quantitation Report

Data File : M:\MAX\DATA\M190401\0401M09.D
Acq On : 1 Apr 19 12:54
Sample : 800ug/L GAS STD 4/01/19
Misc : IS,Surr 03/24/19

Vial: 8
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 1 15:18 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:19:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0401M10.D Vial: 9
Acq On : 1 Apr 19 13:22 Operator: PM,DG,SV,CMM,KV
Sample : 1000ug/L GAS STD 4/01/19 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 1 15:19 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:16:42 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	582261	25.000 ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	117	329343m	25.000 ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	152	190806m	25.000 ppb	0.00

System Monitoring Compounds

Target Compounds					Qvalue
2) Gasoline C6-C10	7.10	TIC	15853101m	984.969 ppb	100

(#) = qualifier out of range (m) = manual integration

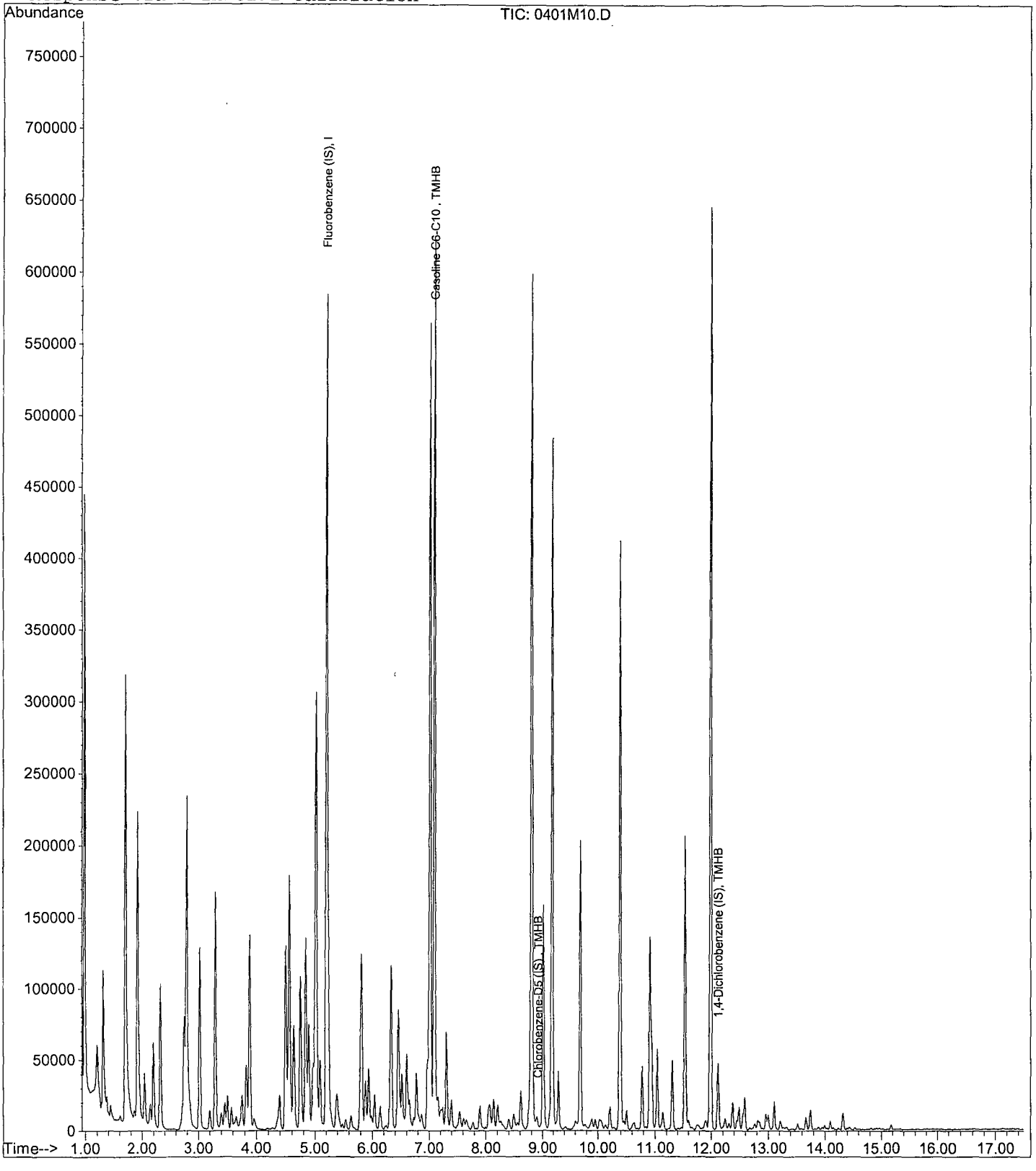
Quantitation Report

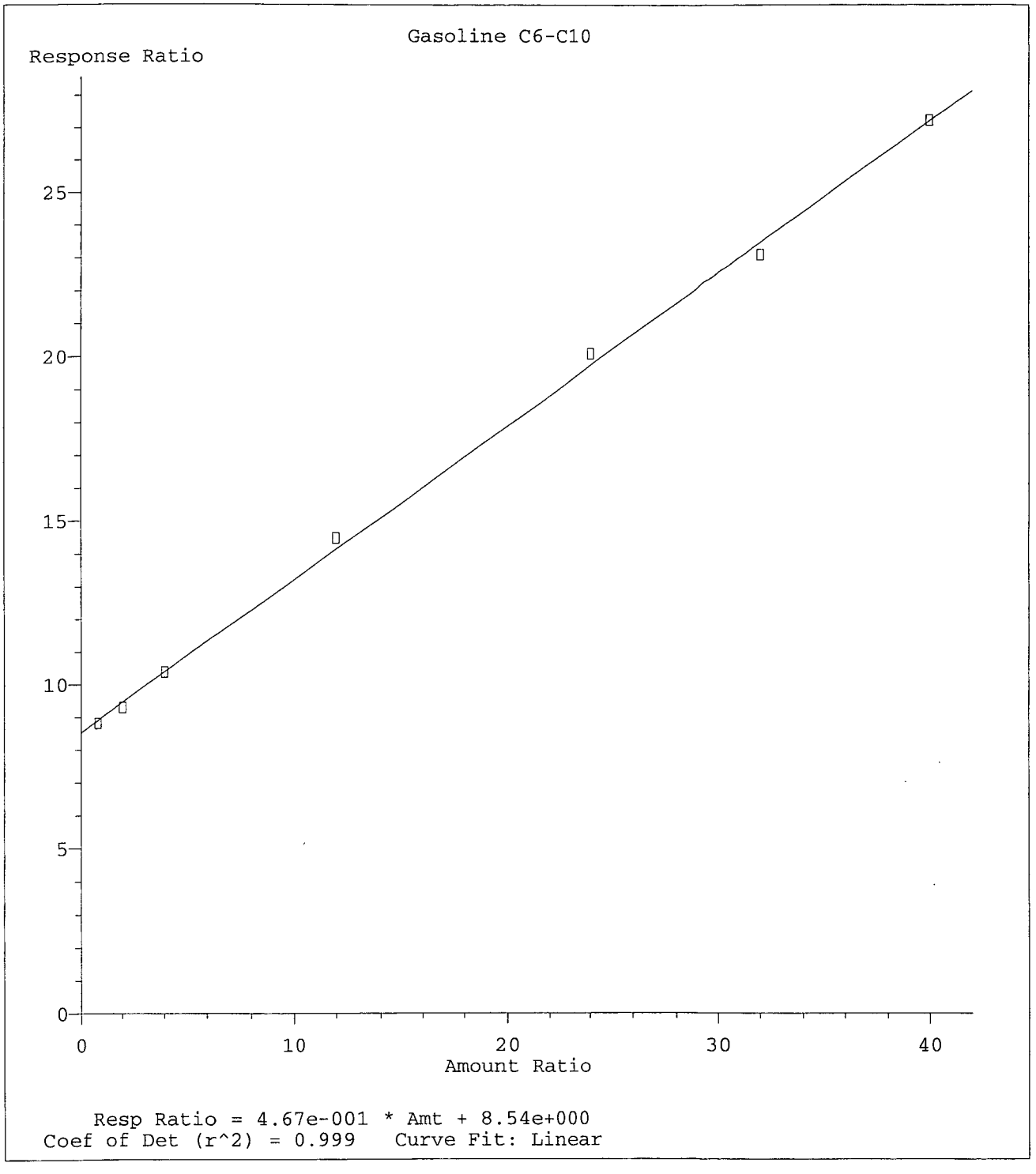
Data File : M:\MAX\DATA\M190401\0401M10.D
Acq On : 1 Apr 19 13:22
Sample : 1000ug/L GAS STD 4/01/19
Misc : IS,Surr 03/24/19

Vial: 9
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 1 15:19 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:19:09 2019
Response via : Initial Calibration





Method Name: M:\MAX\DATA\M190401\MGAS401.M
Calibration Table Last Updated: Mon Apr 01 15:30:17 2019

VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: water

SDG No:
Date Analyzed: 1 Apr 19 14:19
Instrument: Max
Initial Cal. Date: 03/24/19
Data File: 0401M12.D

		Compound	MEAN	CCRF	%D		%Drift
1	TMHB	Gasoline C6-C10	3.101	1.185	62	TMHBL	1.3
2							
3							
4							
5							
6							
7							
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11							
12							
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29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			62.0		

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Second Source

Lab Name: APPL, Inc.
Case No:
Matrix: water

SDG No:
Date Analyzed: 1 Apr 19 14:19
Instrument: Max
Initial Cal. Date: 03/24/19
Data File: 0401M12.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	Fluorobenzene (IS)	ISTD			I	
2	S	Dibromofluoromethane(S)	0.1912	0.1716	10	S	
3	S	1,2-DCA-D4(S)	0.2203	0.1989	9.7	S	
4	I	Chlorobenzene-D5 (IS)	ISTD			I	
5	S	Toluene-D8(S)	1.110	1.060	4.5	S	
6	S	4-Bromofluorobenzene(S)	0.4073	0.3905	4.1	S	
7	I	1,4-Dichlorobenzene-D (IS)	ISTD			I	
8							
9							
10							
11							
12							
13							
14							
15							
16							
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37							
38							
39							
40							
		Average			7.1		

Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0401M12.D Vial: 11
Acq On : 1 Apr 19 14:19 Operator: PM,DG,SV,CMM,KV
Sample : (SS)300ug/L GAS STD 4/01/19 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 2 8:08 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	565675	25.000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	1215857m	25.000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	1225243m	25.000	ppb	0.00
System Monitoring Compounds						
Target Compounds						Qvalue
2) Gasoline C6-C10	8.81	TIC	8042743m	304.047	ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0401M12.D Vial: 11
Acq On : 1 Apr 19 14:19 Operator: PM,DG,SV,CMM,KV
Sample : (SS)300ug/L GAS STD 4/01/19 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 2 7:57 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	529928	25.000	ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.81	117	392457	25.000	ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	205157	25.000	ppb	-0.13
System Monitoring Compounds						
2) Dibromofluoromethane(S)	4.50	111	90934	22.431	ppb	-0.10
Spiked Amount 25.000			Recovery =	89.724%		
3) 1,2-DCA-D4(S)	4.84	65	105401	22.568	ppb	-0.10
Spiked Amount 25.000			Recovery =	90.272%		
5) Toluene-D8(S)	7.02	98	415956	23.870	ppb	-0.12
Spiked Amount 25.000			Recovery =	95.480%		
6) 4-Bromofluorobenzene(S)	10.39	95	153268	23.969	ppb	-0.13
Spiked Amount 25.000			Recovery =	95.876%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

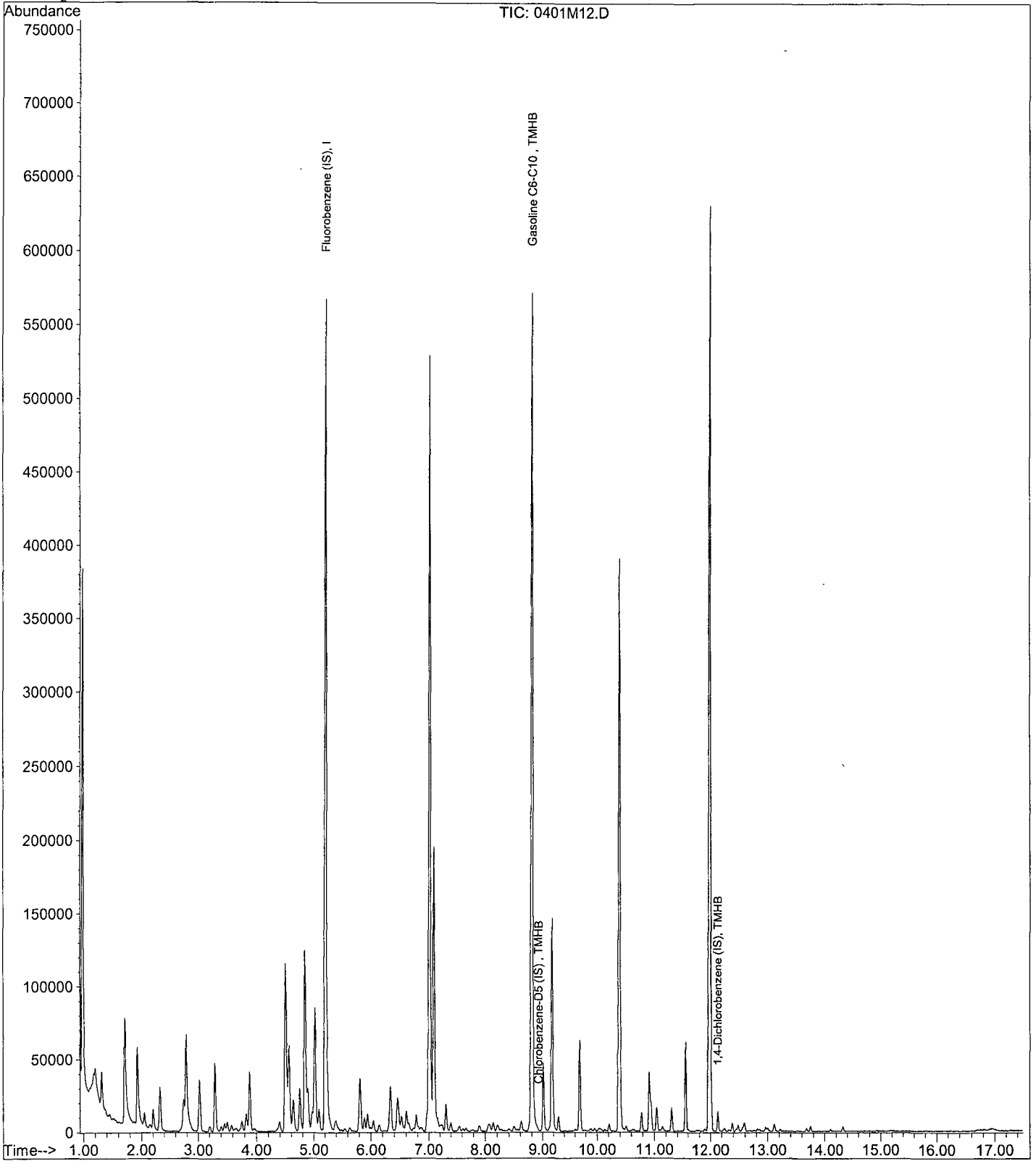
Quantitation Report

Data File : M:\MAX\DATA\M190401\0401M12.D
Acq On : 1 Apr 19 14:19
Sample : (SS)300ug/L GAS STD 4/01/19
Misc : IS,Surr 03/24/19

Vial: 11
Operator: PM,DG,SV,CMM,KV
Inst : Max
Multiplr: 1.00

Quant Time: Apr 2 8:08 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: water

SDG No:
Date Analyzed: 04/29/19
Instrument: Max
Initial Cal. Date: 03/24/19
Data File: 0429M06.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	Fluorobenzene (IS)	ISTD			I	
2	TMHB	Gasoline C6-C10	3.101	1.171	62	TMHBL	1.6
3	TMHB	Chlorobenzene-D5 (IS)	ISTD			TMHB	
4	TMHB	1,4-Dichlorobenzene (IS)	ISTD			TMHB	
5							
6							
7							
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35							
36							
37							
38							
39							
40							
		Average			62.0		

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: water

SDG No:
Date Analyzed: 04/29/19
Instrument: Max
Initial Cal. Date: 03/24/19
Data File: 0429M06.D

		Compound	MEAN	CCRF	%D	%Drift	
1	I	Fluorobenzene (IS)	ISTD			I	
2	S	Dibromofluoromethane(S)	0.1912	0.1989	4.0	S	
3	S	1,2-DCA-D4(S)	0.2203	0.2077	5.7	S	
4	I	Chlorobenzene-D5 (IS)	ISTD			I	
5	S	Toluene-D8(S)	1.110	1.091	1.7	S	
6	S	4-Bromofluorobenzene(S)	0.4073	0.4139	1.6	S	
7	I	1,4-Dichlorobenzene-D (IS)	ISTD			I	
8							
9							
10							
11							
12							
13							
14							
15							
16							
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37							
38							
39							
40							
		Average			3.3		

Data File : M:\MAX\DATA\M190401\0429M06.D Vial: 5
Acq On : 29 Apr 19 11:31 Operator: PM,DG,CMM,LP
Sample : 190429A CCV 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:34 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.20	TIC	802207	25.000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	1775931m	25.000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	1853623m	25.000	ppb	0.00
System Monitoring Compounds						
Target Compounds						Qvalue
2) Gasoline C6-C10	8.80	TIC	11274962m	295.313	ppb	100

(#) = qualifier out of range (m) = manual integration
0429M06.D MGAS401.M Tue Apr 30 07:37:07 2019 Page 1

Data File : M:\MAX\DATA\M190401\0429M06.D Vial: 5
Acq On : 29 Apr 19 11:31 Operator: PM,DG,CMM,LP
Sample : 190429A CCV 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:38 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.20	96	763986	25.000 ppb	-0.12
4) Chlorobenzene-D5 (IS)	8.80	117	601271	25.000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	324084	25.000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	151933	25.996 ppb	-0.11
Spiked Amount 25.000			Recovery = 103.984%		
3) 1,2-DCA-D4(S)	4.83	65	158709	23.571 ppb	-0.11
Spiked Amount 25.000			Recovery = 94.284%		
5) Toluene-D8(S)	7.02	98	656179	24.578 ppb	-0.12
Spiked Amount 25.000			Recovery = 98.312%		
6) 4-Bromofluorobenzene(S)	10.39	95	248874	25.404 ppb	-0.13
Spiked Amount 25.000			Recovery = 101.616%		

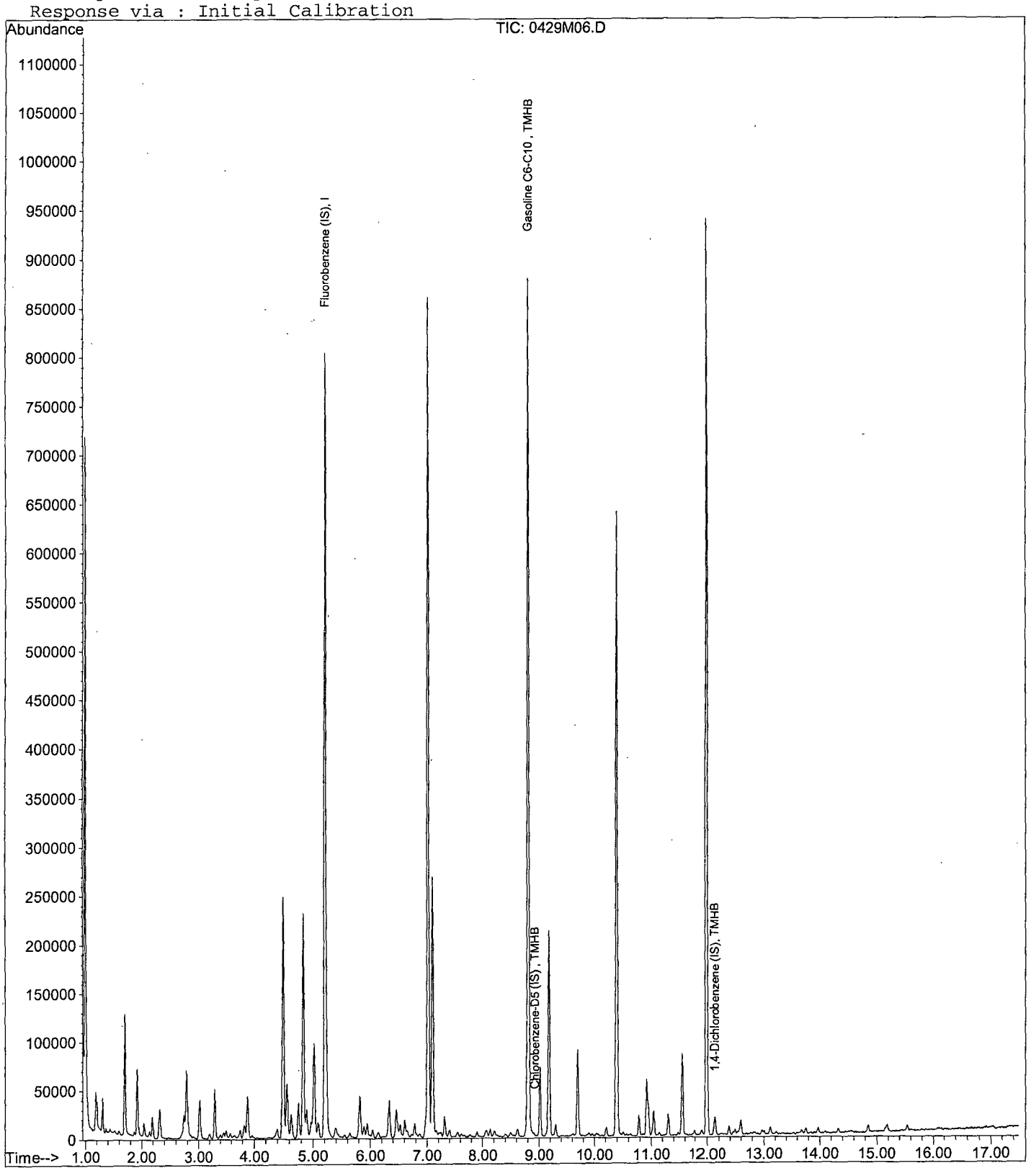
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
0429M06.D MSUR324.M Tue Apr 30 07:39:10 2019 Page 1

Data File : M:\MAX\DATA\M190401\0429M06.D Vial: 5
Acq On : 29 Apr 19 11:31 Operator: PM,DG,CMM,LP
Sample : 190429A CCV 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:34 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: water

SDG No:
Date Analyzed: 04/29/19
Instrument: Max
Initial Cal. Date: 03/24/19
Data File: 0429M16.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	Fluorobenzene (IS)	ISTD			I	
2	TMHB	Gasoline C6-C10	3.101	1.142	63	TMHBL	7.8
3	TMHB	Chlorobenzene-D5 (IS)	ISTD			TMHB	
4	TMHB	1,4-Dichlorobenzene (IS)	ISTD			TMHB	
5							
6							
7							
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35							
36							
37							
38							
39							
40							
		Average			63.0		

VOLATILE ORGANIC ANALYSIS BY
EPA METHOD 8260B

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: water

SDG No:
Date Analyzed: 04/29/19
Instrument: Max
Initial Cal. Date: 03/24/19
Data File: 0429M16.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	Fluorobenzene (IS)	ISTD			I	
2	S	Dibromofluoromethane(S)	0.1912	0.2034	6.4	S	
3	S	1,2-DCA-D4(S)	0.2203	0.2137	3.0	S	
4	I	Chlorobenzene-D5 (IS)	ISTD			I	
5	S	Toluene-D8(S)	1.110	1.134	2.2	S	
6	S	4-Bromofluorobenzene(S)	0.4073	0.4238	4.0	S	
7	I	1,4-Dichlorobenzene-D (IS)	ISTD			I	
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
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33							
34							
35							
36							
37							
38							
39							
40							
		Average			3.9		

Data File : M:\MAX\DATA\M190401\0429M16.D Vial: 15
Acq On : 29 Apr 19 16:17 Operator: PM,DG,CMM,LP
Sample : Ending CCV 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:36 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.20	TIC	803375	25.000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	1721022m	25.000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	1746035m	25.000	ppb	0.00
System Monitoring Compounds						
Target Compounds						Qvalue
2) Gasoline C6-C10	7.02	TIC	11011694m	276.661	ppb	100

(#) = qualifier out of range (m) = manual integration
0429M16.D MGAS401.M Tue Apr 30 07:37:23 2019 Page 1

Data File : M:\MAX\DATA\M190401\0429M16.D Vial: 15
Acq On : 29 Apr 19 16:17 Operator: PM,DG,CMM,LP
Sample : Ending CCV 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:38 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.20	96	762529	25.000 ppb	-0.12
4) Chlorobenzene-D5 (IS)	8.80	117	576026	25.000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	301429	25.000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	155128	26.593 ppb	-0.11
Spiked Amount 25.000			Recovery = 106.372%		
3) 1,2-DCA-D4(S)	4.83	65	162936	24.245 ppb	-0.11
Spiked Amount 25.000			Recovery = 96.980%		
5) Toluene-D8(S)	7.02	98	653170	25.538 ppb	-0.12
Spiked Amount 25.000			Recovery = 102.152%		
6) 4-Bromofluorobenzene(S)	10.39	95	244131	26.012 ppb	-0.13
Spiked Amount 25.000			Recovery = 104.048%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

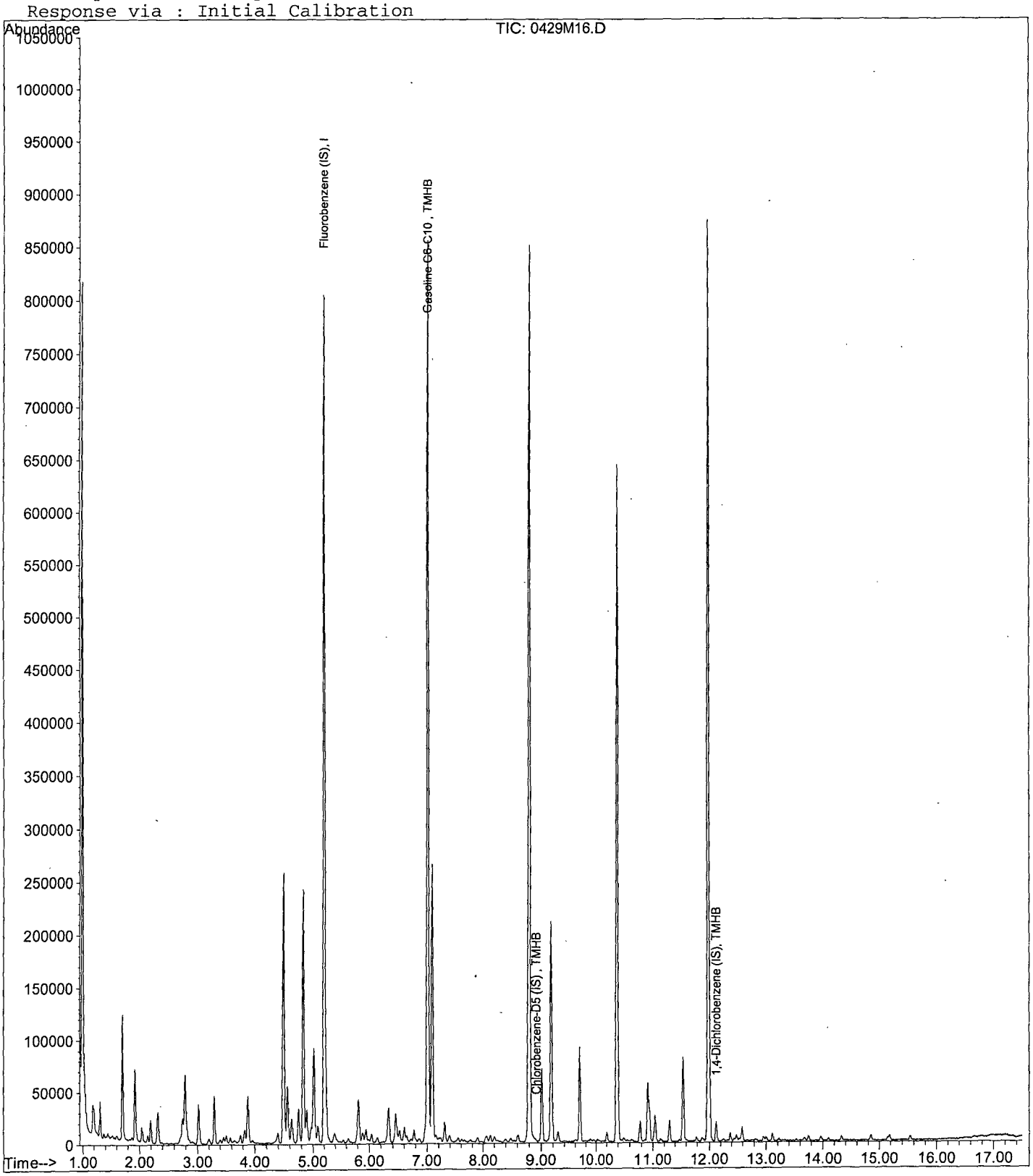
Data File : M:\MAX\DATA\M190401\0429M16.D
Acq On : 29 Apr 19 16:17
Sample : Ending CCV 300ug/L
Misc : IS,Surr 03/24/19

Vial: 15
Operator: PM,DG,CMM,LP
Inst : Max
Multiplr: 1.00

Quant Time: Apr 30 7:36 2019

Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



ORGANICS
Raw Data

Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0429M11.D
Acq On : 29 Apr 19 13:54
Sample : AZ90212W01
Misc : IS,Surr 03/24/19

Vial: 10
Operator: PM,DG,CMM,LP
Inst : Max
Multiplr: 1.00

Quant Time: Apr 30 7:35 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.20	TIC	807365	25.000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	799624m	25.000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	851712m	25.000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0429M11.D Vial: 10
Acq On : 29 Apr 19 13:54 Operator: PM,DG,CMM,LP
Sample : AZ90212W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:38 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.20	96	756840	25.000 ppb	-0.12
4) Chlorobenzene-D5 (IS)	8.80	117	586270	25.000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	315541	25.000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	149298	25.786 ppb	-0.11
Spiked Amount 25.000			Recovery = 103.144%		
3) 1,2-DCA-D4(S)	4.83	65	160540	24.068 ppb	-0.11
Spiked Amount 25.000			Recovery = 96.272%		
5) Toluene-D8(S)	7.01	98	648298	24.905 ppb	-0.12
Spiked Amount 25.000			Recovery = 99.620%		
6) 4-Bromofluorobenzene(S)	10.39	95	245522	25.703 ppb	-0.13
Spiked Amount 25.000			Recovery = 102.812%		

Target Compounds Qvalue

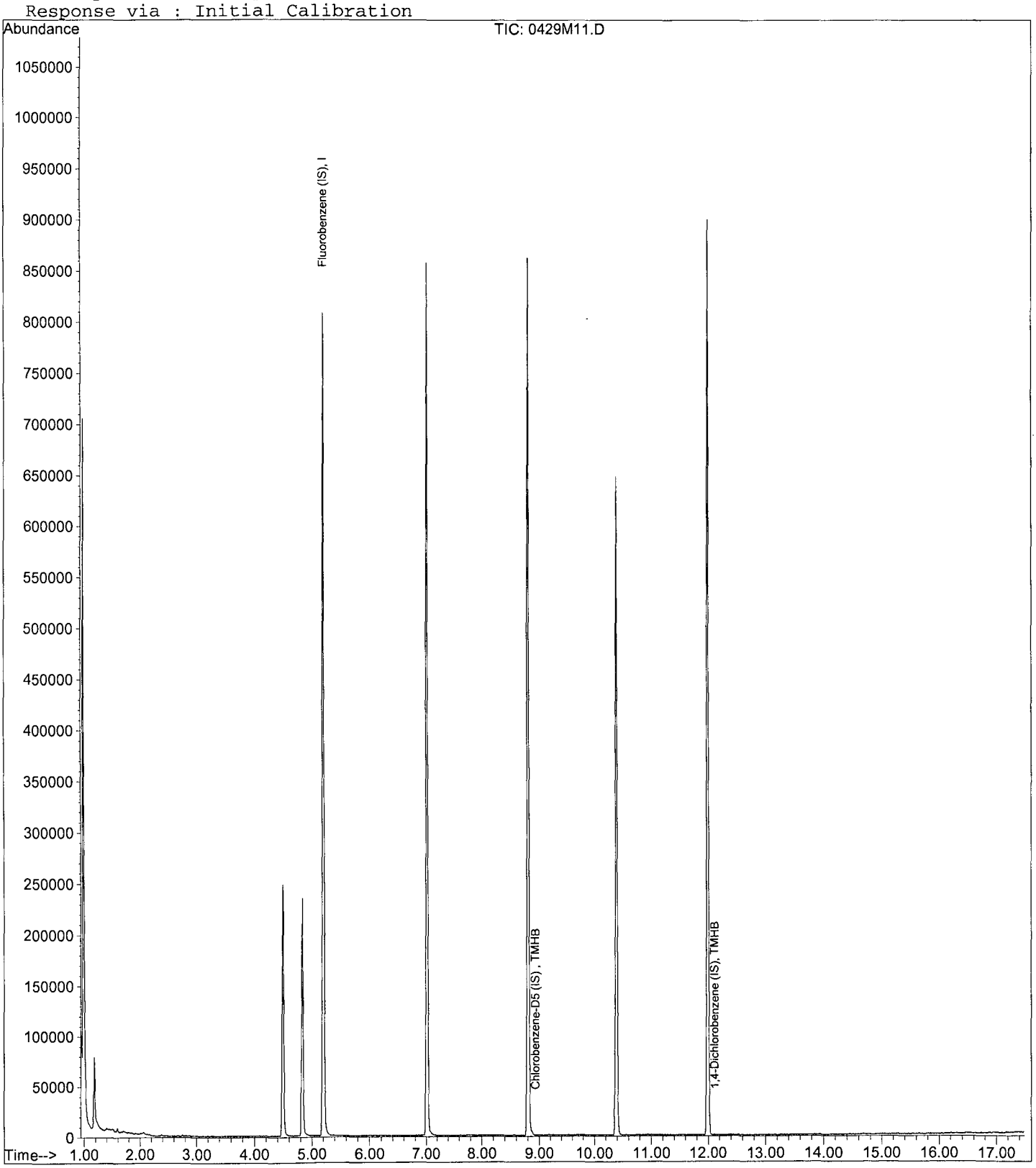
(#) = qualifier out of range (m) = manual integration

Data File : M:\MAX\DATA\M190401\0429M11.D
Acq On : 29 Apr 19 13:54
Sample : AZ90212W01
Misc : IS,Surr 03/24/19

Vial: 10
Operator: PM,DG,CMM,LP
Inst : Max
Multiplr: 1.00

Quant Time: Apr 30 7:35 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0429M12.D Vial: 11
Acq On : 29 Apr 19 14:22 Operator: PM,DG,CMM,LP
Sample : AZ90213W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:35 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.20	TIC	807743	25.000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	801613m	25.000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	847860m	25.000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
0429M12.D MGAS401.M Tue Apr 30 07:38:01 2019 Page 1

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0429M12.D Vial: 11
Acq On : 29 Apr 19 14:22 Operator: PM,DG,CMM,LP
Sample : AZ90213W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:38 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	761111	25.000 ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	585777	25.000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	308806	25.000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	152605	26.210 ppb	-0.11
Spiked Amount 25.000			Recovery = 104.840%		
3) 1,2-DCA-D4(S)	4.83	65	157847	23.532 ppb	-0.11
Spiked Amount 25.000			Recovery = 94.128%		
5) Toluene-D8(S)	7.01	98	646414	24.853 ppb	-0.12
Spiked Amount 25.000			Recovery = 99.412%		
6) 4-Bromofluorobenzene(S)	10.39	95	245439	25.716 ppb	-0.13
Spiked Amount 25.000			Recovery = 102.864%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report

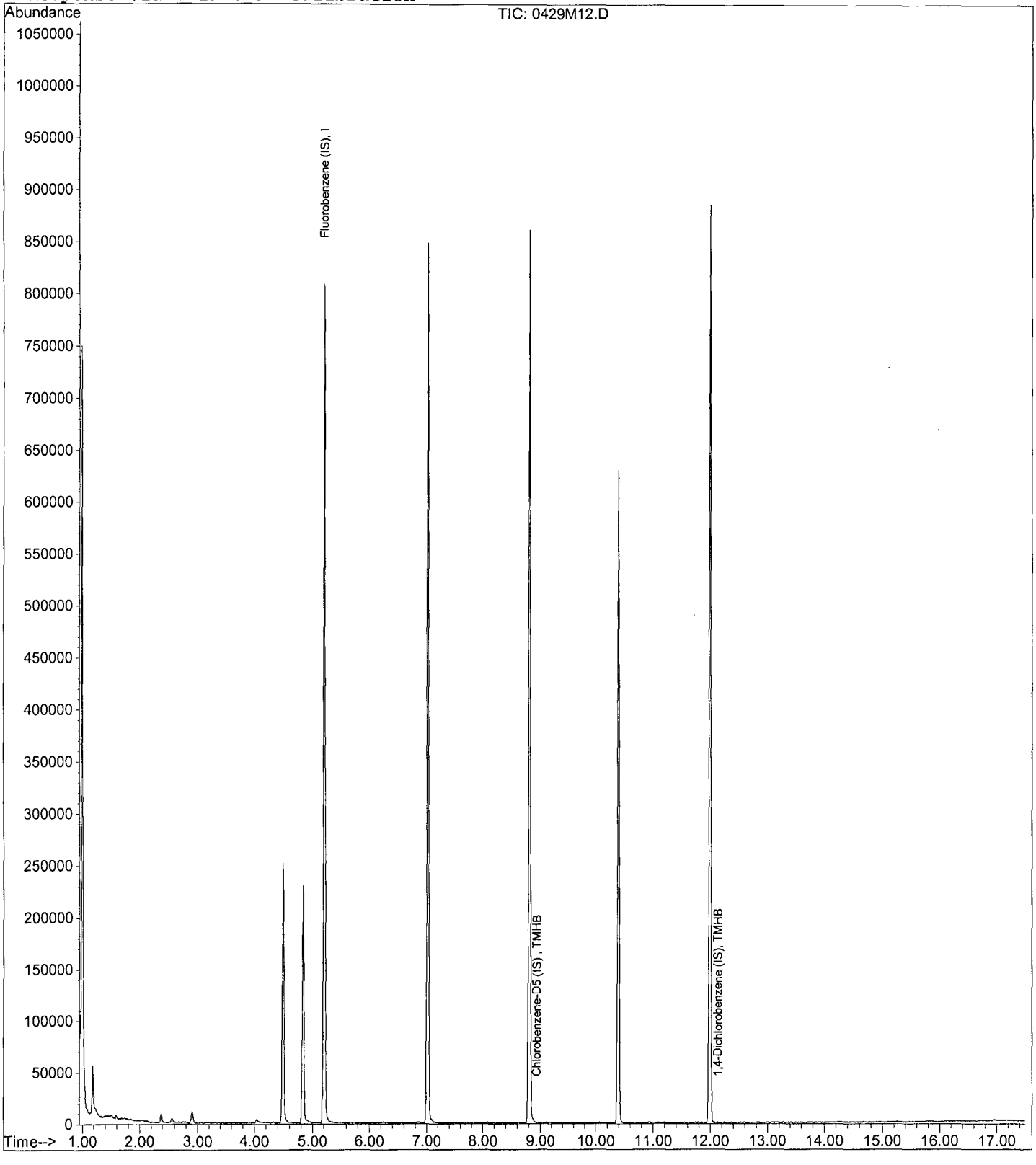
Data File : M:\MAX\DATA\M190401\0429M12.D
Acq On : 29 Apr 19 14:22
Sample : AZ90213W01
Misc : IS,Surr 03/24/19

Vial: 11
Operator: PM,DG,CMM,LP
Inst : Max
Multiplr: 1.00

Quant Time: Apr 30 7:35 2019

Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0429M13.D
Acq On : 29 Apr 19 14:51
Sample : AZ90214W01
Misc : IS,Surr 03/24/19

Vial: 12
Operator: PM,DG,CMM,LP
Inst : Max
Multiplr: 1.00

Quant Time: Apr 30 7:36 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	801480	25.000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	799209m	25.000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	842710m	25.000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0429M13.D Vial: 12
Acq On : 29 Apr 19 14:51 Operator: PM,DG,CMM,LP
Sample : AZ90214W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:38 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	763221	25.000 ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	585307	25.000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	311190	25.000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	154606	26.480 ppb	-0.11
Spiked Amount 25.000			Recovery = 105.920%		
3) 1,2-DCA-D4(S)	4.83	65	163635	24.327 ppb	-0.11
Spiked Amount 25.000			Recovery = 97.308%		
5) Toluene-D8(S)	7.02	98	660011	25.396 ppb	-0.12
Spiked Amount 25.000			Recovery = 101.584%		
6) 4-Bromofluorobenzene(S)	10.39	95	250575	26.275 ppb	-0.13
Spiked Amount 25.000			Recovery = 105.100%		

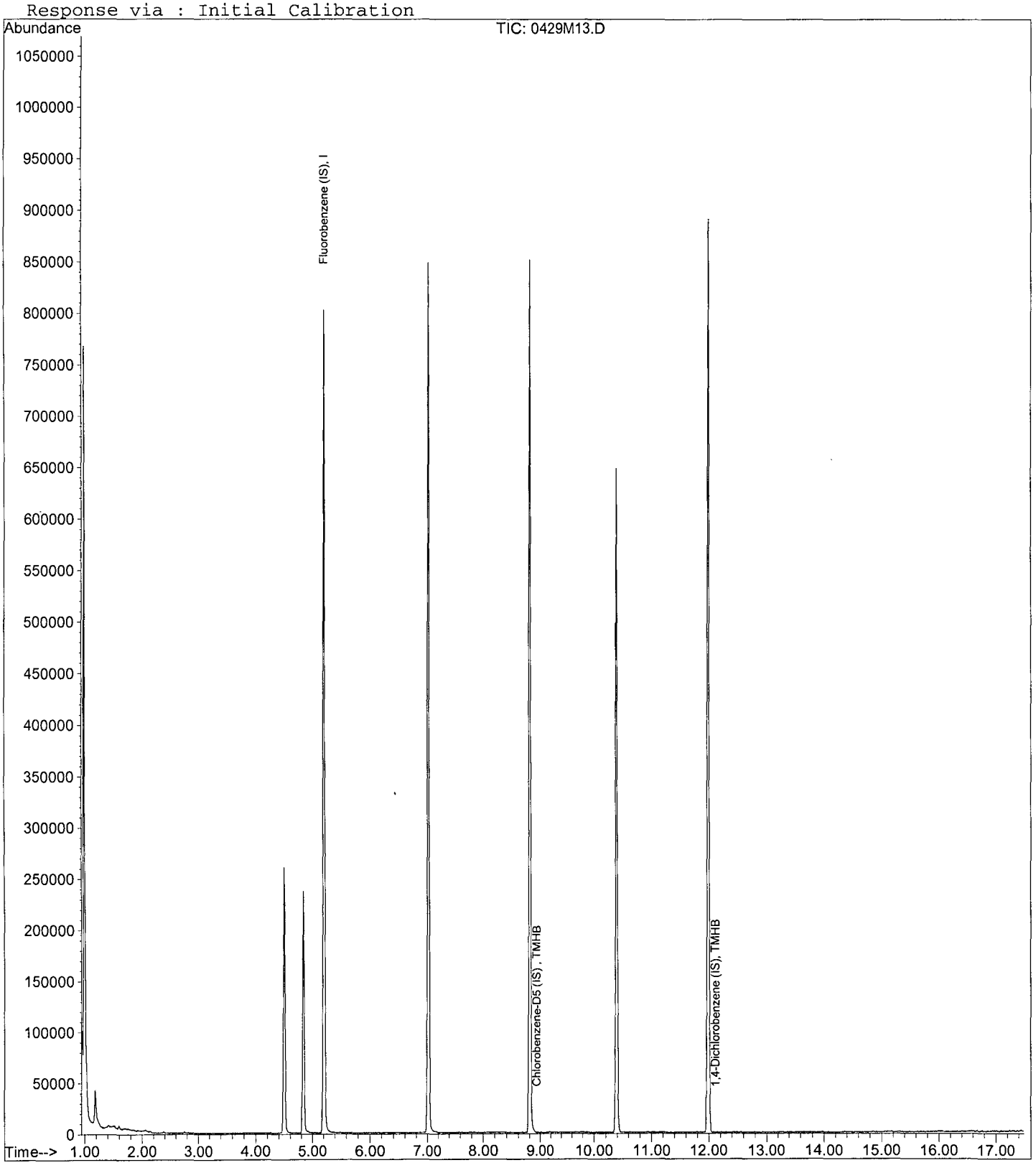
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Data File : M:\MAX\DATA\M190401\0429M13.D Vial: 12
Acq On : 29 Apr 19 14:51 Operator: PM,DG,CMM,LP
Sample : AZ90214W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:36 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0429M14.D
Acq On : 29 Apr 19 15:20
Sample : AZ90215W01
Misc : IS,Surr 03/24/19

Vial: 13
Operator: PM,DG,CMM,LP
Inst : Max
Multiplr: 1.00

Quant Time: Apr 30 7:36 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	778958	25.000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	785517m	25.000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	826057m	25.000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0429M14.D Vial: 13
Acq On : 29 Apr 19 15:20 Operator: PM,DG,CMM,LP
Sample : AZ90215W01 Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:38 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	733724	25.000 ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	565569	25.000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	303029	25.000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	151717	27.030 ppb	-0.11
Spiked Amount 25.000			Recovery = 108.120%		
3) 1,2-DCA-D4(S)	4.83	65	159261	24.629 ppb	-0.11
Spiked Amount 25.000			Recovery = 98.516%		
5) Toluene-D8(S)	7.01	98	649255	25.854 ppb	-0.12
Spiked Amount 25.000			Recovery = 103.416%		
6) 4-Bromofluorobenzene(S)	10.39	95	243629	26.438 ppb	-0.13
Spiked Amount 25.000			Recovery = 105.752%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report

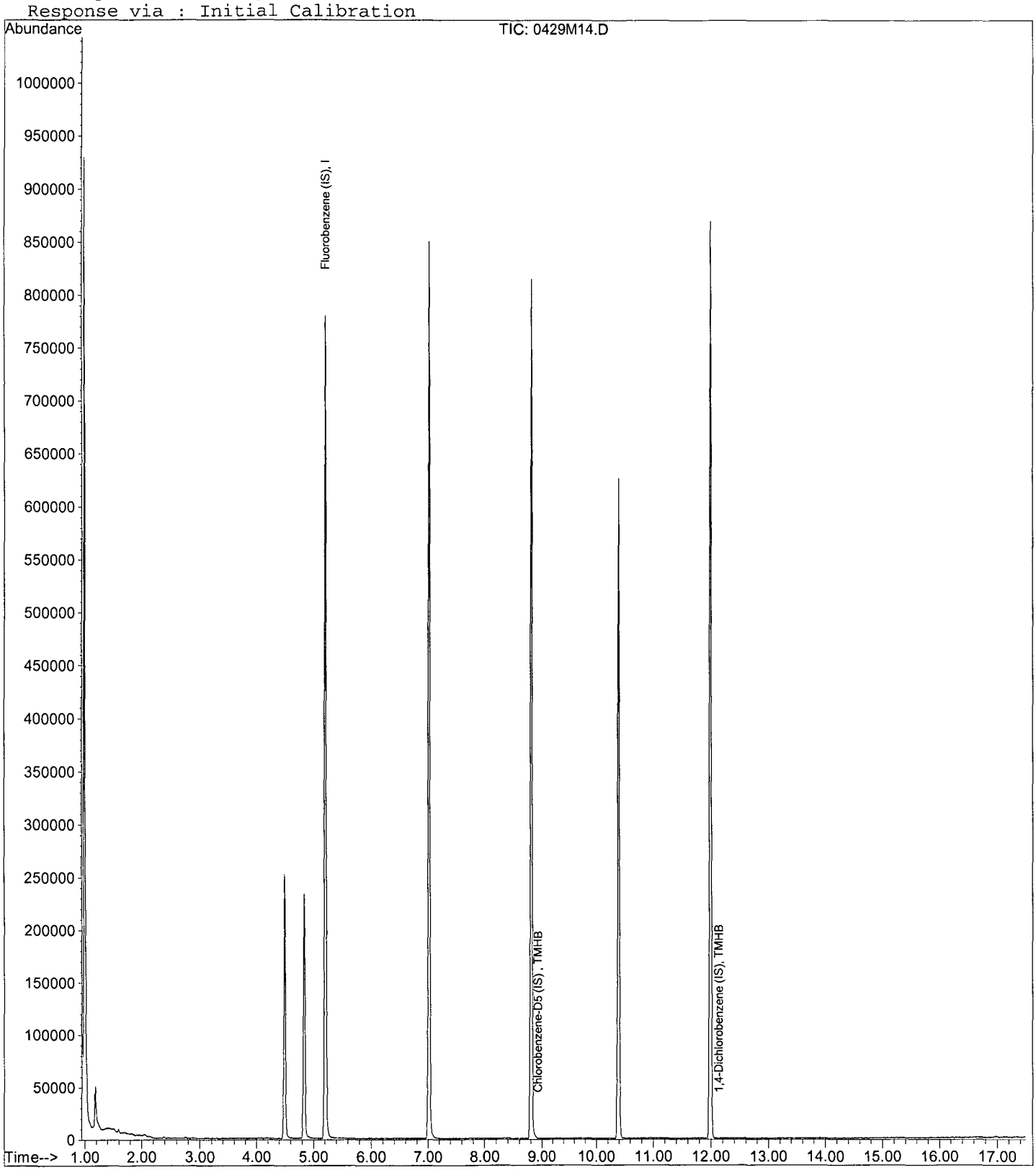
Data File : M:\MAX\DATA\M190401\0429M14.D
Acq On : 29 Apr 19 15:20
Sample : AZ90215W01
Misc : IS,Surr 03/24/19

Vial: 13
Operator: PM,DG,CMM,LP
Inst : Max
Multiplr: 1.00

Quant Time: Apr 30 7:36 2019

Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0429M10.D Vial: 9
Acq On : 29 Apr 19 13:25 Operator: PM,DG,CMM,LP
Sample : 190429A blk Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:35 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	TIC	793326	25.000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	803464m	25.000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	828615m	25.000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
0429M10.D MGAS401.M Tue Apr 30 07:37:58 2019 Page 1

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0429M10.D Vial: 9
Acq On : 29 Apr 19 13:25 Operator: PM,DG,CMM,LP
Sample : 190429A blk Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:38 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.21	96	757692	25.000	ppb	-0.11
4) Chlorobenzene-D5 (IS)	8.80	117	589246	25.000	ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	307170	25.000	ppb	-0.13
System Monitoring Compounds						
2) Dibromofluoromethane(S)	4.49	111	146272	25.235	ppb	-0.11
Spiked Amount 25.000			Recovery = 100.940%			
3) 1,2-DCA-D4(S)	4.83	65	154454	23.130	ppb	-0.11
Spiked Amount 25.000			Recovery = 92.520%			
5) Toluene-D8(S)	7.01	98	633232	24.203	ppb	-0.12
Spiked Amount 25.000			Recovery = 96.812%			
6) 4-Bromofluorobenzene(S)	10.39	95	242477	25.256	ppb	-0.13
Spiked Amount 25.000			Recovery = 101.024%			

Target Compounds Qvalue

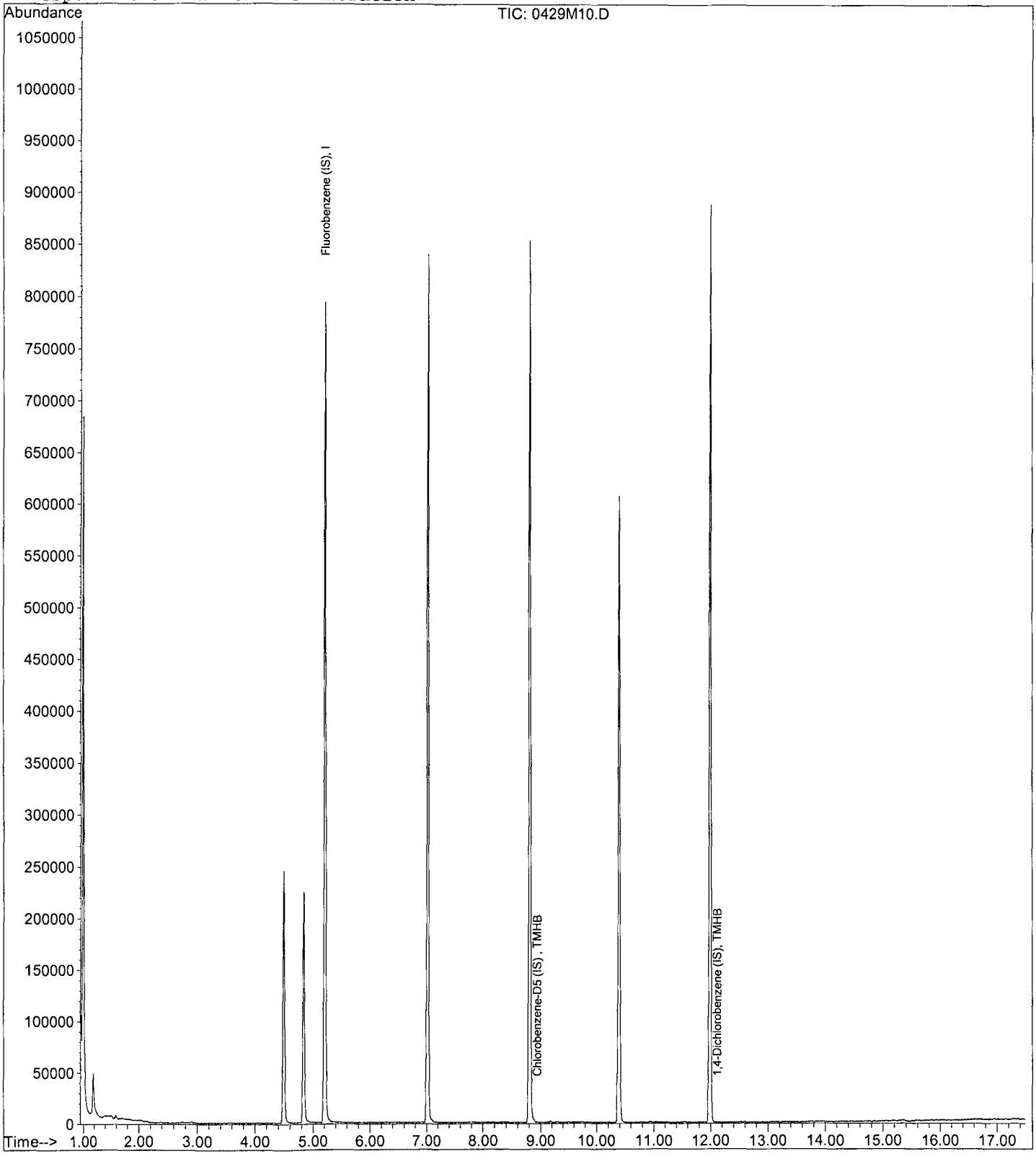
(#) = qualifier out of range (m) = manual integration

Data File : M:\MAX\DATA\M190401\0429M10.D
Acq On : 29 Apr 19 13:25
Sample : 190429A blk
Misc : IS,Surr 03/24/19

Vial: 9
Operator: PM,DG,CMM,LP
Inst : Max
Multiplr: 1.00

Quant Time: Apr 30 7:35 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0429M07.D Vial: 6
Acq On : 29 Apr 19 11:59 Operator: PM,DG,CMM,LP
Sample : 190429A LCS 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:35 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.20	TIC	781069	25.000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	1723948m	25.000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	1808327m	25.000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) Gasoline C6-C10	8.80	TIC	10972201m	294.924	ppb	100

(#) = qualifier out of range (m) = manual integration
0429M07.D MGAS401.M Tue Apr 30 07:37:54 2019 Page 1

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0429M07.D Vial: 6
Acq On : 29 Apr 19 11:59 Operator: PM,DG,CMM,LP
Sample : 190429A LCS 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:38 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.20	96	739766	25.000 ppb	-0.12
4) Chlorobenzene-D5 (IS)	8.80	117	587173	25.000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	317886	25.000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	147459	26.057 ppb	-0.11
Spiked Amount 25.000			Recovery = 104.228%		
3) 1,2-DCA-D4(S)	4.83	65	153386	23.527 ppb	-0.12
Spiked Amount 25.000			Recovery = 94.108%		
5) Toluene-D8(S)	7.02	98	640527	24.568 ppb	-0.12
Spiked Amount 25.000			Recovery = 98.272%		
6) 4-Bromofluorobenzene(S)	10.39	95	247006	25.818 ppb	-0.13
Spiked Amount 25.000			Recovery = 103.272%		

Target Compounds	Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report

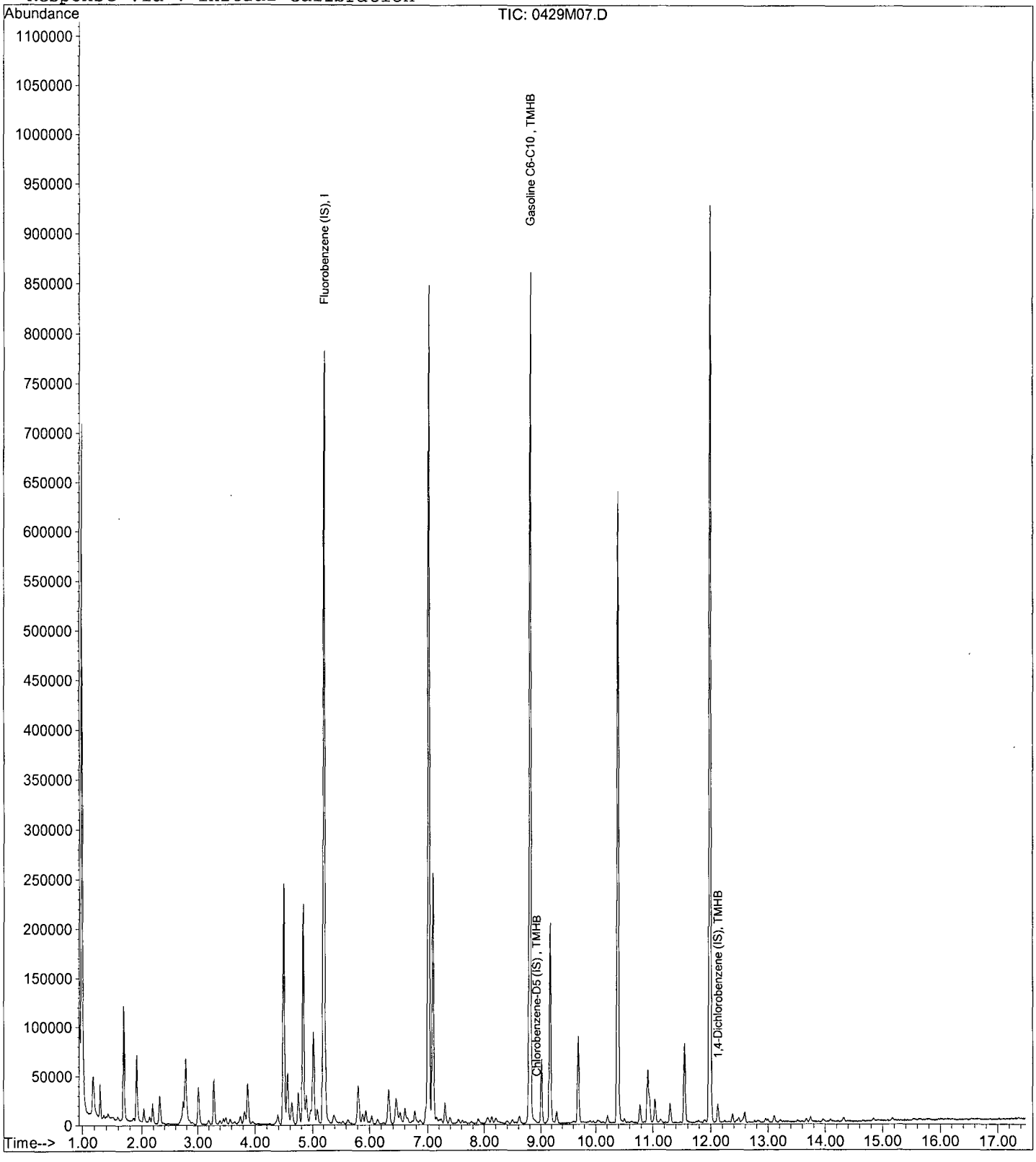
Data File : M:\MAX\DATA\M190401\0429M07.D
Acq On : 29 Apr 19 11:59
Sample : 190429A LCS 300ug/L
Misc : IS,Surr 03/24/19

Vial: 6
Operator: PM,DG,CMM,LP
Inst : Max
Multiplr: 1.00

Quant Time: Apr 30 7:35 2019

Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\MAX\DATA\M190401\0429M08.D Vial: 7
Acq On : 29 Apr 19 12:28 Operator: PM,DG,CMM,LP
Sample : 190429A LCSD 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:32 2019 Quant Results File: MGAS401.RES

Quant Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.20	TIC	792736	25.000	ppb	0.00
3) Chlorobenzene-D5 (IS)	8.93	TIC	1742269m	25.000	ppb	0.00
4) 1,4-Dichlorobenzene (IS)	12.12	TIC	1796999m	25.000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) Gasoline C6-C10	8.80	TIC	11313419m	306.908	ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\MAX\DATA\M190401\0429M08.D Vial: 7
Acq On : 29 Apr 19 12:28 Operator: PM,DG,CMM,LP
Sample : 190429A LCSD 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:38 2019 Quant Results File: MSUR324.RES

Quant Method : M:\MAX\DATA\M190401\MSUR324.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri Mar 29 07:48:21 2019
Response via : Initial Calibration
DataAcq Meth : V8260_BETA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.20	96	757748	25.000 ppb	-0.12
4) Chlorobenzene-D5 (IS)	8.80	117	587980	25.000 ppb	-0.13
7) 1,4-Dichlorobenzene-D (IS)	11.99	152	313490	25.000 ppb	-0.13
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.49	111	148066	25.543 ppb	-0.11
Spiked Amount 25.000			Recovery = 102.172%		
3) 1,2-DCA-D4(S)	4.83	65	156777	23.476 ppb	-0.11
Spiked Amount 25.000			Recovery = 93.904%		
5) Toluene-D8(S)	7.01	98	636641	24.386 ppb	-0.12
Spiked Amount 25.000			Recovery = 97.544%		
6) 4-Bromofluorobenzene(S)	10.39	95	242463	25.309 ppb	-0.13
Spiked Amount 25.000			Recovery = 101.236%		

Target Compounds Qvalue

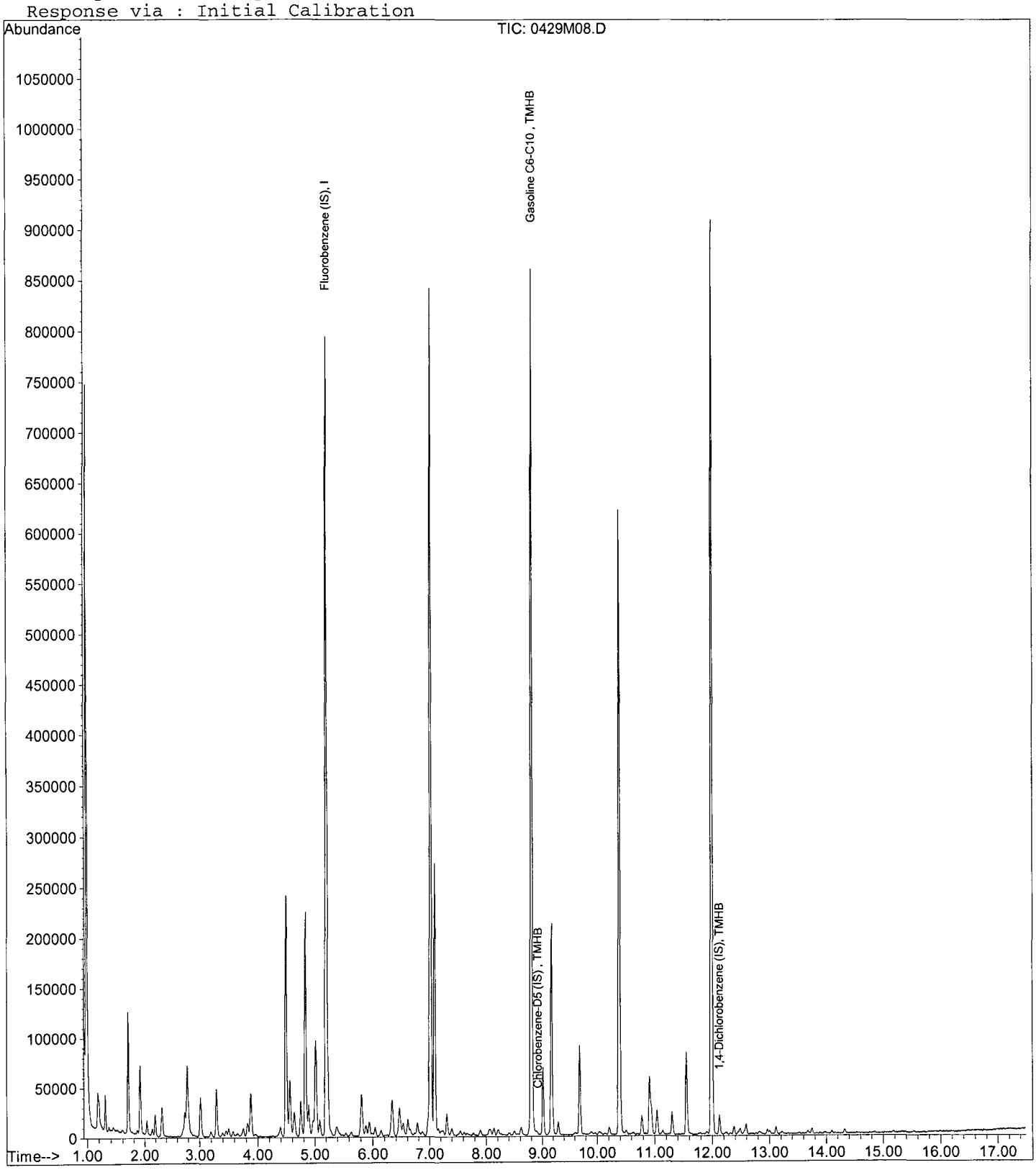
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\MAX\DATA\M190401\0429M08.D Vial: 7
Acq On : 29 Apr 19 12:28 Operator: PM,DG,CMM,LP
Sample : 190429A LCSD 300ug/L Inst : Max
Misc : IS,Surr 03/24/19 Multiplr: 1.00

Quant Time: Apr 30 7:32 2019 Quant Results File: MGAS401.RES

Method : M:\MAX\DATA\M190401\MGAS401.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Mon Apr 01 15:30:17 2019
Response via : Initial Calibration



Max 8260 Water Surrogate

Prepared: 03/24/19 **Prepared By (Initials):** DG

Expires: 03/23/20

Methanol Lot No: 58019

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
8260 Surrogate Solution	O2SI	120002-01	2,000	**348756-39342**	**03/24/20**	**02/10/22**	375uL	15mL	Methanol	50

Max 8260 Water Internal Standard

Prepared: 03/24/19 **Prepared By (Initials):** DG

Expires: 03/23/20

Methanol Lot No: 58019

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Internal Standard Solution	O2SI	120004-02	2,000	**326533-38436**	**03/24/20**	**04/27/21**	375uL	15mL	Methanol	50

Max Gas Standard Prep

Gas Primary Working Standard

Prepared: 02/01/19 — **Prepared By (Initials): CMM**

Expires: 11/01/19

Methanol Lot No. 9077-02

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
50,000ug/mL Gas STD	Restek	30205	50,000	A0132443-39861	11/01/19	12/31/24	80uL	2mL	Methanol	2,000

Gas Second Source (SS) Working Standard

Prepared: 01/14/19 — **Prepared By (Initials): CMM**

Expires: 01/14/20

Methanol Lot No. 946

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Gasoline (5,000ppm)	O2SI	020246-06	5,000	G34-326538-39193	01/14/20	10/31/20	800uL	2mL	Methanol	2,000

Max Gas Calibration Curve

Prepared: 04/01/19 — **Prepared By (Initials): PC**

Expires: 05/31/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA Gasses Standards	Phenova	20ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	1uL	100mL	P&T Water	20
VOA Gasses Standards	Phenova	50ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	2.5uL	100mL	P&T Water	50
VOA Gasses Standards	Phenova	100ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	5uL	100mL	P&T Water	100
VOA Gasses Standards	Phenova	300ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	15uL	100mL	P&T Water	300
VOA Gasses Standards	Phenova	600ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	30uL	100mL	P&T Water	600
VOA Gasses Standards	Phenova	800ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	40uL	100mL	P&T Water	800
VOA Gasses Standards	Phenova	1,000ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	50uL	100mL	P&T Water	1,000

Max Gas Second Source

Prepared: 04/01/19 — **Prepared By (Initials): PC**

Expires: 05/31/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
50,000ug/mL Gas STD	Phenova	SS 300ug/L	2,000	Prepared 01/14/19	01/14/20	N/A	15uL	100mL	P&T Water	300

Max Gas Continuing Calibrations/Lab Control Spikes

Prepared: 04/01/19 — **Prepared By (Initials): PC**

Expires: 04/02/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
VOA Gasses Standards	Phenova	300ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	15uL	100mL	P&T Water	300

Injection Log

Directory: M:\MAX\DATA\M190324\

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	3	0324M05.D	1	0.3ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 12:56
2	4	0324M06.D	1	0.5ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 13:25
3	5	0324M07.D	1	1.0ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 13:54
4	6	0324M08.D	1	2.0ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 14:22
5	7	0324M09.D	1	5.0ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 14:51
6	8	0324M10.D	1	10ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 15:19
7	9	0324M11.D	1	20ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 15:48
8	10	0324M12.D	1	40ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 16:17
9	11	0324M13.D	1	100ug/L VOC STD 3/24/19	Is,Surr 3/24/19	24 Mar 19 16:45
10	3	0401M04.D	1	20ug/L GAS STD 4/01/19	IS,Surr 03/24/19	1 Apr 19 10:31
11	4	0401M05.D	1	50ug/L GAS STD 4/01/19	IS,Surr 03/24/19	1 Apr 19 11:00
12	5	0401M06.D	1	100ug/L GAS STD 4/01/19	IS,Surr 03/24/19	1 Apr 19 11:28
13	6	0401M07.D	1	300ug/L GAS STD 4/01/19	IS,Surr 03/24/19	1 Apr 19 11:57
14	7	0401M08.D	1	600ug/L GAS STD 4/01/19	IS,Surr 03/24/19	1 Apr 19 12:25
15	8	0401M09.D	1	800ug/L GAS STD 4/01/19	IS,Surr 03/24/19	1 Apr 19 12:54
16	9	0401M10.D	1	1000ug/L GAS STD 4/01/19	IS,Surr 03/24/19	1 Apr 19 13:22
17	11	0401M12.D	1	(SS)300ug/L GAS STD 4/01/19	IS,Surr 03/24/19	1 Apr 19 14:19
18	5	0429M06.D	1	190429A CCV 300ug/L	IS,Surr 03/24/19	29 Apr 19 11:31
19	6	0429M07.D	1	190429A LCS 300ug/L	IS,Surr 03/24/19	29 Apr 19 11:59
20	7	0429M08.D	1	190429A LCSD 300ug/L	IS,Surr 03/24/19	29 Apr 19 12:28
21	9	0429M10.D	1	190429A blk	IS,Surr 03/24/19	29 Apr 19 13:25
22	10	0429M11.D	1	AZ90212W01	IS,Surr 03/24/19	29 Apr 19 13:54
23	11	0429M12.D	1	AZ90213W01	IS,Surr 03/24/19	29 Apr 19 14:22
24	12	0429M13.D	1	AZ90214W01	IS,Surr 03/24/19	29 Apr 19 14:51
25	13	0429M14.D	1	AZ90215W01	IS,Surr 03/24/19	29 Apr 19 15:20
26	15	0429M16.D	1	Ending CCV 300ug/L	IS,Surr 03/24/19	29 Apr 19 16:17

ORGANICS
Calibration Data

APPL, INC.

RSK 175

Form 6
Initial Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:
SDG No:
Initial Cal. Date: 03/11/19
Instrument: 7890
Initials: CM/LP

			19031100.D	19031101.D	19031103.D	19031104.D	19031105.D	19031106.D	19031107.D							
		Compound	1	2	3	4	5	6	7				Avg	%RSD	Type	r^2	Q
1	ATML	Methane	17670	8968	6066	11811	14125	14507	13183				12333	31	ATM	0.999	
2	ATML	Ethane	14730	8189	5526	9883	12114	11368	10522				10333	28	ATM	0.999	
3	ATML	Ethene	12553	7178	4798	8331	10165	9095	8863				8712	28	ATM	1.000	
4																	
5																	
6																	
7																	
8																	
9																	
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33																	
34																	
35																	

2.487833

Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031100.D Vial: 1
Acq On : 11 Mar 19 10:21 Operator: cmm
Sample : RSK Std 1 03/11/19 Inst : 7890
Misc : 125uL from RSK Std 3 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:49 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:48:58 2019
Response via : Multiple Level Calibration

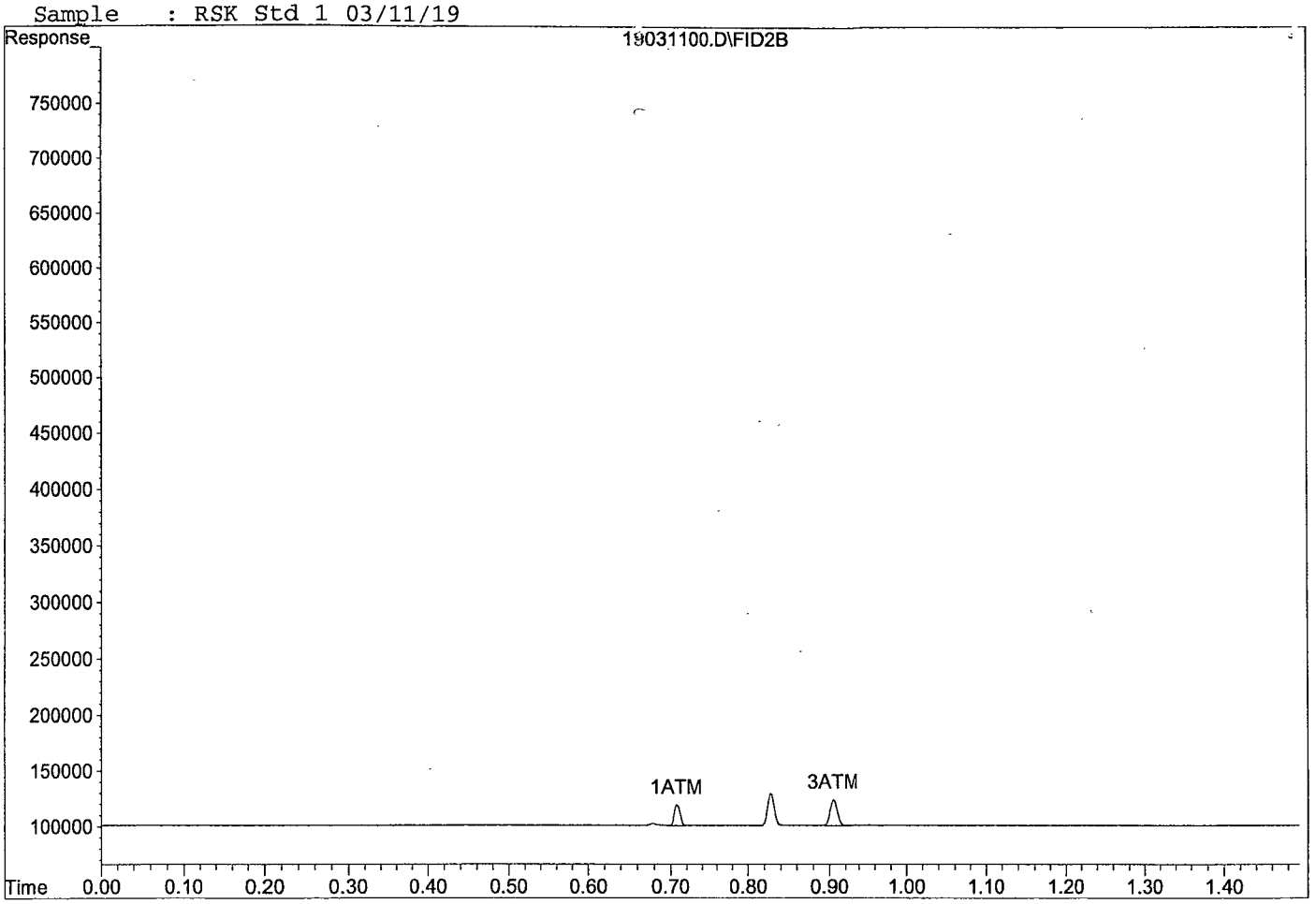
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) ATM Methane	0.71	18377	0.442	ppb
3) ATM Ethene	0.91	22909	1.995	ppb
Target Compounds				
2) ATM Ethane	0.83	28797	N.D.	ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File: G:\ROCKY\DATA\190311RS\19031100.D
Sample : RSK Std 1 03/11/19



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031101.D Vial: 2
Acq On : 11 Mar 19 10:23 Operator: cmm
Sample : RSK Std 2 03/11/19 Inst : 7890
Misc : 250uL from RSK Std 3 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:49 2019 Quant Results File: RSK0311.RES

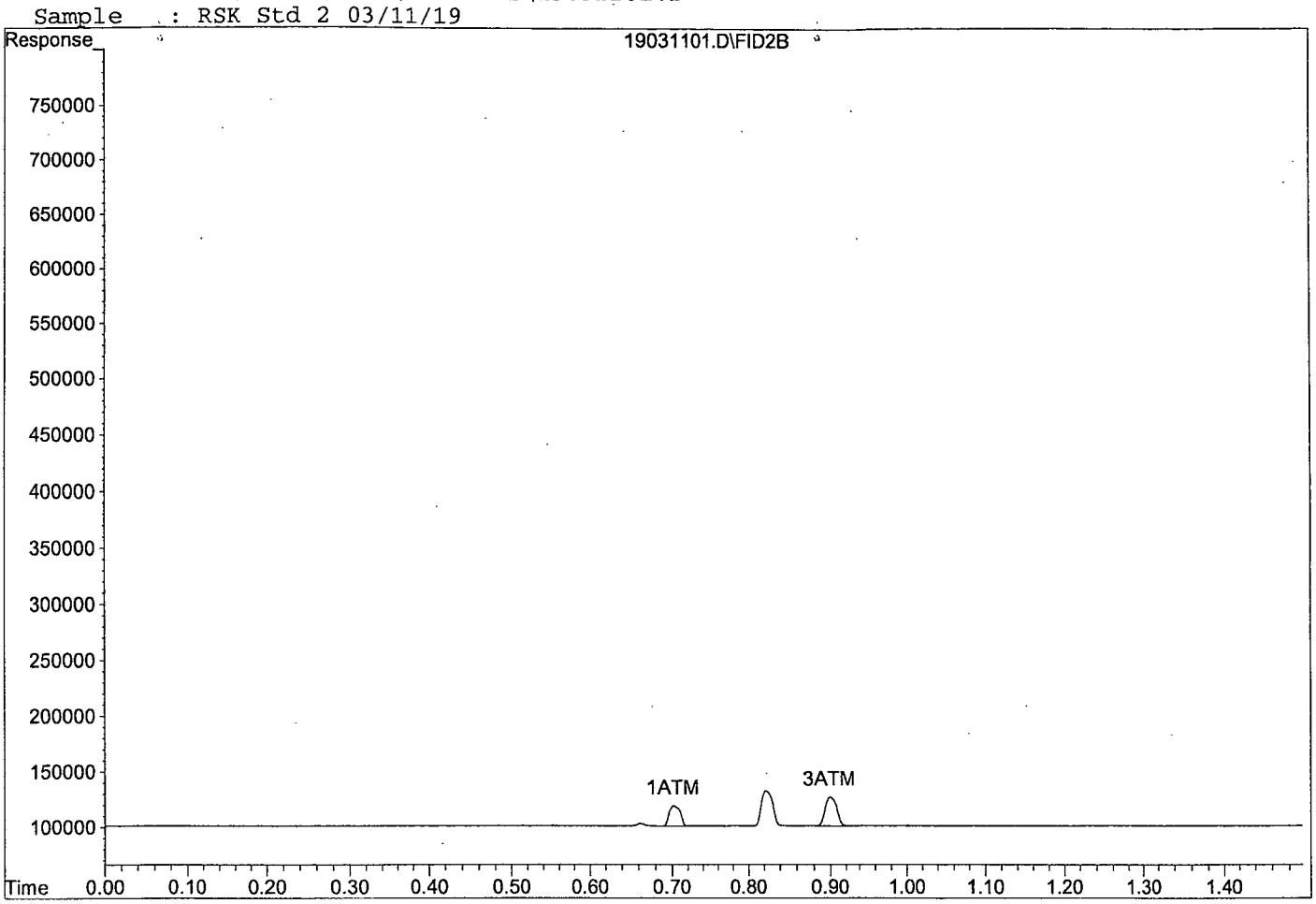
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:49:30 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) ATM Methane	0.70	18654	0.484	ppb
3) ATM Ethene	0.90	26201	2.738	ppb
Target Compounds				
2) ATM Ethane	0.82	31979	N.D.	ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031101.D
Sample : RSK Std 2 03/11/19



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031103.D Vial: 4
Acq On : 11 Mar 19 10:28 Operator: cmm
Sample : RSK Std 3 03/11/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:50 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:49:59 2019
Response via : Multiple Level Calibration

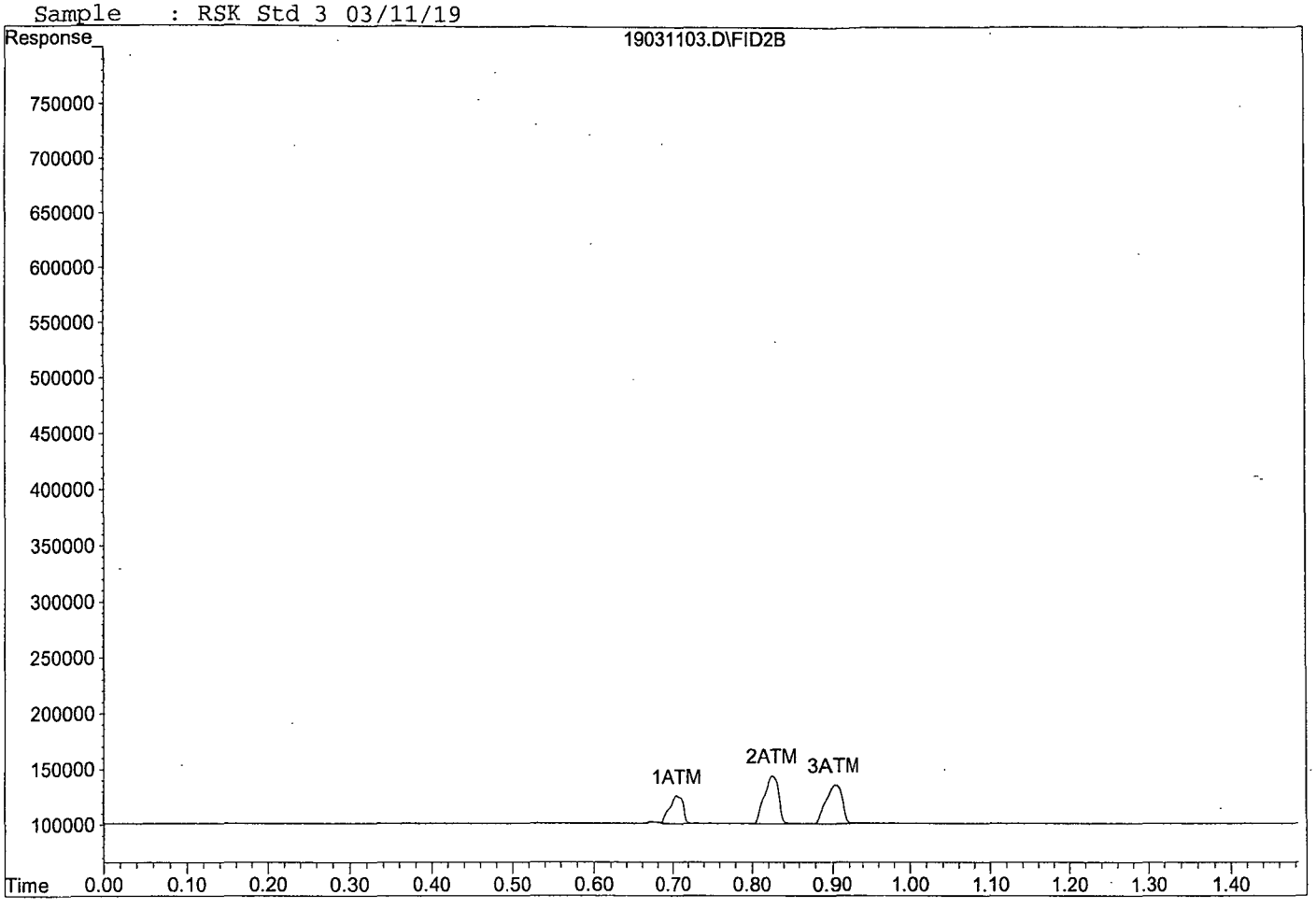
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.70	25296	1.488 ppb
2) ATM Ethane	0.83	43104	2.024 ppb
3) ATM Ethene	0.90	35029	4.730 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031103.D
Sample : RSK Std 3 03/11/19



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031104.D Vial: 5
Acq On : 11 Mar 19 10:31 Operator: cmm
Sample : RSK Std 4 03/11/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:50 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:50:29 2019
Response via : Multiple Level Calibration

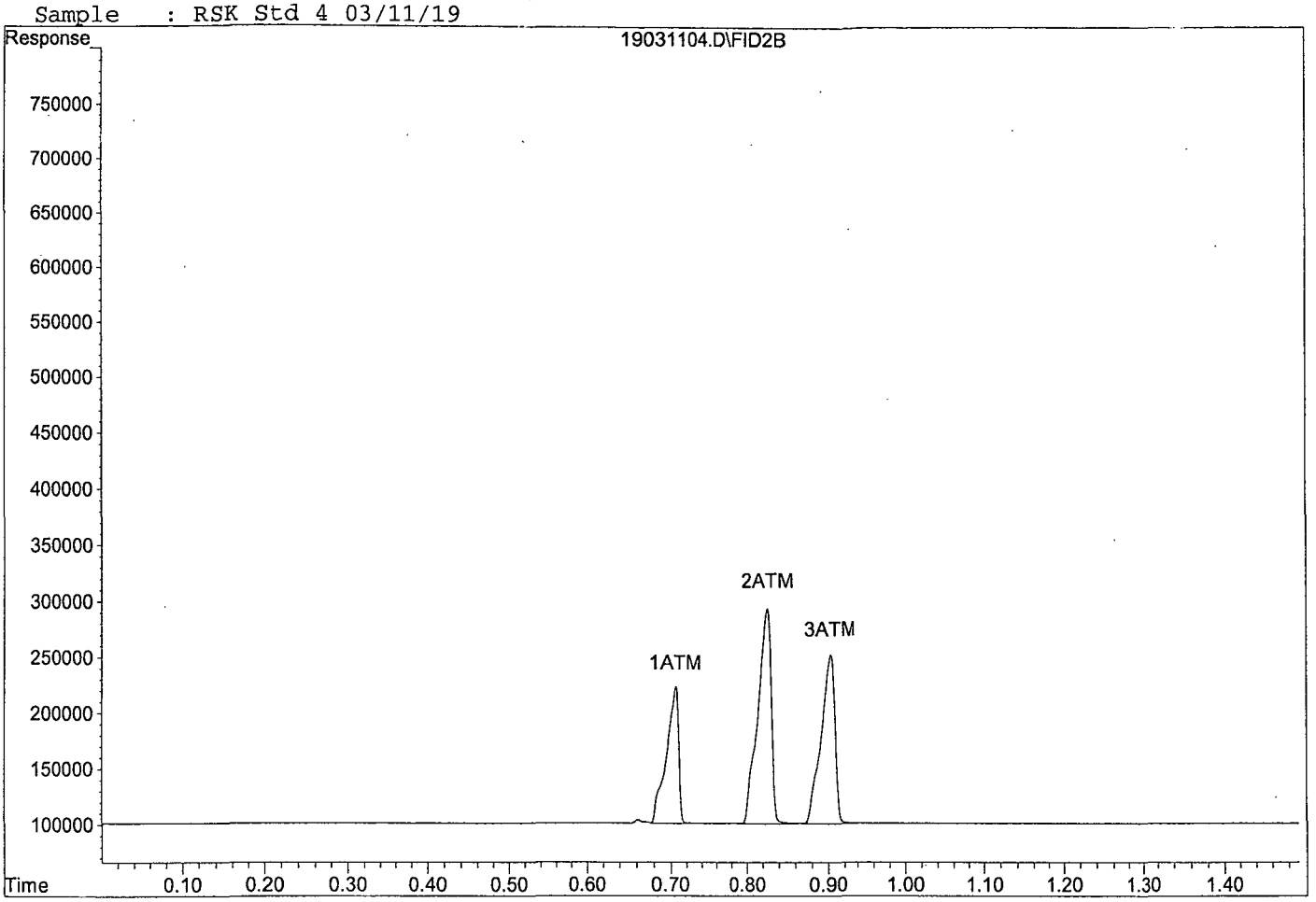
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.71	123132	16.291 ppb
2) ATM Ethane	0.83	193161	30.521 ppb
3) ATM Ethene	0.90	151872	31.095 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031104.D
Sample : RSK Std 4 03/11/19



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031105.D Vial: 6
Acq On : 11 Mar 19 10:33 Operator: cmm
Sample : RSK Std 5 03/11/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:51 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:51:01 2019
Response via : Multiple Level Calibration

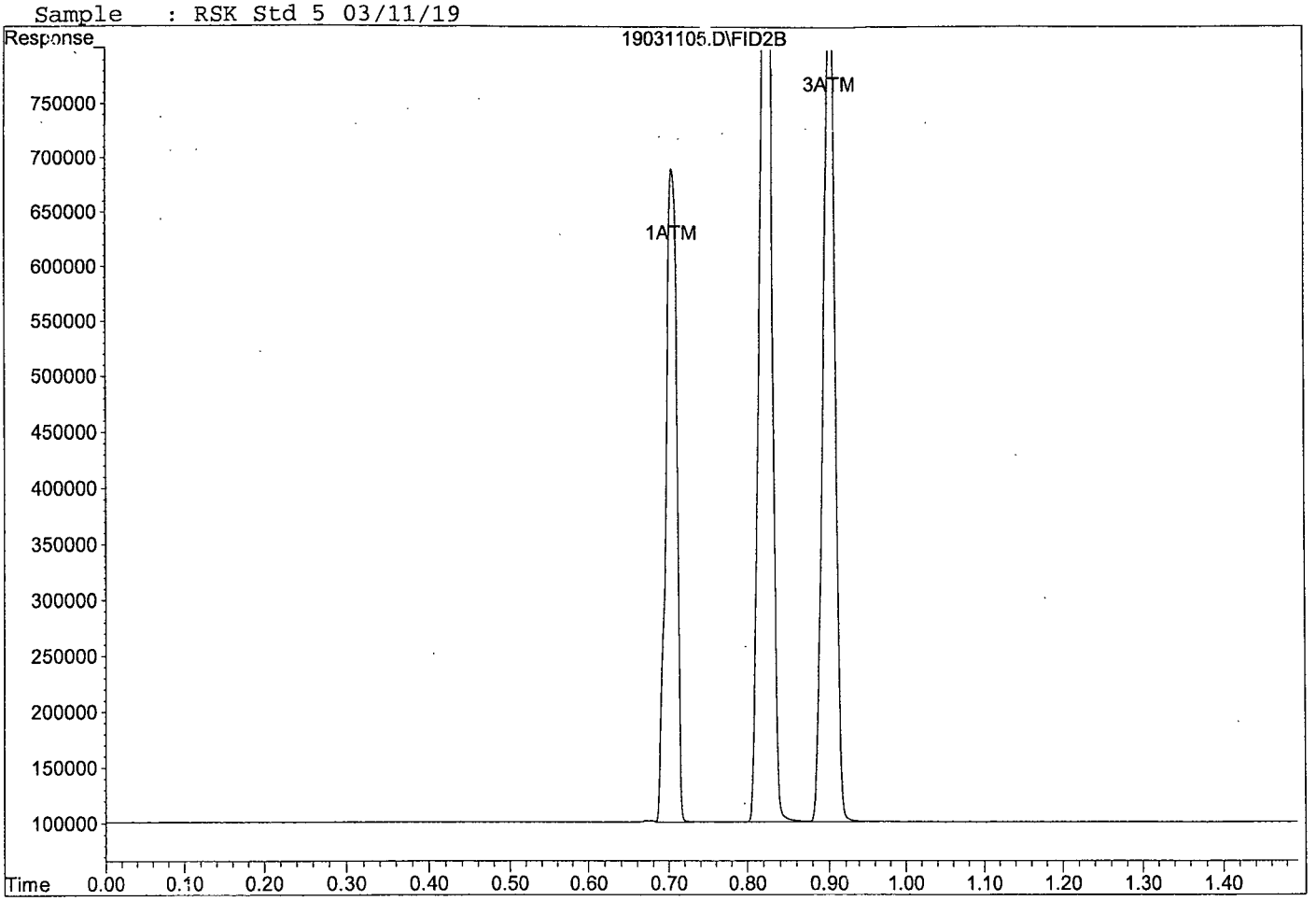
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) ATM Methane	0.70	588996	86.775	ppb
2) ATM Ethane	0.83	946997	173.678	ppb
3) ATM Ethene	0.90	741247	164.087	ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031105.D
Sample : RSK Std 5 03/11/19



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031106.D Vial: 7
Acq On : 11 Mar 19 10:35 Operator: cmm
Sample : RSK Std 6 03/11/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:51 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:51:33 2019
Response via : Multiple Level Calibration

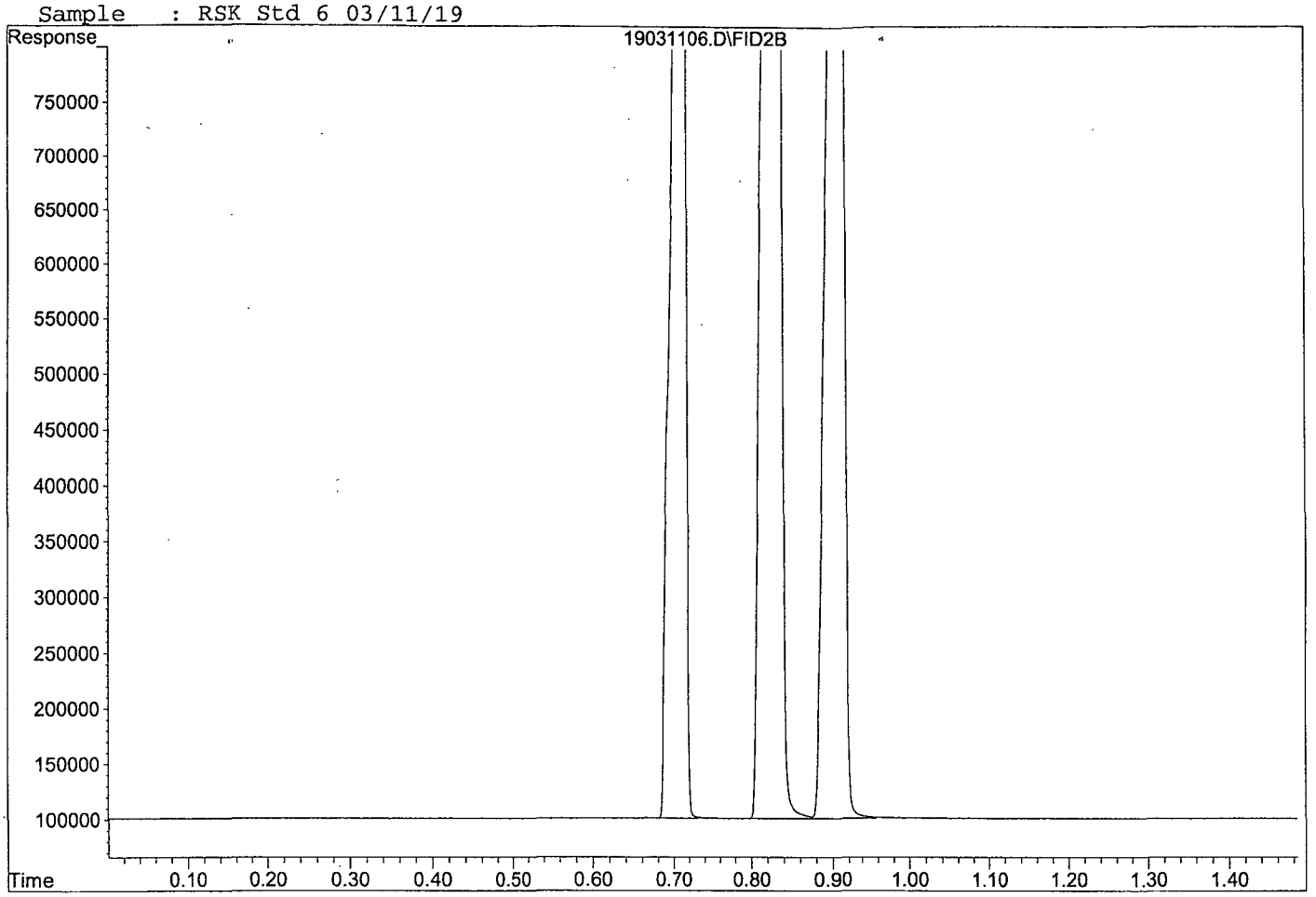
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.71	1512363	226.478 ppb
2) ATM Ethane	0.83	2221790	415.768 ppb
3) ATM Ethene	0.91	1658041	370.960 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031106.D
Sample : RSK Std 6 03/11/19



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031107.D Vial: 8
Acq On : 11 Mar 19 10:37 Operator: cmm
Sample : RSK Std 7 03/11/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:52 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:52:05 2019
Response via : Multiple Level Calibration

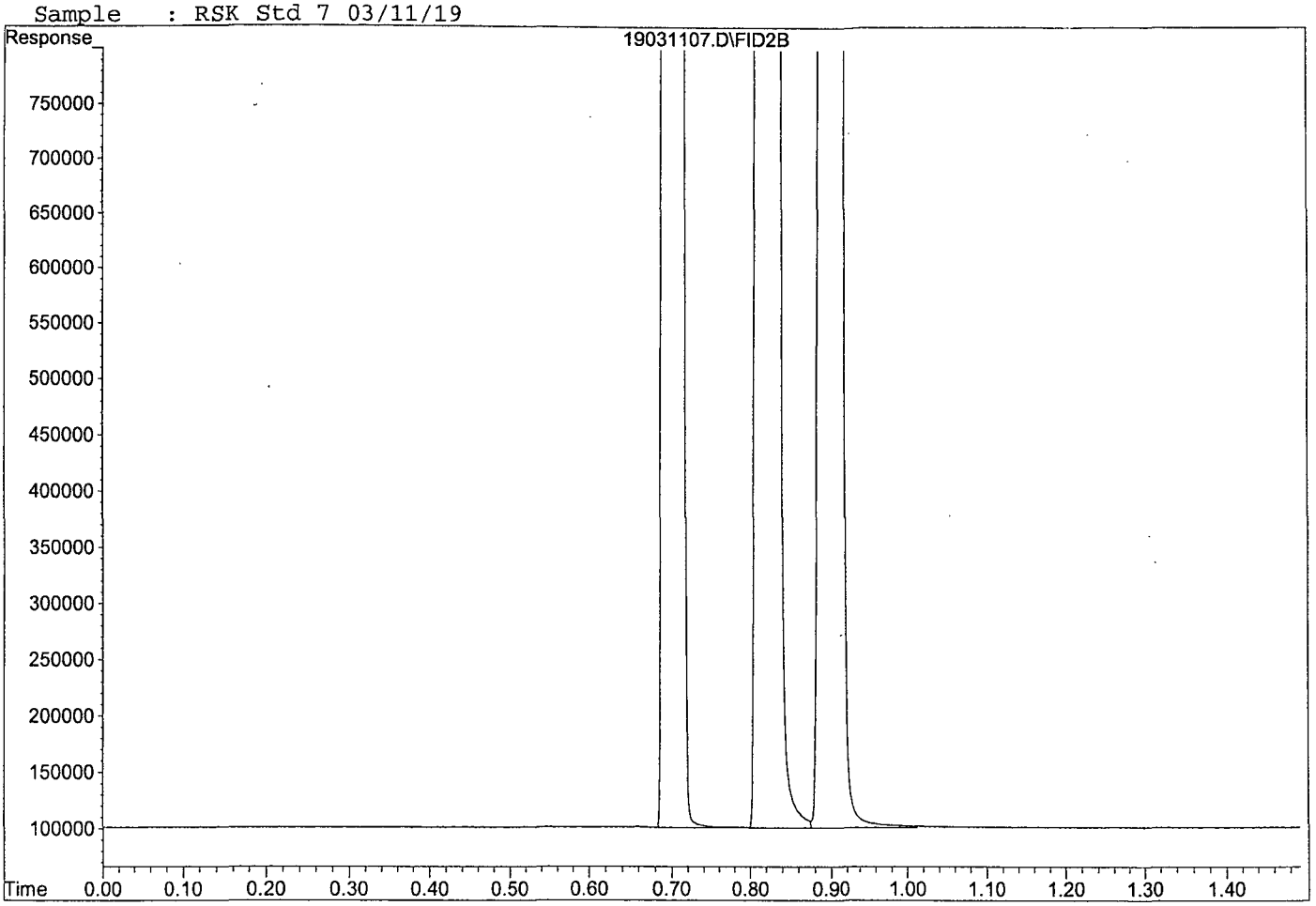
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

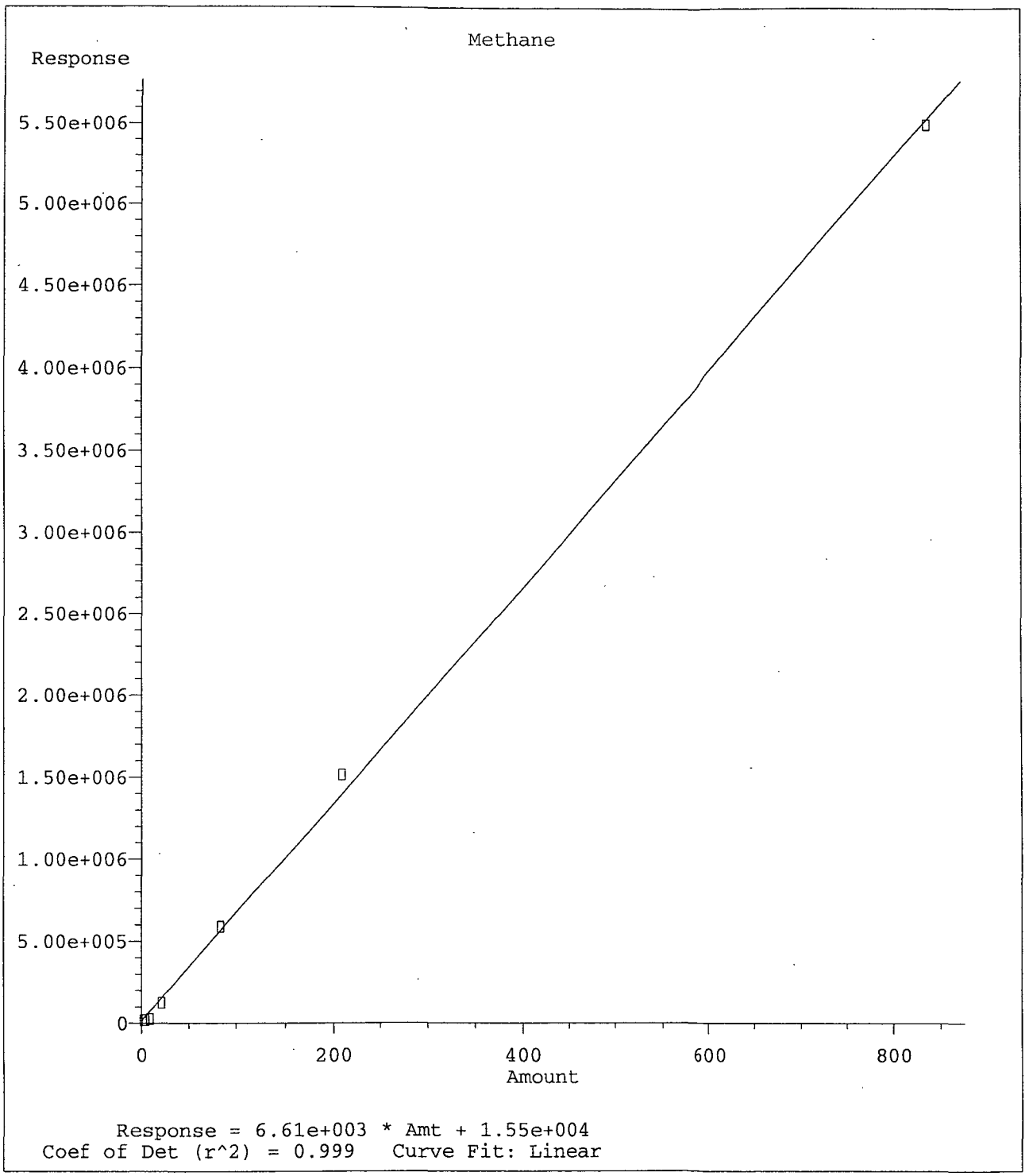
Compound	R.T.	Response	Conc	Units
Target Compounds				
1) ATM Methane	0.71	5497199	829.373	ppb
2) ATM Ethane	0.83	8225741	1555.950	ppb
3) ATM Ethene	0.91	6463235	1455.245	ppb

Target Compounds

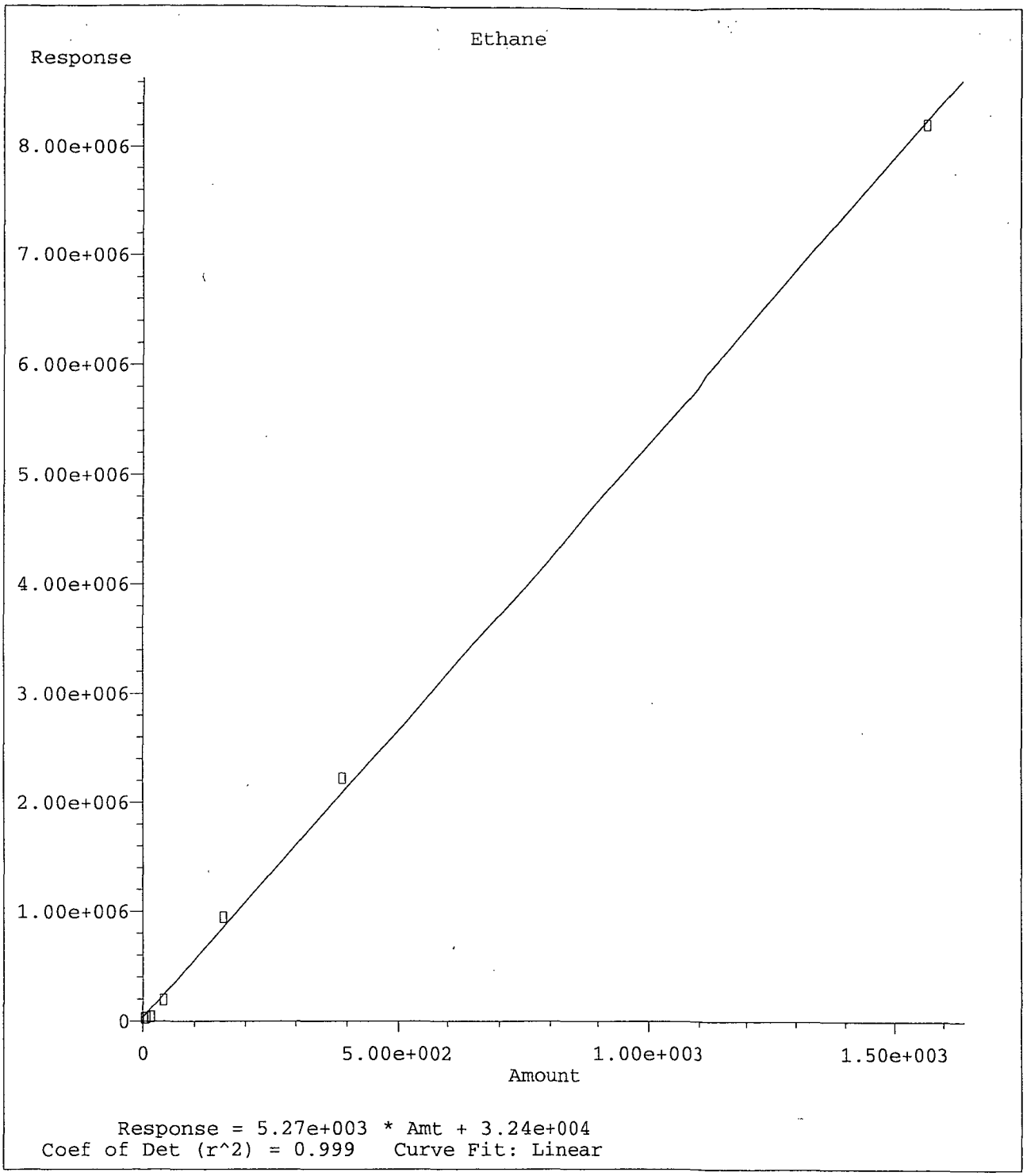
(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031107.D
Sample : RSK Std 7 03/11/19

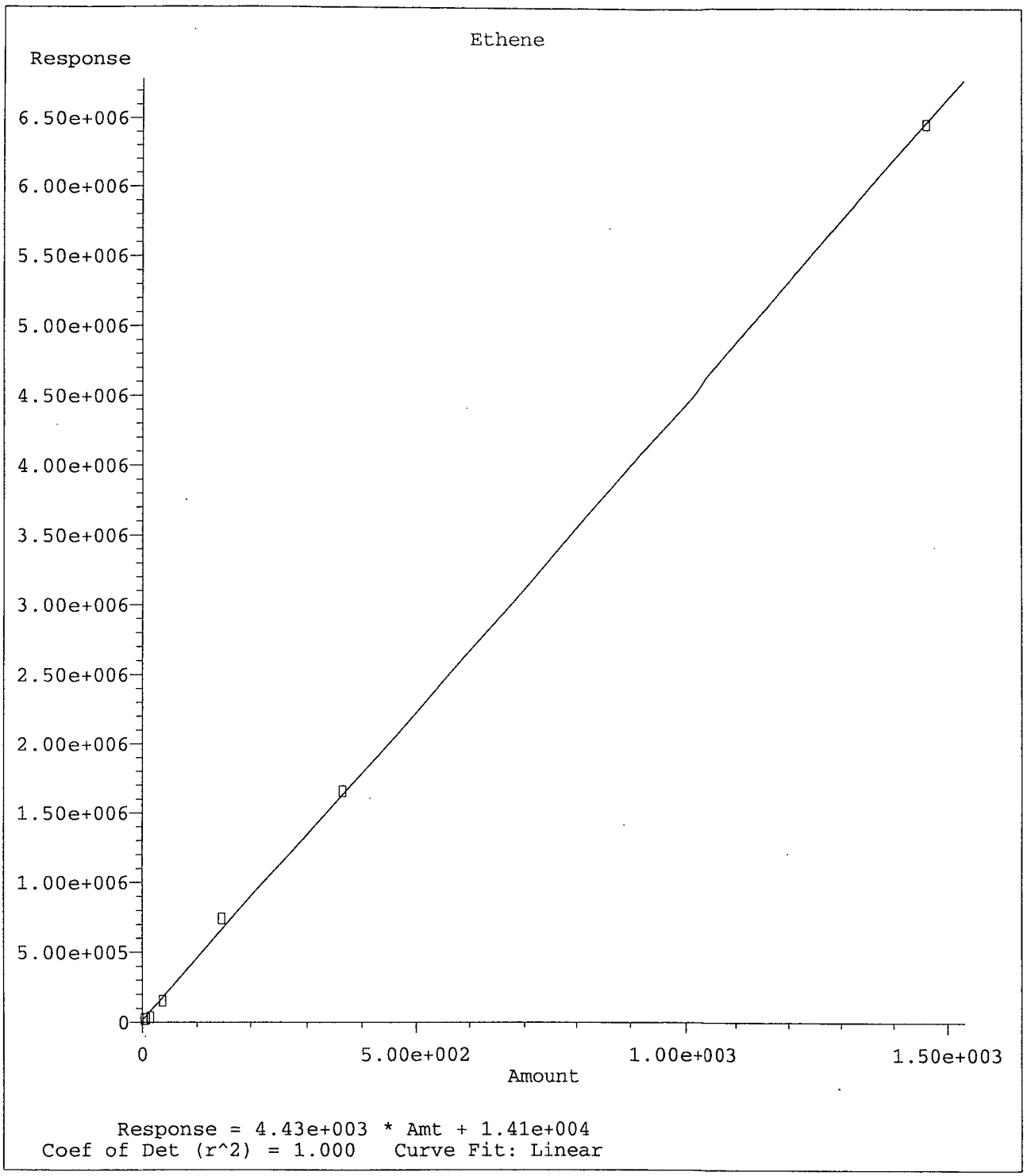




Method Name: G:\ROCKY\DATA\190311RS\RSK0311.M
Calibration Table Last Updated: Mon Mar 11 10:52:05 2019



Method Name: G:\ROCKY\DATA\190311RS\RSK0311.M
Calibration Table Last Updated: Mon Mar 11 10:52:05 2019



Method Name: G:\ROCKY\DATA\190311RS\RSK0311.M
Calibration Table Last Updated: Mon Mar 11 10:52:05 2019

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 03/11/19
Instrument: 7890
Initial Cal. Date: 03/11/19
Data File: 19031108.D

		Compound	MEAN	CCRF	%D		%Drift
1	ATML	Methane	12333	15569	26	ATML	15
2	ATML	Ethane	10333	12628	22	ATML	16
3	ATML	Ethene	8712	10096	16	ATML	12
4							
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35							
36							
37							
38							
39							
40							
		Average			21.3		

Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031108.D Vial: 9
Acq On : 11 Mar 19 10:48 Operator: cmm
Sample : SS RSK Std 5 03/11/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:59 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:59:14 2019
Response via : Multiple Level Calibration

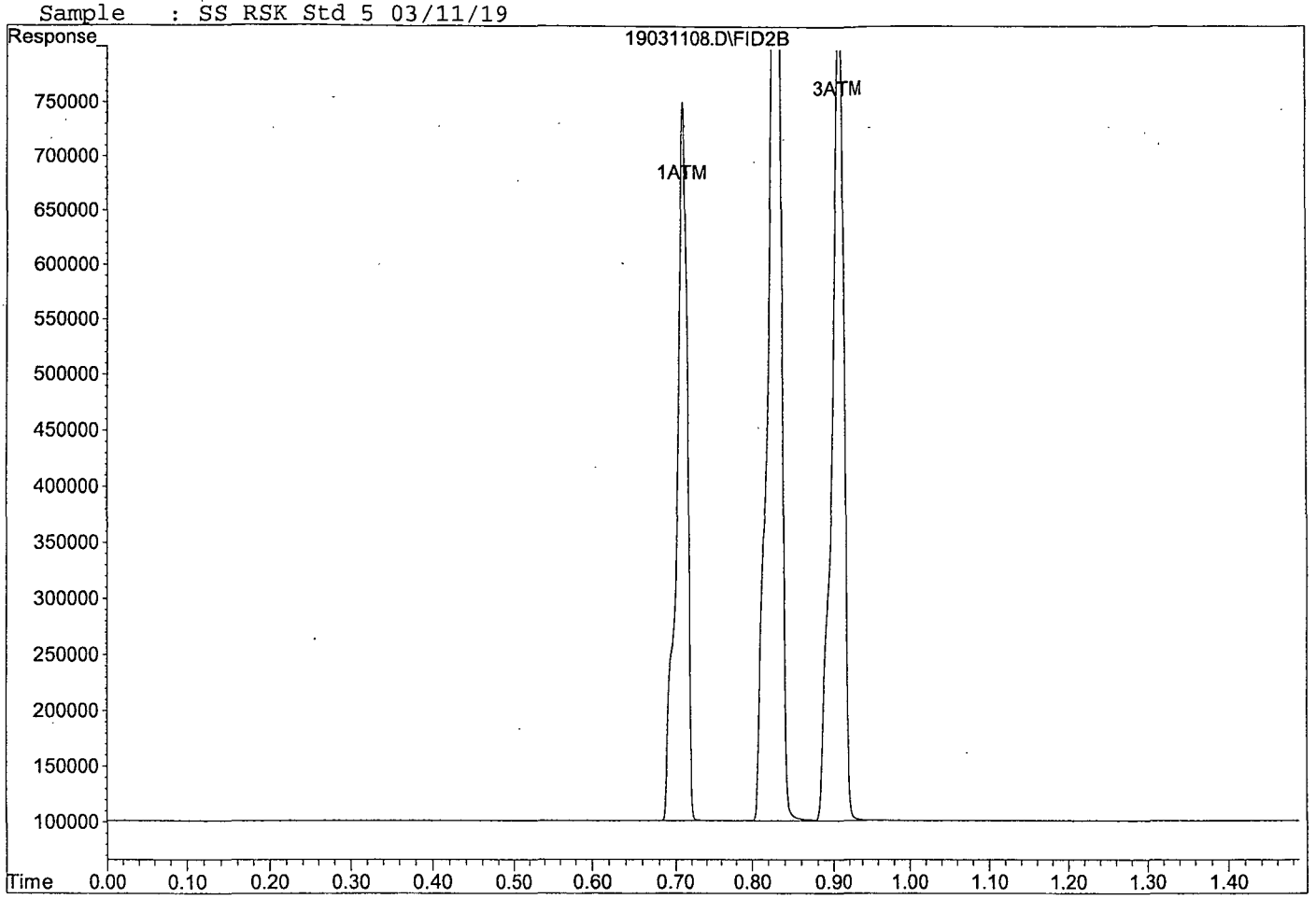
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.71	649223	95.887 ppb
2) ATM Ethane	0.83	987165	181.306 ppb
3) ATM Ethene	0.91	736184	162.944 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031108.D
Sample : SS RSK Std 5 03/11/19



Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 3 May 19 10:33
Instrument: 7890
Initial Cal. Date: 03/11/19
Data File: 19050300.D

		Compound	MEAN	CCRF	%D		%Drift
1	ATML	Methane	12333	11331	8.1	ATML	17
2	ATML	Ethane	10333	9563	7.5	ATML	13
3	ATML	Ethene	8712	7866	9.7	ATML	13
4							
5							
6							
7							
8							
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36							
37							
38							
39							
40							
		Average			8.4		

Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050300.D Vial: 1
Acq On : 3 May 19 10:33 Operator: cmm
Sample : 190503A LCS/CCV RSK Std 5 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 10:36 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri Apr 19 11:51:54 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

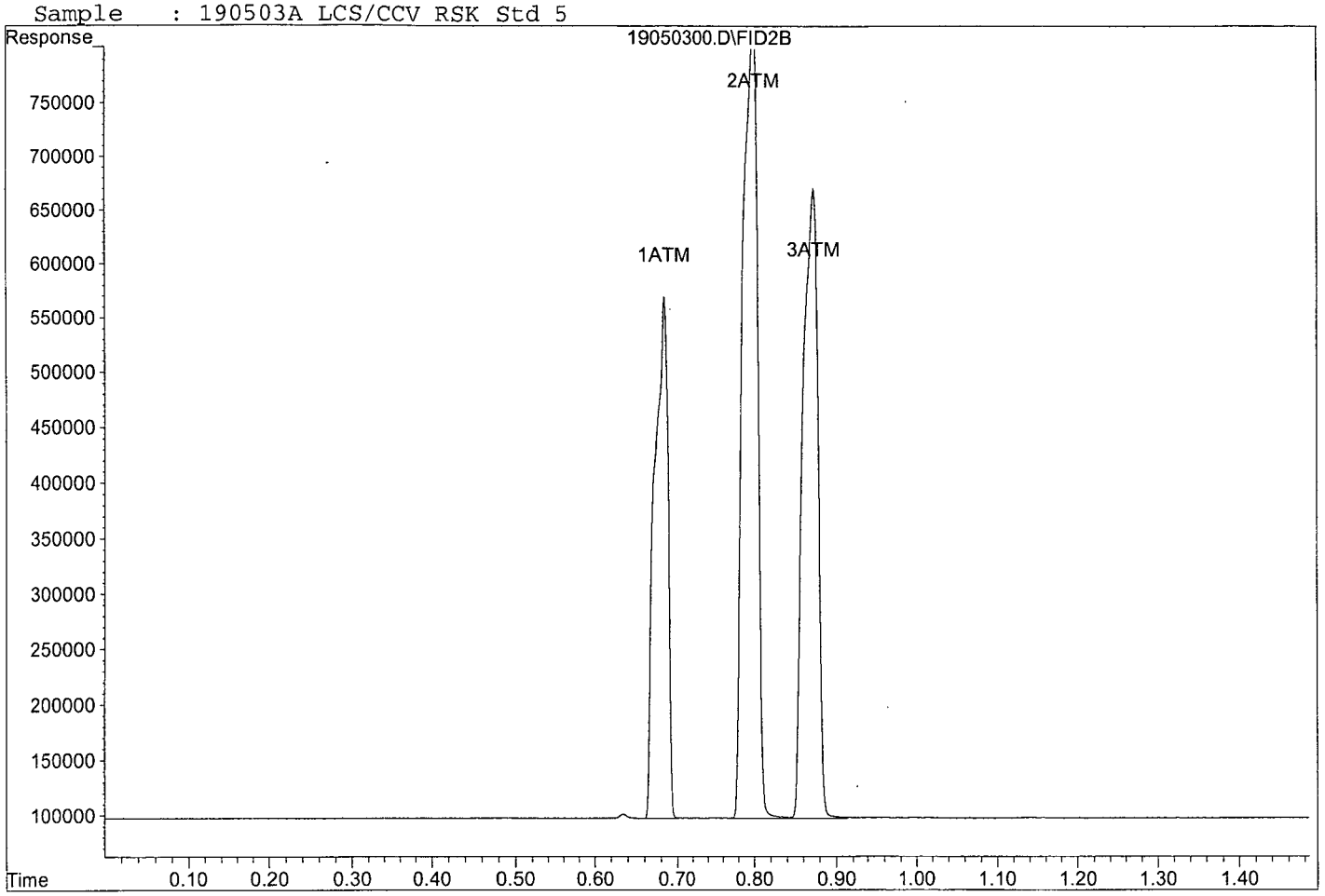
Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.68	472503	69.150 ppb
2) ATM Ethane	0.80	747558	135.804 ppb
3) ATM Ethene	0.87	573589	126.255 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File: G:\ROCKY\DATA\190311RS\19050300.D
Sample : 190503A LCS/CCV RSK Std 5



Form 7

Ending Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 3 May 19 11:36
Instrument: 7890
Initial Cal. Date: 03/11/19
Data File: 19050326.D

		Compound	MEAN	CCRF	%D		%Drift
1	ATML	Methane	12333	12299	0.28	ATML	9.8
2	ATML	Ethane	10333	10297	0.35	ATML	6.2
3	ATML	Ethene	8712	8355	4.1	ATML	7.9
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			1.6		

Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050326.D Vial: 27
Acq On : 3 May 19 11:36 Operator: cmm
Sample : Ending CCV RSK Std 5 05/03/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 11:38 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri May 03 11:06:47 2019
Response via : Multiple Level Calibration

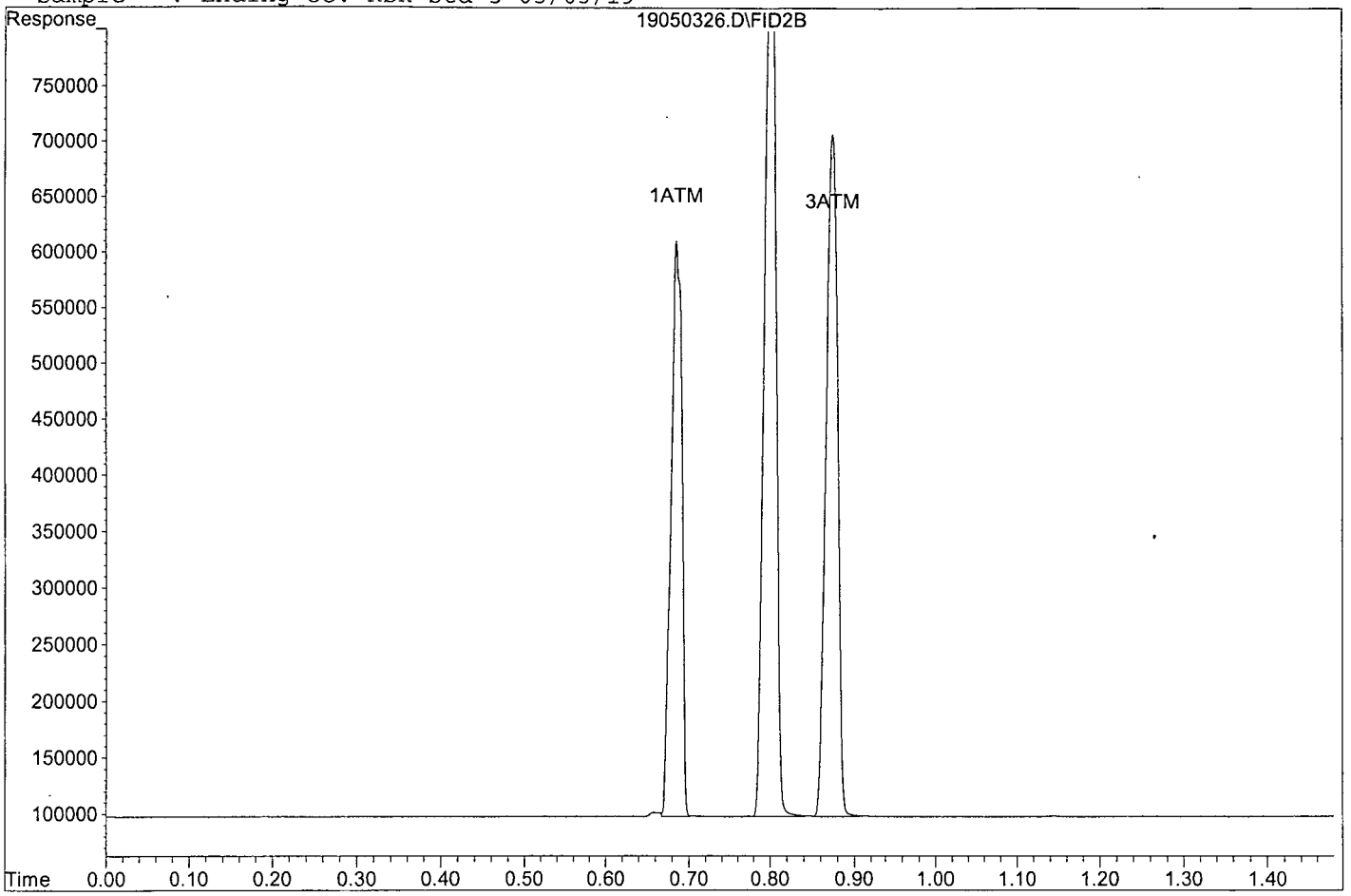
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.69	512865	75.256 ppb
2) ATM Ethane	0.80	804929	146.699 ppb
3) ATM Ethene	0.87	609221	134.295 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050326.D
Sample : Ending CCV RSK Std 5 05/03/19



ORGANICS
Raw Data

APPL, INC.

Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050319.D Vial: 20
Acq On : 3 May 19 11:20 Operator: cmm
Sample : AZ90212W04 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 11:23 2019 Quant Results File: RSK0311.RES

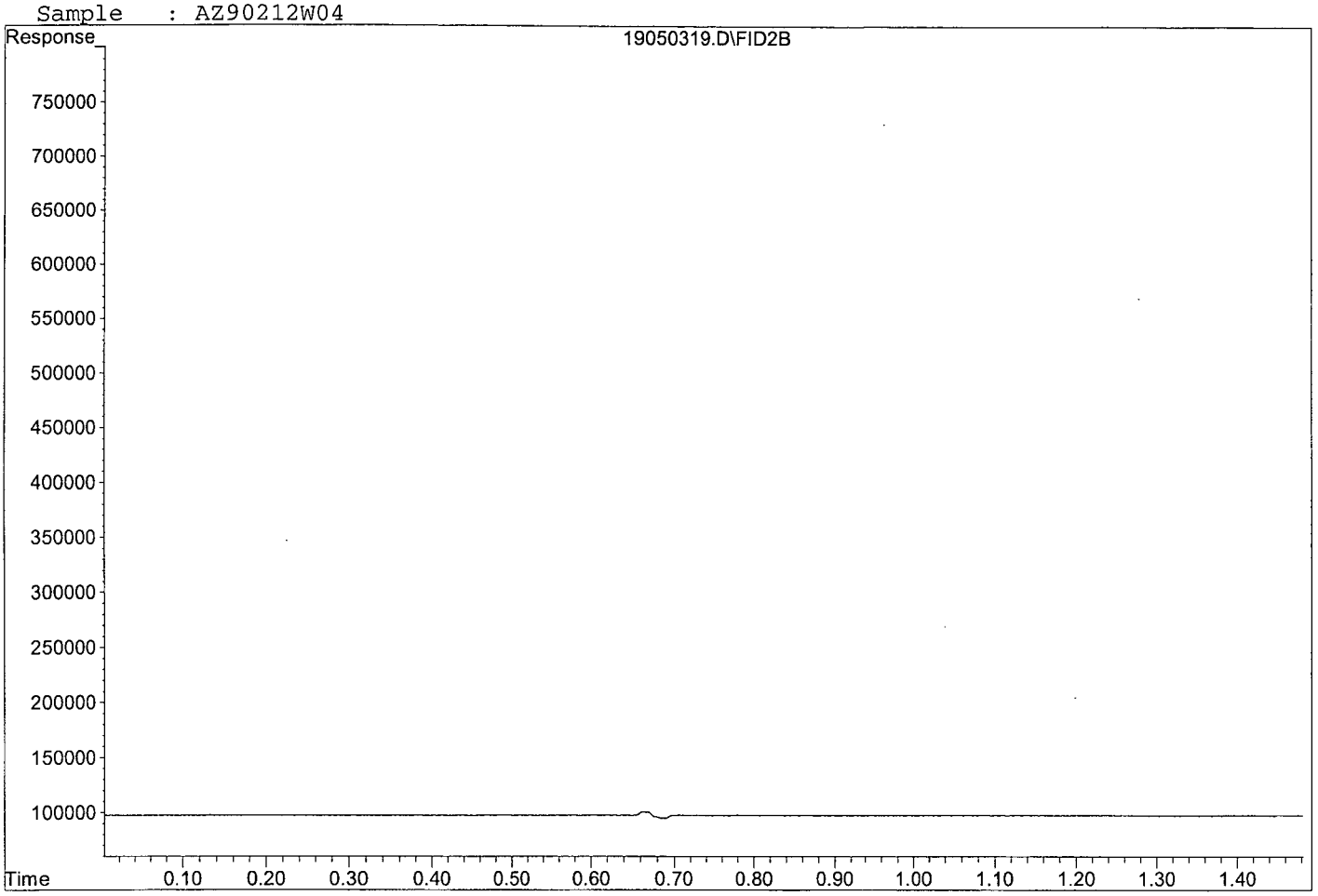
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri May 03 11:06:47 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
Target Compounds					
1) ATM Methane	0.00	0	N.D.	ppb	d
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050319.D
Sample : AZ90212W04



Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050320.D Vial: 21
Acq On : 3 May 19 11:22 Operator: cmm
Sample : AZ90213W04 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 11:25 2019 Quant Results File: RSK0311.RES

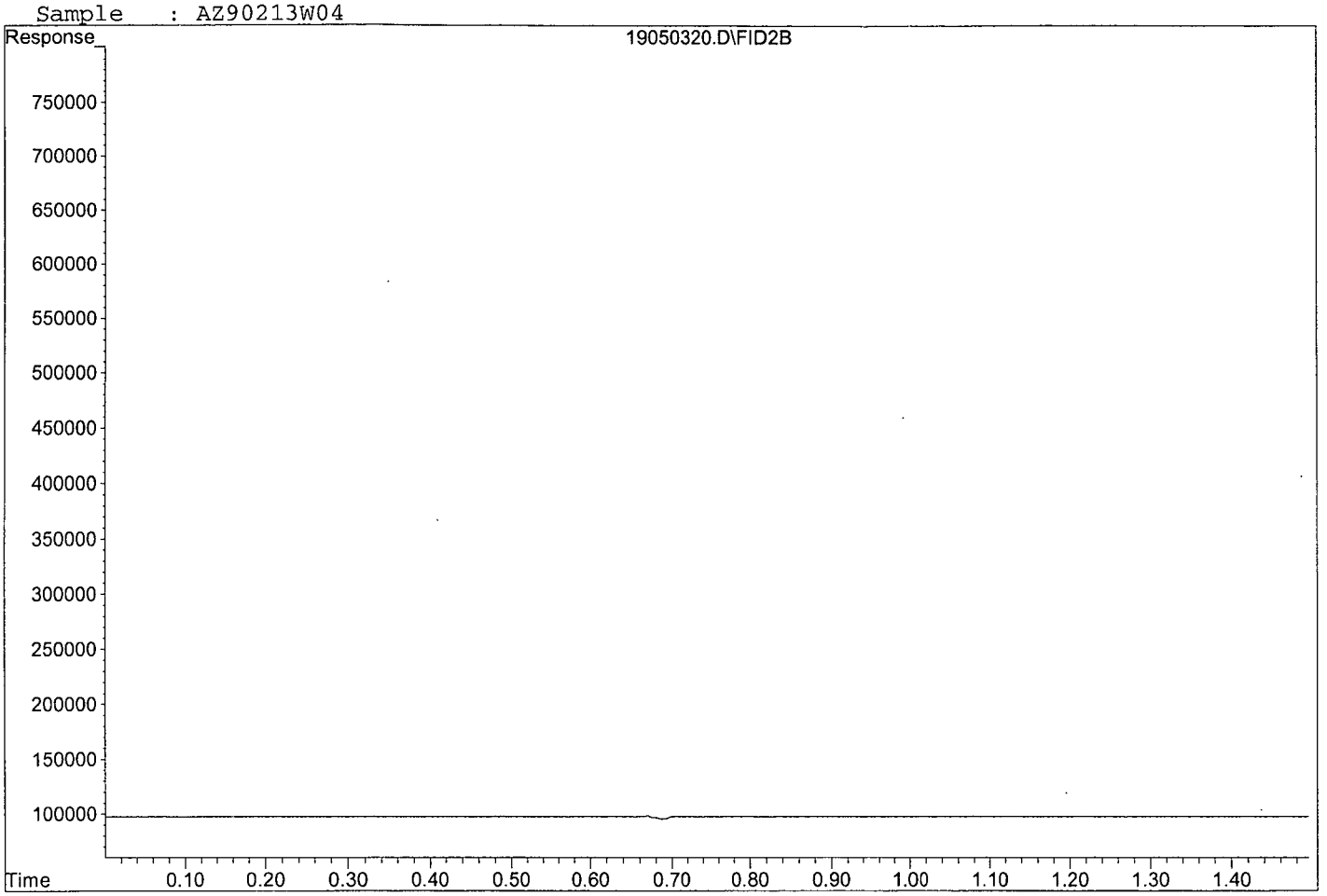
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri May 03 11:06:47 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
Target Compounds					
1) ATM Methane	0.00	0	N.D.	ppb	d
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050320.D
Sample : AZ90213W04



Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050321.D Vial: 22
Acq On : 3 May 19 11:24 Operator: cmm
Sample : AZ90214W04 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 11:27 2019 Quant Results File: RSK0311.RES

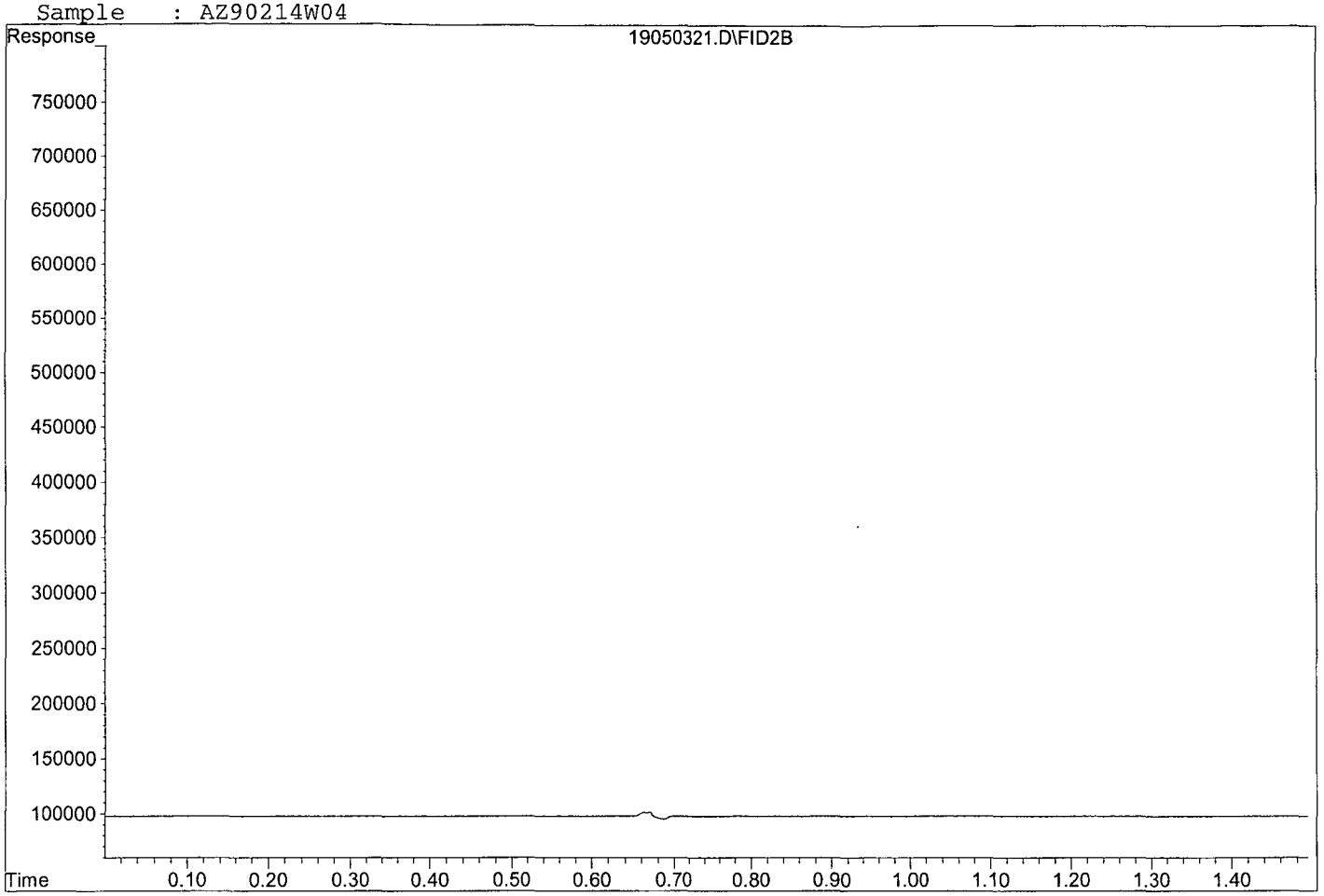
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri May 03 11:06:47 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
Target Compounds					
1) ATM Methane	0.00	0	N.D.	ppb	d
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050321.D
Sample : AZ90214W04



Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050322.D Vial: 23
Acq On : 3 May 19 11:27 Operator: cmm
Sample : AZ90215W04 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 11:29 2019 Quant Results File: RSK0311.RES

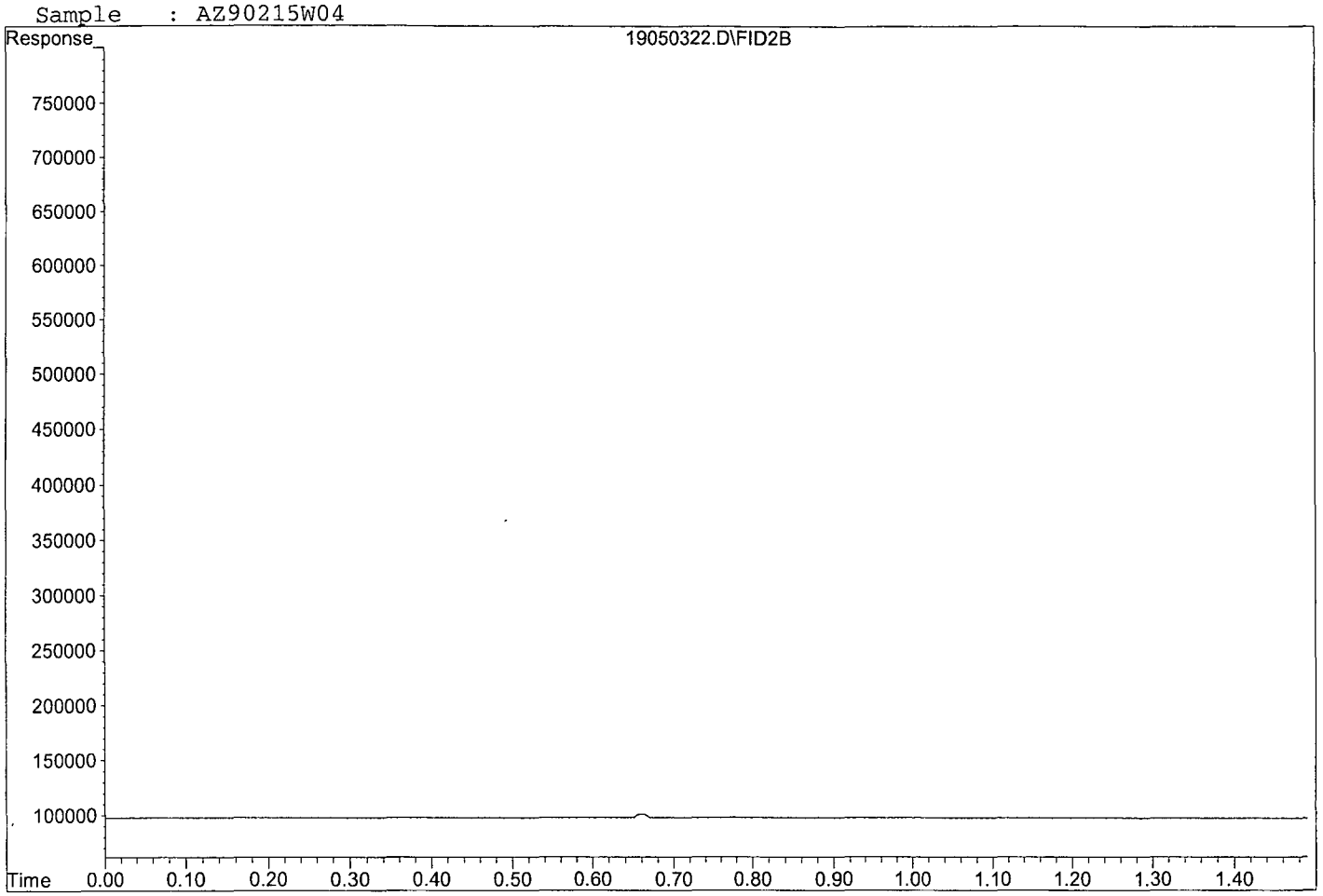
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri May 03 11:06:47 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
Target Compounds					
1) ATM Methane	0.00	0	N.D.	ppb	d
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050322.D
Sample : AZ90215W04



Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050302.D Vial: 3
Acq On : 3 May 19 10:39 Operator: cmm
Sample : 190503A Blk Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 10:43 2019 Quant Results File: RSK0311.RES

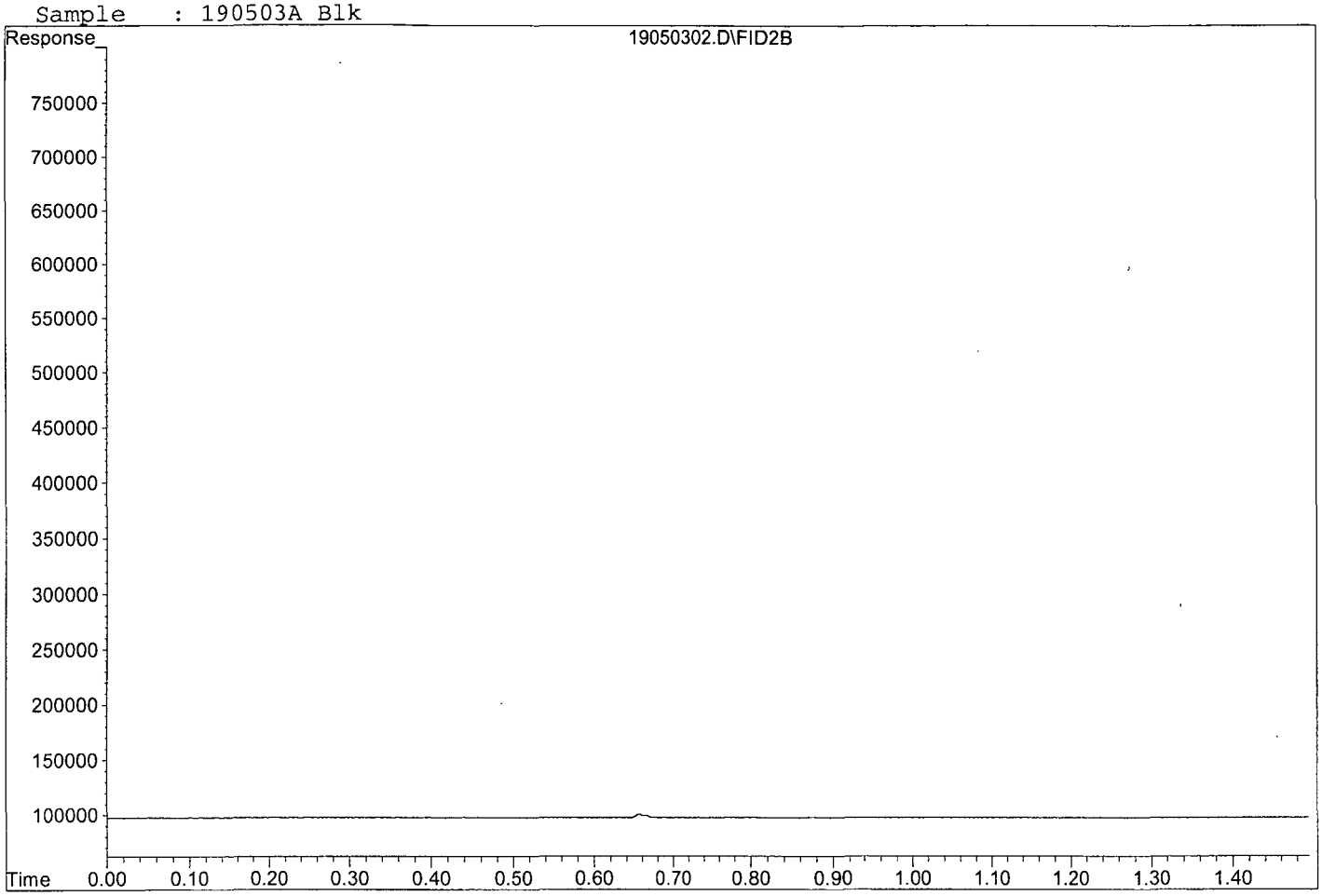
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri Apr 19 11:51:54 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
Target Compounds					
1) ATM Methane	0.00	0	N.D.	ppb	d
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050302.D
Sample : 190503A Blk



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050300.D Vial: 1
Acq On : 3 May 19 10:33 Operator: cmm
Sample : 190503A LCS/CCV RSK Std 5 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 10:36 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri Apr 19 11:51:54 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

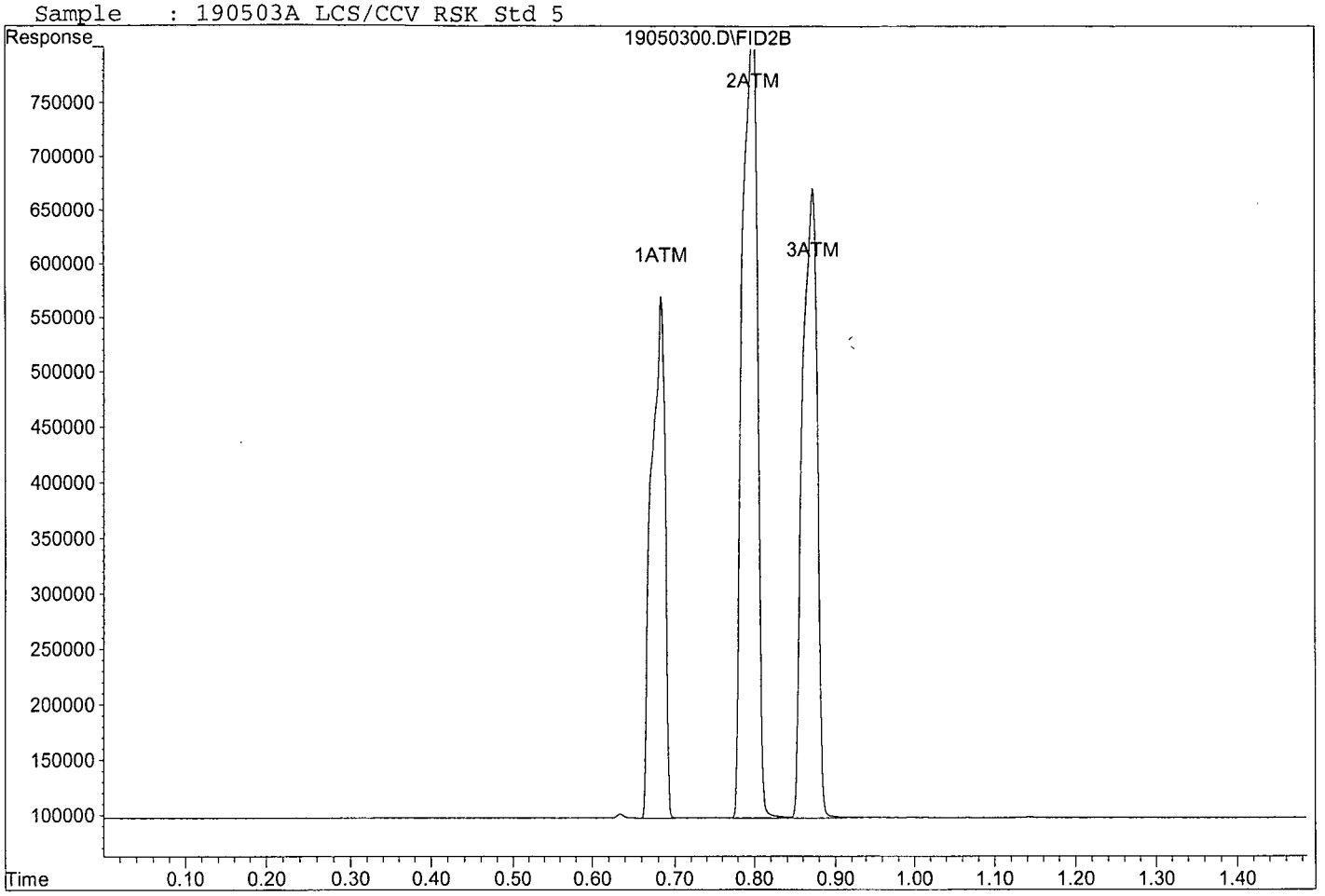
Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.68	472503	69.150 ppb
2) ATM Ethane	0.80	747558	135.804 ppb
3) ATM Ethene	0.87	573589	126.255 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File: G:\ROCKY\DATA\190311RS\19050300.D
Sample : 190503A LCS/CCV RSK Std 5



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050301.D Vial: 2
Acq On : 3 May 19 10:36 Operator: cmm
Sample : 190503A LCSD RSK Std 5 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 10:38 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri Apr 19 11:51:54 2019
Response via : Multiple Level Calibration

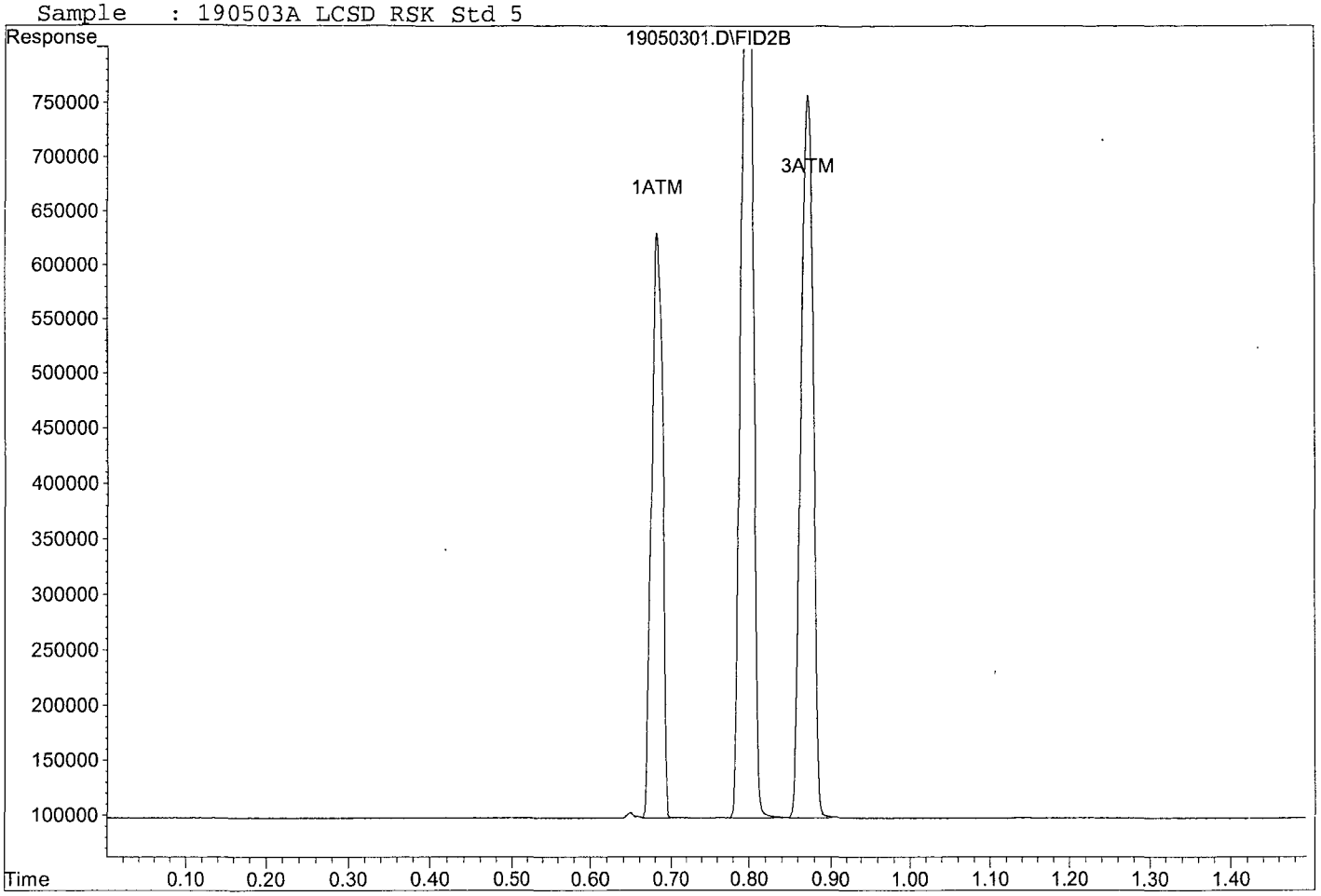
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.68	533347	78.355 ppb
2) ATM Ethane	0.80	860868	157.322 ppb
3) ATM Ethene	0.87	660243	145.808 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050301.D
Sample : 190503A LCSD RSK Std 5



Primary Source Stock Standard 10,000ppmV **Manufacturer Exp Date 9-21-21**

RSK Gas Mix (Scott Specialty Gas) Cat.# 0104E40028`4, Lot # 160-401303031-39773

1% Gas Concentration Moles = 10,000ppmV Methane, Ethane, Ethene

RSK Calibration Curve (prepared in 1.0 L Tedlar Bags at room temp) **Expires 04/11/19** **CMM 03/11/19**

Analye	Conc Std 1 (1/2 = LOD) (ug/L)	Conc Std 2 (LOQ Chk) (ug/L)	Conc Std 3 (ug/L)	Conc Std 4 (ug/L)	Conc Std 5 (ug/L)	Conc Std 6 (ug/L)	Conc Std 7 (ug/L)
Methane (MW 16.04)	2.08	4.16	8.34	20.85	83.40	208.5	834.0
Ethane (MW 30.07)	3.91	7.81	15.6	39.09	156.35	390.9	1563.5
Ethene (MW 28.05)	3.65	7.30	14.6	36.46	145.84	364.6	1458.4
Stock Source	RSK Tank Lot #170PLU5SPC06L-35410	RSK Tank Lot #170PLU5SPC06L-35410	RSK Tank Lot #170PLU5SPC06L-35410	RSK Tank Lot #170PLU5SPC06L-35410	RSK Tank Lot #170PLU5SPC06L-35410	RSK Tank Lot #170PLU5SPC06L-35410	RSK Tank Lot #170PLU5SPC06L-35410
Stock Conc (ppmv)	10,000 ppmV	10,000 ppmV	10,000 ppmV	10,000 ppmV	10,000 ppmV	10,000 ppmV	10,000 ppmV
Stock Aliquot (mL)	0.010	0.020	0.040	0.100	0.400	1.00	4.00
Final Volume P&T Water	32 mL	32 mL	32 mL	32 mL	32 mL	32 mL	32 mL

Second Source Stock Standard 10,000ppmV **Manufacturer Exp date 9-21-2021**

RSK Gas Mix (Scott Specialty Gas) Cat.# 23452, Lot # 160-401303032-1-39774

1% Gas Concentration Moles = 10,000ppmV Methane, Ethane, Ethene

Second Source **Expires 03/12/19** **CMM 03/11/19**

2.0mL of SS from tank into 980 mL Nitrogen

final conc: 13.3ug/L Methane, 25.0 ug/L Ethane, and 23.3 ug/L Ethene

CCV/LCS/LCSD **CMM 04/29/19**

Spike 0.400mL of 10,000ppmV into 32mL DI water, with 8mL Nitrogen headspace

final conc: 83.40ug/L Methane, 156.35ug/L Ethane, and 145.84ug/L Ethene

CCV/LCS/LCSD **CMM 05/03/19**

Spike 0.400mL of 10,000ppmV into 32mL DI water, with 8mL Nitrogen headspace

final conc: 83.40ug/L Methane, 156.35ug/L Ethane, and 145.84ug/L Ethene

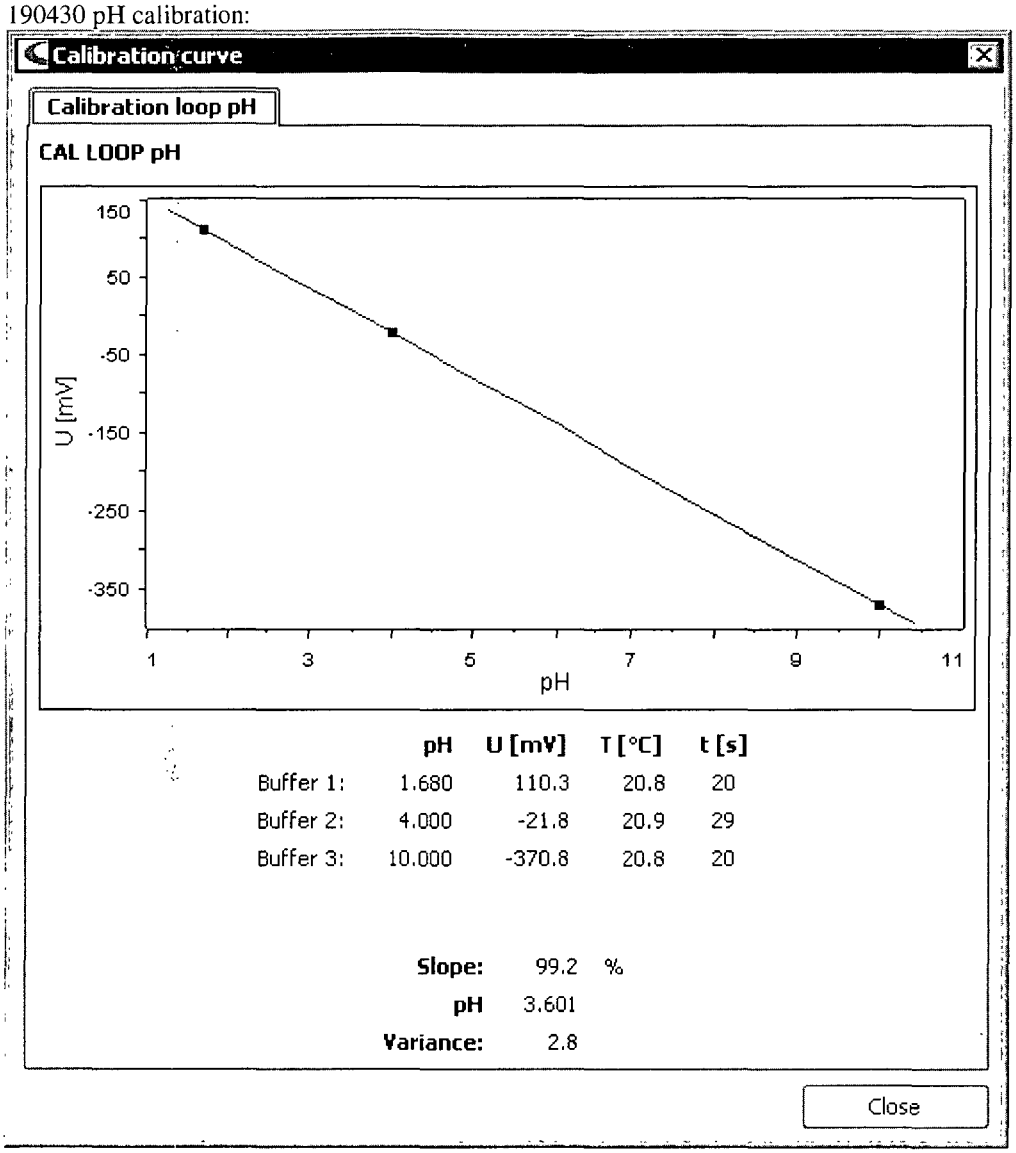
Injection Log

Directory: G:\ROCKY\DATA\190311RS\

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	19031100.D	1	RSK Std 1 03/11/19	125uL from RSK Std 3	11 Mar 19 10:21
2	2	19031101.D	1	RSK Std 2 03/11/19	250uL from RSK Std 3	11 Mar 19 10:23
3	4	19031103.D	1	RSK Std 3 03/11/19		11 Mar 19 10:28
4	5	19031104.D	1	RSK Std 4 03/11/19		11 Mar 19 10:31
5	6	19031105.D	1	RSK Std 5 03/11/19		11 Mar 19 10:33
6	7	19031106.D	1	RSK Std 6 03/11/19		11 Mar 19 10:35
7	8	19031107.D	1	RSK Std 7 03/11/19		11 Mar 19 10:37
8	9	19031108.D	1	SS RSK Std 5 03/11/19		11 Mar 19 10:48
9	1	19050300.D	1	190503A LCS/CCV RSK Std 5		3 May 19 10:33
10	2	19050301.D	1	190503A LCSD RSK Std 5		3 May 19 10:36
11	3	19050302.D	1	190503A Blk		3 May 19 10:39
12	20	19050319.D	1	AZ90212W04		3 May 19 11:20
13	21	19050320.D	1	AZ90213W04		3 May 19 11:22
14	22	19050321.D	1	AZ90214W04		3 May 19 11:24
15	23	19050322.D	1	AZ90215W04		3 May 19 11:27
16	27	19050326.D	1	Ending CCV RSK Std 5 05/03/19		3 May 19 11:36

INORGANIC ANALYSIS
Calibration Data

190430 pH calibration:



A.P.P.L. INC.
2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: A.P.P.L. INC. Contract: AECOM
ARF No: 88736 SDG: 88736
Initial Calibration Source: Inorganic Ventures
Continuing Calibration Source: o2si
Analysis Date: 05/01/19

Analyte	Calibration Verification									M
	True ICV	Found 16:50	%R(1)	True CCV1	Found 18:39	%R(1)	True CCV1	Found 18:51	%R(1)	
TOXN	3	2.9656	98.9	3	3.0459	102	3	2.8702	95.7	

(1) Control Limits: 90-110

ILM02.0

A.P.P.L. INC.
3
BLANKS

Lab Name: A.P.P.L. INC. Contract: AECOM

ARF No.: 88736 SDG: 88736

Preparation Blank Matrix (soil/water): water

Preparation Blank Concentration Units (ug/L or mg/kg): mg/L

Analyte	Calibration Blanks										M
	ICB 05/01/19 16:51	C	CCB 05/01/19 18:41	C	CCB 05/01/19 18:52	C		C		C	
TOXN	.100	U	.100	U	.100	U					

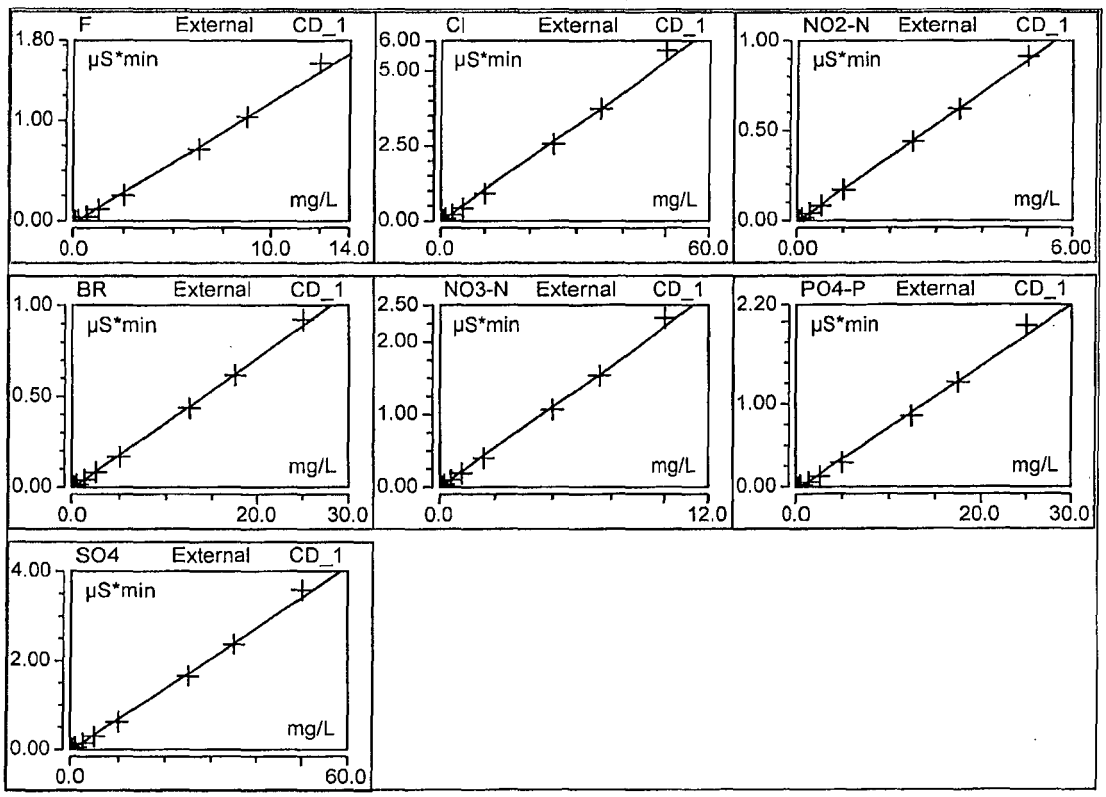
Calibration Batch Report

Sequence:	**190401**	*Injection Volume:*	**25.00**
Instrument Method:	**Anions IM**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-Apr-2019 / 19:26**	*Run Time:*	**5**

Calibration Summary

Peak Name	Eval.Type	Cal.Type	Points	Offset (C0)	Slope (C1)	Curve (C2)	Coeff.Det. %
F	Area	Lin, WithOffset, 1/A	8.000	-0.017	0.120	0.000	99.4806
Cl	Area	Lin, WithOffset, 1/A	8.000	-0.028	0.107	0.000	99.4166
NO2-N	Area	Lin, WithOffset, 1/A	8.000	-0.001	0.179	0.000	99.9419
BR	Area	Lin, WithOffset, 1/A	8.000	-0.002	0.036	0.000	99.8824
NO3-N	Area	Lin, WithOffset, 1/A	8.000	-0.007	0.222	0.000	99.7096
PO4-P	Area	Lin, WithOffset, 1/A	7.000	-0.032	0.075	0.000	99.3402
SO4	Area	Lin, WithOffset, 1/A	8.000	-0.012	0.069	0.000	99.7352

Injection Name	Amount mg/L CD_1 F	Amount mg/L CD_1 Cl	Amount mg/L CD_1 NO2-N	Amount mg/L CD_1 BR	Amount mg/L CD_1 NO3-N	Amount mg/L CD_1 PO4-P	Amount mg/L CD_1 SO4
i cal 1	0.152	0.5642	0.0447	0.2325	0.1005	0.4778	0.4991
i cal 2	0.223	1.0054	0.1008	0.5019	0.2020	0.6726	1.0108
i cal 3	0.498	2.1345	0.2378	1.1759	0.4556	1.1460	2.2782
i cal 4	1.078	4.1718	0.4757	2.3481	0.8983	2.1327	4.5095
i cal 5	2.245	8.6460	0.9640	4.7379	1.8243	4.3601	9.1640
i cal 6	6.079	24.1535	2.4749	12.2599	4.8399	11.9336	24.2601
i cal 7	8.756	35.0732	3.4778	17.3494	6.9503	17.3831	34.7622
i cal 8	13.194	53.1515	5.1141	25.8443	10.5090	26.6219	52.4162

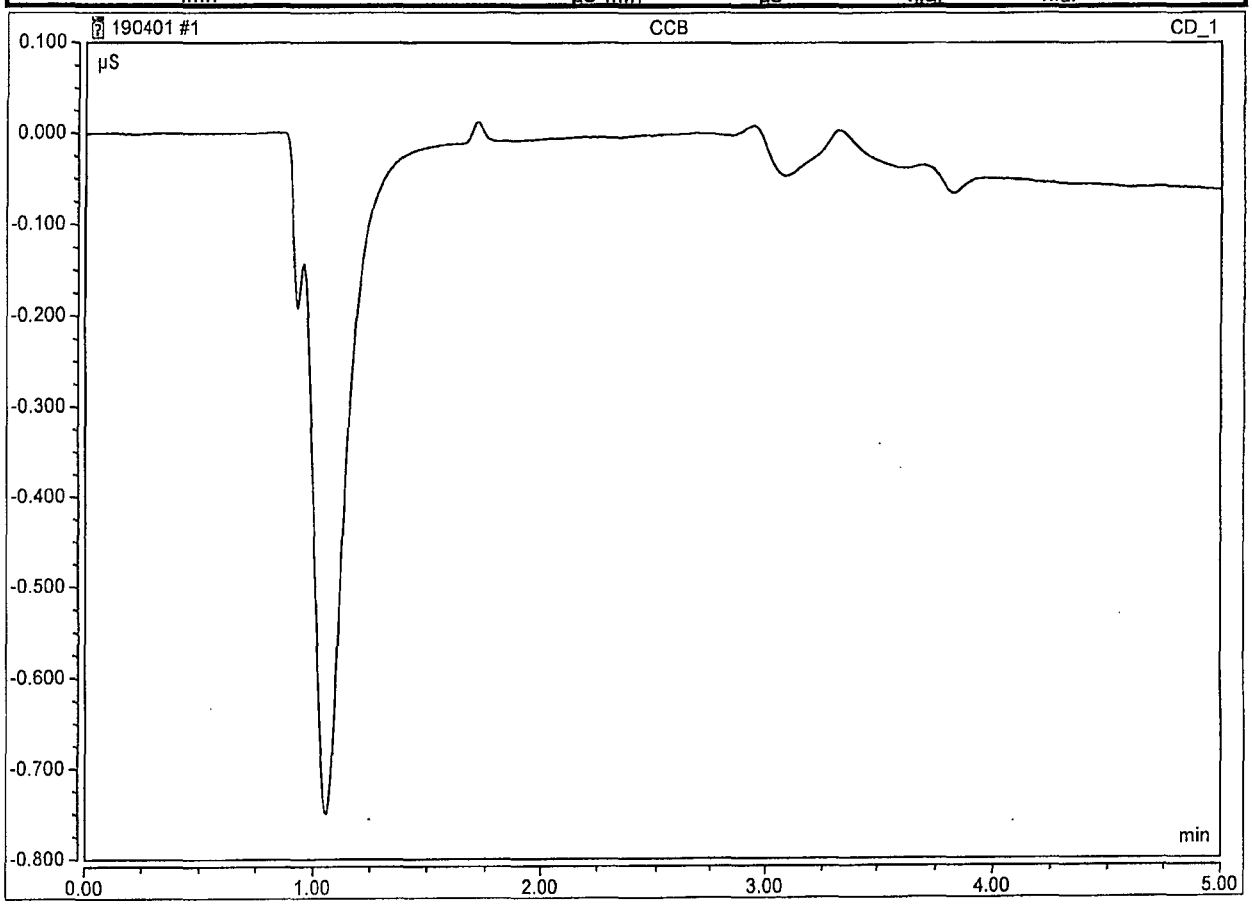


Chromeleon (c) Dionex 1996-2009
Version 7.2.4.8340

Peak Integration Report

Sample Name:	CCB	*Inj. Vol.:*	25uL
Injection Type:	Unknown	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:27	*Run Time:*	5.00

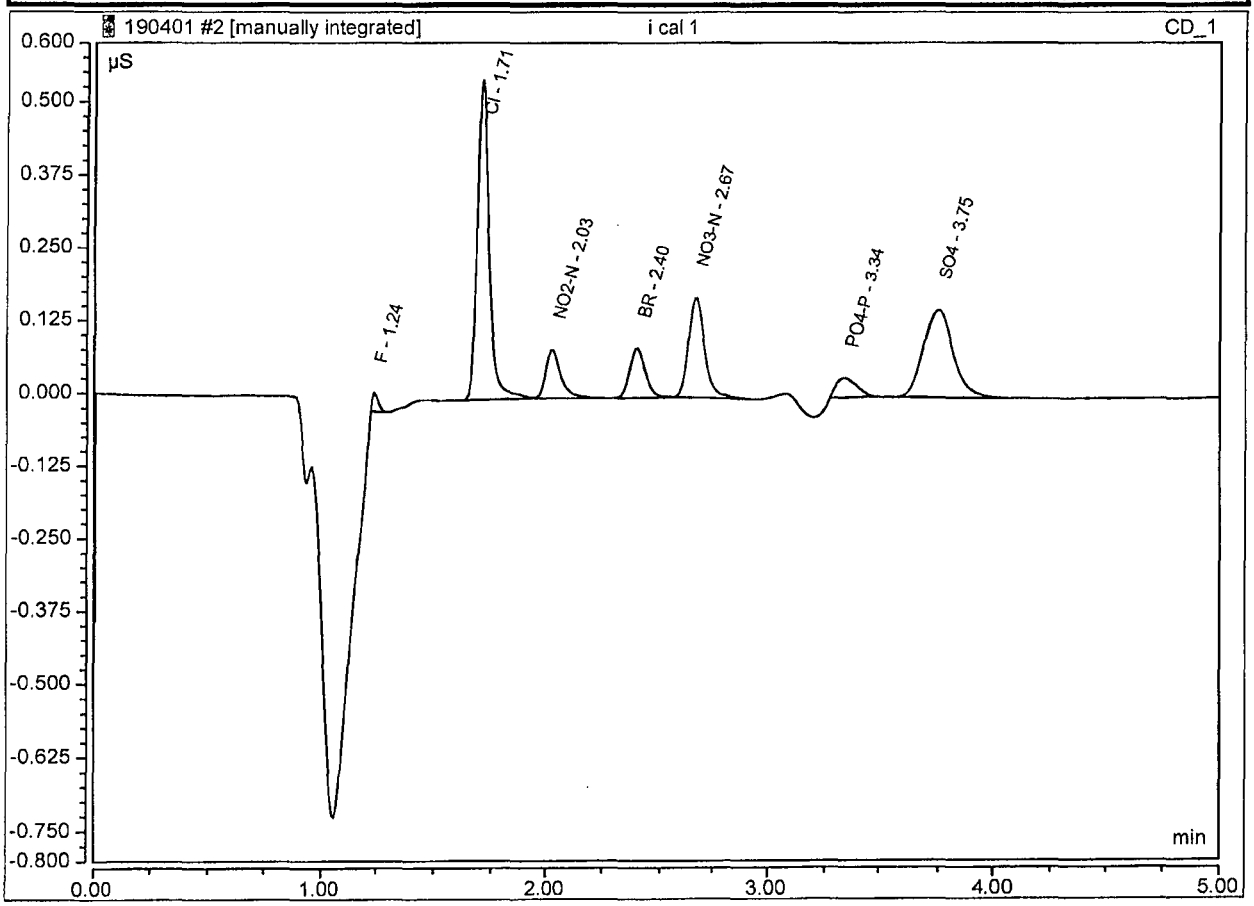
No.	Time (min)	Peak Name	Peak Type	Area (µS*min)	Height (µS)	Amount	Amount	Recovery
	min			µS*min	µS	n.a.	n.a.	



Peak Integration Report

Sample Name:	i cal 1	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:34	*Run Time:*	5.00

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB*	0.001	0.032	0.15	0.1000	152.1%
2	1.71	Cl	BMB	0.033	0.547	0.56	0.4000	141.1%
3	2.03	NO2-N	BMB	0.007	0.084	0.04	0.0400	111.8%
4	2.40	BR	BMB	0.007	0.086	0.23	0.2000	116.3%
5	2.67	NO3-N	BMB	0.016	0.173	0.10	0.0800	125.7%
6	3.34	PO4-P	BMB*	0.004	0.034	0.48	0.2000	238.9%
7	3.75	SO4	BMB	0.023	0.151	0.50	0.4000	124.8%

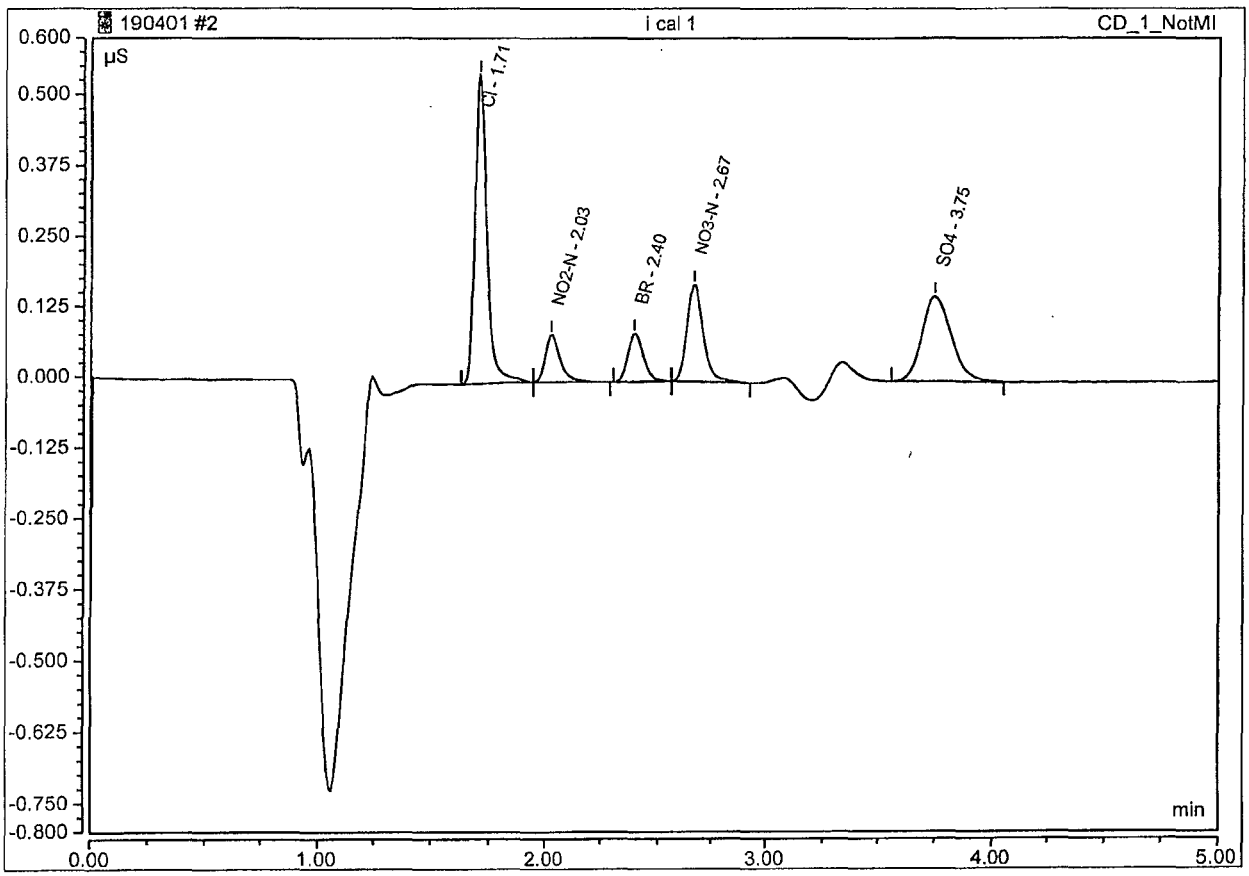


F mi1 HH 190405

Not Manipulated Peak Integration Report

Sample Name:	i cal 1	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:34	*Run Time:*	5.00

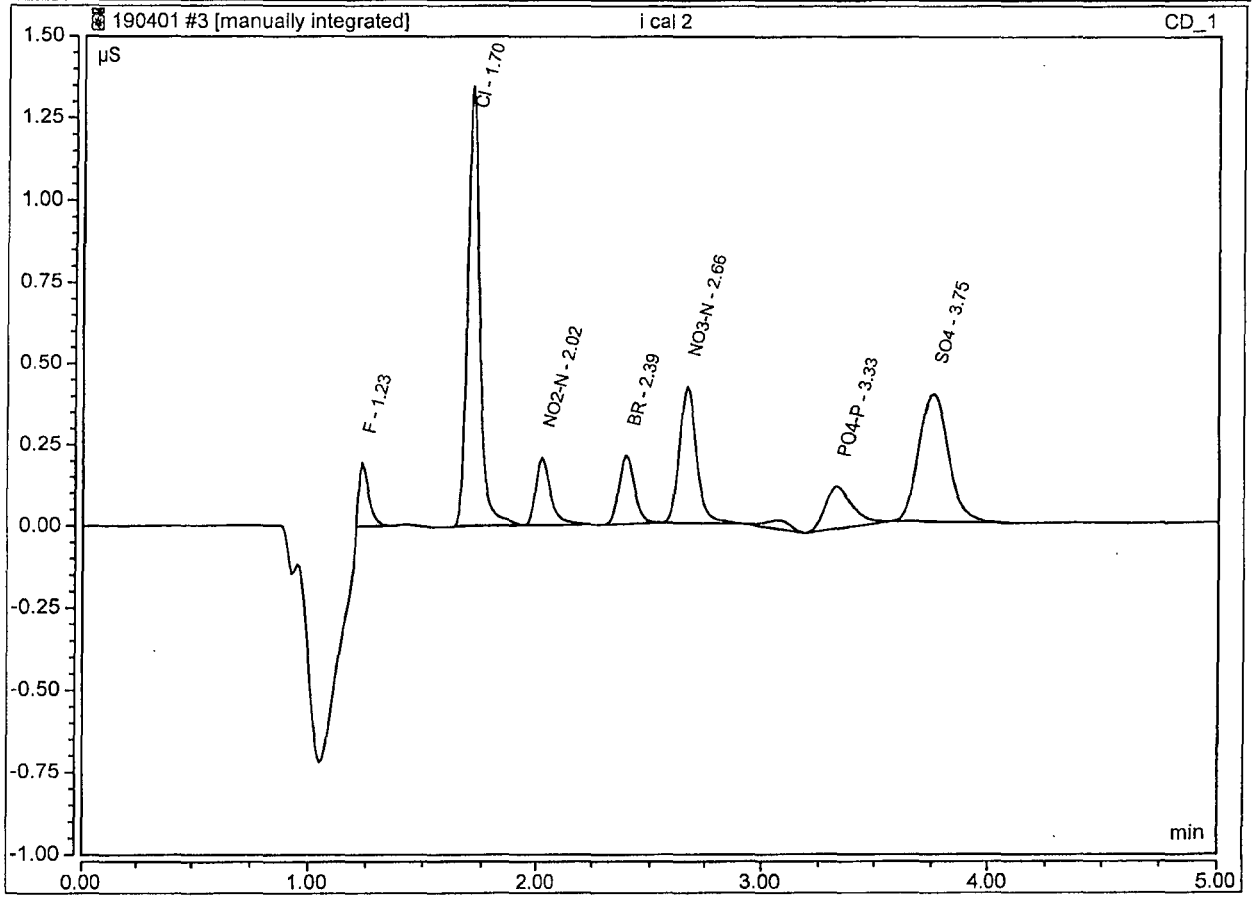
No.	Time min	Peak Name	Peak Type	Area µS*min	Height µS	Ammount mg/L
1	n.a.	F	BMB*	n.a.	n.a.	n.a.
2	1.71	Cl	BMB	0.033	0.547	0.5642
3	2.03	NO2-N	BMB	0.007	0.084	0.0447
4	2.40	BR	BMB	0.007	0.086	0.2325
5	2.67	NO3-N	BMB	0.016	0.173	0.1005
6	n.a.	PO4-P	BMB*	n.a.	n.a.	n.a.
7	3.75	SO4	BMB	0.023	0.151	0.4991



Peak Integration Report

Sample Name:	**i cal 2**	*Inj. Vol.:*	**25uL**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-Apr-2019 / 18:42**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB*	0.010	0.194	0.22	0.2500	89.3%
2	1.70	Cl	BMB	0.080	1.346	1.01	1.0000	100.5%
3	2.02	NO2-N	BMB	0.017	0.208	0.10	0.1000	100.8%
4	2.39	BR	BMB	0.016	0.211	0.50	0.5000	100.4%
5	2.66	NO3-N	BMB	0.038	0.421	0.20	0.2000	101.0%
7	3.33	PO4-P	BMB	0.018	0.129	0.67	0.5000	134.5%
8	3.75	SO4	BMB	0.058	0.395	1.01	1.0000	101.1%

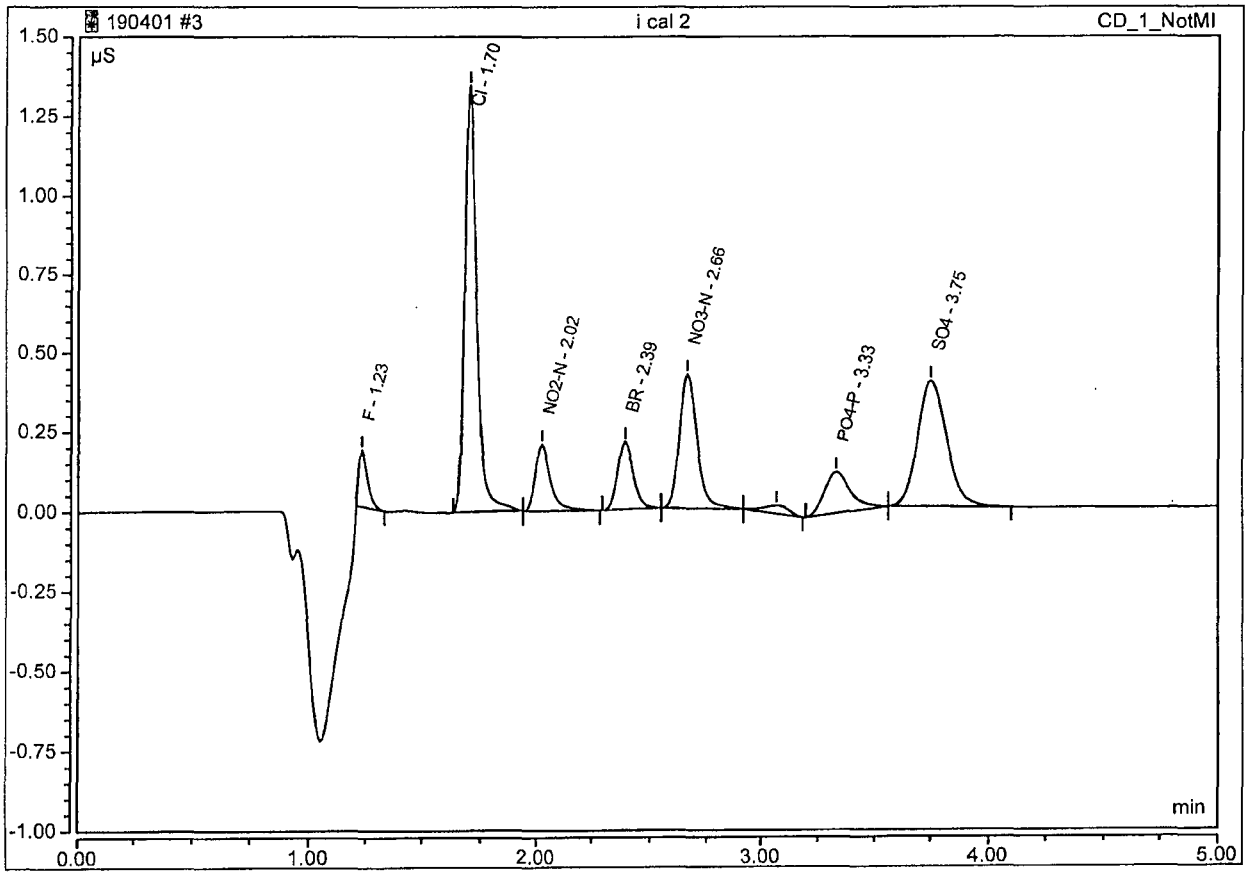


F mi1 HH 190405

Not Manipulated Peak Integration Report

Sample Name:	i cal 2	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:42	*Run Time:*	5.00

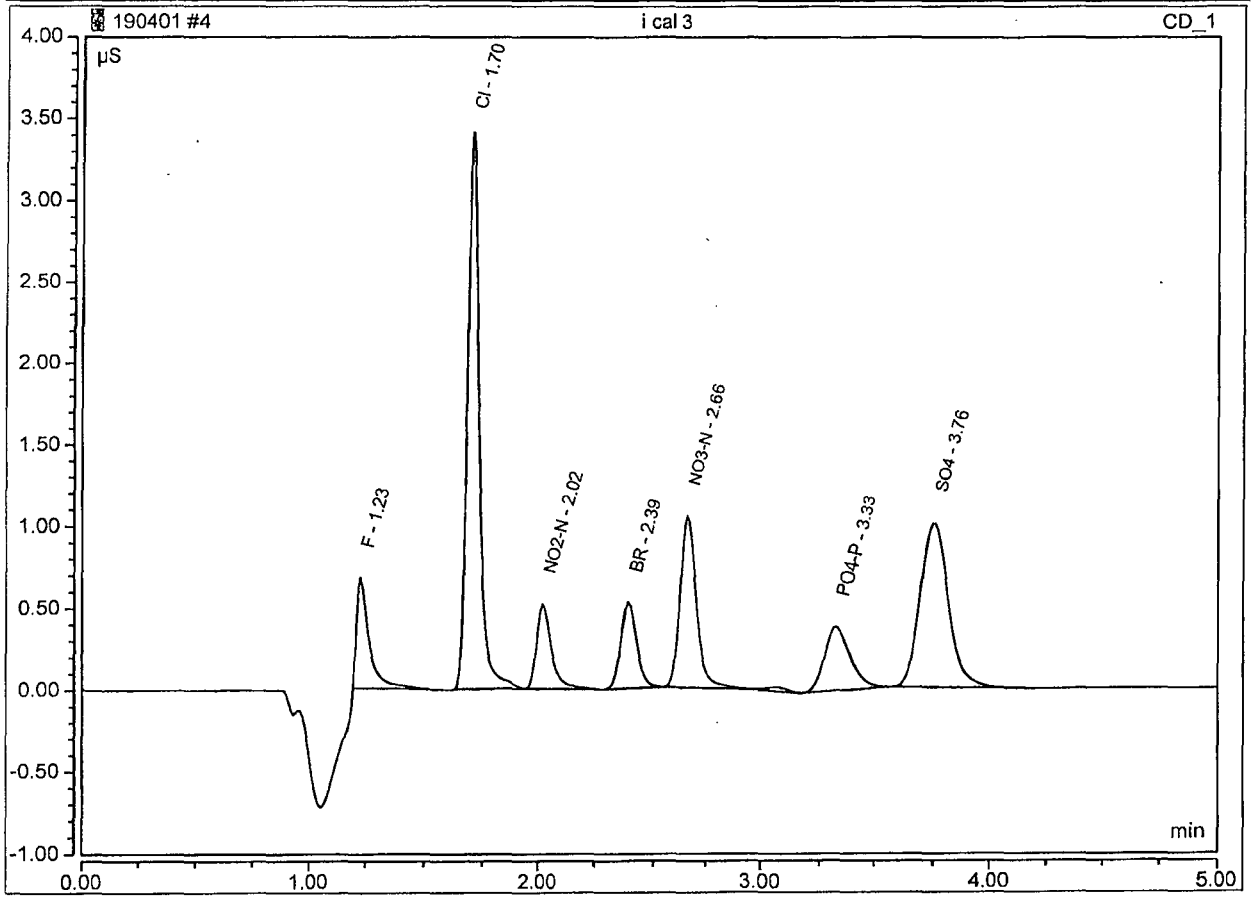
No.	Time min	Peak Name	Peak Type	Area µS*min	Height µS	Ammount mg/L
1	1.23	F	BMB*	0.008	0.177	0.3039
2	1.70	Cl	BMB	0.080	1.346	1.0054
3	2.02	NO2-N	BMB	0.017	0.208	0.1008
4	2.39	BR	BMB	0.016	0.211	0.5019
5	2.66	NO3-N	BMB	0.038	0.421	0.2020
7	3.33	PO4-P	BMB	0.018	0.129	0.6726
8	3.75	SO4	BMB	0.058	0.395	1.0108



Peak Integration Report

Sample Name:	i cal 3	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:49	*Run Time:*	5.00

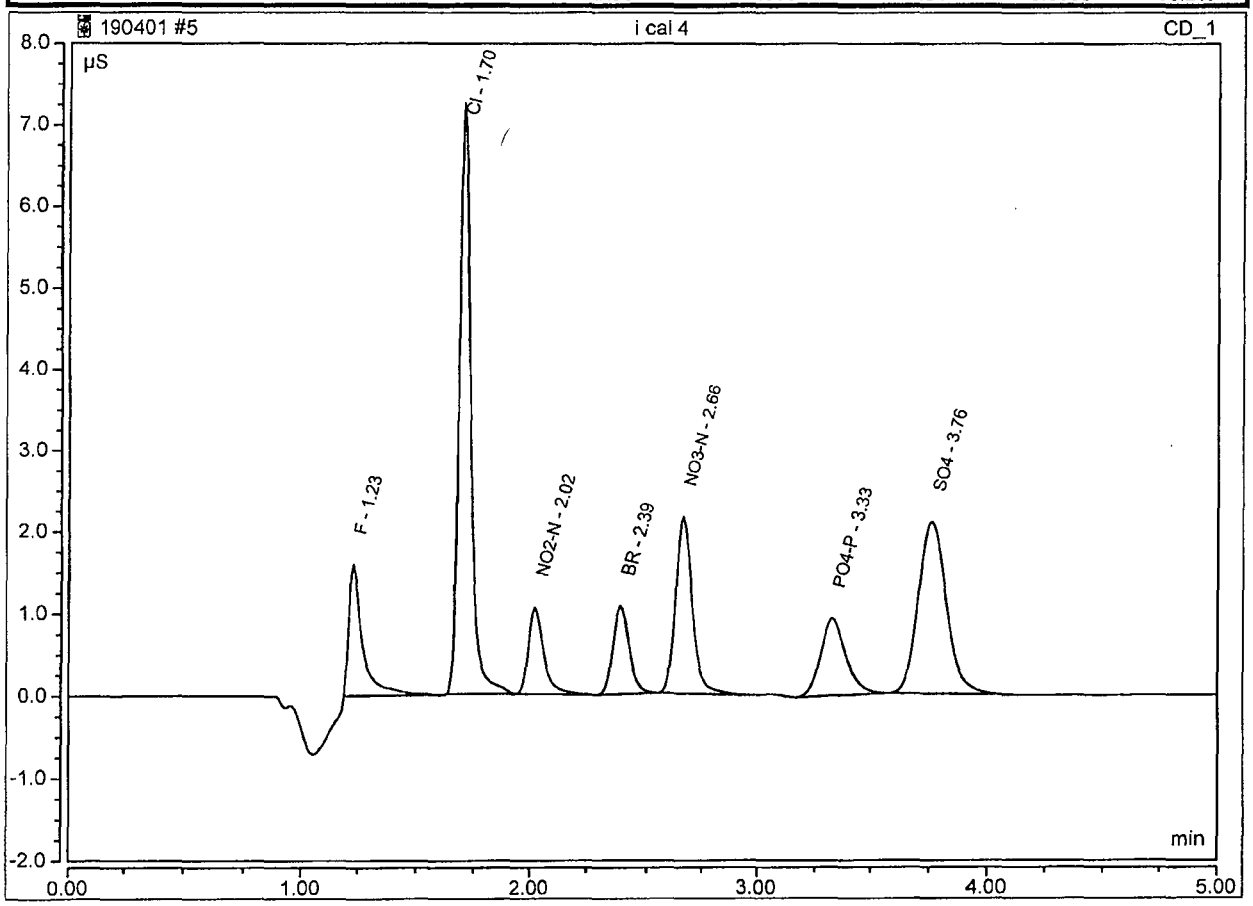
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.043	0.673	0.50	0.6250	79.7%
2	1.70	Cl	BMB	0.201	3.411	2.13	2.5000	85.4%
3	2.02	NO2-N	BMB	0.041	0.518	0.24	0.2500	95.1%
4	2.39	BR	BMB	0.040	0.524	1.18	1.2500	94.1%
5	2.66	NO3-N	BMB	0.094	1.046	0.46	0.5000	91.1%
7	3.33	PO4-P	BMB	0.053	0.392	1.15	1.2500	91.7%
8	3.76	SO4	BMB	0.145	1.005	2.28	2.5000	91.1%



Peak Integration Report

Sample Name:	i cal 4	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:56	*Run Time:*	5.00

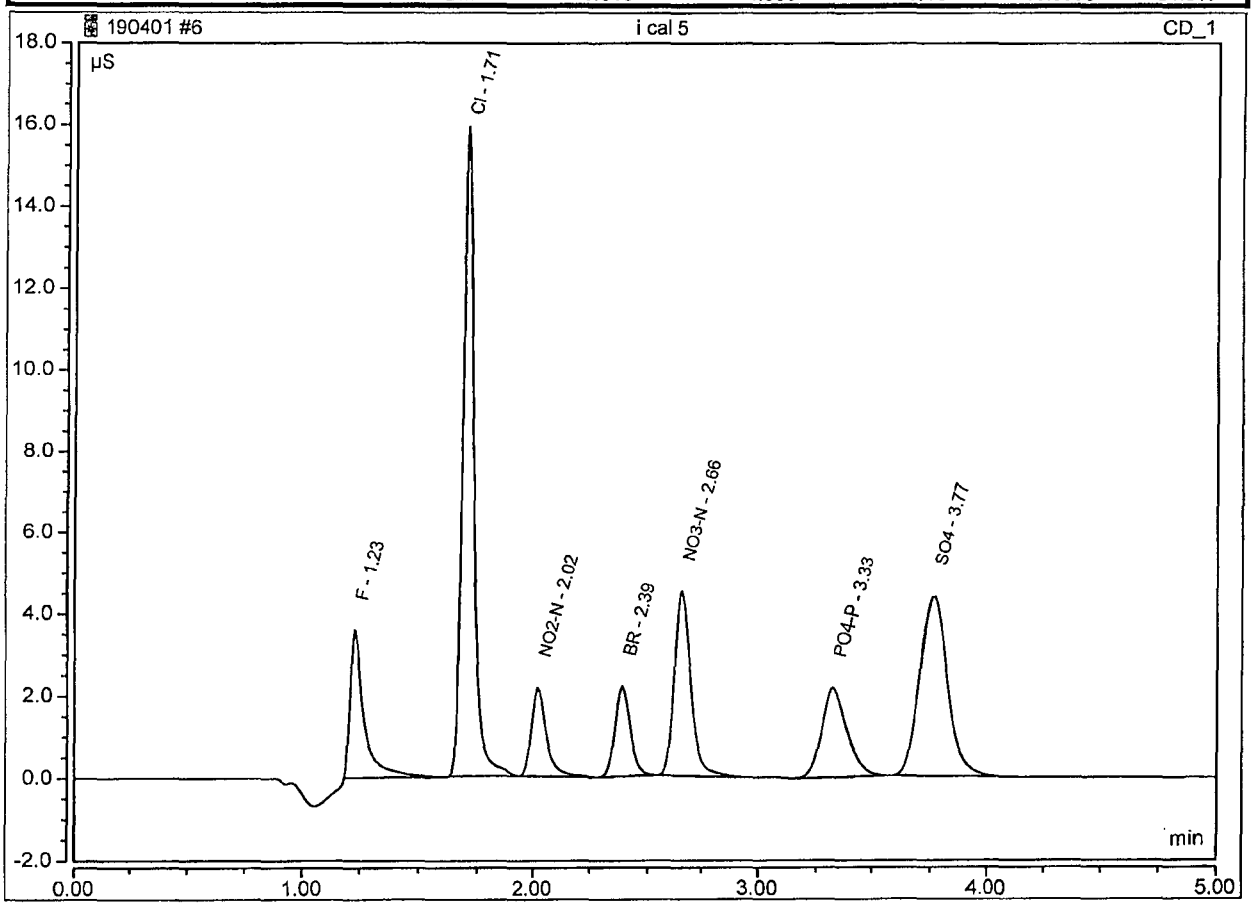
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.112	1.593	1.08	1.2500	86.2%
2	1.70	Cl	BMB	0.420	7.239	4.17	5.0000	83.4%
3	2.02	NO2-N	BMB	0.084	1.054	0.48	0.5000	95.1%
4	2.39	BR	BMB	0.082	1.069	2.35	2.5000	93.9%
5	2.66	NO3-N	BMB	0.193	2.151	0.90	1.0000	89.8%
6	3.33	PO4-P	BMB	0.127	0.939	2.13	2.5000	85.3%
7	3.76	SO4	BMB	0.298	2.093	4.51	5.0000	90.2%



Peak Integration Report

Sample Name:	i cal 5	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:04	*Run Time:*	5.00

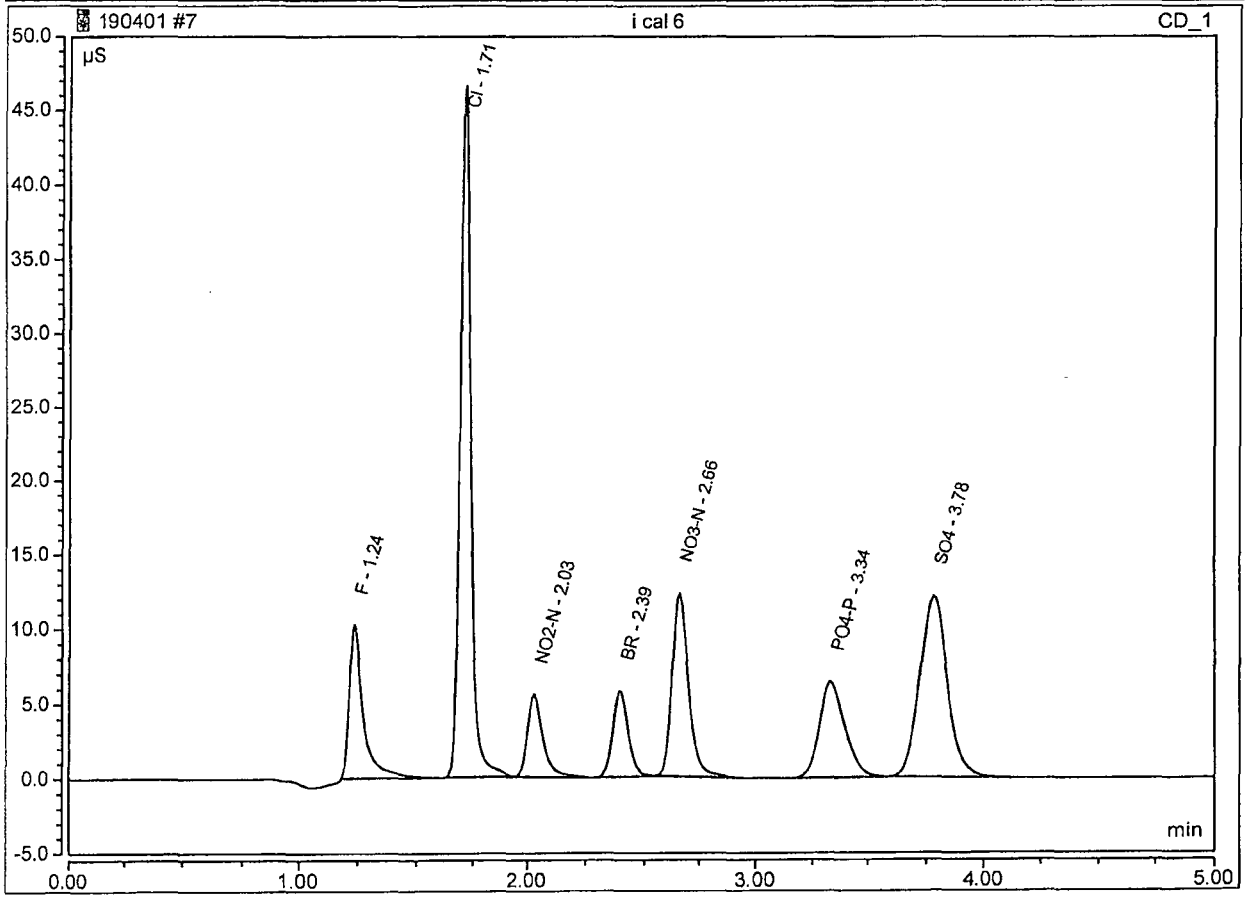
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.253	3.584	2.24	2.5000	89.8%
2	1.71	Cl	BMB	0.900	15.899	8.65	10.0000	86.5%
3	2.02	NO2-N	BMB	0.171	2.155	0.96	1.0000	96.4%
4	2.39	BR	BMB	0.167	2.196	4.74	5.0000	94.8%
5	2.66	NO3-N	BMB	0.398	4.491	1.82	2.0000	91.2%
6	3.33	PO4-P	BMB	0.293	2.182	4.36	5.0000	87.2%
7	3.77	SO4	BMB	0.618	4.399	9.16	10.0000	91.6%



Peak Integration Report

Sample Name:	i cal 6	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:11	*Run Time:*	5.00

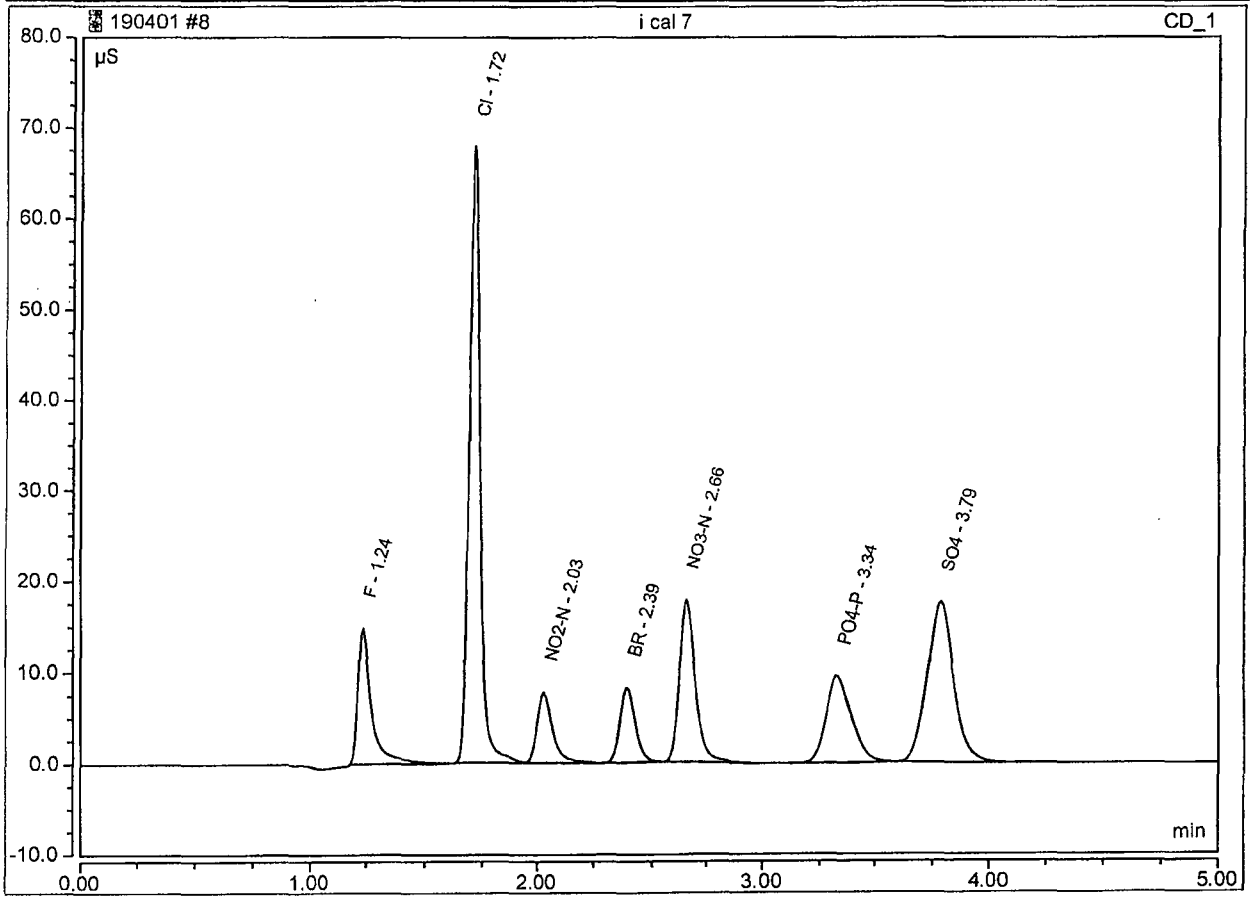
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB	0.715	10.279	6.08	6.2500	97.3%
2	1.71	Cl	BMB	2.565	46.518	24.15	25.0000	96.6%
3	2.03	NO2-N	BMB	0.441	5.520	2.47	2.5000	99.0%
4	2.39	BR	BMB	0.436	5.795	12.26	12.5000	98.1%
5	2.66	NO3-N	BMB	1.067	12.256	4.84	5.0000	96.8%
6	3.34	PO4-P	BMB	0.857	6.441	11.93	12.5000	95.5%
7	3.78	SO4	BMB	1.654	12.099	24.26	25.0000	97.0%



Peak Integration Report

Sample Name:	**I cal 7**	*Inj. Vol.:*	**25uL**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-Apr-2019 / 19:19**	*Run Time:*	**5.00**

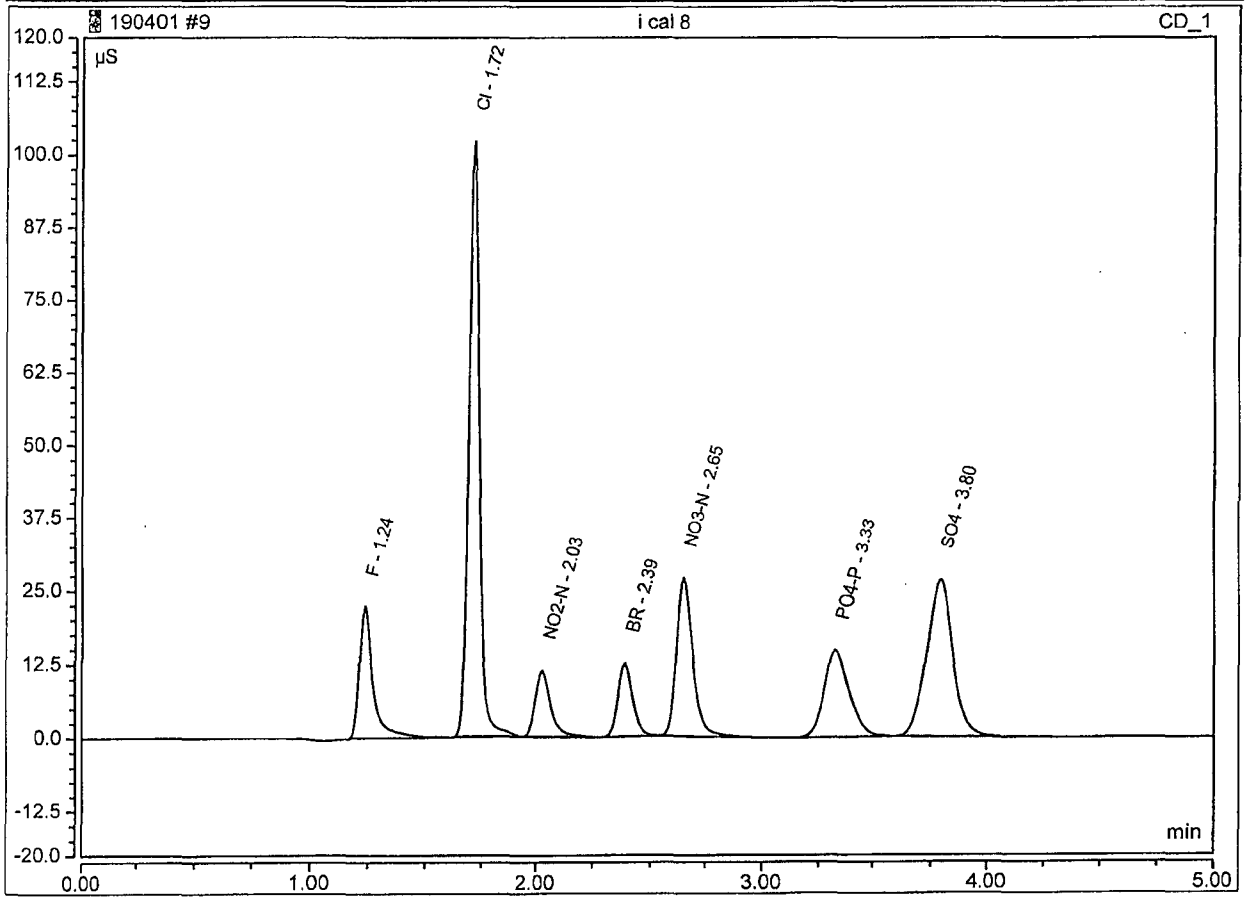
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB	1.037	14.883	8.76	8.7500	100.1%
2	1.72	Cl	BMB	3.736	67.756	35.07	35.0000	100.2%
3	2.03	NO2-N	BMB	0.621	7.719	3.48	3.5000	99.4%
4	2.39	BR	BMB	0.618	8.268	17.35	17.5000	99.1%
5	2.66	NO3-N	BMB	1.534	17.727	6.95	7.0000	99.3%
6	3.34	PO4-P	BMB	1.263	9.506	17.38	17.5000	99.3%
7	3.79	SO4	BMB	2.375	17.528	34.76	35.0000	99.3%



Peak Integration Report

Sample Name:	**i cal 8**	*Inj. Vol.:*	**25uL**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-Apr-2019 / 19:26**	*Run Time:*	**5.00**

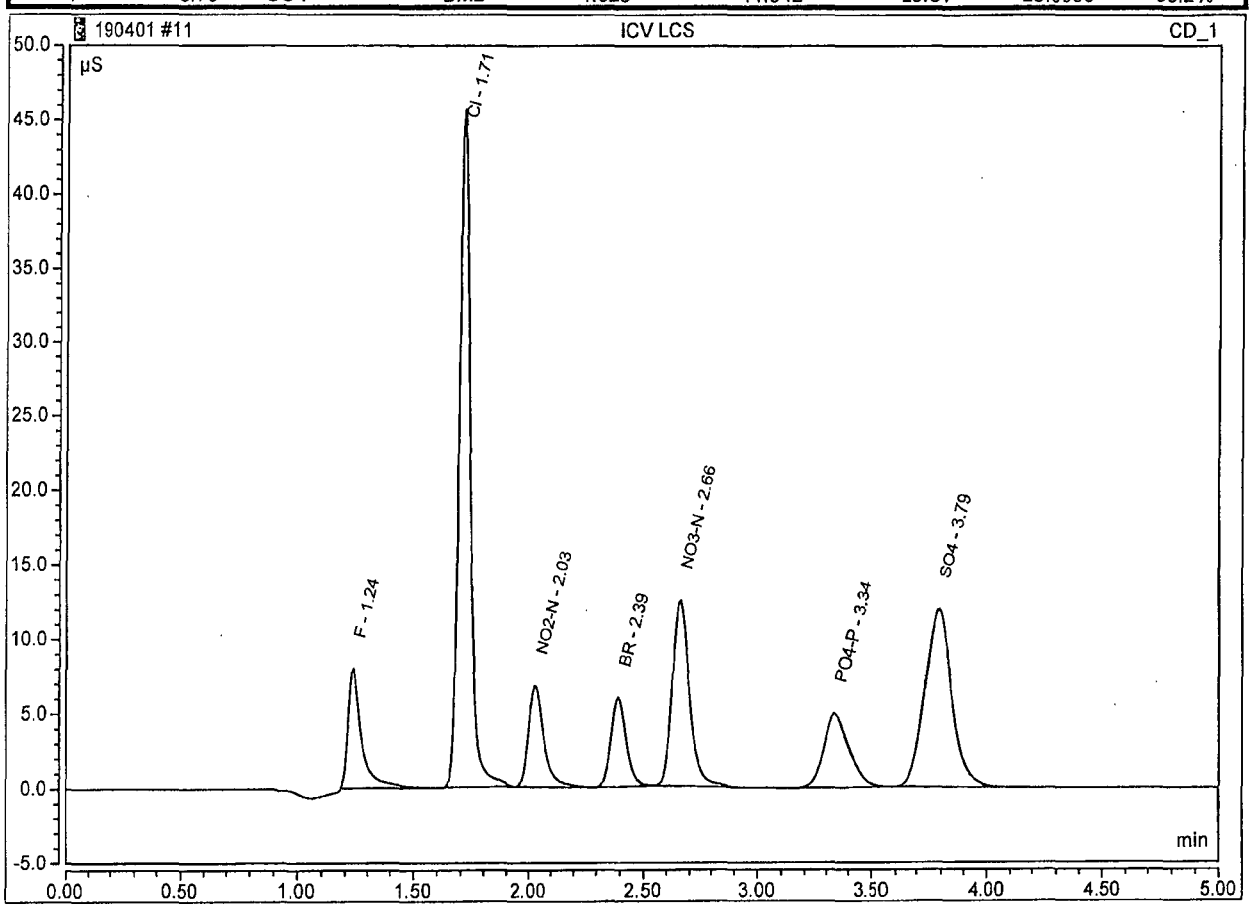
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB	1.571	22.280	13.19	12.5000	105.5%
2	1.72	Cl	BMB	5.677	102.036	53.15	50.0000	106.3%
3	2.03	NO2-N	BMB	0.913	11.224	5.11	5.0000	102.3%
4	2.39	BR	BMB	0.921	12.428	25.84	25.0000	103.4%
5	2.65	NO3-N	BMB	2.324	26.884	10.51	10.0000	105.1%
6	3.33	PO4-P	BMB	1.951	14.669	26.62	25.0000	106.5%
7	3.80	SO4	BMB	3.588	26.635	52.42	50.0000	104.8%



Peak Integration Report

Sample Name:	**ICV LCS**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-Apr-2019 / 19:41**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB	0.555	8.015	4.75	5.0000	95.0%
2	1.71	Cl	BMB	2.510	45.585	23.64	25.0000	94.6%
3	2.03	NO2-N	BMB	0.545	6.798	3.06	3.0400	100.6%
4	2.39	BR	BMB	0.450	5.995	12.66	12.5000	101.3%
5	2.66	NO3-N	BMB	1.085	12.464	4.92	5.0000	98.5%
6	3.34	PO4-P	BMB	0.666	4.985	9.37	10.0000	93.7%
7	3.79	SO4	BMB	1.623	11.942	23.81	25.0000	95.2%



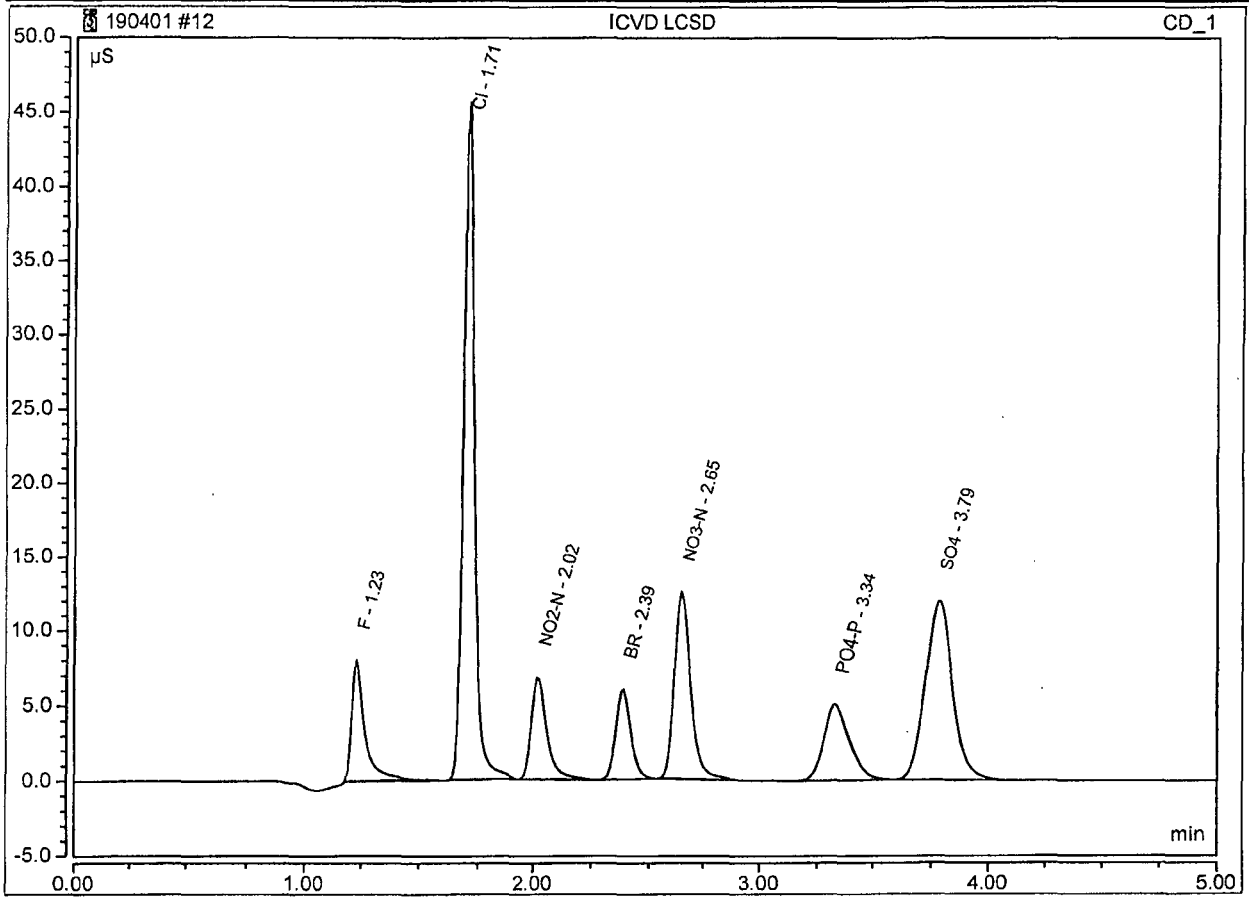
Algortith Check:
y = Peak Area
x = mg/L S04

y = 0.0687 x + -0.0115
y = 1.6231 therefor x = 23.8071 190406 HH

Peak Integration Report

Sample Name:	ICVD LCSD	*Inj. Vol.:*	25uL
Injection Type:	Check Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:48	*Run Time:*	5.00

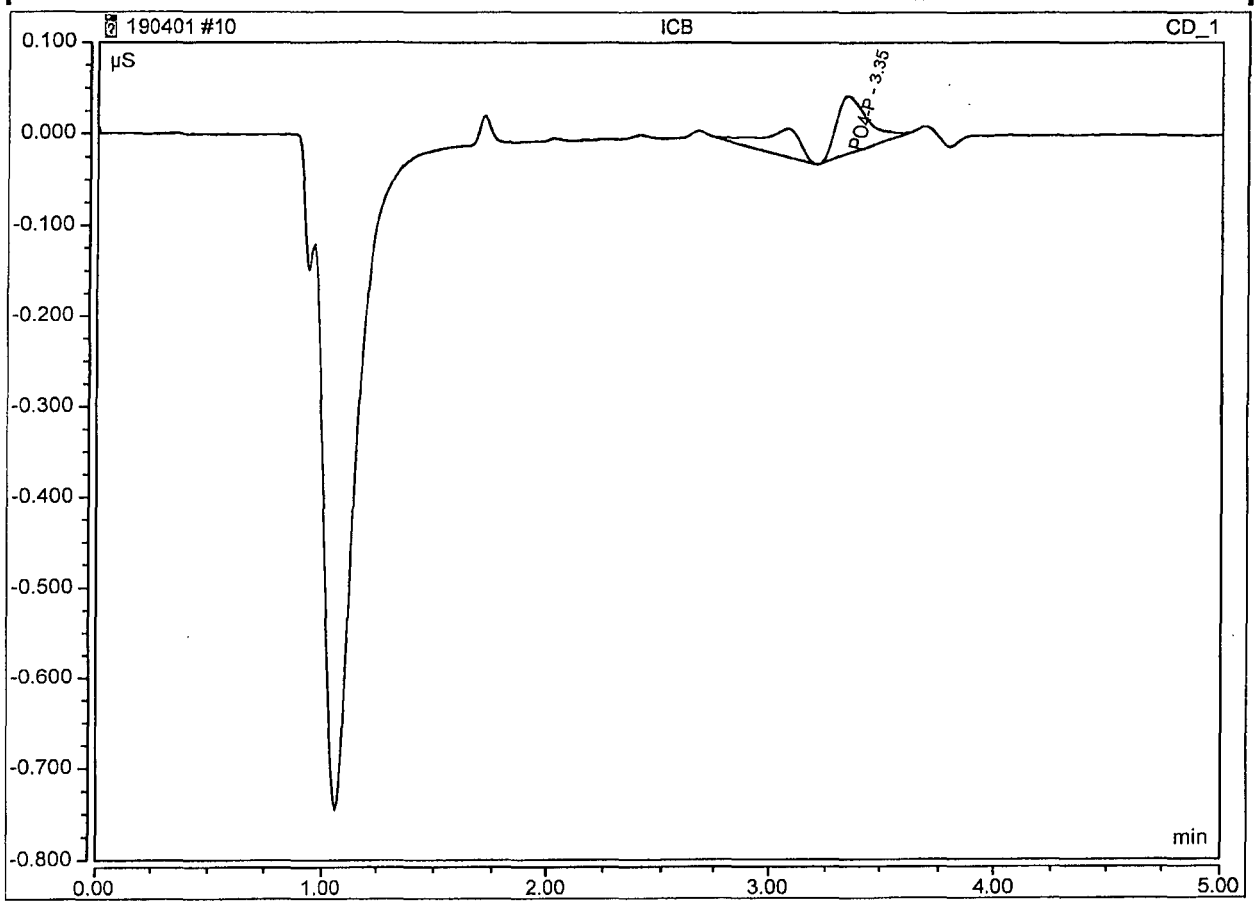
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.558	8.048	4.78	5.0000	95.6%
2	1.71	Cl	BMB	2.509	45.546	23.64	25.0000	94.6%
3	2.02	NO2-N	BMB	0.545	6.797	3.06	3.0400	100.6%
4	2.39	BR	BMB	0.450	5.991	12.66	12.5000	101.3%
5	2.65	NO3-N	BMB	1.085	12.462	4.92	5.0000	98.5%
6	3.34	PO4-P	BMB	0.676	5.055	9.50	10.0000	95.0%
7	3.79	SO4	BMB	1.624	11.941	23.83	25.0000	95.3%



Peak Integration Report

Sample Name:	ICB	*Inj. Vol.:*	25uL
Injection Type:	Unknown	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:33	*Run Time:*	5.00

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
2	3.35	PO4-P	BMB	0.010	0.062	0.56		



Anion Chromatography Working Standard

Prep Date: 04/01/19
Exp Date: 04/02/19
Prep'd By (Initials): TH

Initial Standard Information						Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date	Aliquot from Stock	Final Volume	Solvent	Final Standard Conc (µg/mL)
Ion Chromatography Standard Fluoride 1000µg/mL in H2O	o2si	O2SI-062002-01-01	1000	142626-24-38407	04/20/19	312.5 µL	25 mL	Millipore Water	12.5
Ion Chromatography Standard Nitrite as N 1000 ug/mL in H2O	o2si	O2SI-062004-01-01	1000	142626-24-38408	04/20/19	125 µL	25 mL	Millipore Water	5
Ion Chromatography Standard Chloride, 500mL 5,000 mg/L in H2O	o2si	062001-08-03	5000	10084781-1-39578	02/21/20	250 µL	25 mL	Millipore Water	50
Ortho-Phosphate as P Standard	Ultra Scientific	ICC-005A	1000	G34-CP-3323-39057	08/31/23	625 µL	25 mL	Millipore Water	25
Ion Chromatography Standard Nitrate as N, 500mL 1,000 mg/L in H2O	o2si	062003-01-03	1000	880117-4-39577	02/21/20	250 µL	25 mL	Millipore Water	10
Bromide Standard	Ultra Scientific	ICC-001	1000	CR-5372-39521	12/31/21	625 µL	25 mL	Millipore Water	25
Sulfate Standard	Agilent	ICC-006	1000	CS-0688-40047	03/31/22	1250 µL	25 mL	Millipore Water	50

Anion Chromatography Calibration Curve

Prep Date: 04/01/19
Exp Date: 04/02/19
Prep'd By (Initials): TH

Initial Standard Information						Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. Range (ug/mL)	Reference To APPL Prep Date	Exp. Date	Aliquot from Stock	Final Volume	Solvent	Final Conc. Range (µg/mL)
Ical2	Varries	ICal1	5.0-50.0	Prepared 04/01/19	04/02/19	400 µL	1000 µL	Millipore Water	0.08-0.40
Anion Chromatography Working Standard	Varries	ICal2	5.0-50.0	Prepared 04/01/19	04/02/19	120 µL	1000 µL	Millipore Water	0.1-1.0
Anion Chromatography Working Standard	Varries	ICal3	5.0-50.0	Prepared 04/01/19	04/02/19	50 µL	1000 µL	Millipore Water	0.25-2.5
Anion Chromatography Working Standard	Varries	ICal4	5.0-50.0	Prepared 04/01/19	04/02/19	100 µL	1000 µL	Millipore Water	0.5-5.0
Anion Chromatography Working Standard	Varries	ICal5	5.0-50.0	Prepared 04/01/19	04/02/19	200 µL	1000 µL	Millipore Water	1.0-10.0
Anion Chromatography Working Standard	Varries	ICal6	5.0-50.0	Prepared 04/01/19	04/02/19	500 µL	1000 µL	Millipore Water	2.5-25.0
Anion Chromatography Working Standard	Varries	ICal7	5.0-50.0	Prepared 04/01/19	04/02/19	700 µL	1000 µL	Millipore Water	3.5-35.0
Anion Chromatography Working Standard	Varries	ICal8	5.0-50.0	Prepared 04/01/19	04/02/19	1000 µL	1000 µL	Millipore Water	5.0-50.0

Anion Chromatography LCS/ICV

Prep Date: See injection Log
Exp Date: 24 hours after prep
Prep'd By (Initials): TH

Initial Standard Information						Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. Range (ug/mL)	Lot Number - QA Number	Exp. Date	Aliquot from Stock	Final Volume	Solvent	Final Standard Conc (µg/mL)
Flouride	Inorganic Ventures	ICF1	993-999	K-F652018-39801	10/23/19	62.5 µL	25 mL	Millipore Water	5
Nitrite	Inorganic Ventures	ICNO21	993-1001	M2-NOX660562-39802	10/23/19	250 µL	25 mL	Millipore Water	3.04
Chloride	Inorganic Ventures	ICCL1	995-1001	Na2CL664868-39904	11/26/19	500 µL	25 mL	Millipore Water	20
O-Phosphate as P	Inorganic Ventures	IPPO41	1001-1009	M2-POX655826-39803	10/23/19	125 µL	25 mL	Millipore Water	10
Nitrate as N	Inorganic Ventures	ICNNO31	994-1002	N2-NOX667147-39510	10/23/19	125 µL	25 mL	Millipore Water	5
Ion Chromatography Bromide Standard	CPI International	4400-IC8M	1000	161681-8-39539	02/06/20	312.5 µL	25 mL	Millipore Water	12.5
Sulfate	Inorganic Ventures	ICSO41	998-1006	K2-SOX01111-38875	08/13/19	500 µL	25 mL	Millipore Water	20

Anion Chromatography CCV

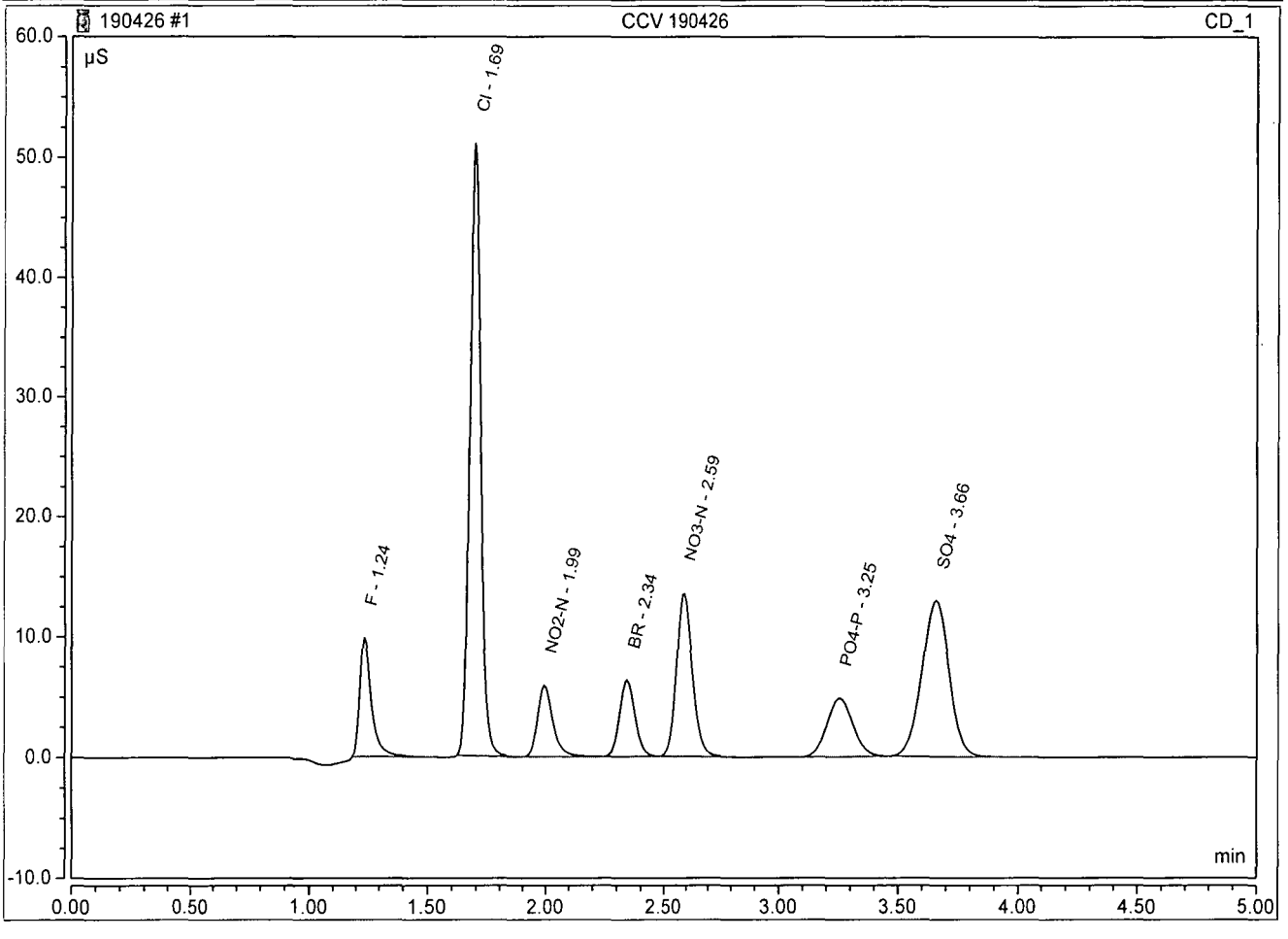
Prep Date: See injection Log
Exp Date: 24 hours after prep
Prep'd By (Initials): TH

Initial Standard Information						Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date	Aliquot from Stock	Final Volume	Solvent	Final Standard Conc (µg/mL)
Ion Chromatography Standard Fluoride 1000µg/mL in H2O	o2si	O2SI-062002-01-01	1000	142626-24-38407	04/20/19	125 µL	25 mL	Millipore Water	5
Ion Chromatography Standard Nitrite as N 1000 ug/mL in H2O	o2si	O2SI-062004-01-01	1000	142626-24-38408	04/20/19	62.5 µL	25 mL	Millipore Water	2.5
Ion Chromatography Standard Chloride, 500mL 5,000 mg/L in H2O	o2si	062001-08-03	5000	10084781-1-39578	02/21/20	125 µL	25 mL	Millipore Water	25
Ortho-Phosphate as P Standard	Ultra Scientific	ICC-005A	1000	G34-CP-3323-39057	08/31/23	250 µL	25 mL	Millipore Water	10
Ion Chromatography Standard Nitrate as N, 500mL 1,000 mg/L in H2O	o2si	062003-01-03	1000	880117-4-39577	02/21/20	125 µL	25 mL	Millipore Water	5
Bromide Standard	Ultra Scientific	ICC-001	1000	CR-5372-39521	12/31/21	312.5 µL	25 mL	Millipore Water	12.5
Sulfate Standard	Agilent	ICC-006	1000	CS-0688-40047	03/31/22	625 µL	25 mL	Millipore Water	25

Peak Integration Report

Sample Name:	**CCV 190426**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**26-Apr-2019 / 11:05**	*Run Time:*	**5.00**

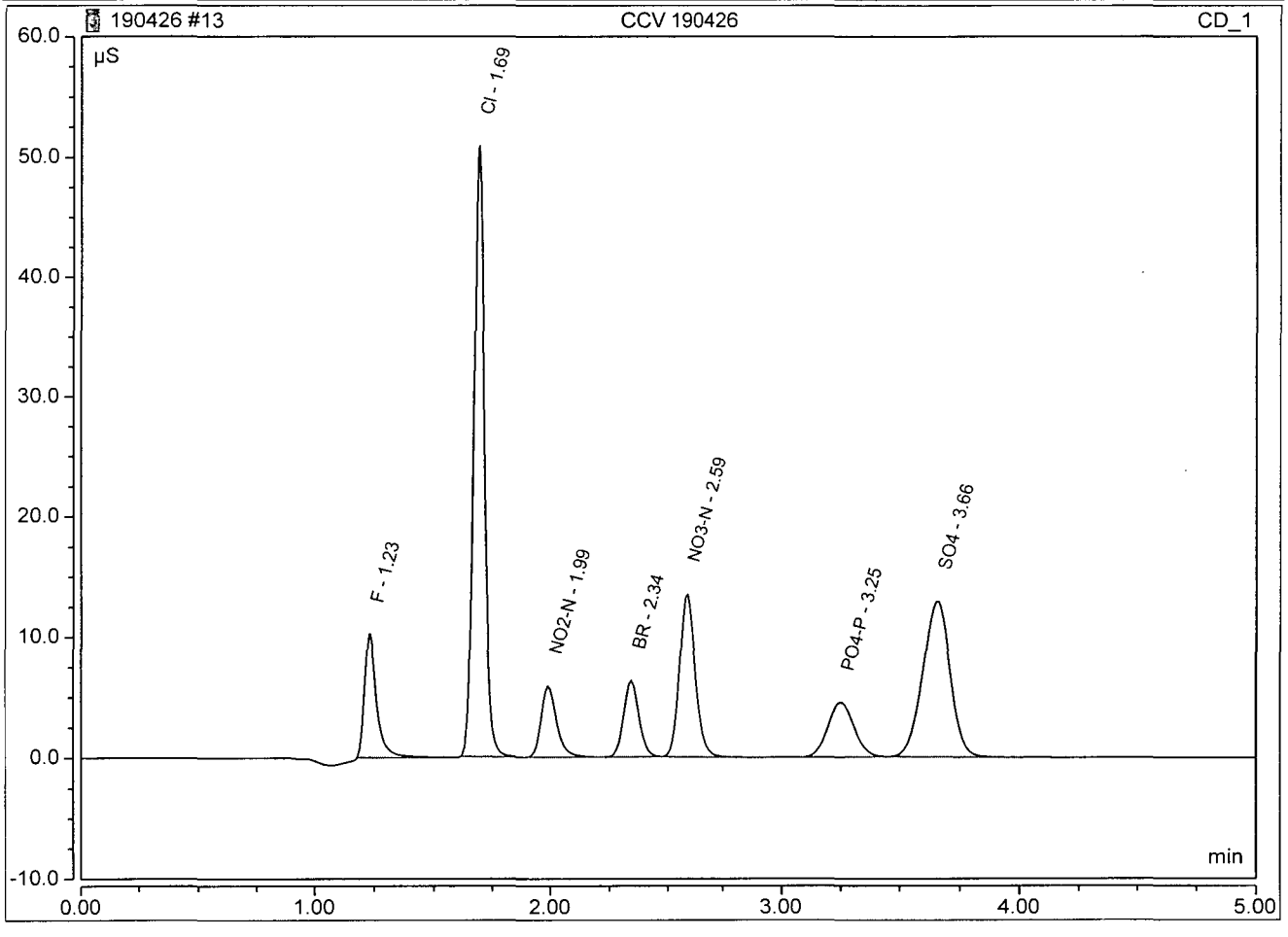
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	**F**	BMB	0.579	9.892	4.95	5.0000	99.0%
2	1.69	**Cl**	BMB	2.683	51.000	25.25	25.0000	101.0%
3	1.99	**NO2-N**	BMB	0.454	5.908	2.55	2.5000	101.9%
4	2.34	**BR**	BMB	0.468	6.342	13.16	12.5000	105.2%
5	2.59	**NO3-N**	BMB	1.125	13.568	5.10	5.0000	102.1%
6	3.25	**PO4-P**	BMB	0.613	4.837	8.66	10.0000	86.6%
7	3.66	**SO4**	BMB	1.702	12.944	24.96	25.0000	99.8%



Peak Integration Report

Sample Name:	**CCV 190426**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**26-Apr-2019 / 12:34**	*Run Time:*	**5.00**

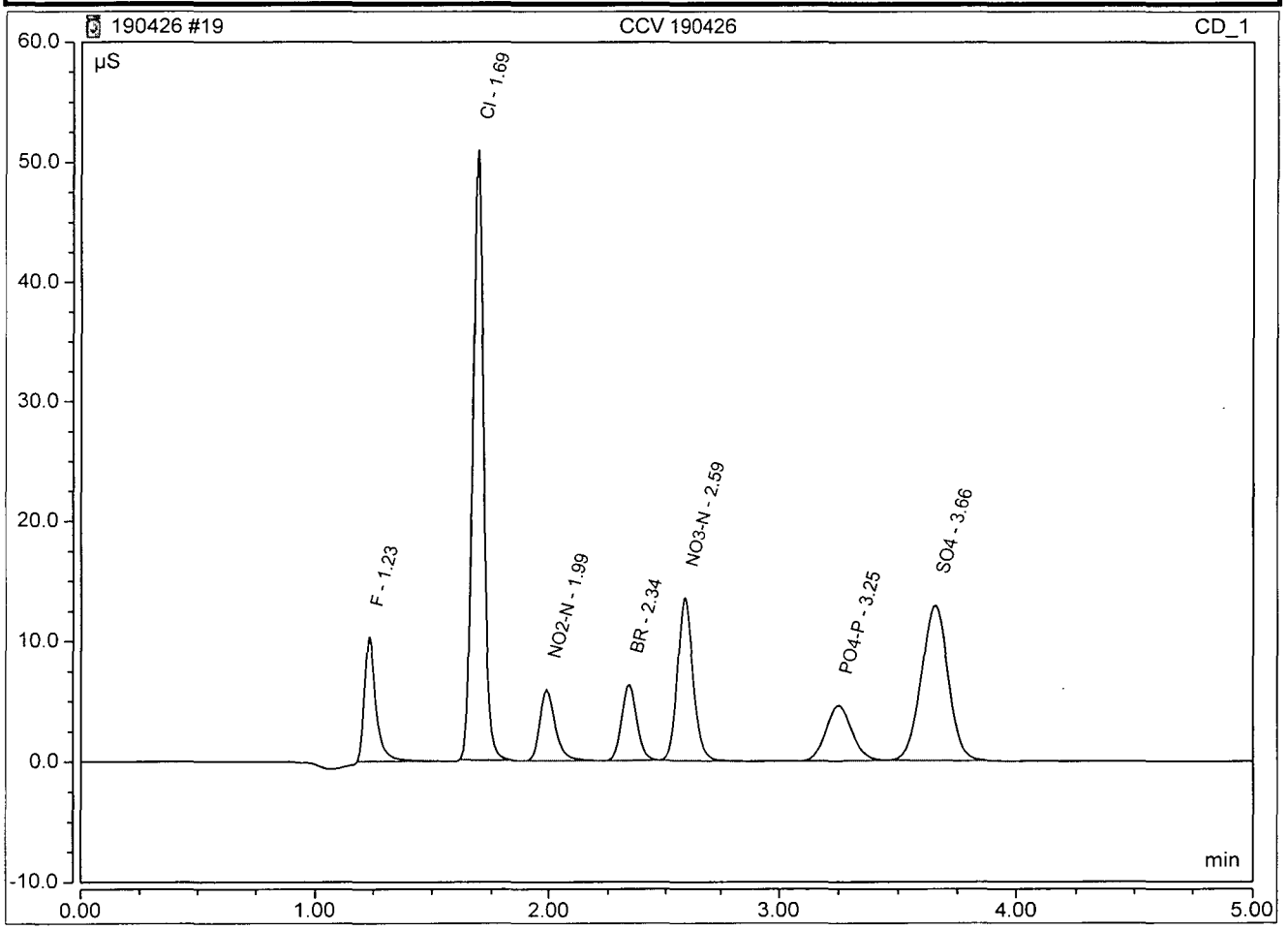
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.603	10.262	5.15	5.0000	103.0%
2	1.69	Cl	BMB	2.688	50.816	25.30	25.0000	101.2%
3	1.99	NO2-N	BMB	0.456	5.898	2.56	2.5000	102.2%
4	2.34	BR	BMB	0.467	6.308	13.13	12.5000	105.0%
5	2.59	NO3-N	BMB	1.123	13.500	5.09	5.0000	101.9%
6	3.25	PO4-P	BMB	0.576	4.520	8.17	10.0000	81.7%
7	3.66	SO4	BMB	1.701	12.907	24.94	25.0000	99.8%



Peak Integration Report

Sample Name:	**CCV 190426**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**26-Apr-2019 / 13:18**	*Run Time:*	**5.00**

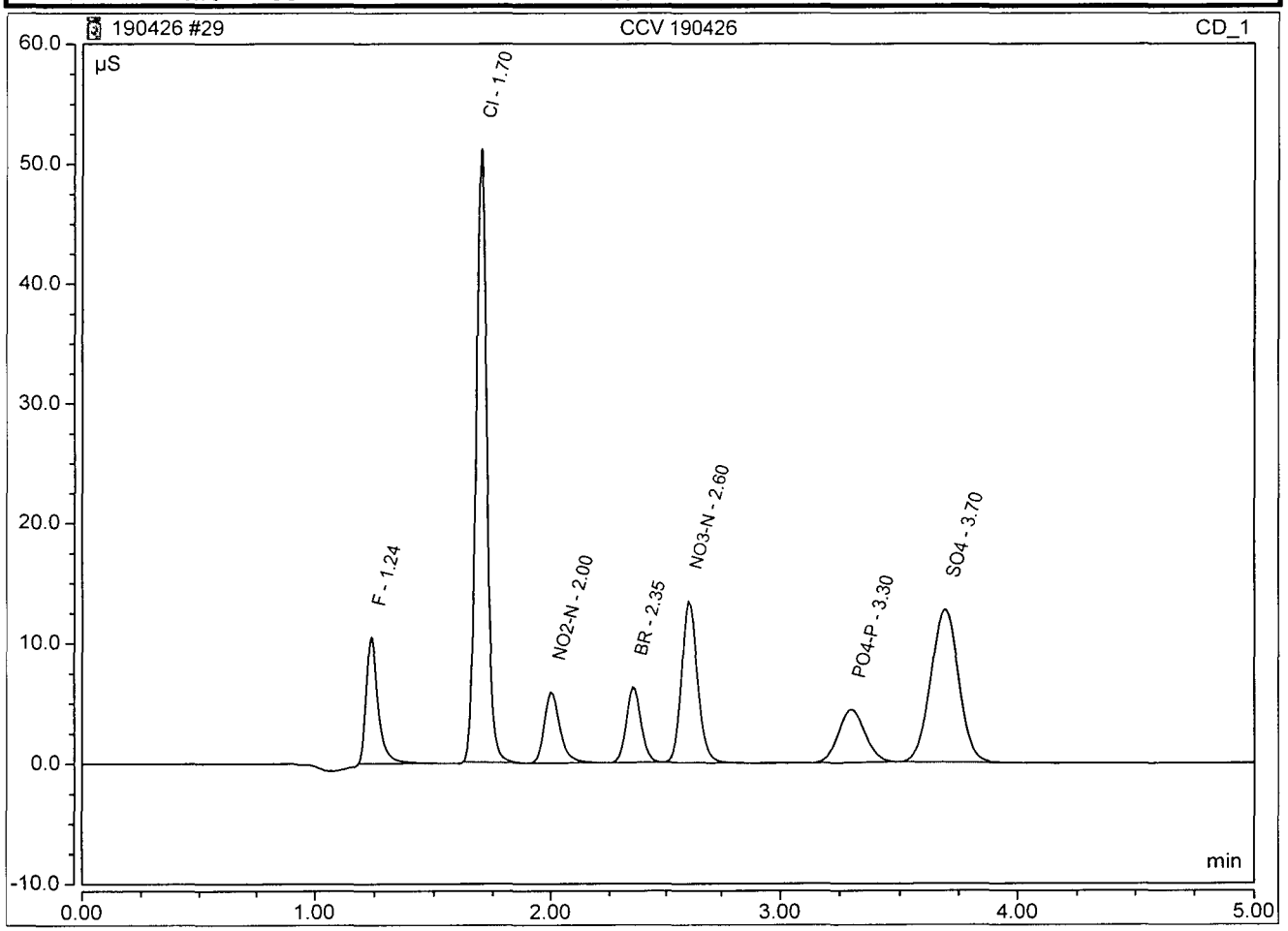
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.604	10.314	5.16	5.0000	103.2%
2	1.69	Cl	BMB	2.687	50.841	25.30	25.0000	101.2%
3	1.99	NO2-N	BMB	0.456	5.908	2.56	2.5000	102.4%
4	2.34	BR	BMB	0.467	6.316	13.14	12.5000	105.1%
5	2.59	NO3-N	BMB	1.124	13.516	5.10	5.0000	102.0%
6	3.25	PO4-P	BMB	0.586	4.596	8.29	10.0000	82.9%
7	3.66	SO4	BMB	1.703	12.923	24.98	25.0000	99.9%



Peak Integration Report

Sample Name:	**CCV 190426**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**26-Apr-2019 / 16:41**	*Run Time:*	**5.00**

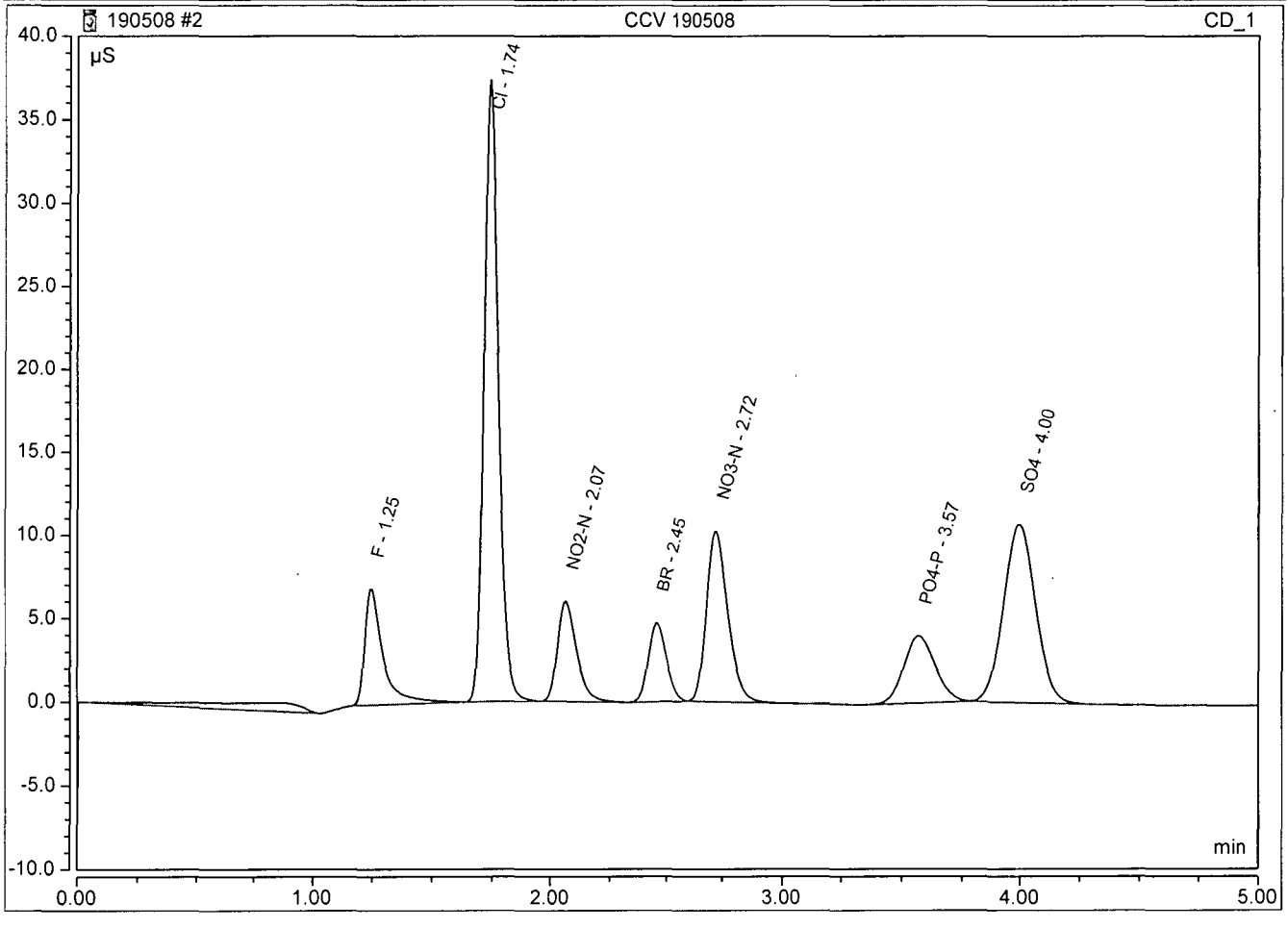
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB	0.607	10.525	5.19	5.0000	103.7%
2	1.70	Cl	BMB	2.702	51.089	25.43	25.0000	101.7%
3	2.00	NO2-N	BMB	0.458	5.916	2.57	2.5000	102.8%
4	2.35	BR	BMB	0.468	6.292	13.14	12.5000	105.2%
5	2.60	NO3-N	BMB	1.125	13.456	5.10	5.0000	102.0%
6	3.30	PO4-P	BMB	0.566	4.405	8.03	10.0000	80.3%
7	3.70	SO4	BMB	1.698	12.726	24.90	25.0000	99.6%



Peak Integration Report

Sample Name:	**CCV 190508**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 08:23**	*Run Time:*	**5.00**

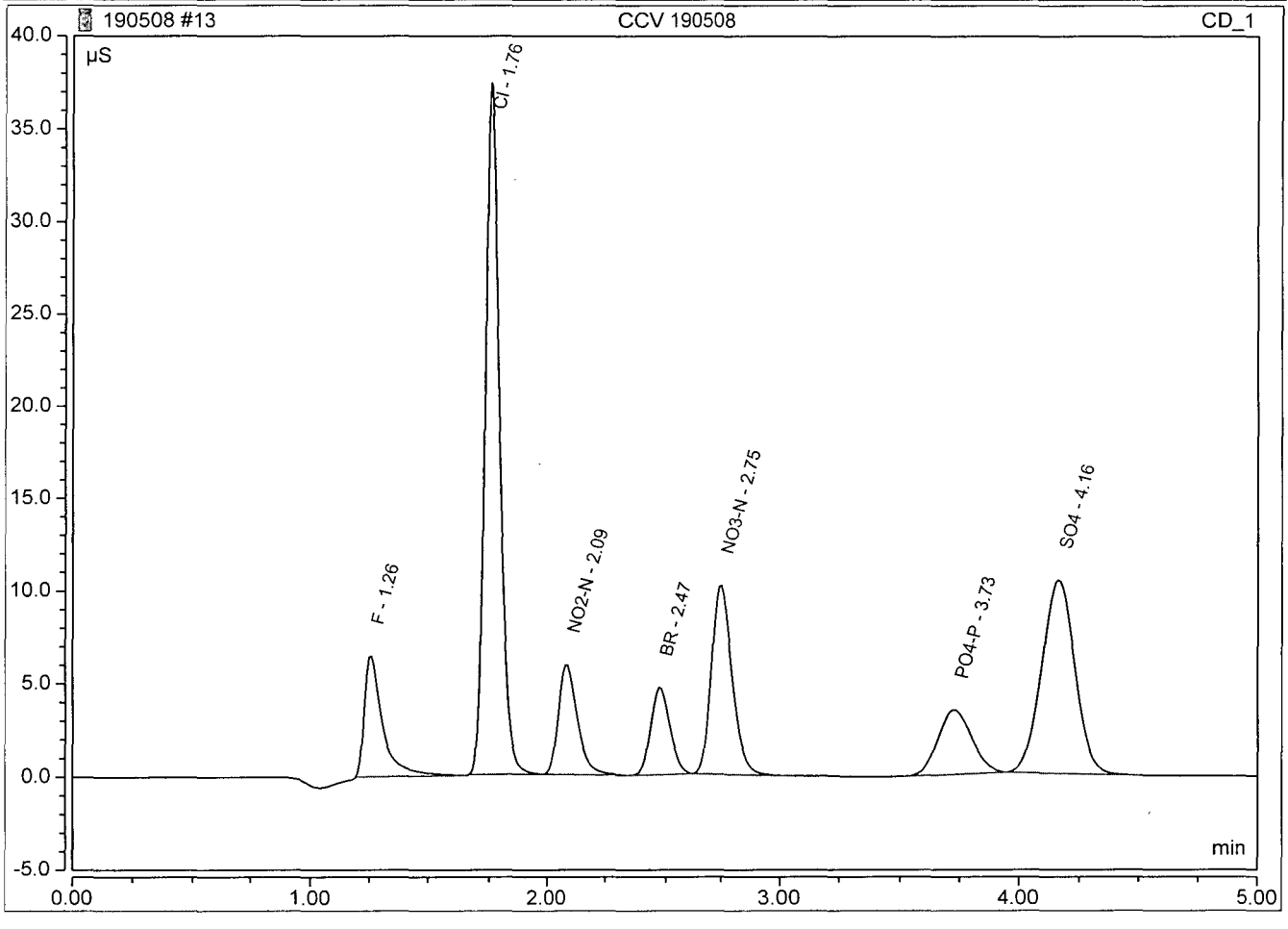
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
2	1.25	F	BMB	0.619	6.996	5.29	5	105.7%
3	1.74	Cl	BMB	2.618	37.357	24.65	25	98.6%
4	2.07	NO2-N	BMB	0.563	6.018	3.16	3.04	103.9%
5	2.45	BR	BMB	0.446	4.721	12.54	12.5	100.4%
6	2.72	NO3-N	BMB	1.091	10.246	4.95	5	99.0%
8	3.57	PO4-P	BMB	0.615	4.013	8.69	10	86.9%
9	4.00	SO4	BMB	1.666	10.698	24.43	25	97.7%



Peak Integration Report

Sample Name:	**CCV 190508**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor.*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 10:08**	*Run Time:*	**5.00**

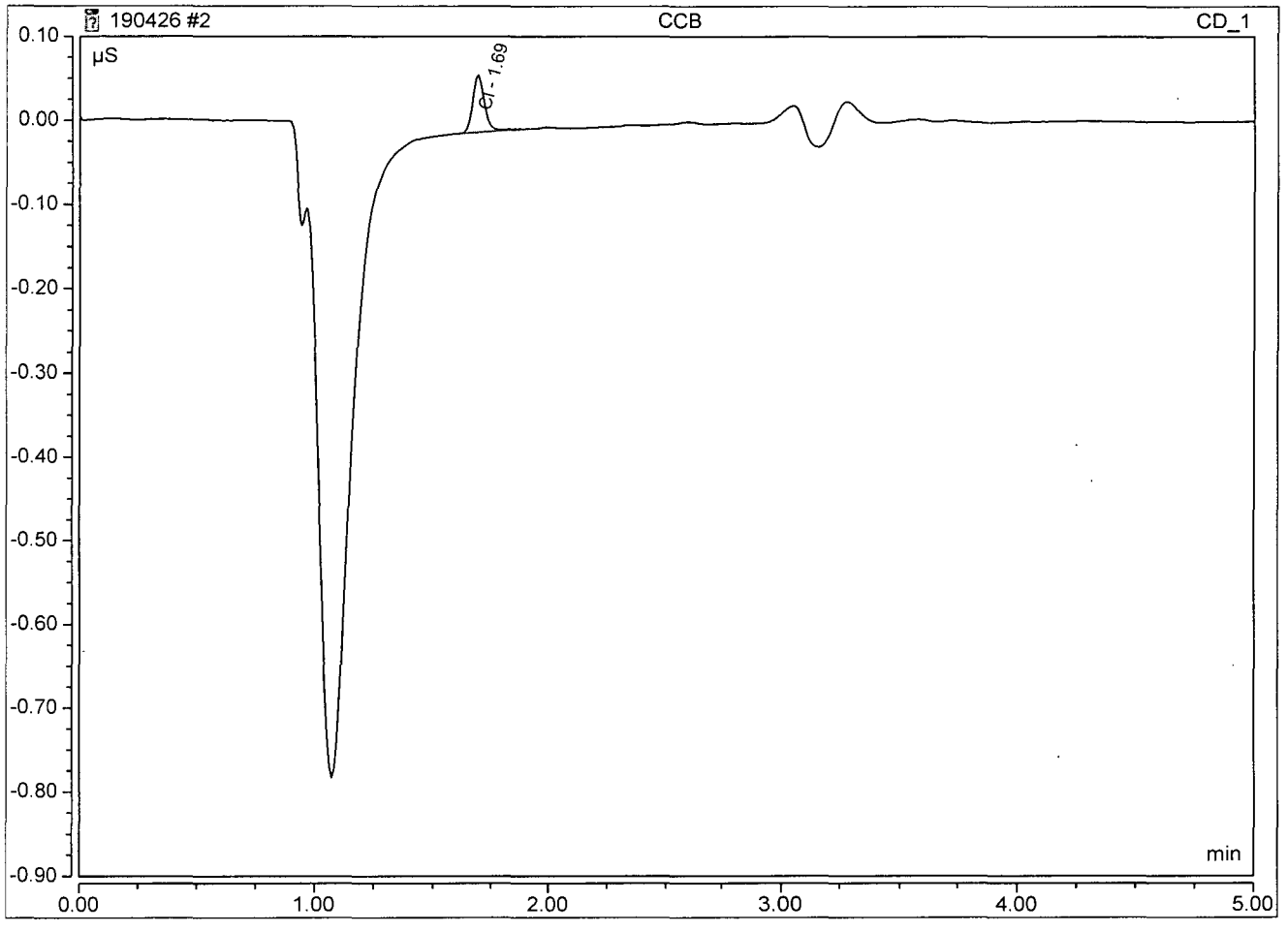
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.26	F	BMB	0.595	6.527	5.09	5	101.7%
2	1.76	Cl	BMB	2.608	37.328	24.56	25	98.2%
3	2.09	NO2-N	BMB	0.562	5.921	3.15	3.04	103.6%
4	2.47	BR	BMB	0.446	4.689	12.53	12.5	100.2%
5	2.75	NO3-N	BMB	1.086	10.189	4.93	5	98.5%
6	3.73	PO4-P	BMB	0.555	3.463	7.88	10	78.8%
7	4.16	SO4	BMB	1.653	10.411	24.24	25	96.9%



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**26-Apr-2019 / 11:12**	*Run Time:*	**5.00**

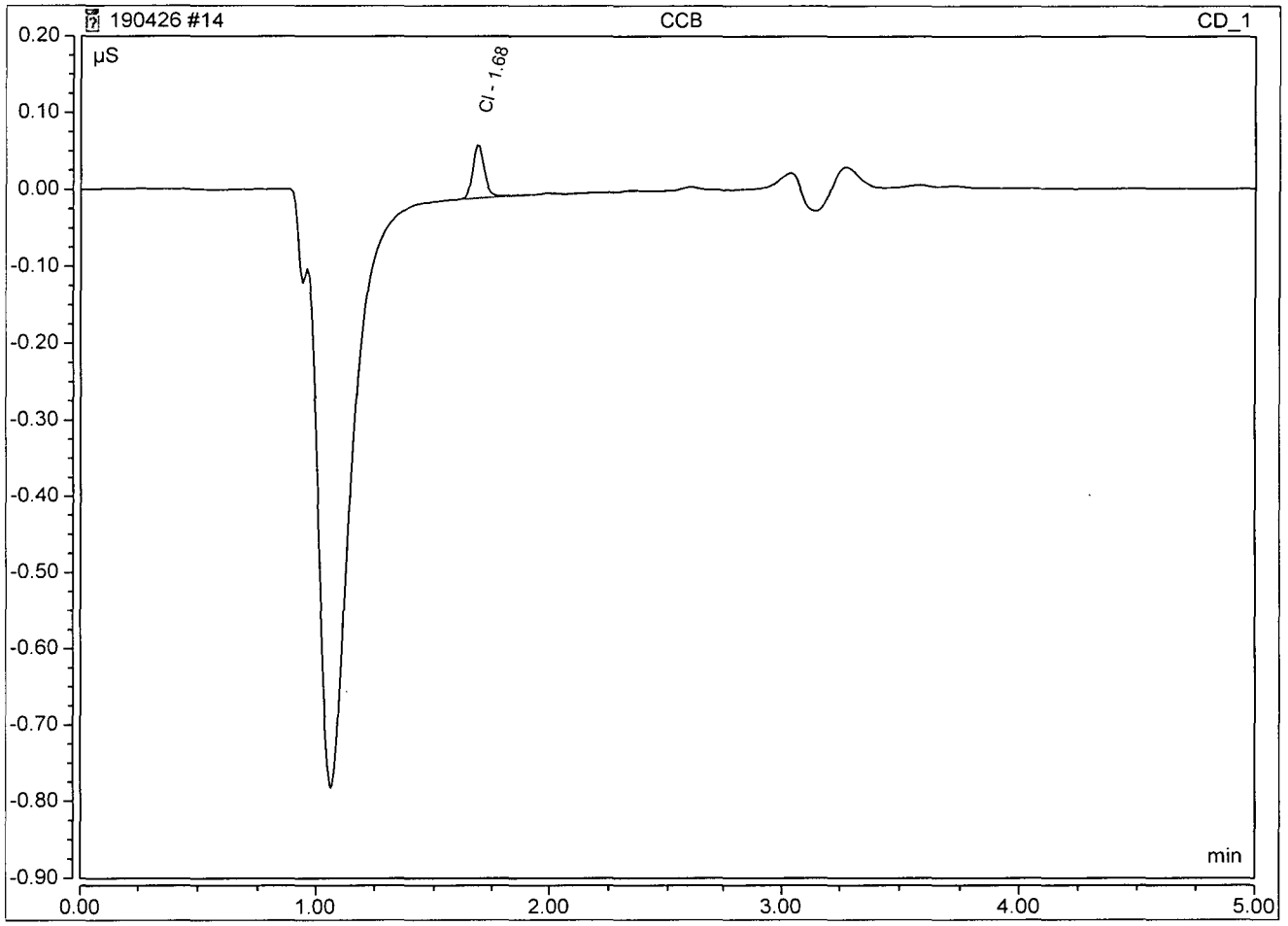
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.69	Cl	BMB	0.004	0.068	0.30		



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**26-Apr-2019 / 12:41**	*Run Time:*	**5.00**

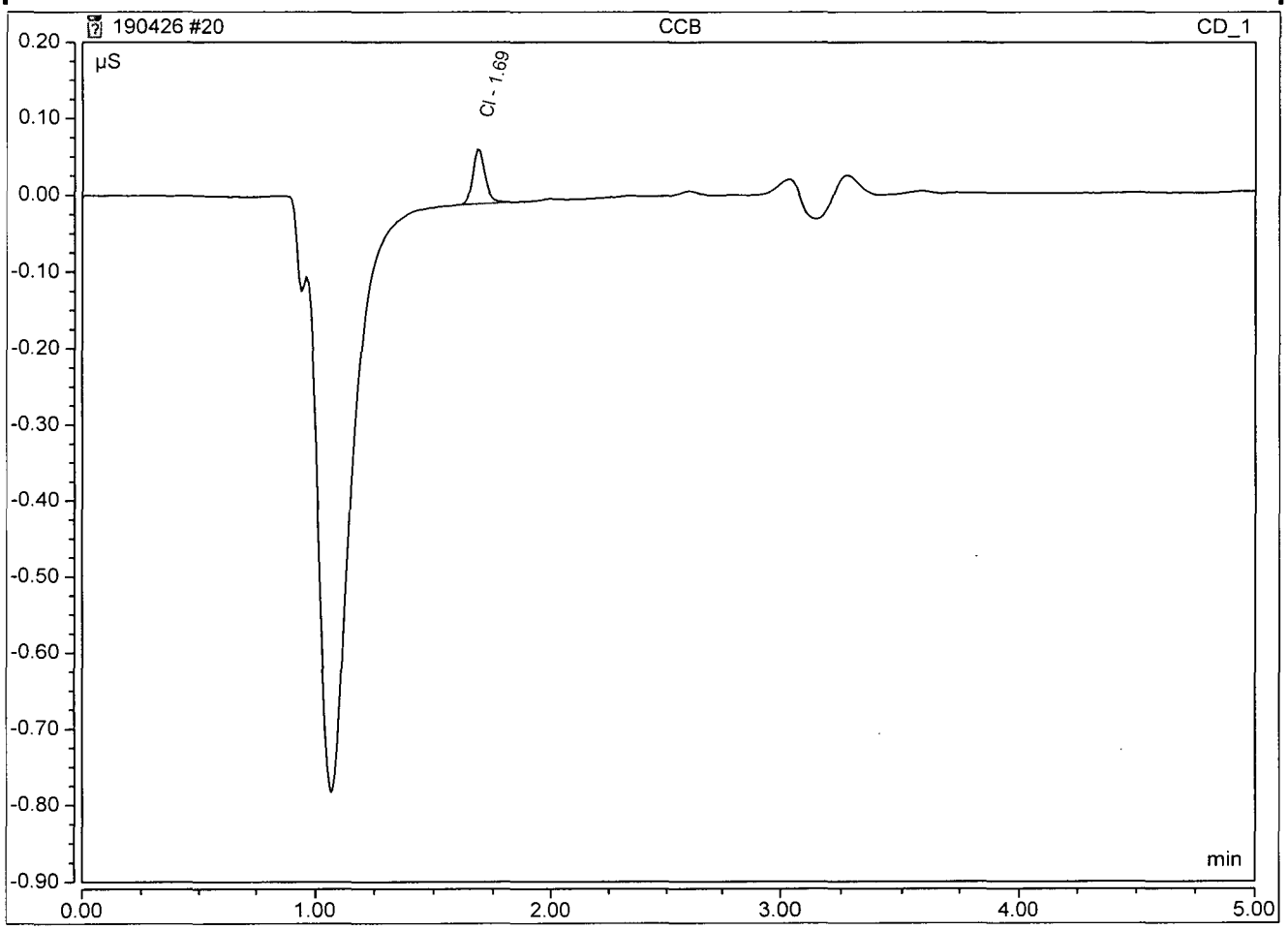
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.68	Cl	BMB	0.004	0.070	0.30		



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**26-Apr-2019 / 13:25**	*Run Time:*	**5.00**

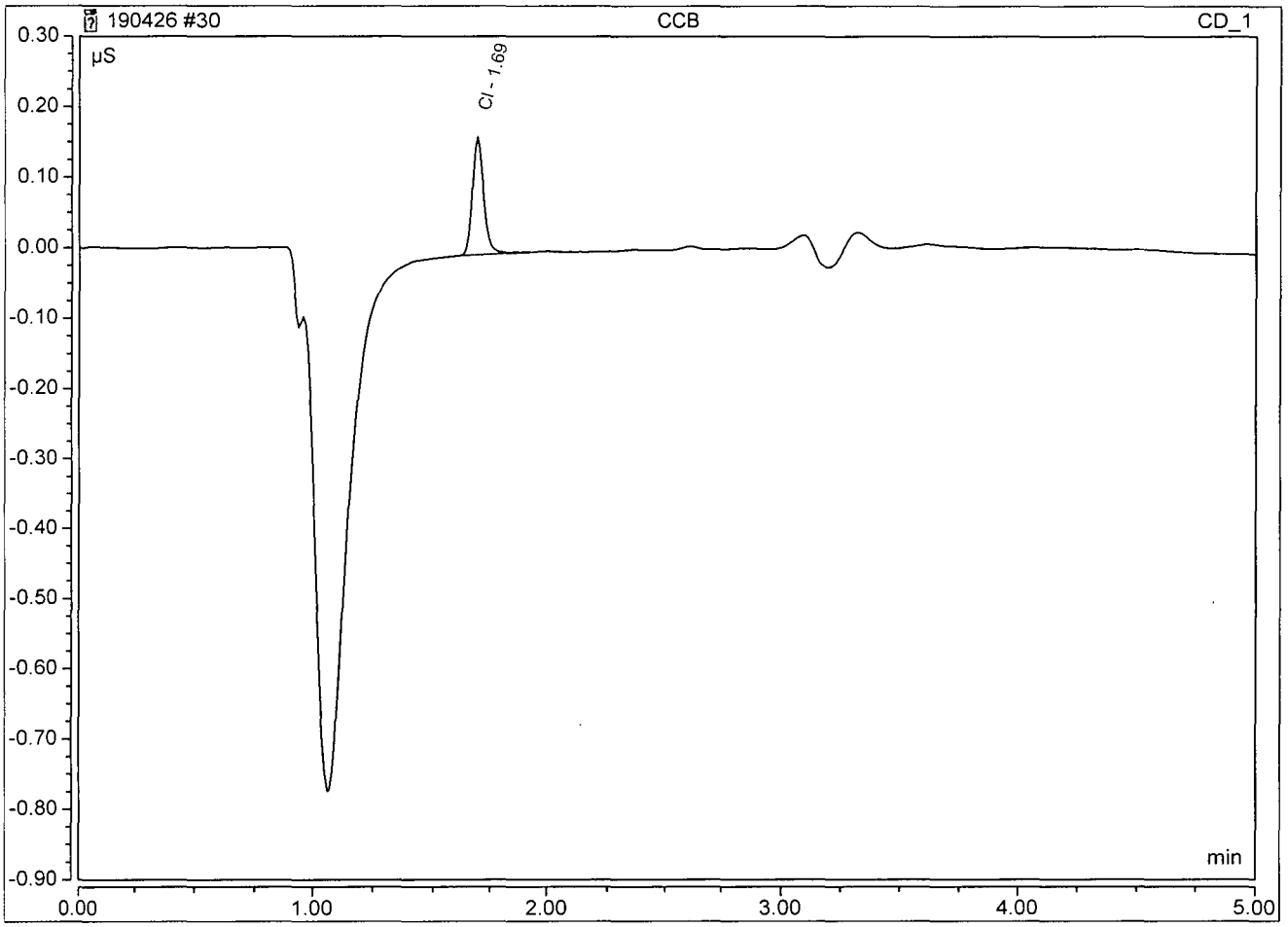
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.69	Cl	BMB	0.004	0.071	0.30		



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**26-Apr-2019 / 16:48**	*Run Time:*	**5.00**

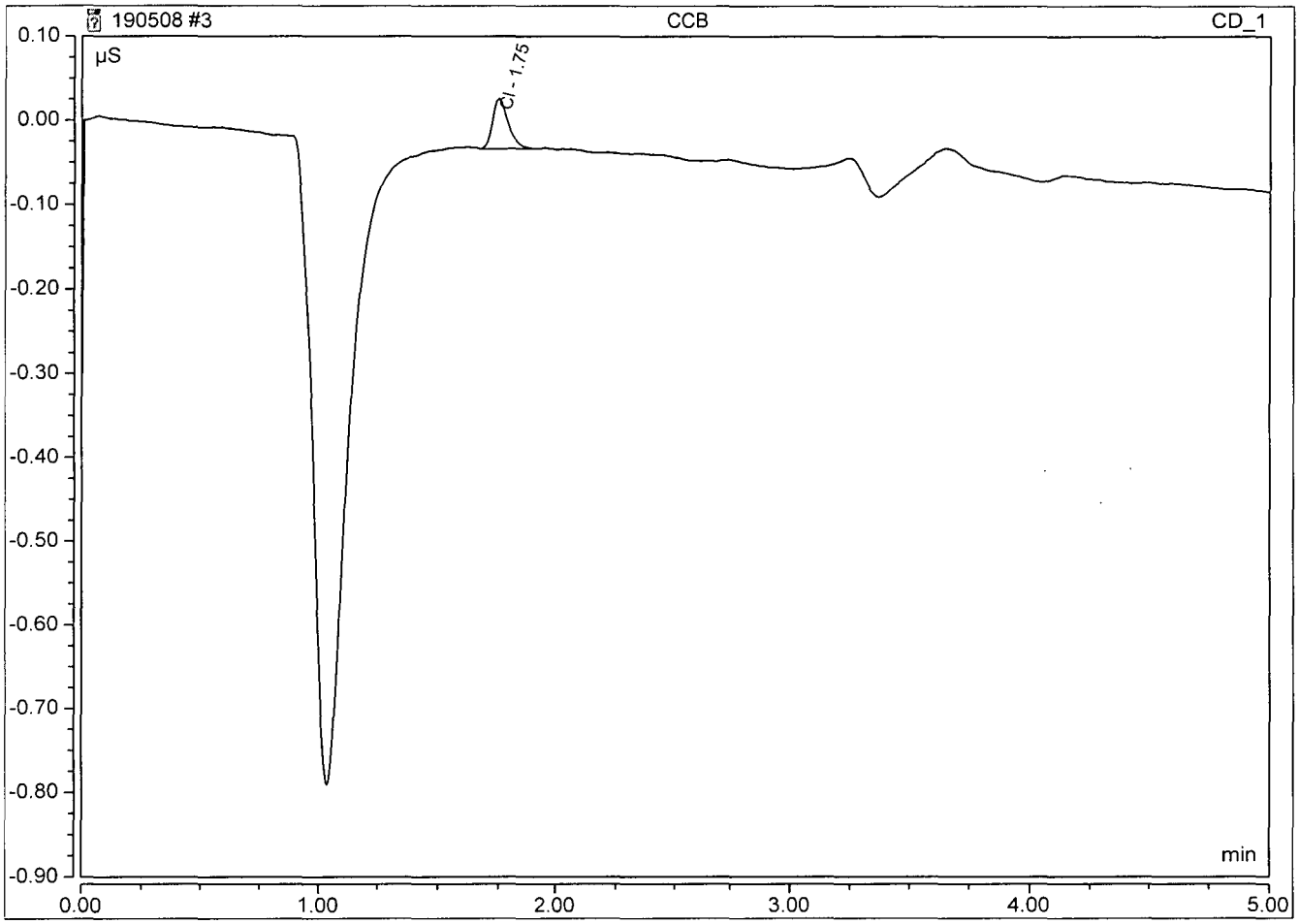
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.69	Cl	BMB	0.010	0.167	0.35		



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 08:31**	*Run Time:*	**5.00**

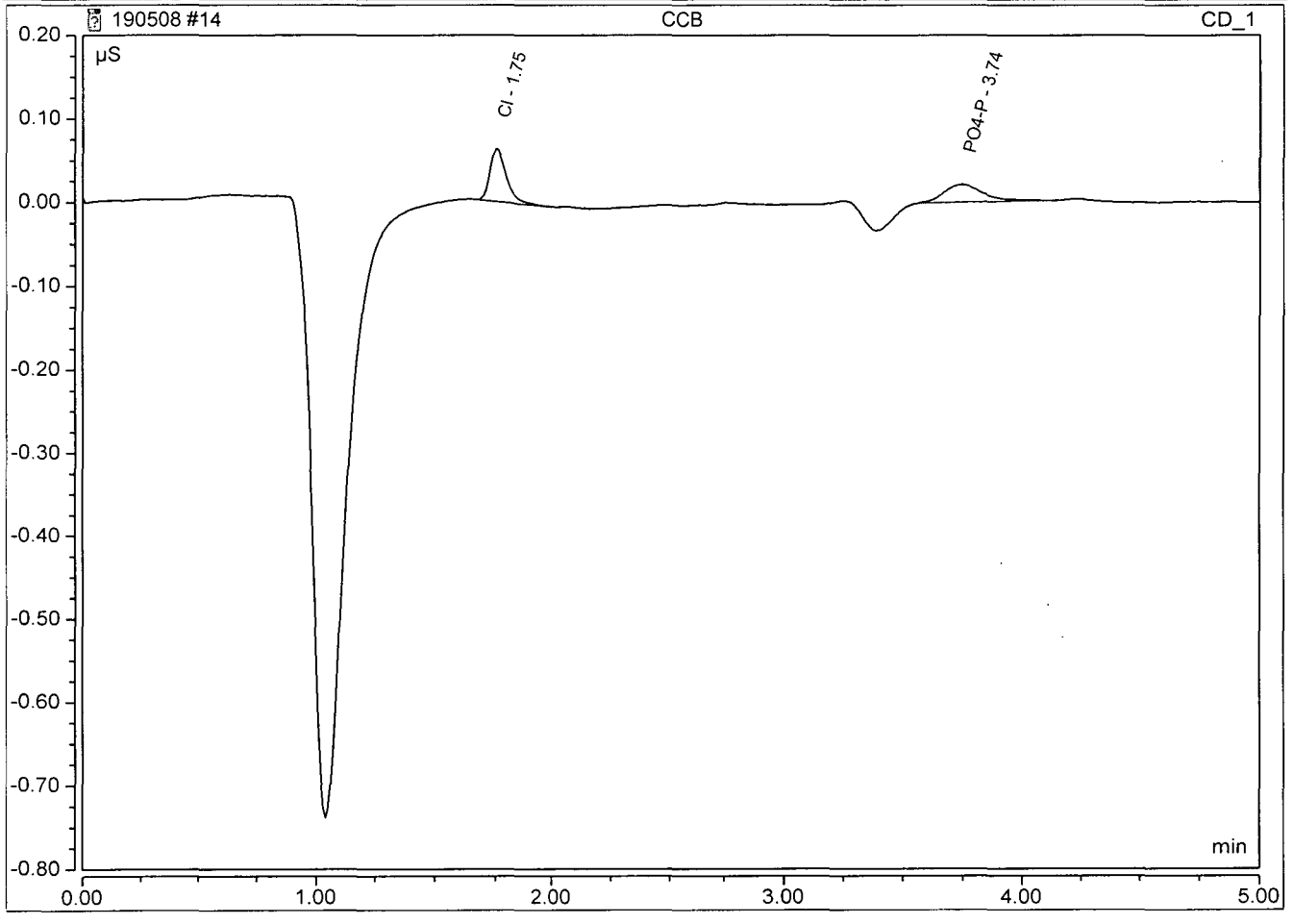
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.75	Cl	BMB	0.005	0.060	0.30		



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 10:15**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.75	**Cl**	BMB	0.005	0.063	0.31		
2	3.74	**PO4-P**	BMB	0.004	0.021	0.49		



INORGANIC ANALYSIS
Raw Data

Metrohm 814/809 Titrando Data

Sample ID	Analysis Date/Time	Method	Titration Volume (to 8.3)	Titration Volume (total)	OH	CO3	HCO3	Total Alk	Unit	Sample Vol	N	Batch	Initials
190430A BLK	2019-04-30 10:08:41 UTC-7	Alkalinity	0.000	0.096	0.00	0.00	3.94	3.94	mg/L	25 mL	0.0205	190430A	AR
190430A LCS	2019-04-30 10:11:46 UTC-7	Alkalinity	0.000	5.794	0.00	0.00	237.55	237.55	mg/L	25 mL	0.0205	190430A	AR
190430A LCSD	2019-04-30 10:21:29 UTC-7	Alkalinity	0.000	5.828	0.00	0.00	238.95	238.95	mg/L	25 mL	0.0205	190430A	AR
AZ90213W13	2019-04-30 11:46:10 UTC-7	Alkalinity	0.000	3.560	0.00	0.00	145.96	145.96	mg/L	25 mL	0.0205	190430A	AR
AZ90215W13	2019-04-30 11:53:36 UTC-7	Alkalinity	0.000	1.566	0.00	0.00	64.21	64.21	mg/L	25 mL	0.0205	190430A	AR

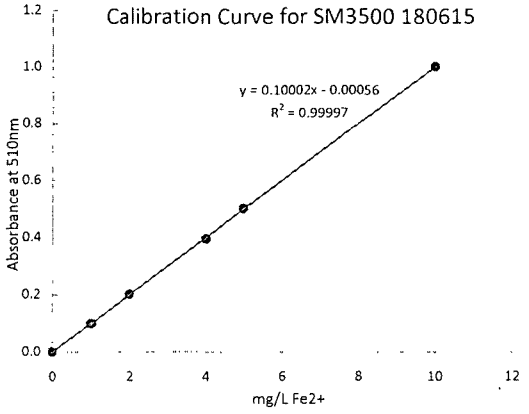
Ferrous Iron — Rev 2, 04-05-19

Method SM3500Fe | Units mg/L | Instrument: Genisis Spectrometer
Analyte Fe2+ | QCG: 190430 | Wavelength: 510 nm
Analyist FJR | Final Volume: 50mL | Units: mg/L

Date	Time	Appl ID	[Fe2+]	Absorbance	% Recovery
06/15/18	12:27	ICB	0.00	0.000	
06/15/18	12:27	Ical 1	1.00	0.099	99.5%
06/15/18	12:28	Ical 2	2.00	0.201	100.8%
06/15/18	12:28	Ical 3	4.00	0.396	99.1%
06/15/18	12:29	Ical 4	5.00	0.501	100.3%
06/15/18	12:30	Ical 5	10.00	1.000	100.0%
06/15/18	12:31	ICV	3.00	0.316	105.5%
06/15/18	12:32	ICB	0.00	0.000	

Slope	0.100015306
Intercept	-0.000556122
Coefficient of Determination	0.999973247

Algortithm Check:	Appl ID	Absorbance	Result
	190430A LCS	0.311	3.12
Result = (Absorbance-Raw Blk-Intercept)/ Slope			
Test:	FJR	04/30/19	3.12



Date	Time	Appl ID	DF	Raw Result	SubSample Amount	Raw BLK	Calc Conc	Result	QC True	% Recovery
04/30/19	9:02	CCV 4.0 190430	1	0.386	25mL		3.86	3.86	4.00	96.6%
04/30/19	9:03	CCB 190430	1	0.000	25mL		0.01	0.01		
04/30/19	9:04	190430A LCS	1	0.311	25mL		3.12	3.12	3.00	103.8%
04/30/19	9:05	190430A LCSD	1	0.302	25mL		3.03	3.03	3.00	100.8%
04/30/19	9:06	AZ90213W14	1	0.008	25mL		0.09	0.09		
04/30/19	9:07	AZ90215W14	1	0.087	25mL		0.88	0.88		
04/30/19	9:08	AZ90215W14 MS	1	0.396	25mL		3.96	3.96		
04/30/19	9:09	AZ90215W14 MSD	1	0.401	25mL		4.01	4.01		
04/30/19	9:10	CCV 4.0 190426	1	0.390	25mL		3.90	3.90	4.00	97.6%
04/30/19	9:11	CCB 190426	1	0.000	25mL		0.01	0.01		

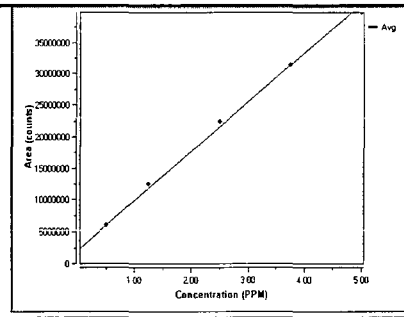
TOTAL ORGANIC CARBON

Method: WetChem | Units mg/L | Instrument: Tic Toc

Analyte: DOC | QCG: 190501A

Analyist: AR | Final Volume: 40mL

Date	Time	Appl ID	[TOC]	Raw	% Recovery
02/23/19	12:37	QC blank	0.00	2073066.000	
02/23/19	13:11	Ical 1	0.50	6066781.000	
02/23/19	13:43	Ical 2	1.25	12451764.000	
02/23/19	14:15	Ical 3	2.50	22465756.000	
02/23/19	14:48	Ical 4	3.75	31457150.000	
02/23/19	15:21	Ical 5	5.00	39864495.000	
02/23/19	15:56	ICB	0.25	1917909.000	
02/23/19	16:30	ICV	2.97	23239734.000	118.9%



Date	Time	Appl ID	DF	Raw Result	SubSample Amount	Calc Conc	Result	QC True	% Recovery
2019-05-01	01:56 PM	CCV	1	18766890	40mL	2.35	2.35	2.50	94.0%
2019-05-01	02:28 PM	CCB	1	981796	40mL	0.075	0.08		
2019-05-01	02:59 PM	190530A BLK	1	1029568	40mL	0.082	0.08		
2019-05-01	03:30 PM	190501A LCS	1	20519224	40mL	2.574	2.57	2.50	103.0%
2019-05-01	04:02 PM	190501A LCSD	1	19426543	40mL	2.434	2.43	2.50	97.4%
2019-05-01	04:34 PM	AZ90215W05	1	2614805	40mL	0.284	0.28		
2019-05-01	05:05 PM	AZ90215W10 DUP	1	2638742	40mL	0.288	0.29		
2019-05-01	05:36 PM	AZ90215W11 MS	1	22588590	40mL	2.839	2.84		
2019-05-01	06:08 PM	AZ90215W12 MSD	1	22823160	40mL	2.868	2.87		
2019-05-01	06:40 PM	AZ90213W05	1	10302735	40mL	1.268	1.27		
2019-05-01	07:13 PM	AZ90109W10	1	2055113	40mL	0.213	0.21		
2019-05-01	07:44 PM	CCV	1	19447619	40mL	2.437	2.44	2.50	97.5%
2019-05-01	08:16 PM	CCB	1	935288	40mL	0.07	0.07		

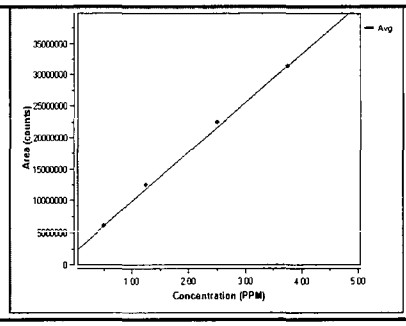
TOTAL ORGANIC CARBON

Method: WetChem | Units mg/L | Instrument: Tic Toc

Analyte: TOC | QCG: 190502A

Analyist: AR | Final Volume: 40mL

Date	Time	Appl ID	[TOC]	Raw	% Recovery
02/23/19	12:37	QC blank	0.00	2073066.000	
02/23/19	13:11	Ical 1	0.50	6066781.000	
02/23/19	13:43	Ical 2	1.25	12451764.000	
02/23/19	14:15	Ical 3	2.50	22465756.000	
02/23/19	14:48	Ical 4	3.75	31457150.000	
02/23/19	15:21	Ical 5	5.00	39864495.000	
02/23/19	15:56	ICB	0.25	1917909.000	
02/23/19	16:30	ICV	2.97	23239734.000	118.9%
r^2=	0.9984				



Date	Time	Appl ID	DF	Raw Result	SubSample Amount	Calc Conc	Result	QC True	% Recovery
2019-05-02	04:32 PM	CCV	1	21675369	40mL	2.422	2.42	2.50	96.9%
2019-05-02	05:07 PM	CCB	1	727823	40mL	0	0.00		
2019-05-02	05:40 PM	190502A BLK	1	927374	40mL	0	0.00		
2019-05-02	06:14 PM	190502A LCS	1	21760887	40mL	2.433	2.43	2.50	97.3%
2019-05-02	06:49 PM	190502A LCSD	1	21292907	40mL	2.373	2.37	2.50	94.9%
2019-05-02	07:24 PM	AZ89958W12	1	2719364	40mL	0.298	0.30		
2019-05-02	07:55 PM	AZ89958W09 DUP	1	2096550	40mL	0	0.00		
2019-05-02	08:29 PM	AZ89958W14 MS	1	22354778	40mL	2.508	2.51		
2019-05-02	09:04 PM	AZ89958W11 MSD	1	22821834	40mL	2.568	2.57		
2019-05-02	09:39 PM	AZ90051W13	1	2446110	40mL	0.263	0.26		
2019-05-02	10:10 PM	AZ90051W13 DUP	1	3624059	40mL	0.113	0.11		
2019-05-02	10:45 PM	AZ90051W16 MS	1	23433442	40mL	2.646	2.65		
2019-05-02	11:20 PM	AZ90051W16 MSD	1	23412687	40mL	2.644	2.64		
2019-05-02	11:55 PM	AZ90054W09	1	4072622	40mL	0.471	0.47		
2019-05-03	12:27 AM	AZ90058W05	1	4372254	40mL	0.509	0.51		
2019-05-03	12:58 AM	AZ90060W12	1	7550103	40mL	0.915	0.92		
2019-05-03	01:30 AM	AZ90100W09	1	8006133	40mL	0.974	0.97		
2019-05-03	02:02 AM	AZ90105W08	1	12129049	40mL	1.501	1.50		
2019-05-03	02:33 AM	AZ90109W09	1	2449956	40mL	0.263	0.26		
2019-05-03	03:05 AM	AZ90213W12	1	16936404	40mL	2.115	2.12		
2019-05-03	03:38 AM	CCV	1	21447087	40mL	2.392	2.39	2.50	95.7%
2019-05-03	04:13 AM	CCB	1	882391	40mL	0	0.00		
2019-05-03	04:46 AM	190502B BLK	1	797351	40mL	0	0.00		
2019-05-03	05:20 AM	190502B LCS	1	21956853	40mL	2.458	2.46	2.50	98.3%
2019-05-03	05:55 AM	190502B LCSD	1	21901664	40mL	2.45	2.45	2.50	98.0%
2019-05-03	06:30 AM	AZ89958W43	1	2048429	40mL	0.212	0.21		
2019-05-03	07:01 AM	AZ89958W17 DUP	1	5821945	40mL	0.394	0.39		
2019-05-03	07:36 AM	AZ89958W10 MS	1	21950218	40mL	2.457	2.46		
2019-05-03	08:12 AM	AZ89958W18 MSD	1	22462368	40mL	2.523	2.52		
2019-05-03	08:47 AM	AZ90051W09	1	2995627	40mL	0.333	0.33		
2019-05-03	09:18 AM	AZ90051W09 DUP	1	3326206	40mL	0.075	0.08		
2019-05-03	09:53 AM	AZ90051W10 MS	1	23819230	40mL	2.696	2.70		
2019-05-03	10:29 AM	AZ90051W10 MSD	1	23878289	40mL	2.704	2.70		
2019-05-03	11:04 AM	AZ90056W08	1	4065043	40mL	0.47	0.47		
2019-05-03	11:36 AM	AZ90102W10	1	27567265	40mL	3.475	3.48		
2019-05-03	12:08 PM	AZ90107W10	1	3202077	40mL	0.359	0.36		
2019-05-03	12:39 PM	AZ90215W06	1	4079275	40mL	0.472	0.47		
2019-05-03	01:11 PM	CCV	1	21730719	40mL	2.428	2.43	2.50	97.1%
2019-05-03	01:46 PM	CCB	1	969840	40mL	0	0.00		

AQ2 Report

Serial Number:	190170
Software Version:	2.1.0
Report Requested By:	Eve V
Date & Time:	2019-05-02 09:25:07
Tray Number:	3
Tray Name:	190501A TOXN CCV

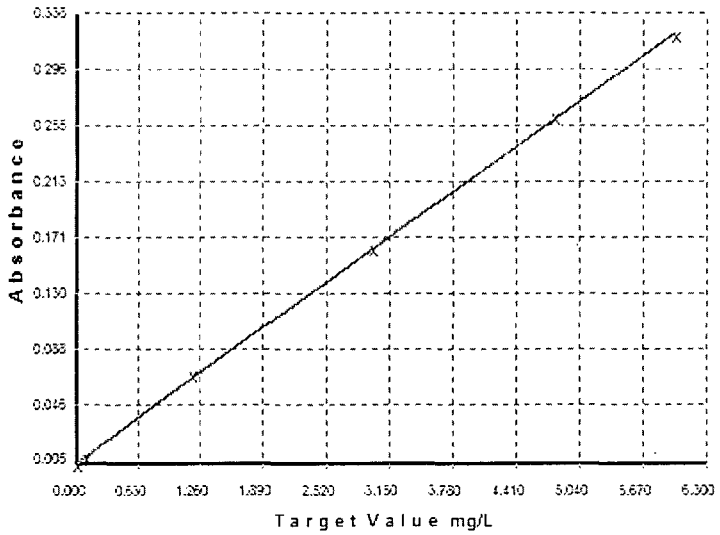
TOXN

Calibration Chart

Type	Absorbance	Calc mg/L	Target mg/L	% Error
S1	0.0045	-0.0187	0.0000	
S90	0.0100	0.0854	0.1000	-14.60
S91	0.0708	1.2299	1.2000	2.49
S92	0.1649	3.0029	3.0000	0.10
S93	0.2623	4.8388	4.8000	0.81
S94	0.3219	5.9618	6.0000	-0.64
S0	0.0054	-0.0029	0.0000	

Polynomial Order:	1
Correlation Coefficient:	0.9999
Carryover(%):	0.3
Calibration equation:	y = bx + a
y =:	Concentration mg/L
x =:	Measured absorbance
a =:	-1.038605E-001
b =:	1.884315E+001
Date & Time:	2019-05-01 16:47:29

Calibration Graph



Reagents

Name	Batch	Prepared By	Expiry Date
NO3 W Buffer	Algorithm check	Joel	
Sulfa-NEDD	Y = 18.84315x0.162897 - 0.1038605	Joel	

Y = 2.97 EV 5/20/19

Cup	Type	ID	Result	Units	QC Pro	Raw Data	Auto Dil.	Man Dil.	User	Time/Date
	S1	Standard 1	0.0045			0.004518			Ev	2019-05-01 16:37:54
	S90	Standard 90	0.0100			0.010044			Ev	2019-05-01 16:40:05
	S91	Standard 91	0.0708			0.070781			Ev	2019-05-01 16:42:17
	S92	Standard 92	0.1649			0.164873			Ev	2019-05-01 16:44:30
	S93	Standard 93	0.2623			0.262303			Ev	2019-05-01 16:45:36
	S94	Standard 94	0.3219			0.321904			Ev	2019-05-01 16:46:33
	S0	Standard 0	0.0054			0.005359			Ev	2019-05-01 16:47:29
	CCV	CCV	2.9088	mg/L		0.159881			Ev	2019-05-01 16:48:25
	CCB	CCB	-0.0233	mg/L		0.004274			Ev	2019-05-01 16:49:21
3	U1	✓ICV TOXN	2.9656	mg/L		0.162897			Ev	2019-05-01 16:50:17
4	U2	ICB TOXN	-0.0075	mg/L		0.005115			Ev	2019-05-01 16:51:13
	CCV	CCV	2.8375	mg/L		0.156098			Ev	2019-05-01 16:52:09
	CCB	CCB	-0.0134	mg/L		0.004803			Ev	2019-05-01 16:53:05

AQ2 Report

Serial Number:	190170
Software Version:	2.1.0
Report Requested By:	Eve V
Date & Time:	2019-05-02 09:21:44
Tray Number:	5
Tray Name:	190501B TOXN

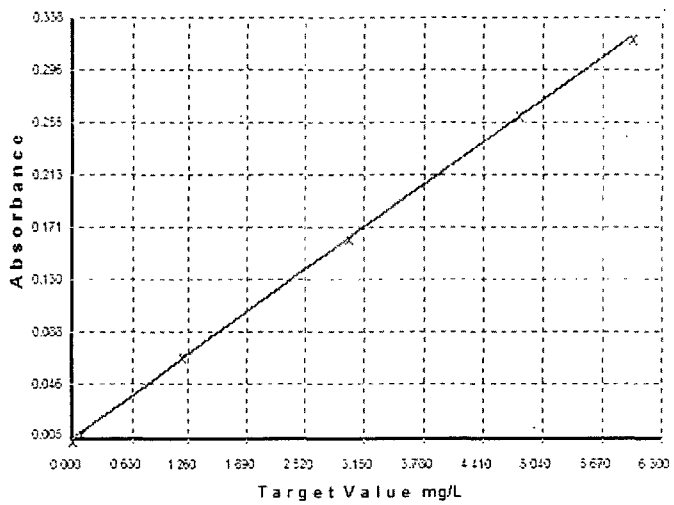
TOXN

Calibration Chart

Type	Absorbance	Calc mg/L	Target mg/L	% Error
S1	0.0045	-0.0187	0.0000	
S90	0.0100	0.0854	0.1000	-14.60
S91	0 0708	1.2299	1.2000	2.49
S92	0.1649	3 0029	3 0000	0.10
S93	0.2623	4.8388	4.8000	0.81
S94	0.3219	5.9618	6.0000	-0.64
S0	0.0054	-0.0029	0.0000	

Polynomial Order:	1
Correlation Coefficient:	0.9999
Carryover(%):	0.3
Calibration equation:	y = bx + a
y =:	Concentration mg/L
x =:	Measured absorbance
a =:	-1.038605E-001
b =:	1.884315E+001
Date & Time:	2019-05-01 16:47:29

Calibration Graph



Reagents

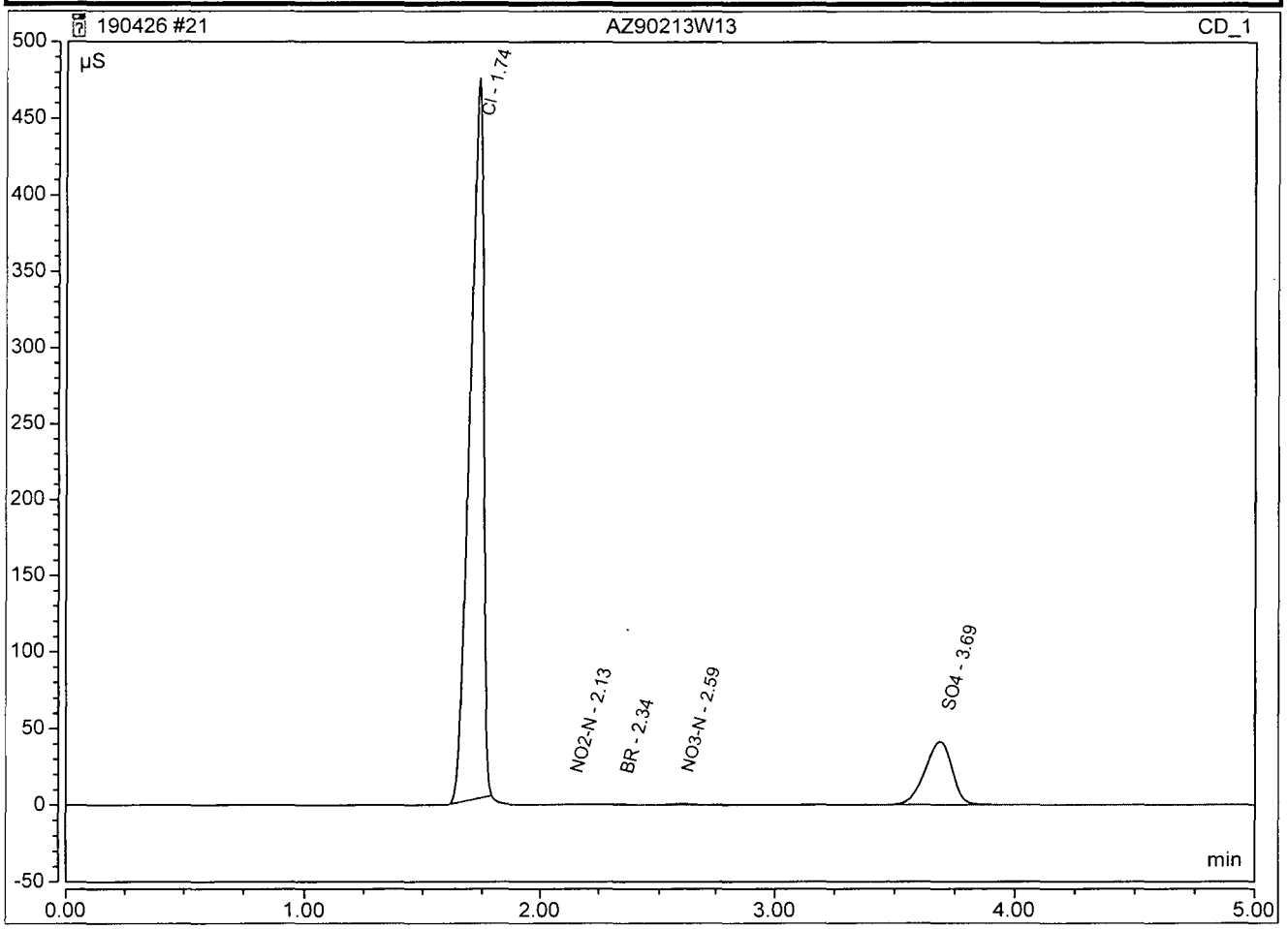
Name	Batch	Prepared By	Expiry Date
NO3 W Buffer		Joel	
Sulfa-NEDD		Joel	

Cup	Type	ID	Result	Units	QC Pro	Raw Data	Auto Dil.	Man Dil.	User	Time/Date
	CCV	CCV	3.0092	mg/L		0.165207			Ev	2019-05-01 18:12:39
	CCB	CCB	-0.0024	mg/L		0.005387			Ev	2019-05-01 18:14:51
3	U1	190501A BLK	-0.0044	mg/L		0.005278			Ev	2019-05-01 18:17:03
4	U2	190501A LCS	3.1419	mg/L		0.172251			Ev	2019-05-01 18:19:14
5	U3	190501A LCSD	3.1186	mg/L		0.171016			Ev	2019-05-01 18:21:28
6	U4	AZ90051W18	0 6235	mg/L		0.038603			Ev	2019-05-01 18:23.40
7	U5	AZ90051W18 MS	3.0373	mg/L		0.166701			Ev	2019-05-01 18:25:52
8	U6	AZ90051W18 MSD	3.1909	mg/L		0.174852			Ev	2019-05-01 18:28:04
9	U7	AZ90054W14	0.8207	mg/L		0.049066			Ev	2019-05-01 18:30.16
10	U8	AZ90056W14	0.5902	mg/L		0.036832			Ev	2019-05-01 18:32:28
11	U9	AZ90058W14	1.1029	mg/L		0.064043			Ev	2019-05-01 18:34.41
12	U10	AZ90060W14	1.2224	mg/L		0.070386			Ev	2019-05-01 18:36:53
	CCV	CCV	3.0459	mg/L		0.167154			Ev	2019-05-01 18:39:06
	CCB	CCB	-0.0121	mg/L		0.004871			Ev	2019-05-01 18:41:18
13	U11	AZ90100W14	0.0017	mg/L		0.005604			Ev	2019-05-01 18:43:31
14	U12	AZ90102W14	0.0015	mg/L		0.005590			Ev	2019-05-01 18:44:38
15	U13	AZ90105W14	1.7150	mg/L		0.096528			Ev	2019-05-01 18:45:34
16	U14	AZ90107W14	0.4616	mg/L		0.030007			Ev	2019-05-01 18:46:30
17	U15	AZ90109W14	0.4143	mg/L		0.027499			Ev	2019-05-01 18:47:26
18	U16	AZ90213W22	1.7632	mg/L		0.099082			Ev	2019-05-01 18:48:22
19	U17	AZ90215W22	0.2121	mg/L		0.016769			Ev	2019-05-01 18:49:18
20	U18	AZ90450W14	-0.0279	mg/L		0.004030			Ev	2019-05-01 18.50:14
	CCV	CCV	2.8702	mg/L		0.157831			Ev	2019-05-01 18:51:10
	CCB	CCB	-0.0154	mg/L		0.004694			Ev	2019-05-01 18:52:07

Peak Integration Report

Sample Name:	**AZ90213W13**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**5.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**26-Apr-2019 / 15:42**	*Run Time:*	**5.00**

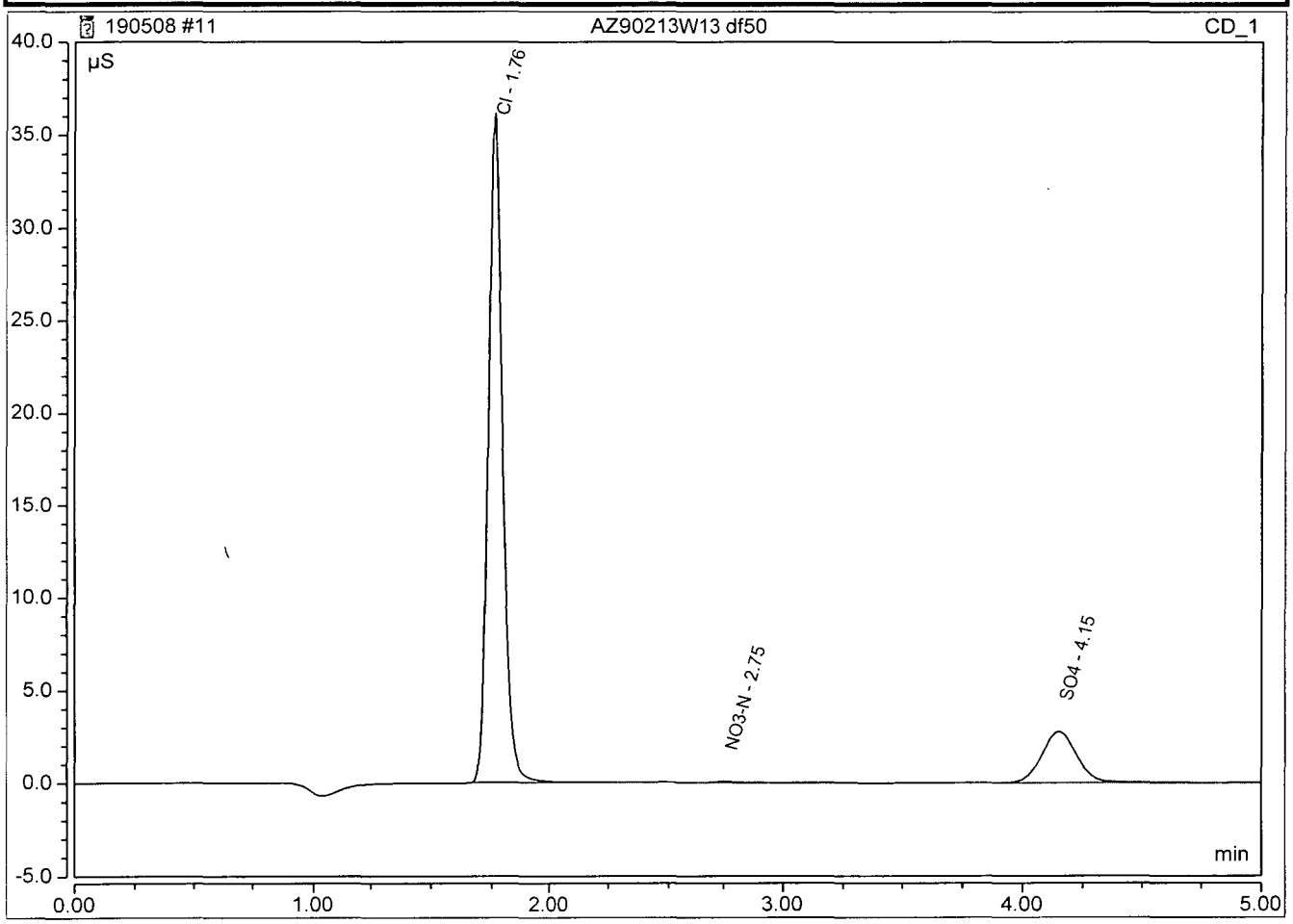
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.74	**Cl**	BMB	31.471	471.633	1467.48		
2	2.13	**NO2-N**	BMB	0.021	0.143	0.61		
3	2.34	**BR**	BMB	0.021	0.298	3.24		
4	2.59	**NO3-N**	BMB	0.065	0.759	1.61		
5	3.69	**SO4**	BMB	5.448	41.378	397.54		



Peak Integration Report

Sample Name:	**AZ90213W13 df50**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**50.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 09:53**	*Run Time:*	**5.00**

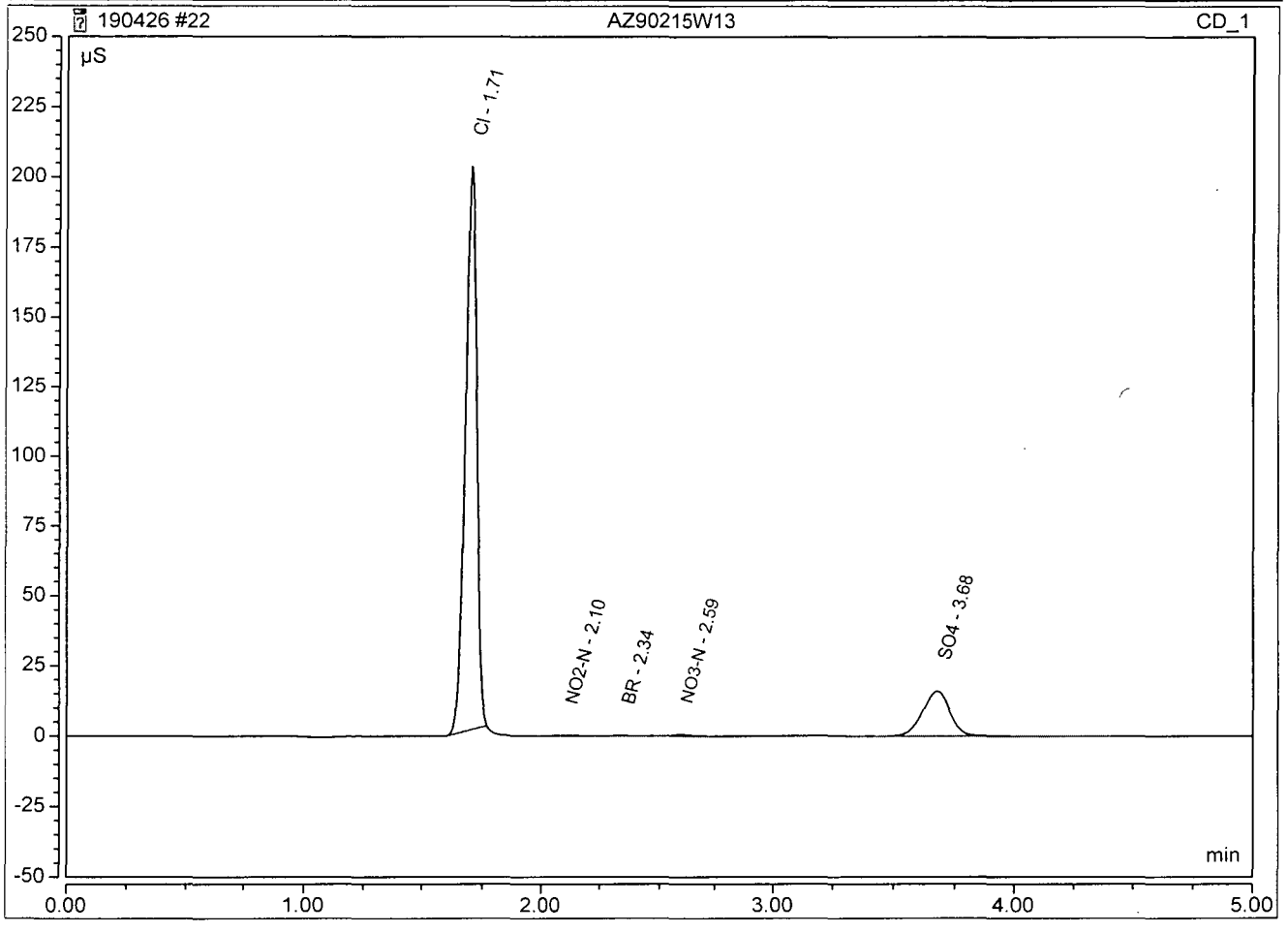
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.76	**Cl**	BMB	2.542	36.117	1197.10		
2	2.75	**NO3-N**	BMB	0.007	0.066	3.11		
3	4.15	**SO4**	BMB	0.458	2.747	342.01		



Peak Integration Report

Sample Name:	**AZ90215W13**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**26-Apr-2019 / 15:49**	*Run Time:*	**5.00**

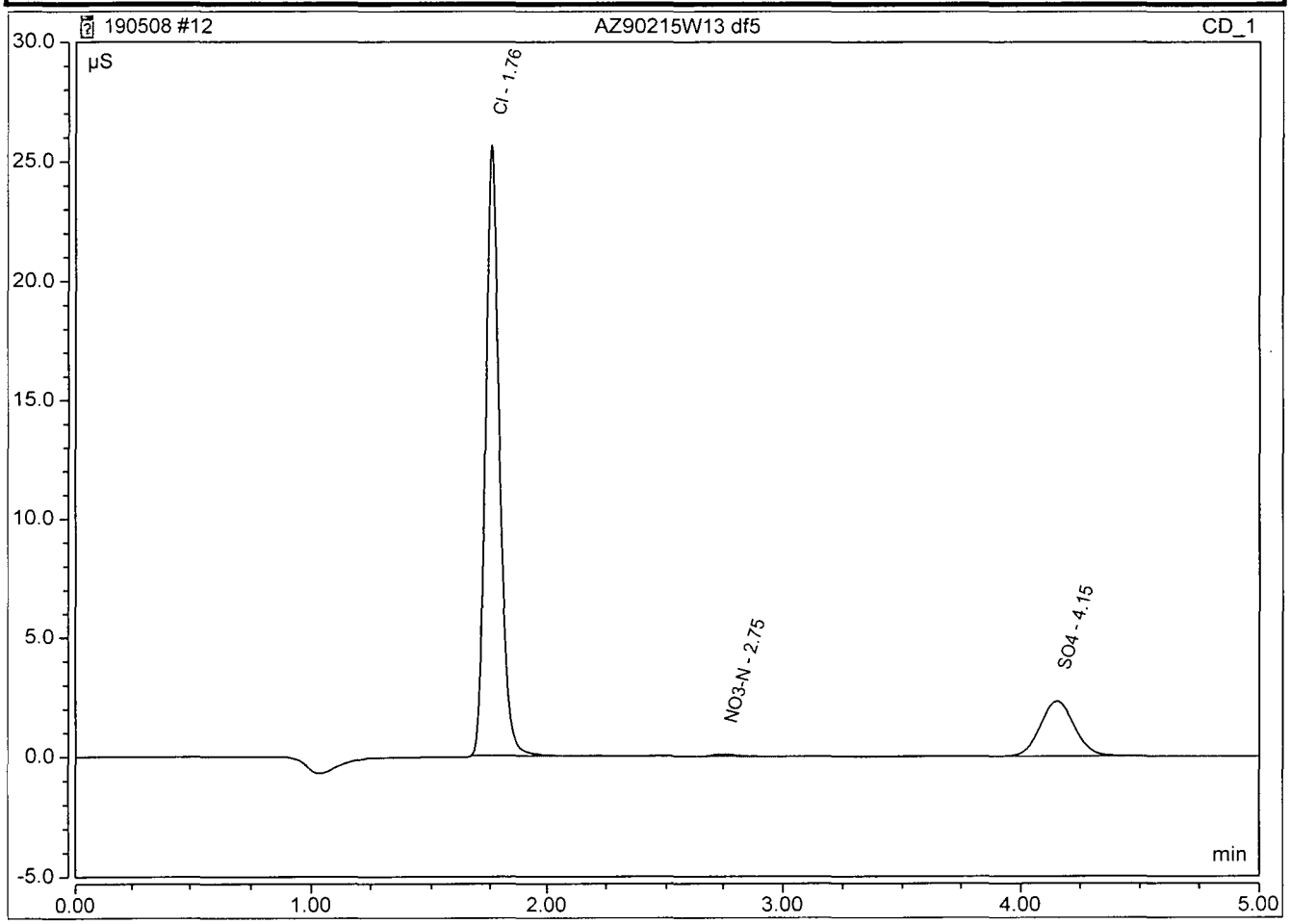
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.71	**Cl**	BMB	10.968	201.463	102.46		
2	2.10	**NO2-N**	BMB	0.011	0.070	0.07		
3	2.34	**BR**	BMB	0.009	0.118	0.29		
4	2.59	**NO3-N**	BMB	0.045	0.503	0.23		
5	3.68	**SO4**	BMB	2.055	15.871	30.09		



Peak Integration Report

Sample Name:	**AZ90215W13 df5**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**5.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 10:00**	*Run Time:*	**5.00**

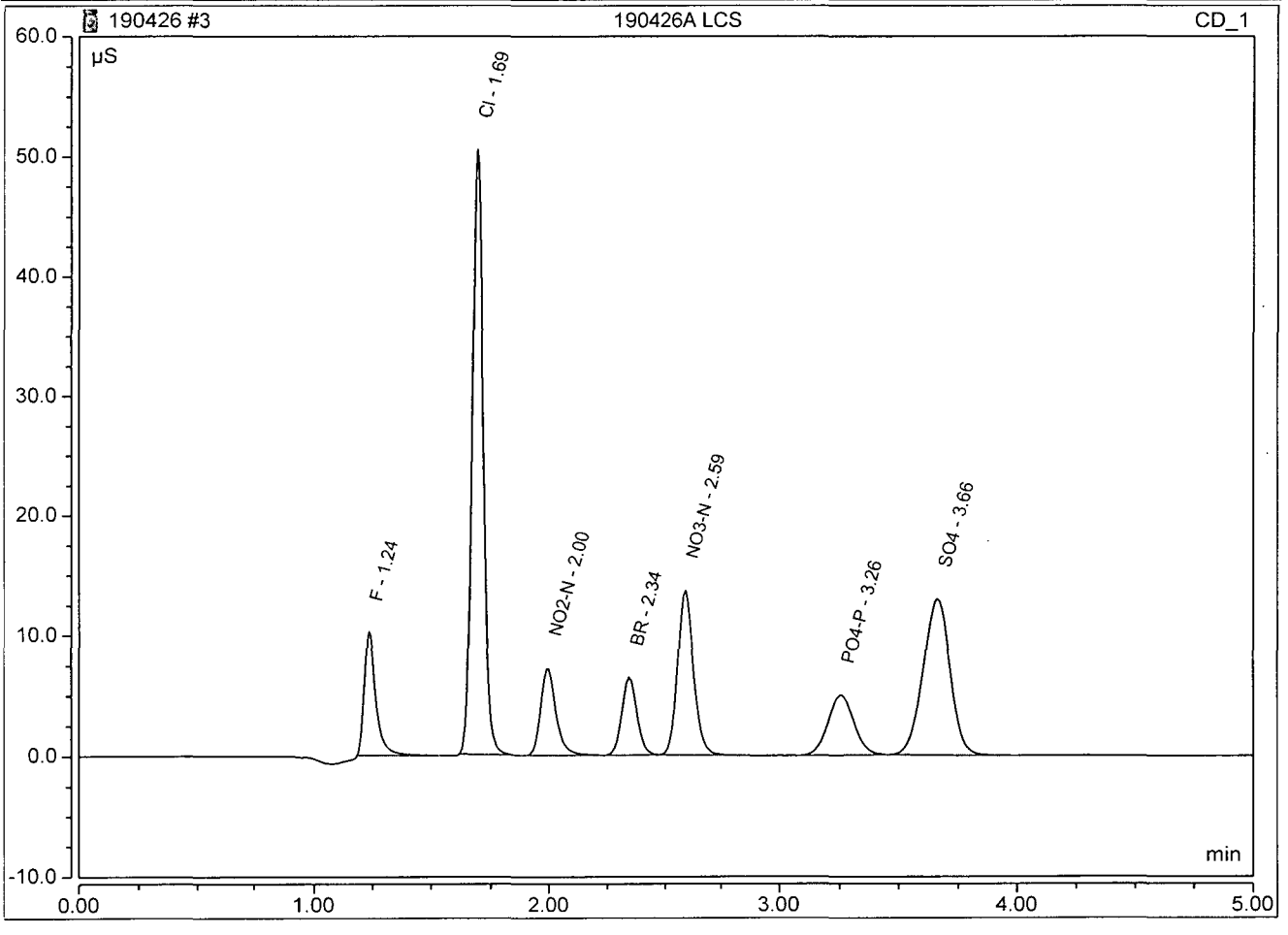
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.76	**Cl**	BMB	1.817	25.625	85.93		
2	2.75	**NO3-N**	BMB	0.010	0.092	0.38		
3	4.15	**SO4**	BMB	0.385	2.311	28.86		



Peak Integration Report

Sample Name:	**190426A LCS**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**26-Apr-2019 / 11:20**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	**F**	BMB	0.599	10.243	5.12	5.0000	102.4%
2	1.69	**Cl**	BMB	2.660	50.437	25.05	25.0000	100.2%
3	2.00	**NO2-N**	BMB	0.561	7.264	3.15	3.0400	103.5%
4	2.34	**BR**	BMB	0.477	6.461	13.42	12.5000	107.3%
5	2.59	**NO3-N**	BMB	1.137	13.676	5.16	5.0000	103.1%
6	3.26	**PO4-P**	BMB	0.635	5.008	8.96	10.0000	89.6%
7	3.66	**SO4**	BMB	1.698	12.978	24.90	25.0000	99.6%



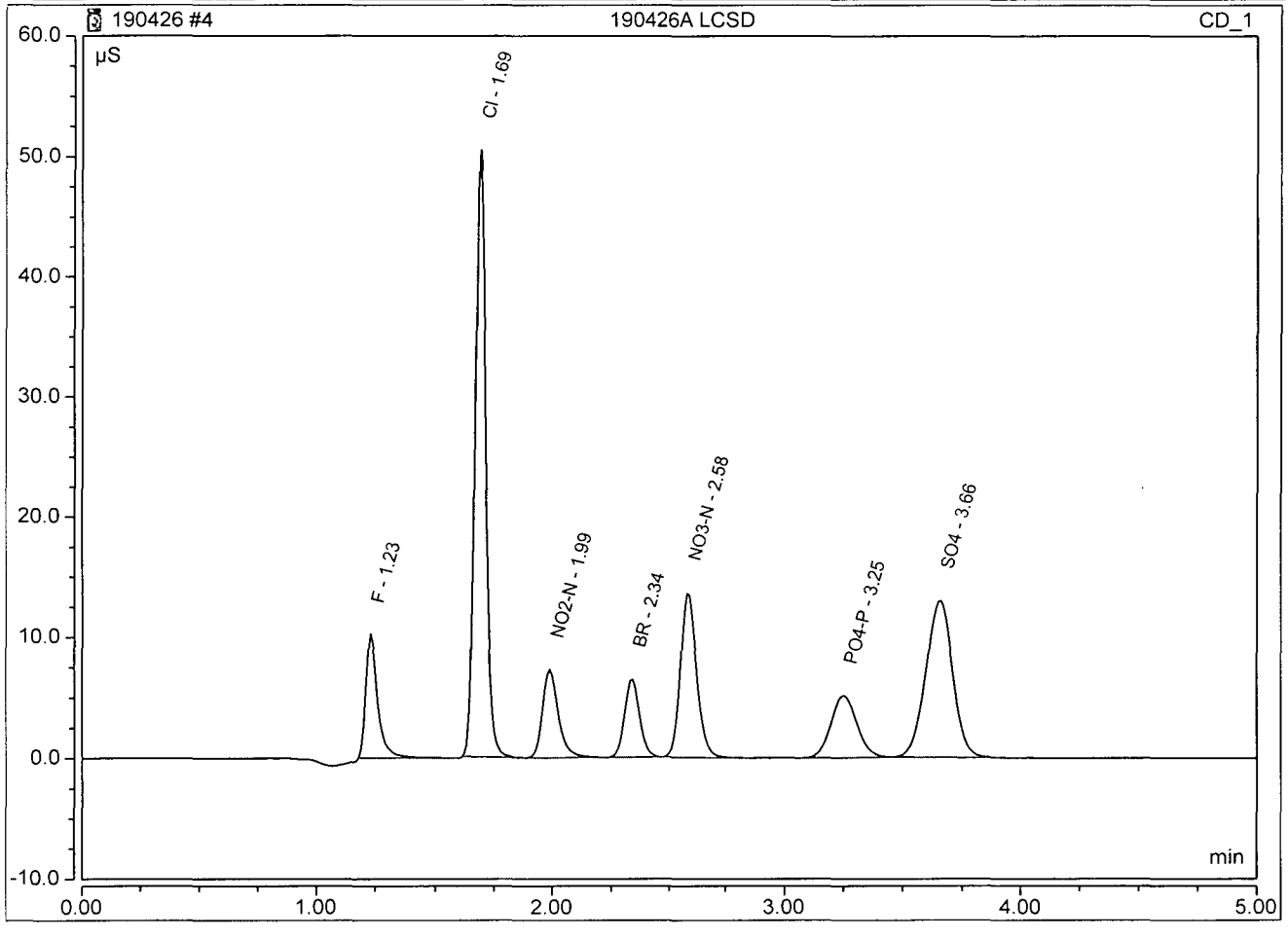
Algortith Check:
y = Peak Area
x = mg/L S04

y = 0.0687 x + -0.0115
y = 1.6985 therefor x = 24.89 HH 190508

Peak Integration Report

Sample Name:	**190426A LCSD**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**26-Apr-2019 / 11:27**	*Run Time:*	**5.00**

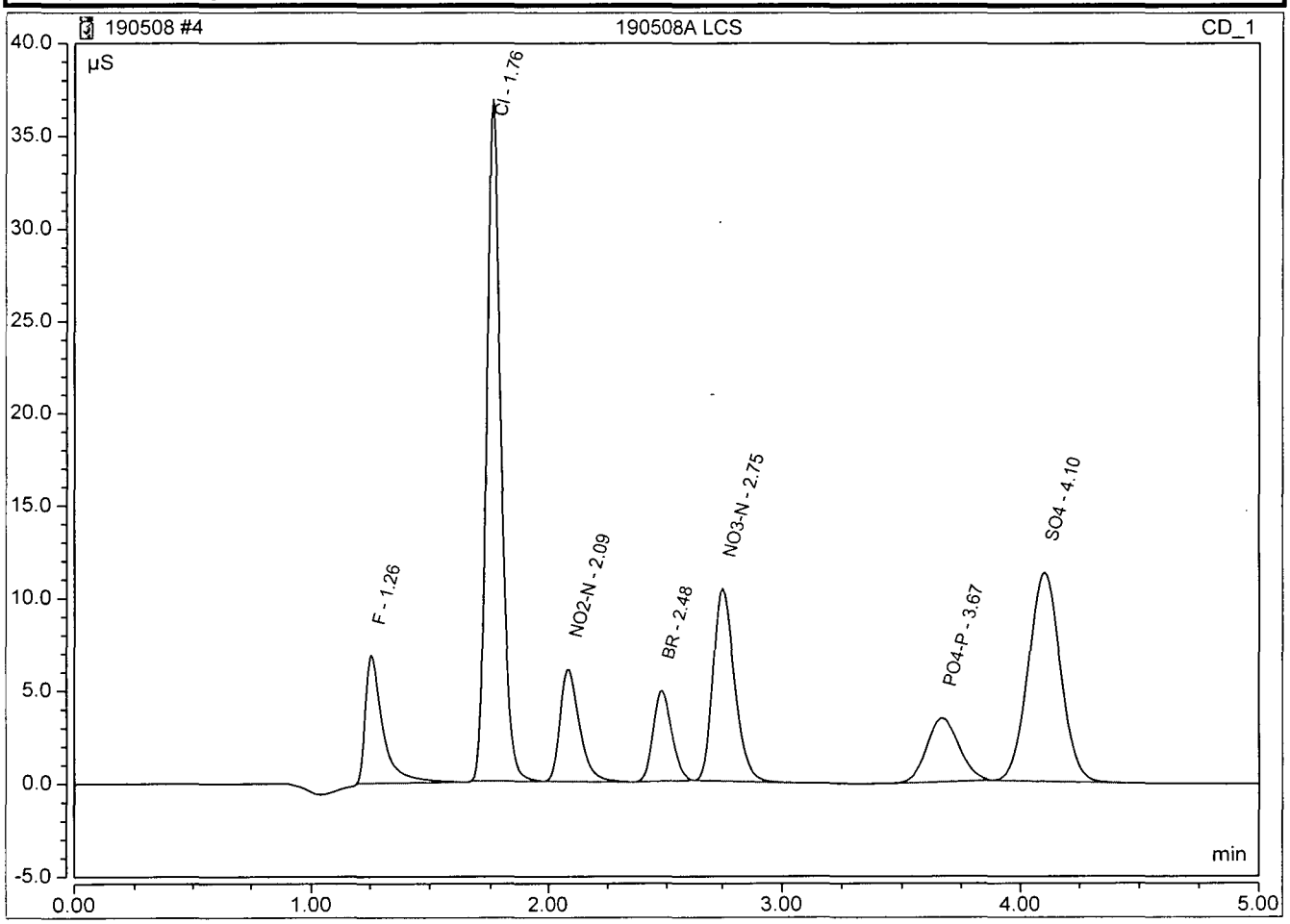
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	**F**	BMB	0.598	10.226	5.11	5.0000	102.2%
2	1.69	**Cl**	BMB	2.658	50.429	25.03	25.0000	100.1%
3	1.99	**NO2-N**	BMB	0.562	7.261	3.15	3.0400	103.6%
4	2.34	**BR**	BMB	0.477	6.463	13.41	12.5000	107.3%
5	2.58	**NO3-N**	BMB	1.136	13.663	5.15	5.0000	103.1%
6	3.25	**PO4-P**	BMB	0.651	5.127	9.16	10.0000	91.6%
7	3.66	**SO4**	BMB	1.698	12.974	24.90	25.0000	99.6%



Peak Integration Report

Sample Name:	**190508A LCS**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 08:38**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.26	**F**	BMB	0.594	6.880	5.08	5	101.5%
2	1.76	**Cl**	BMB	2.589	36.827	24.38	25	97.5%
3	2.09	**NO2-N**	BMB	0.574	6.064	3.22	3.04	105.9%
4	2.48	**BR**	BMB	0.466	4.890	13.09	12.5	104.7%
5	2.75	**NO3-N**	BMB	1.112	10.385	5.04	5	100.9%
6	3.67	**PO4-P**	BMB	0.539	3.433	7.66	10	76.6%
7	4.10	**SO4**	BMB	1.777	11.279	26.05	25	104.2%



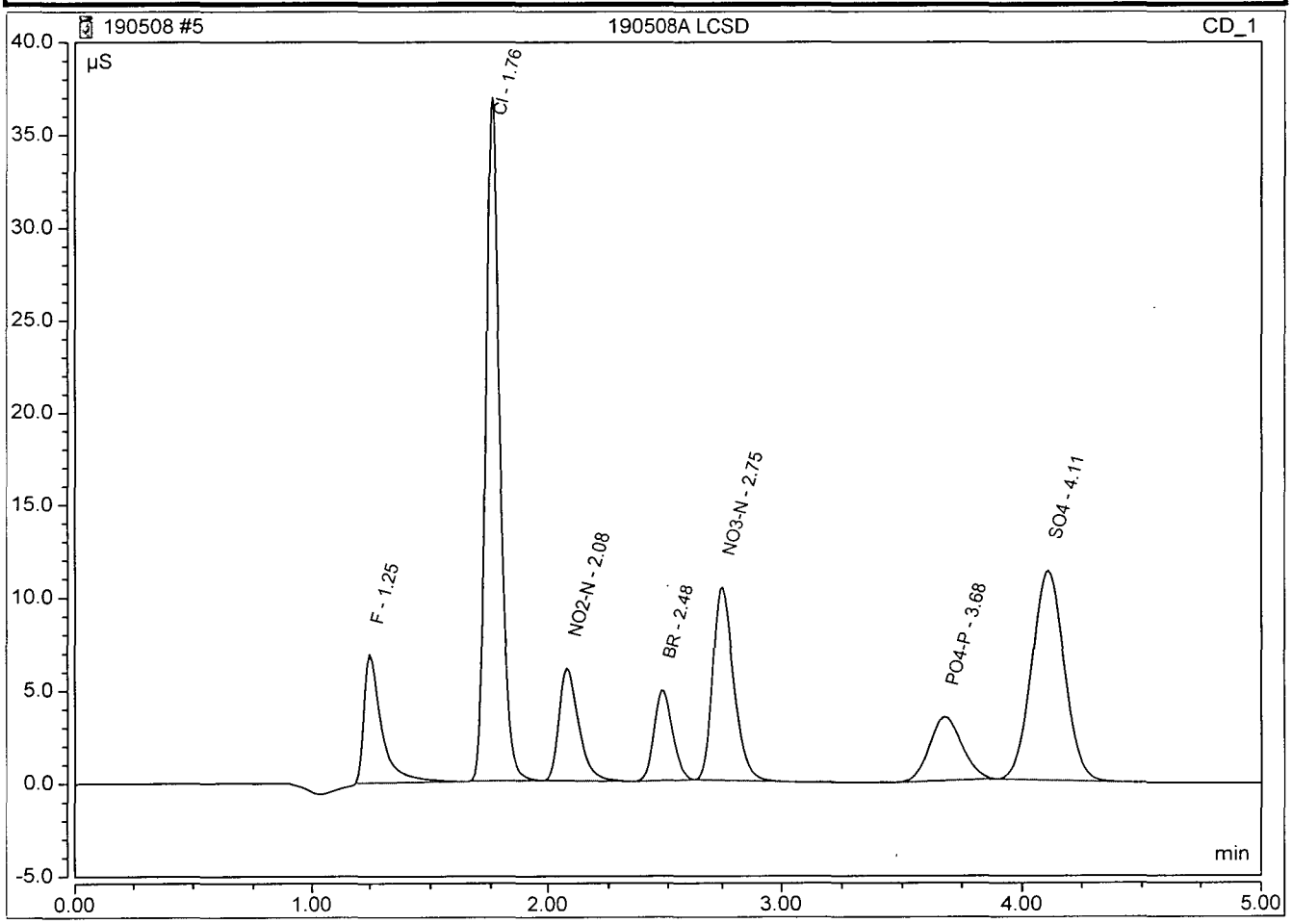
Algortith Check:
y = Peak Area
x = mg/L S04

y = 0.0687 x + -0.0115
y = 1.7769 therefor x = 26.03 RH 190508

Peak Integration Report

Sample Name:	**190508A LCSD**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 08:45**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.25	**F**	BMB	0.601	6.893	5.13	5	102.7%
2	1.76	**Cl**	BMB	2.594	36.850	24.42	25	97.7%
3	2.08	**NO2-N**	BMB	0.576	6.067	3.23	3.04	106.1%
4	2.48	**BR**	BMB	0.466	4.890	13.11	12.5	104.9%
5	2.75	**NO3-N**	BMB	1.115	10.401	5.06	5	101.1%
6	3.68	**PO4-P**	BMB	0.539	3.430	7.67	10	76.7%
7	4.11	**SO4**	BMB	1.775	11.274	26.02	25	104.1%



Name of Final Standard CCV (TOC) **Prep'd By (Initials)** AR
Prep Date 05/01/19
Exp Date 05/29/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	100 uL	40 mL	**DI Water**	2.5 ppm

Name of Final Standard TOC LCS/LCSD **Prep'd By (Initials)** AR
Prep Date 05/01/19
Exp Date 05/29/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	ULTRA Scientific	IQC-106-5	1000 mg/L	**CR-0328-37639**	**02/28/19**	80 uL	40 mL	**DI Water**	2.0 ppm

Name of Final Standard TOC MS/MSD **Prep'd By (Initials)** AR
Prep Date 05/01/19
Exp Date 05/29/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	ULTRA Scientific	IQC-106-5	1000 mg/L	**CR-0328-37639**	**02/28/19**	100 uL	40 mL	**sample**	2.5 ppm

Name of Final Standard CCV (TOC) **Prep'd By (Initials)** AR
Prep Date 05/02/19
Exp Date 05/30/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	100 uL	40 mL	**DI Water**	2.5 ppm

Name of Final Standard TOC LCS/LCSD **Prep'd By (Initials)** AR
Prep Date 05/02/19
Exp Date 05/30/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	ULTRA Scientific	IQC-106-5	1000 mg/L	**CR-0328-37639**	**02/28/19**	100 uL	40 mL	**DI Water**	2.5 ppm

Name of Final Standard TOC MS/MSD **Prep'd By (Initials)** AR
Prep Date 05/02/19
Exp Date 05/30/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	ULTRA Scientific	IQC-106-5	1000 mg/L	**CR-0328-37639**	**02/28/19**	100 uL	40 mL	**sample**	2.5 ppm

Name of Final Standard	**TOC Calibration Curve**
Prep Date	02/23/19
Exp Date	03/23/19

Prep'd By (Initials) MM

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	20 uL	40 mL	**DI Water**	0.5 ppm
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	50 uL	40 mL	**DI Water**	1.25 ppm
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	100 uL	40 mL	**DI Water**	2.5 ppm
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	150 uL	40 mL	**DI Water**	3.75 ppm
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	200 uL	40 mL	**DI Water**	5 ppm

Name of Final Standard	**ICV (TOC)**
Prep Date	02/23/19
Exp Date	03/23/19

Prep'd By (Initials) MM

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	ULTRA Scientific	IQC-106-5	1000 mg/L	**CR-0328-37639**	**02/28/19**	100 uL	40 mL	**DI Water**	2.50 ppm

Standard Prep

	Ferrous Iron Standards		Prep'd By (Initials)		HH		
Prep Date	06/15/18						
Exp Date	06/15/19						
Stock Label	Supplier	Batch Number	Exp Date	Aliquot from Stock	Final Volume	Solvent	Ferrous Iron Concentration
Ferrous Ammonium Sulfate	J.T.Baker	0000184592	08/21/20	0.351	250mL	5ml H2SO4 (0000167828) Diluted with water	200ug/L
Ferrous Sulfate	Mallinckrodt	Lot 5056 KDRX	NA	0.249	250mL	5ml H2SO4 (0000167828) Diluted with water	200ug/L
Ferrous Iron CCV/LCS/MS/ICV			Prep'd By (Initials)		HH		
Prep Date	See Injection Log						
Exp Date	24 Hours						
Initial Standard Information	Supplier	Batch Number	Exp Date	Final Standard Information			
Ferrous Iron CCV	J.T.Baker	0000184592	06/14/19	500uL	25mL	Deionized water	4mg/L
Ferrous Iron ICV/LCS	Mallinckrodt	Lot 5056 KDRX	06/14/19	375uL	25mL	Deionized water	3mg/L
	Ferrous Iron Calibration Curve		Prep'd By (Initials)		HH		
Prep Date	06/15/18						
Exp Date	06/16/18						
Final Standard Information							
Point Label	Supplier	Batch Number	Exp Date	Aliquot from Stock (mL)	Final Volume	Solvent	Ferrous Iron Concentration
CCB	J.T Baker	0000184592	06/14/19	0	25mL	Deionized water	0mg/L
Ical 1	J.T.Baker	0000184592	06/14/19	0 125	25mL	Deionized water	1mg/L
Ical 2	J.T.Baker	0000184592	06/14/19	0.25	25mL	Deionized water	2mg/L
Ical 3	J T Baker	0000184592	06/14/19	0.5	25mL	Deionized water	4mg/L
Ical 4	J.T.Baker	0000184592	06/14/19	0.625	25mL	Deionized water	5mg/L
Ical 5	J T Baker	0000184592	06/14/19	1.25	25mL	Deionized water	10mg/L
ICV	Mallinckrodt	Lot 5056 KDRX	06/14/19	0.375	25mL	Deionized water	3mg/L

Reagent Prep

Reagent	Chemical Lot #	Chemical	Chemical Expiration Date	Amount	Date Prep
Colorizer	0747C107	1,10-phenanthroline	na	0.20023	04/30/19
		10% HCL conc	na	enough to dissolve	01/15/19
Buffer	Z28B018	Ammonia Acetate	na	250.03	04/26/19
	2018071399	Glacial Acetic Acid	06/27/20	700mL	

Nitrite

High Point @ 1.5 mg/L
0.075 mL NO2 O2Si lot 142626-24 - 38408 exp: 4/20/19*
50 mL DI Water

CCV @ 0.75 mg/L
0.0375 mL NO2 O2Si lot 142626-24-38408 exp: 4/20/19*
50 mL DI Water

*Nitrite lot 142626-24 – 38408 (O2SI) expiration date was extended to 10/20/19 by in-house re-certification against Nitrite lot M2-NOX660562-39802 (Inorganic Ventures). SD 04/25/19

ICV/LCS @ 0.73 mg/L
0.12mL NO2 Inorganic Ventures lot M2-NOX660562-39802 exp: 10/23/19
50 mL DI Water

1 mg/L NO2
400 uL of High point and 200 uL of DI made directly into a sample cup

Prep 05/01/19
Exp 05/08/19
EV

Nitrate/TOXN

High Point @ 6 mg/L
0.300 mL NO3 O2Si lot 880117-39577 exp: 2/21/20
50 mL DI Water

CCV @ 3.0 mg/L
0.150 mL NO3 O2Si lot 880117-39577 exp: 2/21/20
50 mL DI Water

ICV/LCS @ 3.0 mg/L
0.150 mL NO3 Inorganic Ventures lot N2-NOX667147-39510 exp: 10/23/19
50 mL DI Water

1 mg/L NO3
100 uL of High point and 500 uL of DI made directly into a sample cup

MS @ 2.5 mg/L NO3 and 0.73 mg/L NO2
0.125 mL NO3 Inorganic Ventures lot N2-NOX667147-39510 exp: 10/23/19
and 0.12mL NO2 Inorganic Ventures lot M2-NOX660562-39802 exp: 10/23/19
Final volume 50 mL of sample

Prep 05/01/19
Exp 05/08/19
EV

EPA 353.2 Injection Log

Directory: I:\EVE\Export\2019\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
1	01 May 2019	16:37	Standard 1 TOXN/NO3		190501B TO	1.
2	01 May 2019	16:40	Standard 90 TOXN/NO3		190501B TO	1.
3	01 May 2019	16:42	Standard 91 TOXN/NO3		190501B TO	1.
4	01 May 2019	16:44	Standard 92 TOXN/NO3		190501B TO	1.
5	01 May 2019	16:45	Standard 93 TOXN/NO3		190501B TO	1.
6	01 May 2019	16:46	Standard 94 TOXN/NO3		190501B TO	1.
7	01 May 2019	16:47	Standard 0 TOXN/NO3		190501B TO	1.
10	01 May 2019	16:50	ICV TOXN		190501B TO	1.
11	01 May 2019	16:51	ICB TOXN		190501B TO	1.

EPA 353.2 Injection Log

Directory: I:\EVE\Export\2019\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
16	01 May 2019	18:17	190501A BLK TOXN/NO3		190501B TO	1.
17	01 May 2019	18:19	190501A LCS TOXN/NO3		190501B TO	1.
18	01 May 2019	18:21	190501A LCSD TOXN/NO3		190501B TO	1.
26	01 May 2019	18:39	CCV TOXN/NO3		190501B TO	1.
27	01 May 2019	18:41	CCB TOXN/NO3		190501B TO	1.
33	01 May 2019	18:48	AZ90213W22 TOXN/NO3		190501B TO	1.
34	01 May 2019	18:49	AZ90215W22 TOXN/NO3		190501B TO	1.
36	01 May 2019	18:51	CCV TOXN/NO3		190501B TO	1.
37	01 May 2019	18:52	CCB TOXN/NO3		190501B TO	1.

EPA 300.0 Injection Log

Directory: I:\Dionex\Charlie\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
1	26 Apr 2019	11:05	CCV 190426		Anions	1.
2	26 Apr 2019	11:12	CCB		Anions	1.
3	26 Apr 2019	11:20	190426A LCS		Anions	1.
4	26 Apr 2019	11:27	190426A LCSD		Anions	1.
13	26 Apr 2019	12:34	CCV 190426		Anions	1.
14	26 Apr 2019	12:41	CCB		Anions	1.
19	26 Apr 2019	13:18	CCV 190426		Anions	1.
20	26 Apr 2019	13:25	CCB		Anions	1.
21	26 Apr 2019	15:42	AZ90213W13		Anions	1.
22	26 Apr 2019	15:49	AZ90215W13		Anions	1.
29	26 Apr 2019	16:41	CCV 190426		Anions	1.
30	26 Apr 2019	16:48	CCB		Anions	1.

EPA 300.0 Injection Log

Directory: I:\Dionex\Charlie\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
1	01 Apr 2019	18:27	CCB		Anions	1.
2	01 Apr 2019	18:34	i cal 1		Anions	1.
3	01 Apr 2019	18:42	i cal 2		Anions	1.
4	01 Apr 2019	18:49	i cal 3		Anions	1.
5	01 Apr 2019	18:56	i cal 4		Anions	1.
6	01 Apr 2019	19:04	i cal 5		Anions	1.
7	01 Apr 2019	19:11	i cal 6		Anions	1.
8	01 Apr 2019	19:19	i cal 7		Anions	1.
9	01 Apr 2019	19:26	i cal 8		Anions	1.
10	01 Apr 2019	19:33	ICB		Anions	1.
11	01 Apr 2019	19:41	ICV LCS		Anions	1.
12	01 Apr 2019	19:48	ICVD LCSD		Anions	1.

EPA 300.0 Injection Log

Directory: I:\Dionex\Charlie\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
2	08 May 2019	08:23	CCV 190508		Anions	1.
3	08 May 2019	08:31	CCB		Anions	1.
4	08 May 2019	08:38	190508A LCS		Anions	1.
5	08 May 2019	08:45	190508A LCSD		Anions	1.
11	08 May 2019	09:53	AZ90213W13 df50		Anions	50.
12	08 May 2019	10:00	AZ90215W13 df5		Anions	5.
13	08 May 2019	10:08	CCV 190508		Anions	1.
14	08 May 2019	10:15	CCB		Anions	1.

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908 North Temperance Ave. ∇ Clovis, CA 93611 ∇ Phone 559-275-2175 ∇ Fax 559-275-4422

Certification Number: CA1312
NELAP Certification number: CA00046
DoD-ELAP Certificate number: 4064.01

Data Validatable Report

May 30, 2019

AECOM
1001 Bishop Street, Suite 1600
Honolulu, Hawaii 96813

Attn: Margie Pascua

Title: Report of Data: Case 88764

Project: 60571032 CV18F0126 Red Hill Fuel Storage. HI

Contract #: Prime contract # for DoD: NAVY CLEAN N62742-17-F-1800, CV18F0126
Subcontract: 18S-22209-HI27

Dear Ms. Pascua:

Five water samples were received May 1,2019. Written results for the requested analyses are being provided on this May 30, 2019.

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

If you have any questions or require further information, please contact your APPL Project Manager, Libby Cheeseborough, libby@applinc.com, at your convenience. Thank you for choosing APPL, Inc.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC and DoD QSM. Release of the hard copy has been authorized by the Laboratory Manager or her designee, as verified by the following signature.

Paula McCartney, Laboratory Director
APPL, Inc.

PM/lac
Enclosure
cc: File

Data Validation Package
for
60481245 CIV 0053 Red Hill Fuel Storage
APPL SDG 88764
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CASE NARRATIVE

Case Narrative

ARF: 88764

Project: 60571032 CV18F0126 Red Hill Fuel Storage. HI

Sample Receipt Information:

Five water samples were received May 1,2019, at 2.0°C, 3.5°C, and 2.5°C. The sample group was assigned Analytical Request Form (ARF) number 88764.

Sample Preparation and Analysis Information:

For the EPA 8015B analysis, the samples were extracted according to EPA method 3520C. The sample extracts were silica gel cleaned according to APPL's SOP CLN004 and placed on hold.

For the EPA 8270D SIM analysis, the samples were extracted according to EPA method 3520C.

For the EPA 8270D Phenol analysis, the samples were extracted according to EPA method 3520C.

For the APPL SOP ANA2MEE analysis, the samples were extracted according to EPA method 3535.

For the EPA 8260B analysis, the samples were purged according to EPA method 5030B.

For the RSK-175 analysis, the samples were allowed to equilibrate for 10 minutes at 40°C and a portion of the headspace was analyzed.

For the EPA 9060A, 300.0, 353.2, SM 2320B, and SM 3500FeB analyses, the samples were prepared according to the methods.

Only the portion of the injection log relative to these samples is included. A full sequence log is available upon request. Measurement uncertainty can be reported upon request.

Analytical Exceptions, Deviations and Abnormalities.

EPA 8015B: In the 190502A LCS, the Diesel RPD exceeded the 30% limit. Corrective action: the client was notified.

Manual integrations were performed in accordance with APPL's SOP. Chromatograms of before and after manual integration are enclosed. Diesel was manually integrated in data files 050619.D and 0506004.D.

EPA 8260B: The surrogate Toluene-d8 recovered above the 112% upper control limit at 113% in the 190507AL LCS. The associated spike recoveries of target compounds are within the control limits.

SDG	Received	Client ID	APPL ID	Collected DateTime	Matrix	Method	Method Description
88764	05/01/19	ERH812	AZ90446	04/29/19 7:40:00 AM	WATER	EPA 8260B	EPA 8260B BTEX WATER
88764	05/01/19	ERH812	AZ90446	04/29/19 7:40:00 AM	WATER	EPA 8260-GAS	EPA 8260 with GAS
88764	05/01/19	ERH812	AZ90446	04/29/19 7:40:00 AM	WATER	EPA 8260B	EPA 8260B GRO WATER
88764	05/01/19	ERH813	AZ90447	04/29/19 8:10:00 AM	WATER	EPA 8260B	EPA 8260B BTEX WATER
88764	05/01/19	ERH813	AZ90447	04/29/19 8:10:00 AM	WATER	EPA 8270D	EPA 8270D WATER
88764	05/01/19	ERH813	AZ90447	04/29/19 8:10:00 AM	WATER	EPA 8270D	EPA 8270D MODIFIED WATER
88764	05/01/19	ERH813	AZ90447	04/29/19 8:10:00 AM	WATER	EPA 8015B-eLL	EPA 8015B TPH LIQ-LIQ
88764	05/01/19	ERH813	AZ90447	04/29/19 8:10:00 AM	WATER	EPA 8260-GAS	EPA 8260 with GAS
88764	05/01/19	ERH813	AZ90447	04/29/19 8:10:00 AM	WATER	EPA 8260B	EPA 8260B GRO WATER
88764	05/01/19	ERH813	AZ90447	04/29/19 8:10:00 AM	WATER	8270D-SIM	EPA 8270D SIM LIQ-LIQ
88764	05/01/19	ERH814	AZ90448	04/29/19 7:45:00 AM	WATER	EPA 8260B	EPA 8260B BTEX WATER
88764	05/01/19	ERH814	AZ90448	04/29/19 7:45:00 AM	WATER	EPA 8270D	EPA 8270D WATER
88764	05/01/19	ERH814	AZ90448	04/29/19 7:45:00 AM	WATER	EPA 8270D	EPA 8270D MODIFIED WATER
88764	05/01/19	ERH814	AZ90448	04/29/19 7:45:00 AM	WATER	EPA 8015B-eLL	EPA 8015B TPH LIQ-LIQ
88764	05/01/19	ERH814	AZ90448	04/29/19 7:45:00 AM	WATER	EPA 8260-GAS	EPA 8260 with GAS
88764	05/01/19	ERH814	AZ90448	04/29/19 7:45:00 AM	WATER	EPA 8260B	EPA 8260B GRO WATER
88764	05/01/19	ERH814	AZ90448	04/29/19 7:45:00 AM	WATER	8270D-SIM	EPA 8270D SIM LIQ-LIQ
88764	05/01/19	ERH815	AZ90449	04/29/19 8:30:00 AM	WATER	EPA 8260B	EPA 8260B BTEX WATER
88764	05/01/19	ERH815	AZ90449	04/29/19 8:30:00 AM	WATER	EPA 8260-GAS	EPA 8260 with GAS
88764	05/01/19	ERH815	AZ90449	04/29/19 8:30:00 AM	WATER	EPA 8260B	EPA 8260B GRO WATER
88764	05/01/19	ERH815	AZ90449	04/29/19 8:30:00 AM	WATER	RSK 175	METHANE BY RSK 175
88764	05/01/19	ERH816	AZ90450	04/29/19 9:00:00 AM	WATER	SM 2320B	Wetlab 2320B - Water
88764	05/01/19	ERH816	AZ90450	04/29/19 9:00:00 AM	WATER	EPA 300.0	Wetlab 300.0 - Water
88764	05/01/19	ERH816	AZ90450	04/29/19 9:00:00 AM	WATER	EPA 300.0	Wetlab 300.0 - Water
88764	05/01/19	ERH816	AZ90450	04/29/19 9:00:00 AM	WATER	SM3500FeB	Ferrous Iron
88764	05/01/19	ERH816	AZ90450	04/29/19 9:00:00 AM	WATER	EPA 353.2	EPA 353.2 - WATER
88764	05/01/19	ERH816	AZ90450	04/29/19 9:00:00 AM	WATER	EPA 8260B	EPA 8260B BTEX WATER
88764	05/01/19	ERH816	AZ90450	04/29/19 9:00:00 AM	WATER	EPA 8270D	EPA 8270D WATER
88764	05/01/19	ERH816	AZ90450	04/29/19 9:00:00 AM	WATER	EPA 8270D	EPA 8270D MODIFIED WATER
88764	05/01/19	ERH816	AZ90450	04/29/19 9:00:00 AM	WATER	EPA 8015B-eLL	EPA 8015B TPH LIQ-LIQ
88764	05/01/19	ERH816	AZ90450	04/29/19 9:00:00 AM	WATER	SW846 9060A	9060A DOC
88764	05/01/19	ERH816	AZ90450	04/29/19 9:00:00 AM	WATER	EPA 8260-GAS	EPA 8260 with GAS
88764	05/01/19	ERH816	AZ90450	04/29/19 9:00:00 AM	WATER	EPA 8260B	EPA 8260B GRO WATER
88764	05/01/19	ERH816	AZ90450	04/29/19 9:00:00 AM	WATER	RSK 175	METHANE BY RSK 175
88764	05/01/19	ERH816	AZ90450	04/29/19 9:00:00 AM	WATER	8270D-SIM	EPA 8270D SIM LIQ-LIQ

88764	05/01/19	ERH816	AZ90450	04/29/19 9:00:00 AM	WATER	SW846 9060A	9060A TOC	

APPL Inc.
Abbreviations and Flags

FLAG	DESCRIPTION
#	Recovery or RPD outside control limits
*	Recovery or RPD outside control limits
B	Analyte detected in associated method blank
C1	Reason for correction: wrote incorrect response
C2	Reason for correction: calculated incorrectly
C3	Reason for correction: needs to be rechecked
C4	Reason for correction: data not usable
DO	Diluted out
E	Exceeds linear range
F	Estimated value
G1	Includes a wide range of hydrocarbons which does not match our gasoline standard
G10	Includes a match to hydrocarbon profiles within the range of mineral spirits
G11	Includes a match to hydrocarbon profiles within the range of JP-4
G12	Pattern does not match the gasoline standard; the carbon range for this sample is consistent with JP8
G13	Closely resembles the hydrocarbon profile of aviation gasoline
G14	Analyte concentration may be biased due to carry over
G2	Closely resembles the boiling point hydrocarbon profile consistent with weathered gasoline
G3	Includes higher boiling hydrocarbons
G4	Includes dominant peak(s) not indicative of petroleum hydrocarbons
G5	Is mainly dominant peak(s) not indicative of petroleum hydrocarbons
G6	Contains recognizable contaminant peak(s) which has been removed from quantitation
G7	Is mainly a match to hydrocarbons within the range of gasoline
G8	Closely resembles the boiling point hydrocarbon profile consistent with weathered gasoline
G9	Includes hydrocarbons within the range of kerosene
J	Estimated value
M	Matrix effect
MI1	Manual integration: integration does not follow baseline
MI2	Manual integration: non-target peak interference
MI3	Manual integration: to split a peak that was integrated as one peak by the computer.
MI4	Manual integration: to integrate a split peak
MI5	Manual integration: the whole peak or part of the peak was not integrated
MI6	Manual integration: computer integrated wrong peak
MI7	Manual integration: other – (See case narrative)
MDL	Method detection limit
ND	Not detected
NT	Non-target
Q	Acceptance criteria not met
T1 I	Includes wide range of hydrocarbons not indicative of diesel
T1 M	Is mainly wide range of hydrocarbons not necessarily indicative of diesel
T2 I	Includes lower boiling hydrocarbons, e.g. mineral spirits, kerosene, stoddard solvent, white gas
T2 M	Is mainly lower boiling hydrocarbons, e.g. mineral spirits, kerosene, stoddard solvent, white gas
T3 I	Includes higher boiling hydrocarbons, e.g. asphaltene, waste oil, motor oil, or weathered diesel fuel
T3 M	Is mainly higher boiling hydrocarbons, e.g. asphaltene, waste oil, motor oil, or weathered diesel fuel
T4 I	Includes dominant peak(s) not indicative of hydrocarbons
T4 M	Is mainly dominant peak(s) not indicative of hydrocarbons
T5	Contains recognizable contaminant peak(s) which has been removed from quantitation
T6	Is mainly a match to hydrocarbons within range of diesel fuel
T7	Closely resembles the boiling point hydrocarbon profile consistent with diesel fuel
T8	Includes a match to hydrocarbon profiles within range of diesel and kerosene fuel
T9 I	Includes non-diesel hydrocarbons within boiling point range of diesel fuel
T9 M	Is mainly non-diesel hydrocarbons within boiling point range of diesel fuel
U	Not detected
Y	Percent difference between primary and confirmation column > 40%

SAMPLE RECORDS MANAGEMENT

CHAIN OF CUSTODY,

ARF, CRF, AND

CLIENT COMMUNICATION

APPL - Analysis Request Form 88764

Client: AECOM
Address: 1001 Bishop Street, Suite 1600
Honolulu, HI 96813
Attn: Margie Pascua
Phone: 808-356-5373 Fax: 808-523-8950
Job: 60571032 CV18F0126 Red Hill Fuel Storage
PO #: 18S-22209-HI27 PO# 102604
Chain of Custody (Y/N): Y # 058,042,054,110RH
RAD Screen (Y/N): Y pH (Y/N): N
Turn Around Type: 1 WEEK

Received by: AAR
Date Received: 05/01/19 Time: 10:00
Delivered by: FEDEX
Shuttle Custody Seals (Y/N): Y Time Zone: -10
Chest Temp(s): 2.0,3.5,2.5°C
Color: VOA/A-Grn
Samples Chilled until Placed in Refrig/Freezer: Y
Project Manager: Libby Cheesebor
QC Report Type: DVP4DOD/EQUIS/HI
Due Date: 05/08/19

Comments:
PM: login and F1s to Margie.Pascua@aecom.com
AN: 7 day TAT for Form 1s; 21 day TAT for PKG STYLE 1; DOD v5.1; DOD Forms (LOQ/LOD database/DL)
8260: BTEX & TPH-G only; 8270 SIM: 1-methylnaphthalene, 2-methylnaphthalene & naphthalene only.
TPH D & O both with and w/o SGC, reverse surrogate for the SGC; analyze SGC if detections
RSK: Methane only; 8011: EDB only; $87DC53W5: report phenol; $87DMEEW5: 2-MEE (LCS Spk 80ppb).

FR: HC to LDC, 2 labeled CDs to Margie Pascua.
EDD: AECOM EQuIS EDD 2.5.3 Red Hill 87DMEE->3535A to Margie.Pascua@aecom.com & jecklund@lab-data.com

Sample Distribution:
GC: 3-$87DC53W5, 3-$87DMEEW5, 3-$DOC53W5LIQ, 3-$SIM53LIQ51
Extractions: 3-_LIQ003, 3-_LIQ005, 3-_MWE2MEE
VOA: 5-$86BTOTXDOD5W, 5-$GASBL, 5-$GRO86BW, 2-$RSKMETH
Wetlab: 1-$232W(HCO3,CO3,ALK), 1-$300W(CL,SO4), 1-$35FE, 1-$35OF(NO3), 1-$TOCDOCW

Charges:

Invoice To:
ACCOUNTS PAYABLE
1001 Bishop Street, Ste 1600
USAPImaging@aecom.com
mary.basano@aecom.com

	Client ID		APPL ID	Sampled		Analyses Requested
1.	ERH812	LCSD	AZ90446W	04/29/19	07:40	$86BTOTXDOD5W, $GASBL, $GRO86BW
2.	ERH813	LCSD	AZ90447W	04/29/19	08:10	$86BTOTXDOD5W, $87DC53W5, $87DMEEW5, $DOC53W5LIQ, $GASBL, $GRO86BW, $SIM53LIQ51
3.	ERH814	LCSD	AZ90448W	04/29/19	07:45	$86BTOTXDOD5W, $87DC53W5, $87DMEEW5, $DOC53W5LIQ, $GASBL, $GRO86BW, $SIM53LIQ51
4.	ERH815	LCSD	AZ90449W	04/29/19	08:30	$86BTOTXDOD5W, $GASBL, $GRO86BW, $RSKMETH

Note: All times, excluding sample collection times, are Pacific Time Zone unless noted otherwise. Collection times are in: -10 UTC
Page 1 Client Code: AECOM-REDHILL *Printed 05/02/19 10:17:37 AM* Computer: APPL-FEDEX-PC **# 88764**

5. ERH816	LCSD AZ90450W 04/29/19 09:00		$232W(HCO3,CO3,ALK), $300W(CL,SO4), $35FE, $35OF(NO3), $86BTOTXDOD5W, $87DC53W5, $87DMEEW5, $DOC53W5LIQ, $GASBL, $GRO86BW, $RSKMETH, $SIM53LIQ51, $TOCDOCW

APPL Sample Receipt Form

ARF# **88764**

Sample	Container Type	Count	p
AZ90446	[13] VOAs - HCL	3	
AZ90447	[13] VOAs - HCL	4	
	[17] Amber Liter	5	
	[40] 500mL Amber, unprsrvd	2	
AZ90448	[13] VOAs - HCL	4	
	[17] Amber Liter	5	
	[40] 500mL Amber, unprsrvd	2	
AZ90449	[13] VOAs - HCL	4	
AZ90450	[3] PL 250mL	1	
	[10] PL 250mL - H2SO4	1	
	[13] VOAs - HCL	4	
	[17] Amber Liter	5	
	[32] Clear VOA - H2SO4	8	
	[38] 250mL brn poly, HCl prsvd	1	
	[40] 500mL Amber, unprsrvd	2	

Sample	Container Type	Count	p

APPL, Inc.
908 N Temperance Ave
Clovis, CA 93611
www.applinc.com

Phone: (559) 275-2175
Fax: (559) 275-4422
coc@applinc.com

CHAIN OF CUSTODY RECORD

C.O.C. 058

Report to: PLEASE PRINT	Invoice to: PLEASE PRINT
Company Name: AECOM Phone: 808-356-5373	Company Name: AECOM Phone: 808-529-7249
Address: 1001 Bishop St, Suite 1600 Honolulu, HI 96813 Fax: 808-523-8950	Address: 1001 Bishop St, Suite 1600 Honolulu, HI 96813 Fax: 808-523-8950
Attn: Margie Pascua	Attn: Mary Basano
Email: margie.pascua@aecom.com	Email: mary.basano@aecom.com; usapimaging@aecom.com

Project Name/Number: CV18F0126 / 60571032
Purchase Order Number: 102604
Sampler (Print): BL, MH, GM, BM, TB
Sampler (Signature):

Date Shipped: 4/30/19
Carrier: FedEx
Waybill No.:
Comments:

Sample Identification	Location	Date Collected	Time Collected	Time Zone	No. of Containers	Matrix: Aq	Matrix: Sed.	Matrix: Soil	8260C BTEX,TPH-g	8260C DCA 8011 EDB	8015C TPH-d/o	3630/8015C TPH-d/o w/ SGT	8270DSIM PAHs short list	8270D Phenol, ~~THC~~	8270D 2-(2-methoxy ethoxy)-ethanol	RSK175M Methane	SM3500-Fe Ferrous iron	353.2 Nitrate-Nitrite N	SM2320B Alkalinity 300.0 Nitrate,Sulfate,Chloride	300.0 Bromide/Fluoride 8010 Total Ca,Mg,Mn,K,Na SM4500 Total & Dissolved Silica	9060A TOC, ~~DOC~~	
ERH812	TRIP	4/29/19	0740	HST	4				X													
ERH813	Field Blank	4/29/19	0810	HST	11				X		X	X*	X	X	X							
ERH814	Equip Blank	4/29/19	0745	HST	4				X													See other Coolers

BL 4/30/19

*Analyze TPH w/SGT only if TPH-d/o detected.

TPH-d/o & PAHs need liquid-liquid extraction.

Shuttle Temperature:

Turnaround Requested: Check one
☐ Standard 2-3 wk ☒ One week ☐ 3 days ☐ 24/48 Hrs. ☐ Other:

Sample Disposal:
☐ Return to client ☒ Disposal by Lab (30-day retention)

Relinquished by sampler: AECOM	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
	4/30/19	1200					
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received at lab by:
					5-01-19	1000	

See page 2 for Container Preservative and Sampling Information

APPL LABS

APPL, Inc.
908 N Temperance Ave
Clovis, CA 93611
www.applinc.com

Phone: (559) 275-2175
Fax: (559) 275-4422
coc@applinc.com

CHAIN OF CUSTODY RECORD

C.O.C. 054

Report to: PLEASE PRINT

Company Name: AECOM Phone: 808-356-5373

Address: 1001 Bishop St, Suite 1600
Honolulu, HI 96813 Fax: 808-523-8950

Attn: Margie Pascua

Email: margie.pascua@aecom.com

Invoice to: PLEASE PRINT

Company Name: AECOM Phone: 808-529-7249

Address: 1001 Bishop St, Suite 1600
Honolulu, HI 96813 Fax: 808-523-8950

Attn: Mary Basano

Email: mary.basano@aecom.com; usapimaging@aecom.com

Project Name/Number: CV18F0126 / 60571032

Purchase Order Number: 102604

Sampler (Print): BL For BM, MH, CM, BL

Sampler (Signature):

Date Shipped:

Carrier: FedEx

Waybill No.:

Comments:

Sample Identification	Location	Date Collected	Time Collected	Time Zone	No. of Containers	Matrix: Aq	Sed.	Soil	8260C BTEX,TPH-g	8260C DCA 8011 EDB	8015C TPH-d/o	3630/8015C TPH-d/o w/ SGT	8270DSIM PAHs short list	8270D Phenol, TICs	8270D 2-(2-methoxyethoxy)-ethanol	RSK175M Methane	SM3500-Fe Ferrous Iron	353.2 Nitrate-Nitrite N	SM2320B Alkalinity 300.0 Nitrate,Sulfate,Chloride	300.0 Bromide/Fluoride 6010 Total Ca,Mg,Mn,K,Na SM4500 Total & Dissolved Silica	9060A TOC	
ERH ~~BT~~ 814	Equip Blank	4/29/19	745	HST	7	X					X	X*	X	X	X							see other coder for VOAs

4/30/19

*Analyze TPH w/SGT only if TPH-d/o detected.

TPH-d/o & PAHs need liquid-liquid extraction

Shuttle Temperature:

Turnaround Requested: Check one
☐ Standard 2-3 wk ☒ One week ☐ 3 days ☐ 24/48 Hrs. ☐ Other:

Sample Disposal:
☐ Return to client ☒ Disposal by Lab (30-day retention)

Relinquished by/sampler: AECOM	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
	4/30/19	1700					
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received at lab by:
					5-01-19	1000	

See page 2 for Container Preservative and Sampling Information

APPL LABS

APPL, Inc.
908 N Temperance Ave
Clovis, CA 93611
www.applinc.com

Phone: (559) 275-2175
Fax: (559) 275-4422
coc@applinc.com

CHAIN OF CUSTODY RECORD

C.O.C. 042

Report to: PLEASE PRINT	Invoice to: PLEASE PRINT
Company Name: AECOM Phone: 808-356-5373	Company Name: AECOM Phone: 808-529-7249
Address: 1001 Bishop St, Suite 1600 Honolulu, HI 96813 Fax: 808-523-8950	Address: 1001 Bishop St, Suite 1600 Honolulu, HI 96813 Fax: 808-523-8950
Attn: Margie Pascua	Attn: Mary Basano
Email: margie.pascua@aecom.com	Email: mary.basano@aecom.com; usapimaging@aecom.com

Project Name/Number: CV18F0126 / 60571032
Purchase Order Number: 102604
Sampler (Print): TBL Sr. GM, MH, BM, BL
Sampler (Signature):
Date Shipped: 4/30/19
Carrier: FedEx
Waybill No.:
Comments:

Sample Identification	Location	Date Collected	Time Collected	Time Zone	No. of Containers	Matrix: Aq	Matrix: Sed.	Matrix: Soil	8260C BTEX,TPH-g	8260C DCA 8011 EDB	8015C TPH-d/o	3630/8015C TPH-d/o w/ SGT	8270DSIM PAHs short list	8270D Phenol, ~~TICs~~	8270D 2-(2-methoxy ethoxy)-ethanol	RSK175M Methane	SM3500-Fe Ferrous Iron	353.2 Nitrate-Nitrite N	SM2320B Alkalinity 300.0 Nitrate,Sulfate,Chloride	300.0 Bromide/Fluoride 6010 Total Ca,Mg,Mn,K,Na SM4500 Total & Dissolved Silica	9060A TOC, DOC
ERH815	Trip Blank	4/29/19	0830	HST	4	X			X							X					
ERH816	RHMW11-05	4/29/19	0900	HST	22	X			X		X	X*	X	X	X	X	X	X	X		X

Ferrous iron and DOC are field-filtered.
*Analyze TPH w/SGT only if TPH-d/o detected.
TPH-d/o & PAHs need liquid-liquid extraction.

Shuttle Temperature:

Turnaround Requested: Check one
☐ Standard 2-3 wk ☒ One week ☐ 3 days ☐ 24/48 Hrs. ☐ Other:

Sample Disposal:
☐ Return to client ☒ Disposal by Lab (30-day retention)

Relinquished by sampler: AECOM	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
	4/30/19	12:00					
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received at lab by:
					5-01-19	1000	

See page 2 for Container Preservative and Sampling Information

COOLER RECEIPT FORM **ARF: 88764**

1) Project: 60571032 CV18F0126 Red Hill Fuel Storage Date Received: 05/01/19

2) Coolers: Number of Coolers: 3

3) YES Were custody seals present and intact?
How many? 9 Name/Date on seal? see below

4) YES Was there a shipping slip? Carrier name: FEDEX

5) Type of packing in cooler: X bubble wrap __ popcorn __ foam X plastic bags __ other
X wet ice __ dry ice __ no ice __ gel ice

6) YES Were cooler temperatures acceptable?

7) Serial number of certified NIST thermometer use R1

8) Cooler temp(s): In °C
1: 2.0°C 2: 3.5°C 3: 2.5°C 4: 5: 6:
7: 8: 9: 10: 11: 12:

Chain of custody:

9) YES Was a chain of custody received?

10) YES Were the custody papers complete/signed in the appropriate places?

Sample Labels:

11) YES Were all sample labels complete (sample ID, date/time of sampling, etc.)?

12) YES Did all container labels agree with custody papers?

Sample Containers:

13) YES Were all containers sealed in separate bags?

14) YES Did all containers arrive in good condition:(unbroken, no leakage, no cracked

15) YES Were correct containers and preservatives used for the tests indicated?

16) YES Was a sufficient amount of sample sent for tests indicated?

17) Yes Were bubbles present in volatile samples?
If yes, the following were received with air bubbles:
Larger than a pea:
Smaller than a pea: az90449w01-4

CUSTODY SEAL
AECOM (808) 521-3051
Initials BL Date 4/30/19

Preservation Hold time:

18) Yes Was a sufficient amount of holding time remaining to analyze the samples?

19) Yes Was the pH taken of all non-VOA preserved samples and written on the sample

20) Yes Was the pH of acid preserved non-VOA samples < 2?

21) NA Was the pH of sodium hydroxide preserved samples for Cyanide > 12 and Sulfi

22) NO Were unpreserved VOA Vials received?

23) NA Are unpreserved VOA vials noted in the ADD TEST FIELD on the ARF?
pH strip lot number: 90b2031
Lab notified if pH was not adequate:

Notes/Deficiencies:
Sample ERH812 COC lists 4 containers we received only 3

Personnel receiving samples: ZG Second reviewer: AA
Personnel labeling samples: ZG
Project manager notified: ZG Date/Time of notification 05/01/19
Name of client notified: Date/Time of notification

Revision: 22, November 5, 2013

SAMPLE RESULTS

EPA 8015B TPH LIQ-LIQ

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88764

Sample ID: ERH813

APPL ID: AZ90447

Sample Collection Date: 04/29/19

QCG: #DOC53-190502A-240109

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8015B-eL	DIESEL (C10-C24)	25.00 U	40.0	25.00	13.07	ug/L	05/02/19	05/06/19
EPA 8015B-eL	OIL (C24-C40)	40.00 U	40.0	40.00	5.54	ug/L	05/02/19	05/06/19
EPA 8015B-eL	SURROGATE: OCTACOSANE (S)	100	60-142			%	05/02/19	05/06/19
EPA 8015B-eL	SURROGATE: ORTHO-TERPHENYL (S)	94.5	56-125			%	05/02/19	05/06/19

Quant Method: DOC0411.M
Run #: 506018
Instrument: Apollo
Sequence: 190506
Dilution Factor: 1
Initials: BTI

Printed: 05/08/19 8:57:30 AM
APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8015B TPH LIQ-LIQ

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88764

Sample ID: ERH814

APPL ID: AZ90448

Sample Collection Date: 04/29/19

QCG: #DOC53-190502A-240109

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8015B-eL	DIESEL (C10-C24)	25.00 U	40.0	25.00	13.07	ug/L	05/02/19	05/06/19
EPA 8015B-eL	OIL (C24-C40)	40.00 U	40.0	40.00	5.54	ug/L	05/02/19	05/06/19
EPA 8015B-eL	SURROGATE: OCTACOSANE (S)	99.4	60-142			%	05/02/19	05/06/19
EPA 8015B-eL	SURROGATE: ORTHO-TERPHENYL (S)	94.7	56-125			%	05/02/19	05/06/19

Quant Method: DOC0411.M
Run #: 506019
Instrument: Apollo
Sequence: 190506
Dilution Factor: 1
Initials: BTI

Printed: 05/08/19 8:57:30 AM
APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8015B TPH LIQ-LIQ

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88764

Sample ID: ERH816

APPL ID: AZ90450

Sample Collection Date: 04/29/19

QCG: #DOC53-190502A-240109

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8015B-eL	DIESEL (C10-C24)	25.00 U	40.0	25.00	13.07	ug/L	05/02/19	05/06/19
EPA 8015B-eL	OIL (C24-C40)	40.00 U	40.0	40.00	5.54	ug/L	05/02/19	05/06/19
EPA 8015B-eL	SURROGATE: OCTACOSANE (S)	106	60-142			%	05/02/19	05/06/19
EPA 8015B-eL	SURROGATE: ORTHO-TERPHENYL (S)	101	56-125			%	05/02/19	05/06/19

Quant Method: DOC0411.M
Run #: 506020
Instrument: Apollo
Sequence: 190506
Dilution Factor: 1
Initials: BTI

Printed: 05/08/19 8:57:30 AM
APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8270D SIM LIQ-LIQ

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua
Project: 60571032 CV18F0126 Red Hill Fuel Storage
Sample ID: ERH813
Sample Collection Date: 04/29/19

ARF: 88764
APPL ID: AZ90447
QCG: #SIM53-190506A-240137

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
8270D-SIM	1-METHYLNAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	05/06/19	05/08/19
8270D-SIM	2-METHYLNAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	05/06/19	05/08/19
8270D-SIM	NAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	05/06/19	05/08/19
8270D-SIM	SURROGATE: 2-METHYLNAPHTHALEN	73.0	39-114			%	05/06/19	05/08/19
8270D-SIM	SURROGATE: FLUORANTHENE-D10 (S	84.9	58-120			%	05/06/19	05/08/19

Quant Method: L0326.M
Run #: 0426L060
Instrument: Linus
Sequence: L190426
Dilution Factor: 1
Initials: MA

Printed: 05/08/19 1:40:5
APPL-F1-SC-NoMC-REG MDLs

EPA 8270D SIM LIQ-LIQ

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua
Project: 60571032 CV18F0126 Red Hill Fuel Storage
Sample ID: ERH814
Sample Collection Date: 04/29/19

ARF: 88764
APPL ID: AZ90448
QCG: #SIM53-190506A-240137

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
8270D-SIM	1-METHYLNAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	05/06/19	05/08/19
8270D-SIM	2-METHYLNAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	05/06/19	05/08/19
8270D-SIM	NAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	05/06/19	05/08/19
8270D-SIM	SURROGATE: 2-METHYLNAPHTHALEN	74.2	39-114			%	05/06/19	05/08/19
8270D-SIM	SURROGATE: FLUORANTHENE-D10 (S	86.3	58-120			%	05/06/19	05/08/19

Quant Method: L0326.M
Run #: 0426L061
Instrument: Linus
Sequence: L190426
Dilution Factor: 1
Initials: MA

Printed: 05/08/19 1:40:55 PM
APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8270D SIM LIQ-LIQ

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua
Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88764

Sample ID: ERH816

APPL ID: AZ90450

Sample Collection Date: 04/29/19

QCG: #SIM53-190506A-240137

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
8270D-SIM	1-METHYLNAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	05/06/19	05/08/19
8270D-SIM	2-METHYLNAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	05/06/19	05/08/19
8270D-SIM	NAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	05/06/19	05/08/19
8270D-SIM	SURROGATE: 2-METHYLNAPHTHALEN	86.0	39-114			%	05/06/19	05/08/19
8270D-SIM	SURROGATE: FLUORANTHENE-D10 (S	86.8	58-120			%	05/06/19	05/08/19

Quant Method: L0326.M
Run #: 0426L062
Instrument: Linus
Sequence: L190426
Dilution Factor: 1
Initials: MA

Printed: 05/08/19 1:40:55 PM
APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8270D WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88764

Sample ID: ERH813

APPL ID: AZ90447

Sample Collection Date: 04/29/19

QCG: #87DC5-190506A-240139

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8270D	PHENOL	4.00 U	5.0	4.00	1.00	ug/L	05/06/19	05/08/19
EPA 8270D	SURROGATE: 2,4,6-TRIBROMOPHENO	90.4	43-140			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: 2-FLUORBIPHENYL (S)	73.6	44-119			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: 2-FLUOROPHENOL (S)	80.4	19-119			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: NITROBENZENE-D5 (S)	78.4	44-120			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: PHENOL-D6 (S)	76.8	10-115			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: TERPHENYL-D14 (S)	80.5	50-134			%	05/06/19	05/08/19

Quant Method: Y0319NC.M
Run #: 0411Y321
Instrument: Yoda
Sequence: Y190411
Dilution Factor: 1
Initials: JPR

Printed: 05/08/19 2:00:29 PM

APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8270D WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88764

Sample ID: ERH814

APPL ID: AZ90448

Sample Collection Date: 04/29/19

QCG: #87DC5-190506A-240139

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8270D	PHENOL	4.00 U	5.0	4.00	1.00	ug/L	05/06/19	05/08/19
EPA 8270D	SURROGATE: 2,4,6-TRIBROMOPHENO	92.7	43-140			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: 2-FLUORBIPHENYL (S)	77.2	44-119			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: 2-FLUOROPHENOL (S)	75.6	19-119			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: NITROBENZENE-D5 (S)	80.6	44-120			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: PHENOL-D6 (S)	72.6	10-115			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: TERPHENYL-D14 (S)	86.0	50-134			%	05/06/19	05/08/19

Quant Method: Y0319NC.M
Run #: 0411Y322
Instrument: Yoda
Sequence: Y190411
Dilution Factor: 1
Initials: JPR

Printed: 05/08/19 2:00:29 PM
APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8270D WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88764

Sample ID: ERH816

APPL ID: AZ90450

Sample Collection Date: 04/29/19

QCG: #87DC5-190506A-240139

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8270D	PHENOL	4.00 U	5.0	4.00	1.00	ug/L	05/06/19	05/08/19
EPA 8270D	SURROGATE: 2,4,6-TRIBROMOPHENO	93.9	43-140			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: 2-FLUORBIPHENYL (S)	78.4	44-119			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: 2-FLUOROPHENOL (S)	84.0	19-119			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: NITROBENZENE-D5 (S)	83.5	44-120			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: PHENOL-D6 (S)	77.7	10-115			%	05/06/19	05/08/19
EPA 8270D	SURROGATE: TERPHENYL-D14 (S)	85.2	50-134			%	05/06/19	05/08/19

Quant Method: Y0319NC.M
Run #: 0411Y323
Instrument: Yoda
Sequence: Y190411
Dilution Factor: 1
Initials: JPR

Printed: 05/08/19 2:00:29 PM

APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8270D MODIFIED WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua
Project: 60571032 CV18F0126 Red Hill Fuel Storage
Sample ID: ERH813
Sample Collection Date: 04/29/19

ARF: 88764
APPL ID: AZ90447
QCG: #87DME-190506A-240065

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8270D	2-(2-METHOXYETHOXY)-ETHANOL	80.0 U	100	80.0	40.0	ug/L	05/06/19	05/06/19

Quant Method: YMEE0430.M
Run #: 0430Y047
Instrument: Yoda
Sequence: Y190430M
Dilution Factor: 1
Initials: MA

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APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8270D MODIFIED WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua
Project: 60571032 CV18F0126 Red Hill Fuel Storage
Sample ID: ERH814
Sample Collection Date: 04/29/19

ARF: 88764
APPL ID: AZ90448
QCG: #87DME-190506A-240065

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8270D	2-(2-METHOXYETHOXY)-ETHANOL	80.0 U	100	80.0	40.0	ug/L	05/06/19	05/06/19

Quant Method:	YMEE0430.M
Run #:	0430Y048
Instrument:	Yoda
Sequence:	Y190430M
Dilution Factor:	1
Initials:	MA

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APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8270D MODIFIED WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88764

Sample ID: ERH816

APPL ID: AZ90450

Sample Collection Date: 04/29/19

QCG: #87DME-190506A-240065

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8270D	2-(2-METHOXYETHOXY)-ETHANOL	80.0 U	100	80.0	40.0	ug/L	05/06/19	05/06/19

Quant Method:	YMEE0430.M
Run #:	0430Y049
Instrument:	Yoda
Sequence:	Y190430M
Dilution Factor:	1
Initials:	MA

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APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8260B BTEX WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

Sample ID: ERH812

Sample Collection Date: 04/29/19

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

ARF: 88764

APPL ID: AZ90446

QCG: #86BTO-190507AL-240115

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8260B	BENZENE	0.30 U	1.0	0.30	0.15	ug/L	05/07/19	05/07/19
EPA 8260B	ETHYLBENZENE	0.50 U	1.0	0.50	0.23	ug/L	05/07/19	05/07/19
EPA 8260B	TOLUENE	0.30 U	1.0	0.30	0.15	ug/L	05/07/19	05/07/19
EPA 8260B	XYLENES (TOTAL)	0.30 U	2.0	0.30	0.15	ug/L	05/07/19	05/07/19
EPA 8260B	SURROGATE: 1,2-DICHLOROETHANE-	99.1	81-118			%	05/07/19	05/07/19
EPA 8260B	SURROGATE: 4-BROMOFLUOROBENZ	94.1	85-114			%	05/07/19	05/07/19
EPA 8260B	SURROGATE: DIBROMOFLUOROMETH	99.0	80-119			%	05/07/19	05/07/19
EPA 8260B	SURROGATE: TOLUENE-D8 (S)	99.2	89-112			%	05/07/19	05/07/19

Quant Method: L0506W.M
Run #: 0507L24
Instrument: Loki
Sequence: 190506
Dilution Factor: 1
Initials: DPO

Printed: 05/08/19 10:50:36 AM
APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8260B BTEX WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88764

Sample ID: ERH813

APPL ID: AZ90447

Sample Collection Date: 04/29/19

QCG: #86BTO-190507AL-240115

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8260B	BENZENE	0.30 U	1.0	0.30	0.15	ug/L	05/07/19	05/07/19
EPA 8260B	ETHYLBENZENE	0.50 U	1.0	0.50	0.23	ug/L	05/07/19	05/07/19
EPA 8260B	TOLUENE	0.30 U	1.0	0.30	0.15	ug/L	05/07/19	05/07/19
EPA 8260B	XYLENES (TOTAL)	0.30 U	2.0	0.30	0.15	ug/L	05/07/19	05/07/19
EPA 8260B	SURROGATE: 1,2-DICHLOROETHANE-	113	81-118			%	05/07/19	05/07/19
EPA 8260B	SURROGATE: 4-BROMOFLUOROBENZ	100	85-114			%	05/07/19	05/07/19
EPA 8260B	SURROGATE: DIBROMOFLUOROMETH	110	80-119			%	05/07/19	05/07/19
EPA 8260B	SURROGATE: TOLUENE-D8 (S)	107	89-112			%	05/07/19	05/07/19

Quant Method: L0506W.M
Run #: 0507L25
Instrument: Loki
Sequence: 190506
Dilution Factor: 1
Initials: DPO

Printed: 05/08/19 10:50:36 AM
APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8260B BTEX WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88764

Sample ID: ERH814

APPL ID: AZ90448

Sample Collection Date: 04/29/19

QCG: #86BTO-190507AL-240115

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8260B	BENZENE	0.30 U	1.0	0.30	0.15	ug/L	05/07/19	05/07/19
EPA 8260B	ETHYLBENZENE	0.50 U	1.0	0.50	0.23	ug/L	05/07/19	05/07/19
EPA 8260B	TOLUENE	0.30 U	1.0	0.30	0.15	ug/L	05/07/19	05/07/19
EPA 8260B	XYLENES (TOTAL)	0.30 U	2.0	0.30	0.15	ug/L	05/07/19	05/07/19
EPA 8260B	SURROGATE: 1,2-DICHLOROETHANE-	110	81-118			%	05/07/19	05/07/19
EPA 8260B	SURROGATE: 4-BROMOFLUOROBENZ	102	85-114			%	05/07/19	05/07/19
EPA 8260B	SURROGATE: DIBROMOFLUOROMETH	109	80-119			%	05/07/19	05/07/19
EPA 8260B	SURROGATE: TOLUENE-D8 (S)	106	89-112			%	05/07/19	05/07/19

Quant Method: L0506W.M
Run #: 0507L26
Instrument: Loki
Sequence: 190506
Dilution Factor: 1
Initials: DPO

Printed: 05/08/19 10:50:36 AM
APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8260B BTEX WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88764

Sample ID: ERH815

APPL ID: AZ90449

Sample Collection Date: 04/29/19

QCG: #86BTO-190507AL-240115

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8260B	BENZENE	0.30 U	1.0	0.30	0.15	ug/L	05/07/19	05/07/19
EPA 8260B	ETHYLBENZENE	0.50 U	1.0	0.50	0.23	ug/L	05/07/19	05/07/19
EPA 8260B	TOLUENE	0.30 U	1.0	0.30	0.15	ug/L	05/07/19	05/07/19
EPA 8260B	XYLENES (TOTAL)	0.30 U	2.0	0.30	0.15	ug/L	05/07/19	05/07/19
EPA 8260B	SURROGATE: 1,2-DICHLOROETHANE-	104	81-118			%	05/07/19	05/07/19
EPA 8260B	SURROGATE: 4-BROMOFLUOROBENZ	95.3	85-114			%	05/07/19	05/07/19
EPA 8260B	SURROGATE: DIBROMOFLUOROMETH	104	80-119			%	05/07/19	05/07/19
EPA 8260B	SURROGATE: TOLUENE-D8 (S)	101	89-112			%	05/07/19	05/07/19

Quant Method: L0506W.M
Run #: 0507L23
Instrument: Loki
Sequence: 190506
Dilution Factor: 1
Initials: DPO

Printed: 05/08/19 10:50:36 AM

APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8260B BTEX WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88764

Sample ID: ERH816

APPL ID: AZ90450

Sample Collection Date: 04/29/19

QCG: #86BTO-190507AL-240115

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8260B	BENZENE	0.30 U	1.0	0.30	0.15	ug/L	05/08/19	05/08/19
EPA 8260B	ETHYLBENZENE	0.50 U	1.0	0.50	0.23	ug/L	05/08/19	05/08/19
EPA 8260B	TOLUENE	0.30 U	1.0	0.30	0.15	ug/L	05/08/19	05/08/19
EPA 8260B	XYLENES (TOTAL)	0.30 U	2.0	0.30	0.15	ug/L	05/08/19	05/08/19
EPA 8260B	SURROGATE: 1,2-DICHLOROETHANE-	104	81-118			%	05/08/19	05/08/19
EPA 8260B	SURROGATE: 4-BROMOFLUOROBENZ	98.4	85-114			%	05/08/19	05/08/19
EPA 8260B	SURROGATE: DIBROMOFLUOROMETH	105	80-119			%	05/08/19	05/08/19
EPA 8260B	SURROGATE: TOLUENE-D8 (S)	103	89-112			%	05/08/19	05/08/19

Quant Method: L0506W.M
Run #: 0507L27
Instrument: Loki
Sequence: 190506
Dilution Factor: 1
Initials: DPO

Printed: 05/08/19 10:50:36 AM
APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8260B GRO WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88764

Sample ID: ERH812

APPL ID: AZ90446

Sample Collection Date: 04/29/19

QCG: #GRO86-190507AL-240140

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8260B	GASOLINE RANGE ORGANICS	18.0 U	20	18.0	8.6	ug/L	05/07/19	05/07/19
EPA 8260B	SURROGATE: 4-BROMOFLUOROBENZ	94.1	85-114			%	05/07/19	05/07/19

Quant Method: LSUR506W.M
Run #: 0507L24
Instrument: Loki
Sequence: 190506
Dilution Factor: 1
Initials: DPO

Printed: 05/08/19 2:15:29 PM
APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8260B GRO WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88764

Sample ID: ERH813

APPL ID: AZ90447

Sample Collection Date: 04/29/19

QCG: #GRO86-190507AL-240140

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8260B	GASOLINE RANGE ORGANICS	18.0 U	20	18.0	8.6	ug/L	05/07/19	05/07/19
EPA 8260B	SURROGATE: 4-BROMOFLUOROBENZ	100	85-114			%	05/07/19	05/07/19

Quant Method:	LSUR506W.M
Run #:	0507L25
Instrument:	Loki
Sequence:	190506
Dilution Factor:	1
Initials:	DPO

Printed: 05/08/19 2:15:29 PM

APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8260B GRO WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88764

Sample ID: ERH814

APPL ID: AZ90448

Sample Collection Date: 04/29/19

QCG: #GRO86-190507AL-240140

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8260B	GASOLINE RANGE ORGANICS	18.0 U	20	18.0	8.6	ug/L	05/07/19	05/07/19
EPA 8260B	SURROGATE: 4-BROMOFLUOROBENZ	102	85-114			%	05/07/19	05/07/19

Quant Method:	LSUR506W.M
Run #:	0507L26
Instrument:	Loki
Sequence:	190506
Dilution Factor:	1
Initials:	DPO

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APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8260B GRO WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

Sample ID: ERH815

Sample Collection Date: 04/29/19

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

ARF: 88764

APPL ID: AZ90449

QCG: #GRO86-190507AL-240140

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8260B	GASOLINE RANGE ORGANICS	18.0 U	20	18.0	8.6	ug/L	05/07/19	05/07/19
EPA 8260B	SURROGATE: 4-BROMOFLUOROBENZ	95.3	85-114			%	05/07/19	05/07/19

Quant Method: LSUR506W.M
Run #: 0507L23
Instrument: Loki
Sequence: 190506
Dilution Factor: 1
Initials: DPO

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APPL-F1-SC-NoMC-REG MDLs-DOD

EPA 8260B GRO WATER

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

Sample ID: ERH816

Sample Collection Date: 04/29/19

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

ARF: 88764

APPL ID: AZ90450

QCG: #GRO86-190507AL-240140

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8260B	GASOLINE RANGE ORGANICS	18.0 U	20	18.0	8.6	ug/L	05/08/19	05/08/19
EPA 8260B	SURROGATE: 4-BROMOFLUOROBENZ	98.4	85-114			%	05/08/19	05/08/19

Quant Method: LSUR506W.M
Run #: 0507L27
Instrument: Loki
Sequence: 190506
Dilution Factor: 1
Initials: DPO

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APPL-F1-SC-NoMC-REG MDLs-DOD

METHANE

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88764

Sample ID: ERH815

APPL ID: AZ90449

Sample Collection Date: 04/29/19

QCG: #RSKME-190503A-239958

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
RSK 175	METHANE	1.00 U	5.0	1.00	0.25	ug/L	05/03/19	05/03/19

Quant Method:	RSK0311.M
Run #:	19050323
Instrument:	Rocky
Sequence:	190311
Dilution Factor:	1
Initials:	CMO

Printed: 05/10/19 9:51:46 AM

APPL-F1-SC-NoMC-REG MDLs-DOD

METHANE

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

ARF: 88764

Sample ID: ERH816

APPL ID: AZ90450

Sample Collection Date: 04/29/19

QCG: #RSKME-190503A-239958

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
RSK 175	METHANE	1.00 U	5.0	1.00	0.25	ug/L	05/03/19	05/03/19

Quant Method:	RSK0311.M
Run #:	19050324
Instrument:	Rocky
Sequence:	190311
Dilution Factor:	1
Initials:	CMO

Printed: 05/10/19 9:51:47 AM

APPL-F1-SC-NoMC-REG MDLs-DOD

Wet Lab Analysis

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

Sample ID: ERH816
Sample Collection Date: 04/29/19

APPL ID: AZ90450
ARF: 88764

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
EPA 300.0	CHLORIDE	48.7	5.0	1.00	0.40	mg/L	5	05/08/19	05/08/19
EPA 300.0	NITRATE	0.18 U	0.5	0.18	0.04	mg/L	1	05/01/19	05/01/19
EPA 300.0	SULFATE	11.5	1.0	0.20	0.09	mg/L	1	05/01/19	05/01/19
EPA 353.2	NITRATE-NITRITE-N	0.090 U	0.10	0.090	0.028	mg/L	1	05/01/19	05/01/19
SM 2320B	BICARBONATE AS CACO3	114	2.0	1.70	0.85	mg/L	1	05/06/19	05/06/19
SM 2320B	CARBONATE AS CACO3	1.70 U	2.0	1.70	0.85	mg/L	1	05/06/19	05/06/19
SM 2320B	TOTAL ALKALINITY AS CACO	114	2.0	1.70	0.85	mg/L	1	05/06/19	05/06/19
SM3500FeB	FERROUS IRON	0.25 J	1.0	0.32	0.16	mg/L	1	05/03/19	05/03/19
SW846 9060A	DISSOLVED ORGANIC CARB	0.43 J	0.93	0.350	0.130	mg/L	1	05/07/19	05/07/19
SW846 9060A	TOTAL ORGANIC CARBON	0.38 J	0.93	0.350	0.130	mg/L	1	05/07/19	05/07/19

J = Estimated value.

Printed: 05/29/19 2:13:48 PM

APPL-F1-SC-NoMC-REG MDLs

QC FORMS

EPA 8015B-eLL

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/06/19

Matrix: WATER Instrument: Apollo

APPL ID.	Client Sample No.	SURROGATE: OCTACOSANE (S)			SURROGATE: ORTHO-TERPHENYL (S)		
		Limits	Result	Qualifier	Limits	Result	Qualifier
190502A-BLK	Blank	60-142	97.3		56-125	93.5	
190502A-LCS	Lab Control Spike	60-142	90.7		56-125	89.5	
190502A-LCSD	Lab Control SpikeD	60-142	91.1		56-125	88.8	
AZ90447	ERH813	60-142	100		56-125	94.5	
AZ90448	ERH814	60-142	99.4		56-125	94.7	
AZ90450	ERH816	60-142	106		56-125	101	

Comments: Batch: #DOC53-190502A

EPA 8015B-eL

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/06/19

Matrix: WATER Instrument: Apollo

Blank ID: 190502A-BLK Time Analyzed: 1730

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190502A-BLK	Blank	506003	05/06/19 1730
190502A-LCS	Lab Control Spike	506004	05/06/19 1750
190502A-LCSD	Lab Control SpikeD	506005	05/06/19 1810
AZ90447	ERH813	506018	05/06/19 2229
AZ90448	ERH814	506019	05/06/19 2248
AZ90450	ERH816	506020	05/06/19 2308

Comments: Batch: #DOC53-190502A

Method Blank

EPA 8015B TPH LIQ-LIQ

Blank Name/QCG: **190502W-90447 - 240109**
Batch ID: #DOC53-190502A

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	DIESEL (C10-C24)	25.00 U	40.0	25.00	13.07	ug/L	05/02/19	05/06/19
BLANK	OIL (C24-C40)	40.00 U	40.0	40.00	5.54	ug/L	05/02/19	05/06/19
BLANK	SURROGATE: OCTACOSANE (S)	97.3	60-142			%	05/02/19	05/06/19
BLANK	SURROGATE: ORTHO-TERPHEN	93.5	56-125			%	05/02/19	05/06/19

Quant Method:DOC0411.M
Run #:506003
Instrument:Apollo
Sequence:190506
Initials:BTI

GC SC-Blank-REG MDLs-DOD
Printed: 05/08/19 8:57:26 AM

EPA 8015B-eL

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/06/19

Matrix: WATER Instrument: Apollo

LCS ID: 190502A-LCS Time Analyzed: 1750

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190502A-BLK	Blank	506003	05/06/19 1730
190502A-LCS	Lab Control Spike	506004	05/06/19 1750
190502A-LCSD	Lab Control SpikeD	506005	05/06/19 1810
AZ90447	ERH813	506018	05/06/19 2229
AZ90448	ERH814	506019	05/06/19 2248
AZ90450	ERH816	506020	05/06/19 2308

Comments: Batch: #DOC53-190502A

Laboratory Control Spike Recoveries

EPA 8015B TPH LIQ-LIQ

APPL ID: **190502W-90447 LCS - 240109**
Batch ID: #DOC53-190502A

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
DIESEL (C10-C24)	1250	1550	1080	124	86.4	36-132	35.7 #	30
OIL (C24-C40)	1250	1240	1310	99.2	105	41-113	5.5	30
SURROGATE: OCTACOSANE (S)	75.0	68.0	68.3	90.7	91.1	60-142		
SURROGATE: ORTHO-TERPHENYL (S)	75.0	67.1	66.6	89.5	88.8	56-125		

= Recovery is outside QC limits.

Comments:

Primary	SPK	DUP
Quant Method :	DOC0411.M	DOC0411.M
Extraction Date :	05/02/19	05/02/19
Analysis Date :	05/06/19	05/06/19
Instrument :	Apollo	Apollo
Run :	506004	506005
Initials :	BTI	

8270D-SIM

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Linus

APPL ID.	Client Sample No.	SURROGATE: 2-METHYLNAPHTHALENE-D10 (S)			SURROGATE: FLUORANTHENE-D10 (S)		
		Limits	Result	Qualifier	Limits	Result	Qualifier
190506A-BLK	Blank	39-114	71.4		58-120	81.3	
190506A-LCS	Lab Control Spike	39-114	67.5		58-120	81.4	
AZ90447	ERH813	39-114	73.0		58-120	84.9	
AZ90448	ERH814	39-114	74.2		58-120	86.3	
AZ90450	ERH816	39-114	86.0		58-120	86.8	
190506A-LCSD	Lab Control SpikeD	39-114	63.7		58-120	78.2	

Comments: Batch: #SIM53-190506A

8270D-SIM

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Linus

Blank ID: 190506A-BLK Time Analyzed: 1009

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190506A-BLK	Blank	0426L057	05/08/19 1009
190506A-LCS	Lab Control Spike	0426L058	05/08/19 1031
AZ90447	ERH813	0426L060	05/08/19 1116
AZ90448	ERH814	0426L061	05/08/19 1138
AZ90450	ERH816	0426L062	05/08/19 1200
190506A-LCSD	Lab Control SpikeD	0426L064	05/08/19 1245

Comments: Batch: #SIM53-190506A

Method Blank

EPA 8270D SIM LIQ-LIQ

Blank Name/QCG: **190506W-90447 - 240137**

Batch ID: #SIM53-190506A

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	1-METHYLNAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	05/06/19	05/08/19
BLANK	2-METHYLNAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	05/06/19	05/08/19
BLANK	NAPHTHALENE	0.10 U	0.2	0.10	0.04	ug/L	05/06/19	05/08/19
BLANK	SURROGATE: 2-METHYLNAPHT	71.4	39-114			%	05/06/19	05/08/19
BLANK	SURROGATE: FLUORANTHENE-	81.3	58-120			%	05/06/19	05/08/19

Quant Method:L0326.M
Run #:0426L057
Instrument:Linus
Sequence:L190426
Initials:MA

GC SC-Blank-REG MDLs-DOD
Printed: 05/08/19 1:40:53 PM

8270D-SIM

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Linus

LCS ID: 190506A-LCS Time Analyzed: 1031

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190506A-BLK	Blank	0426L057	05/08/19 1009
190506A-LCS	Lab Control Spike	0426L058	05/08/19 1031
AZ90447	ERH813	0426L060	05/08/19 1116
AZ90448	ERH814	0426L061	05/08/19 1138
AZ90450	ERH816	0426L062	05/08/19 1200
190506A-LCSD	Lab Control SpikeD	0426L064	05/08/19 1245

Comments: Batch: #SIM53-190506A

Laboratory Control Spike Recoveries

EPA 8270D SIM LIQ-LIQ

APPL ID: **190506W-90447 LCS - 240137**
Batch ID: #SIM53-190506A

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
1-METHYLNAPHTHALENE	6.25	6.43	6.10	103	97.6	41-115	5.3	20
2-METHYLNAPHTHALENE	6.25	7.01	6.63	112	106	39-114	5.6	20
NAPHTHALENE	6.25	6.95	6.51	111	104	43-114	6.5	20
SURROGATE: 2-METHYLNAPHTHALEN	6.25	4.22	3.98	67.5	63.7	39-114		
SURROGATE: FLUORANTHENE-D10 (S)	6.25	5.09	4.89	81.4	78.2	58-120		

Comments: _____

Primary	SPK	DUP
Quant Method :	L0326.M	L0326.M
Extraction Date :	05/06/19	05/06/19
Analysis Date :	05/08/19	05/08/19
Instrument :	Linus	Linus
Run :	0426L058	0426L064
Initials :	MA	

Form 5
Tune Summary

Lab Name: APPL Inc.
Case No:
Matrix: Water
ID: 0326L002.D

SDG No:
Date Analyzed: 03/26/19
Instrument: Linus
Time Analyzed: 9:39

	Client Sample No.	APPL ID.	File ID.	Date Analyzed
1		0.5 SIM 03/06/19	0326L005.D	03/26/19 10:39
2		1 SIM 03/06/19	0326L006.D	03/26/19 11:01
3		5 SIM 03/06/19	0326L007.D	03/26/19 11:23
4		10 SIM 03/06/19	0326L008.D	03/26/19 11:45
5		50 SIM 03/06/19	0326L009.D	03/26/19 12:08
6		100 SIM 03/06/19	0326L010.D	03/26/19 12:30
7		0.2 SIM 01/18/19	0326L012.D	03/26/19 15:55
8		0.1 SIM 01/18/19	0326L013.D	03/26/19 17:05
9		SS SIM 03/06/19	0326L014.D	03/26/19 17:27
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

m/e		
51	9.95 - 80% of mass 198	45.8
68	0 - 2.05% of mass 69	0.0
70	0 - 2% of mass 69	0.4
127	10 - 80% of mass 198	61.0
197	0 - 2% of mass 198	0.0
198	100 - 100% of mass 198	100.0
199	5 - 9% of mass 198	6.0
275	10 - 60% of mass 198	18.6
365	1 - 100% of mass 198	2.2
441	0.01 - 24% of mass 442	14.3
442	50 - 150% of mass 198	78.8
443	15 - 24% of mass 442	19.8

Form 5
Tune Summary

Lab Name: APPL Inc.
Case No: 88764
Matrix: Water
ID: 0426L055.D

SDG No: 88764
Date Analyzed: 05/08/19
Instrument: Linus
Time Analyzed: 8:42

	Client Sample No.	APPL ID.	File ID.	Date Analyzed
1		5 SIM 03/06/19	0426L056.D	05/08/19 8:58
2	Blank	190506A BLK 1/800	0426L057.D	05/08/19 10:09
3	Lab Control Spike	190506A LCS-2 1/800	0426L058.D	05/08/19 10:31
4	ERH813	AZ90447W07 1/800	0426L060.D	05/08/19 11:16
5	ERH814	AZ90448W10 1/800	0426L061.D	05/08/19 11:38
6	ERH816	AZ90450W22 1/800	0426L062.D	05/08/19 12:00
7	ERH811	AZ90215W19 1/800	0426L063.D	05/08/19 12:23
8	Lab Control SpikeD	190506A LCSD-2 1/800	0426L064.D	05/08/19 12:45
9		5 SIM 03/06/19	0426L065.D	05/08/19 13:07
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

m/e		
51	10 - 80% of mass 198	61.6
68	0 - 2% of mass 69	0.0
69	100 - 100% of mass 69	100.0
70	0 - 2% of mass 69	0.6
127	10 - 80% of mass 198	66.2
197	0 - 2% of mass 198	0.0
198	100 - 100% of mass 198	100.0
199	5 - 9% of mass 198	6.4
275	10 - 60% of mass 198	21.0
365	1 - 100% of mass 198	2.5
441	0.01 - 24% of mass 442	17.1
442	50 - 150% of mass 198	62.6
443	15 - 24% of mass 442	20.6

INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: APPL Inc. Contract: Review

Lab Code: _____ SDG No.: 88764

Lab File ID (Standard): 0426L056.D Date Analyzed: 8 May 19 8:58

Instrument ID: Linus Time Analyzed: 8 May 19 8:58

GC Column: _____ ID: Heated Purge: (Y/N) _____

		Chrysene-D12(IS)		Perylene-D12(IS)			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	41172	10.79	34456	13.18		
	UPPER LIMIT	82344	10.96	68912	13.35		
	LOWER LIMIT	20586	10.62	17228	13.01		
	SAMPLE NO.						
01	190506A BLK 1/800	48821	10.82	45724	13.21		
02	190506A LCS-2 1/800	52874	10.78	28992	13.17		
03	AZ90447W07 1/800	50526	10.80	48187	13.20		
04	AZ90448W10 1/800	46482	10.80	47439	13.20		
05	AZ90450W22 1/800	47634	10.80	46127	13.20		
06	AZ90215W19 1/800	44685	10.80	42473	13.20		
07	190506A LCSD-2 1/800	58538	10.78	55506	13.17		
08	5 SIM 03/06/19	55097	10.78	53471	13.17		
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = -50% of internal standard area.
RT UPPER LIMIT = +0.17 minutes of internal standard RT
RT LOWER LIMIT = -0.17 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8A
INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: APPL Inc. Contract: Review

Lab Code: SDG No.: 88764

Lab File ID (Standard): 0426L056.D Date Analyzed: 8 May 19 8:58

Instrument ID: Linus Time Analyzed: 8 May 19 8:58

GC Column: ID: Heated Purge: (Y/N)

		Napthalene-D8(IS)		Acenaphthene-D10(IS)		Phenanthrene-D10(IS)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	42798	3.94	17066	5.96	27637	7.69
	UPPER LIMIT	85596	4.11	34132	6.13	55274	7.86
	LOWER LIMIT	21399	3.77	8533	5.79	13819	7.52
	SAMPLE NO.						
01	190506A BLK 1/800	52108	3.94	20864	5.96	35674	7.70
02	190506A LCS-2 1/800	53850	3.94	21067	5.96	36440	7.69
03	AZ90447W07 1/800	50530	3.94	20636	5.96	34996	7.70
04	AZ90448W10 1/800	50155	3.94	21234	5.96	34777	7.70
05	AZ90450W22 1/800	43691	3.94	19153	5.96	33643	7.70
06	AZ90215W19 1/800	45863	3.94	20020	5.96	33557	7.70
07	190506A LCSD-2 1/800	58118	3.94	23779	5.96	38671	7.69
08	5 SIM 03/06/19	57479	3.94	23233	5.96	38452	7.70
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = -50% of internal standard area.
RT UPPER LIMIT = +0.17 minutes of internal standard RT
RT LOWER LIMIT = -0.17 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

EPA 8270D

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Yoda

APPL ID.	Client Sample No.	SURROGATE: 2,4,6-TRIBROMOPHENOL (S)			SURROGATE: 2-FLUORBIPHENYL (S)		
		Limits	Result	Qualifier	Limits	Result	Qualifier
190506A-BLK	Blank	43-140	94.2		44-119	77.0	
190506A-LCS	Lab Control Spike	43-140	94.0		44-119	75.9	
190506A-LCSD	Lab Control SpikeD	43-140	94.8		44-119	77.4	
AZ90447	ERH813	43-140	90.4		44-119	73.6	
AZ90448	ERH814	43-140	92.7		44-119	77.2	
AZ90450	ERH816	43-140	93.9		44-119	78.4	

Comments: Batch: #87DC5-190506A

EPA 8270D

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Yoda

APPL ID.	Client Sample No.	SURROGATE: 2-FLUOROPHENOL (S)			SURROGATE: NITROBENZENE-D5 (S)		
		Limits	Result	Qualifier	Limits	Result	Qualifier
190506A-BLK	Blank	19-119	81.0		44-120	81.1	
190506A-LCS	Lab Control Spike	19-119	83.6		44-120	81.6	
190506A-LCSD	Lab Control SpikeD	19-119	83.6		44-120	81.6	
AZ90447	ERH813	19-119	80.4		44-120	78.4	
AZ90448	ERH814	19-119	75.6		44-120	80.6	
AZ90450	ERH816	19-119	84.0		44-120	83.5	

Comments: Batch: #87DC5-190506A

EPA 8270D

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Yoda

APPL ID.	Client Sample No.	SURROGATE: PHENOL-D6 (S)			SURROGATE: TERPHENYL-D14 (S)		
		Limits	Result	Qualifier	Limits	Result	Qualifier
190506A-BLK	Blank	10-115	76.4		50-134	83.1	
190506A-LCS	Lab Control Spike	10-115	79.6		50-134	82.4	
190506A-LCSD	Lab Control SpikeD	10-115	79.6		50-134	84.0	
AZ90447	ERH813	10-115	76.8		50-134	80.5	
AZ90448	ERH814	10-115	72.6		50-134	86.0	
AZ90450	ERH816	10-115	77.7		50-134	85.2	

Comments: Batch: #87DC5-190506A

EPA 8270D

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Yoda

Blank ID: 190506A-BLK Time Analyzed: 1036

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190506A-BLK	Blank	0411Y318	05/08/19 1036
190506A-LCS	Lab Control Spike	0411Y319	05/08/19 1104
190506A-LCSD	Lab Control SpikeD	0411Y320	05/08/19 1132
AZ90447	ERH813	0411Y321	05/08/19 1159
AZ90448	ERH814	0411Y322	05/08/19 1227
AZ90450	ERH816	0411Y323	05/08/19 1255

Comments: Batch: #87DC5-190506A

Method Blank
EPA 8270D WATER

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Blank Name/QCG: **190506W-90447 - 240139**
Batch ID: #87DC5-190506A

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	PHENOL	4.00 U	5.0	4.00	1.00	ug/L	05/06/19	05/08/19
BLANK	SURROGATE: 2,4,6-TRIBROMOP	94.2	43-140			%	05/06/19	05/08/19
BLANK	SURROGATE: 2-FLUORBIPHENY	77.0	44-119			%	05/06/19	05/08/19
BLANK	SURROGATE: 2-FLUOROPHENO	81.0	19-119			%	05/06/19	05/08/19
BLANK	SURROGATE: NITROBENZENE-	81.1	44-120			%	05/06/19	05/08/19
BLANK	SURROGATE: PHENOL-D6 (S)	76.4	10-115			%	05/06/19	05/08/19
BLANK	SURROGATE: TERPHENYL-D14 (	83.1	50-134			%	05/06/19	05/08/19

Quant Method:Y0319NC.M
Run #:0411Y318
Instrument:Yoda
Sequence:Y190411
Initials:JPR

GC SC-Blank-REG MDLs-DOD
Printed: 05/08/19 2:00:28 PM

EPA 8270D

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Yoda

LCS ID: 190506A-LCS Time Analyzed: 1104

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190506A-BLK	Blank	0411Y318	05/08/19 1036
190506A-LCS	Lab Control Spike	0411Y319	05/08/19 1104
190506A-LCSD	Lab Control SpikeD	0411Y320	05/08/19 1132
AZ90447	ERH813	0411Y321	05/08/19 1159
AZ90448	ERH814	0411Y322	05/08/19 1227
AZ90450	ERH816	0411Y323	05/08/19 1255

Comments: Batch: #87DC5-190506A

Laboratory Control Spike Recoveries
EPA 8270D WATER

APPL ID: **190506W-90447 LCS - 240139**
Batch ID: #87DC5-190506A

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
PHENOL	62.5	57.6	58.1	92.2	93.0	10-115	0.86	20
SURROGATE: 2,4,6-TRIBROMOPHENOL	250	235	237	94.0	94.8	43-140		
SURROGATE: 2-FLUORBIPHENYL (S)	125	94.9	96.8	75.9	77.4	44-119		
SURROGATE: 2-FLUOROPHENOL (S)	250	209	209	83.6	83.6	19-119		
SURROGATE: NITROBENZENE-D5 (S)	125	102	102	81.6	81.6	44-120		
SURROGATE: PHENOL-D6 (S)	250	199	199	79.6	79.6	10-115		
SURROGATE: TERPHENYL-D14 (S)	125	103	105	82.4	84.0	50-134		

Comments: _____

Primary	SPK	DUP
Quant Method :	Y0319NC.M	Y0319NC.M
Extraction Date :	05/06/19	05/06/19
Analysis Date :	05/08/19	05/08/19
Instrument :	Yoda	Yoda
Run :	0411Y319	0411Y320
Initials :	JPR	

Printed: 05/08/19 2:00:36 PM
APPL Standard LCSD

Form 5
Tune Summary

Lab Name: APPL Inc.
Case No:
Matrix: Soil
ID: 0319Y002.D

SDG No:
Date Analyzed: 03/19/19
Instrument: Yoda
Time Analyzed: 18:15

	Client Sample No.	APPL ID.	File ID.	Date Analyzed
1		50ug/mL 8270 03/13/1	0319Y003.D	03/19/19 18:31
2		4ug/mL 8270 03/13/19	0319Y004.D	03/19/19 18:58
3		5ug/mL 8270 03/13/19	0319Y005.D	03/19/19 19:26
4		10ug/mL 8270 03/13/1	0319Y006.D	03/19/19 19:54
5		20ug/mL 8270 03/13/1	0319Y007.D	03/19/19 20:22
6		40ug/mL 8270 03/13/1	0319Y008.D	03/19/19 20:49
7		60ug/mL 8270 03/13/1	0319Y009.D	03/19/19 21:17
8		80ug/mL 8270 03/13/1	0319Y010.D	03/19/19 21:44
9		100ug/mL 8270 03/13/	0319Y011.D	03/19/19 22:11
10		SS-8270 03/13/19	0319Y012.D	03/19/19 22:39
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

m/e		
51	9.95 - 80.04% of mass 198	47.2
68	0 - 2% of mass 69	0.0
70	0 - 2% of mass 69	0.6
127	10 - 80% of mass 198	58.4
197	0 - 2% of mass 198	0.0
198	100 - 100% of mass 198.05	100.0
199	5 - 9% of mass 198	6.7
275	10 - 60% of mass 198	23.1
365	1 - 100% of mass 198	2.4
441	0.01 - 24% of mass 442	16.3
442	50 - 150% of mass 198.05	69.9
443	15 - 24% of mass 442	19.7

Form 5
Tune Summary

Lab Name: APPL Inc.
Case No: 88764
Matrix: Water
ID: 0411Y314.D

SDG No: 88764
Date Analyzed: 05/08/19
Instrument: Yoda
Time Analyzed: 8:53

	Client Sample No.	APPL ID.	File ID.	Date Analyzed
1		50ug/ml 8270 3/13/19	0411Y315.D	05/08/19 9:14
2	Blank	190506A BLK 1/800	0411Y318.D	05/08/19 10:36
3	Lab Control Spike	190506A LCS-1 1/800	0411Y319.D	05/08/19 11:04
4	Lab Control SpikeD	190506A LCSD-1 1/800	0411Y320.D	05/08/19 11:32
5	ERH813	AZ90447W07 1/800	0411Y321.D	05/08/19 11:59
6	ERH814	AZ90448W10 1/800	0411Y322.D	05/08/19 12:27
7	ERH816	AZ90450W22 1/800	0411Y323.D	05/08/19 12:55
8		50ug/ml 8270 3/13/19	0411Y325.D	05/08/19 13:51
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

m/e		
51	9.95 - 80.04% of mass 198	50.4
68	0 - 2% of mass 69	0.0
70	0 - 2% of mass 69	0.2
127	10 - 80% of mass 198	60.1
197	0 - 2% of mass 198	0.0
198	100 - 100% of mass 198.05	100.0
199	5 - 9% of mass 198	7.4
275	10 - 60% of mass 198	24.9
365	1 - 100% of mass 198	2.5
441	0.01 - 24% of mass 442	15.8
442	50 - 150% of mass 198.05	67.5
443	15 - 24% of mass 442	19.7

INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: APPL Inc. Contract: Review

Lab Code: _____ SDG No.: 88764

Lab File ID (Standard): 0411Y315.D Date Analyzed: 8 May 19 9:14

Instrument ID: Yoda Time Analyzed: 8 May 19 9:14

GC Column: _____ ID: Heated Purge: (Y/N) _____

		1,4-dichlorobenzene-D4(IS)		Napthalene-D8(IS)		Acenaphthene-D10(IS)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	166984	5.29	768893	6.75	422405	8.78
	UPPER LIMIT	333968	5.46	1537786	6.92	844810	8.95
	LOWER LIMIT	83492	5.12	384447	6.58	211203	8.61
	SAMPLE NO.						
01	190506A BLK 1/800	164984	5.28	704479	6.74	379264	8.77
02	190506A LCS-1 1/800	168710	5.28	720597	6.74	395924	8.77
03	190506A LCSD-1 1/800	158913	5.28	673513	6.74	367411	8.78
04	AZ90447W07 1/800	167494	5.28	722698	6.74	398529	8.77
05	AZ90448W10 1/800	163412	5.28	706981	6.74	385010	8.77
06	AZ90450W22 1/800	165254	5.28	711384	6.74	389364	8.77
07	50ug/ml 8270 3/13/19	176117	5.28	781817	6.74	387954	8.78
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = -50% of internal standard area.
RT UPPER LIMIT = +0.17 minutes of internal standard RT
RT LOWER LIMIT = -0.17 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: APPL Inc. Contract: Review

Lab Code: _____ SDG No.: 88764

Lab File ID (Standard): 0411Y315.D Date Analyzed: 8 May 19 9:14

Instrument ID: Yoda Time Analyzed: 8 May 19 9:14

GC Column: _____ ID: Heated Purge: (Y/N) _____

		Phenanthrene-D10(IS)		Chrysene-D12(IS)		Perylene-D12(IS)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	719429	10.54	619512	13.65	591322	15.49
	UPPER LIMIT	1438858	10.71	1239024	13.82	1182644	15.66
	LOWER LIMIT	359715	10.37	309756	13.48	295661	15.32
	SAMPLE NO.						
01	190506A BLK 1/800	653354	10.53	545290	13.64	520672	15.48
02	190506A LCS-1 1/800	662510	10.53	571921	13.65	544110	15.49
03	190506A LCSD-1 1/800	611960	10.53	537860	13.65	518530	15.49
04	AZ90447W07 1/800	659114	10.53	562431	13.64	529997	15.49
05	AZ90448W10 1/800	640781	10.53	547421	13.64	520884	15.49
06	AZ90450W22 1/800	641505	10.53	545059	13.64	518043	15.49
07	50ug/ml 8270 3/13/19	700744	10.53	626040	13.64	575817	15.49
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = -50% of internal standard area.
RT UPPER LIMIT = +0.17 minutes of internal standard RT
RT LOWER LIMIT = -0.17 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

EPA 8270D

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/06/19

Matrix: WATER Instrument: Yoda

Blank ID: 190506A-BLK Time Analyzed: 1458

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190506A-BLK	Blank	0430Y044	05/06/19 1458
190506A-LCS	Lab Control Spike	0430Y045	05/06/19 1522
190506A-LCSD	Lab Control SpikeD	0430Y046	05/06/19 1546
AZ90447	ERH813	0430Y047	05/06/19 1609
AZ90448	ERH814	0430Y048	05/06/19 1633
AZ90450	ERH816	0430Y049	05/06/19 1657

Comments: Batch: #87DME-190506A

Method Blank
EPA 8270D MODIFIED WATER

Blank Name/QCG: **190506W-90447 - 240065**
Batch ID: #87DME-190506A

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	2-(2-METHOXYETHOXY)-ETHAN	80.0 U	100	80.0	40.0	ug/L	05/06/19	05/06/19

Quant Method:YMEE0430.M
Run #:0430Y044
Instrument:Yoda
Sequence:Y190430M
Initials:MA

GC SC-Blank-REG MDLs-DOD
Printed: 05/07/19 10:38:56 AM

EPA 8270D

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/06/19

Matrix: WATER Instrument: Yoda

LCS ID: 190506A-LCS Time Analyzed: 1522

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190506A-BLK	Blank	0430Y044	05/06/19 1458
190506A-LCS	Lab Control Spike	0430Y045	05/06/19 1522
190506A-LCSD	Lab Control SpikeD	0430Y046	05/06/19 1546
AZ90447	ERH813	0430Y047	05/06/19 1609
AZ90448	ERH814	0430Y048	05/06/19 1633
AZ90450	ERH816	0430Y049	05/06/19 1657

Comments: Batch: #87DME-190506A

Laboratory Control Spike Recoveries
EPA 8270D MODIFIED WATER

APPL ID: **190506W-90447 LCS - 240065**
Batch ID: #87DME-190506A

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
2-(2-METHOXYETHOXY)-ETHANOL	80.0	74.7	75.4	93.4	94.3	30-130	0.93	20

Comments: _____

Primary	SPK	DUP
Quant Method :	YMEE0430.M	YMEE0430.M
Extraction Date :	05/06/19	05/06/19
Analysis Date :	05/06/19	05/06/19
Instrument :	Yoda	Yoda
Run :	0430Y045	0430Y046
Initials :	MA	

Printed: 05/07/19 10:39:04 AM
APPL Standard LCSD

EPA 8260B

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/07/19

Matrix: WATER Instrument: Loki

APPL ID.	Client Sample No.	SURROGATE: 1,2-DICHLOROETHANE-D4 (S)			SURROGATE: 4-BROMOFLUOROBENZENE (S)		
		Limits	Result	Qualifier	Limits	Result	Qualifier
190507AL-LCS	Lab Control Spike	81-118	108		85-114	112	
190507AL-LCSD	Lab Control SpikeD	81-118	101		85-114	107	
190507AL-BLK	Blank	81-118	96.0		85-114	90.4	
AZ90449	ERH815	81-118	104		85-114	95.3	
AZ90446	ERH812	81-118	99.1		85-114	94.1	
AZ90447	ERH813	81-118	113		85-114	100	
AZ90448	ERH814	81-118	110		85-114	102	
AZ90450	ERH816	81-118	104		85-114	98.4	

Comments: Batch: #86BTO-190507AL

EPA 8260B

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/07/19

Matrix: WATER Instrument: Loki

APPL ID.	Client Sample No.	SURROGATE: DIBROMOFLUOROMETHANE (S)			SURROGATE: TOLUENE-D8 (S)		
		Limits	Result	Qualifier	Limits	Result	Qualifier
190507AL-LCS	Lab Control Spike	80-119	106		89-112	113	*
190507AL-LCSD	Lab Control SpikeD	80-119	101		89-112	110	
190507AL-BLK	Blank	80-119	96.7		89-112	97.2	
AZ90449	ERH815	80-119	104		89-112	101	
AZ90446	ERH812	80-119	99.0		89-112	99.2	
AZ90447	ERH813	80-119	110		89-112	107	
AZ90448	ERH814	80-119	109		89-112	106	
AZ90450	ERH816	80-119	105		89-112	103	

Comments: Batch: #86BTO-190507AL

* = Recovery outside of Control Limits on QC Sample.

Printed: 05/08/19 10:50:42 AM

Form 2 & 8, Surrogate Recovery Summary

EPA 8260B

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/07/19

Matrix: WATER Instrument: Loki

Blank ID: 190507AL-BLK Time Analyzed: 2137

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190507AL-LCS	Lab Control Spike	0507L17	05/07/19 1914
190507AL-LCSD	Lab Control SpikeD	0507L18	05/07/19 1943
190507AL-BLK	Blank	0507I22	05/07/19 2137
AZ90449	ERH815	0507L23	05/07/19 2206
AZ90446	ERH812	0507L24	05/07/19 2235
AZ90447	ERH813	0507L25	05/07/19 2304
AZ90448	ERH814	0507L26	05/07/19 2332
AZ90450	ERH816	0507L27	05/08/19 0001

Comments: Batch: #86BTO-190507AL

Method Blank
EPA 8260B BTEX WATER

Blank Name/QCG: **190507W-90446 - 240115**
Batch ID: #86BTO-190507AL

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	BENZENE	0.30 U	1.0	0.30	0.15	ug/L	05/07/19	05/07/19
BLANK	ETHYLBENZENE	0.50 U	1.0	0.50	0.23	ug/L	05/07/19	05/07/19
BLANK	TOLUENE	0.30 U	1.0	0.30	0.15	ug/L	05/07/19	05/07/19
BLANK	XYLENES (TOTAL)	0.30 U	2.0	0.30	0.15	ug/L	05/07/19	05/07/19
BLANK	SURROGATE: 1,2-DICHLOROET	96.0	81-118			%	05/07/19	05/07/19
BLANK	SURROGATE: 4-BROMOFLUORO	90.4	85-114			%	05/07/19	05/07/19
BLANK	SURROGATE: DIBROMOFLUOR	96.7	80-119			%	05/07/19	05/07/19
BLANK	SURROGATE: TOLUENE-D8 (S)	97.2	89-112			%	05/07/19	05/07/19

Quant Method:L0506W.M
Run #:0507I22
Instrument:Loki
Sequence:190506
Initials:DPO

GC SC-Blank-REG MDLs-DOD
Printed: 05/08/19 10:50:44 AM

EPA 8260B

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/07/19

Matrix: WATER Instrument: Loki

LCS ID: 190507AL-LCS Time Analyzed: 1914

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190507AL-LCS	Lab Control Spike	0507L17	05/07/19 1914
190507AL-LCSD	Lab Control SpikeD	0507L18	05/07/19 1943
190507AL-BLK	Blank	0507I22	05/07/19 2137
AZ90449	ERH815	0507L23	05/07/19 2206
AZ90446	ERH812	0507L24	05/07/19 2235
AZ90447	ERH813	0507L25	05/07/19 2304
AZ90448	ERH814	0507L26	05/07/19 2332
AZ90450	ERH816	0507L27	05/08/19 0001

Comments: Batch: #86BTO-190507AL

Laboratory Control Spike Recoveries
EPA 8260B BTEX WATER

APPL ID: **190507W-90446 LCS - 240115**
Batch ID: #86BTO-190507AL

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
BENZENE	10.00	10.5	10.0	105	100	79-120	4.9	20
ETHYLBENZENE	10.00	10.9	10.3	109	103	79-121	5.7	20
TOLUENE	10.00	10.9	10.1	109	101	80-121	7.6	20
XYLENES (TOTAL)	30.0	32.6	30.9	109	103	79-121	5.4	20
SURROGATE: 1,2-DICHLOROETHANE-D	25.0	27.0	25.3	108	101	81-118		
SURROGATE: 4-BROMOFLUOROBENZE	25.0	28.0	26.8	112	107	85-114		
SURROGATE: DIBROMOFLUOROMETH	25.0	26.5	25.2	106	101	80-119		
SURROGATE: TOLUENE-D8 (S)	25.0	28.2	27.4	113 #	110	89-112		

= Recovery is outside QC limits.

Comments:

Primary	SPK	DUP
Quant Method :	L0506W.M	L0506W.M
Extraction Date :	05/07/19	05/07/19
Analysis Date :	05/07/19	05/07/19
Instrument :	Loki	Loki
Run :	0507L17	0507L18
Initials :	DPO	

Printed: 05/08/19 10:50:40 AM
APPL Standard LCSD

Form 5
Tune Summary

Lab Name: APPL Inc.
Case No:
Matrix: Water
ID: 0506L01.D

SDG No:
Date Analyzed: 05/06/19
Instrument: Loki
Time Analyzed: 16:21

	Client Sample No.	APPL ID.	File ID.	Date Analyzed
1		0.3ug/L VOC STD 05/0	0506L06.D	05/06/19 17:12
2		0.5ug/L VOC STD 05/0	0506L07.D	05/06/19 17:41
3		1.0ug/L VOC STD 05/0	0506L08.D	05/06/19 18:09
4		2.0ug/L VOC STD 05/0	0506L09.D	05/06/19 18:38
5		5.0ug/L VOC STD 05/0	0506L10.D	05/06/19 19:07
6		10ug/L VOC STD 05/06	0506L11.D	05/06/19 19:36
7		20ug/L VOC STD 05/06	0506L12.D	05/06/19 20:05
8		40ug/L VOC STD 05/06	0506L13.D	05/06/19 20:34
9		100ug/L VOC STD 05/0	0506L14.D	05/06/19 21:02
10		(SS)10ug/L VOC STD 0	0506L15.D	05/06/19 21:31
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

m/e		
50	15 - 40% of mass 95	20.5
75	30 - 60% of mass 95	53.4
95	100 - 100% of mass 95	100.0
96	5 - 9% of mass 95	6.2
173	0 - 2% of mass 174	1.6
174	50 - 100% of mass 95	92.6
175	5 - 9% of mass 174	8.0
176	94.95 - 101% of mass 174	96.6
177	5 - 9% of mass 176	6.3

Form 5
Tune Summary

Lab Name: APPL Inc.
Case No: 88764
Matrix: Water
ID: 0507L14.D

SDG No: 88764
Date Analyzed: 05/07/19
Instrument: Loki
Time Analyzed: 17:47

	Client Sample No.	APPL ID.	File ID.	Date Analyzed
1		190507A CCV 10ug/L	0507L16.D	05/07/19 18:45
2	Lab Control Spike	190507A LCS 10ug/L x	0507L17.D	05/07/19 19:14
3	Lab Control SpikeD	190507A LCSD 10ug/L	0507L18.D	05/07/19 19:43
4	ERH815	AZ90449W03	0507L23.D	05/07/19 22:06
5	ERH812	AZ90446W03	0507L24.D	05/07/19 22:35
6	ERH813	AZ90447W03	0507L25.D	05/07/19 23:04
7	ERH814	AZ90448W03	0507L26.D	05/07/19 23:32
8	ERH816	AZ90450W03	0507L27.D	05/08/19 0:01
9		Ending CCV 10ug/L	0507L39.D	05/08/19 5:46
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

m/e		
50	15 - 40% of mass 95	19.9
75	30 - 60% of mass 95	52.8
95	100 - 100% of mass 95	100.0
96	5 - 9% of mass 95	5.9
173	0 - 2% of mass 174	1.7
174	50 - 100% of mass 95	88.7
175	5 - 9% of mass 174	8.6
176	94.95 - 101% of mass 174	97.6
177	5 - 9% of mass 176	6.5

INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: APPL Inc. Contract: Review

Lab Code: _____ SDG No.: 88764

Lab File ID (Standard): 0507L16.D Date Analyzed: 7 May 19 18:45

Instrument ID: Loki Time Analyzed: 7 May 19 18:45

GC Column: _____ ID: Heated Purge: (Y/N) _____

		Fluorobenzene (IS)		Chlorobenzene-D5 (IS)		1,4-Dichlorobenzene-D (IS)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	313792	5.81	255360	9.32	134528	11.88
	UPPER LIMIT	627584	5.98	510720	9.49	269056	12.05
	LOWER LIMIT	156896	5.64	127680	9.15	67264	11.71
	SAMPLE NO.						
01	190507A LCS 10ug/L x	291904	5.81	239680	9.32	125088	11.88
02	190507A LCSD 10ug/L x	313216	5.81	256256	9.32	129544	11.88
03	AZ90449W03	294272	5.81	244800	9.32	118592	11.88
04	AZ90446W03	298176	5.81	247872	9.33	116408	11.88
05	AZ90447W03	279040	5.81	235264	9.33	107128	11.88
06	AZ90448W03	282624	5.81	236992	9.32	112496	11.88
07	AZ90450W03	285440	5.81	233792	9.32	109744	11.88
08	Ending CCV 10ug/L	284352	5.81	237504	9.32	124472	11.88
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = -50% of internal standard area.
RT UPPER LIMIT = +0.17 minutes of internal standard RT
RT LOWER LIMIT = -0.17 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

EPA 8260B

Form 2 & 8

Surrogate Recovery

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/07/19

Matrix: WATER Instrument: Loki

APPL ID.	Client Sample No.	SURROGATE: 4-BROMOFLUOROBENZENE (S)					
		Limits	Result	Qualifier	Limits	Result	Qualifier
190507AL-LCS	Lab Control Spike	85-114	102				
190507AL-LCSD	Lab Control SpikeD	85-114	101				
190507AL-BLK	Blank	85-114	90.4				
AZ90449	ERH815	85-114	95.3				
AZ90446	ERH812	85-114	94.1				
AZ90447	ERH813	85-114	100				
AZ90448	ERH814	85-114	102				
AZ90450	ERH816	85-114	98.4				

Comments: Batch: #GRO86-190507AL

EPA 8260B

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/07/19

Matrix: WATER Instrument: Loki

Blank ID: 190507AL-BLK Time Analyzed: 2137

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190507AL-LCS	Lab Control Spike	0507L20	05/07/19 2040
190507AL-LCSD	Lab Control SpikeD	0507L21	05/07/19 2109
190507AL-BLK	Blank	0507L22	05/07/19 2137
AZ90449	ERH815	0507L23	05/07/19 2206
AZ90446	ERH812	0507L24	05/07/19 2235
AZ90447	ERH813	0507L25	05/07/19 2304
AZ90448	ERH814	0507L26	05/07/19 2332
AZ90450	ERH816	0507L27	05/08/19 0001

Comments: Batch: #GRO86-190507AL

Method Blank

EPA 8260B GRO WATER

Blank Name/QCG: **190507W-90446 - 240140**

Batch ID: #GRO86-190507AL

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	GASOLINE RANGE ORGANICS	18.0 U	20	18.0	8.6	ug/L	05/07/19	05/07/19
BLANK	SURROGATE: 4-BROMOFLUORO	90.4	85-114			%	05/07/19	05/07/19

Quant Method:LSUR506W.
Run #:0507L22
Instrument:Loki
Sequence:190506
Initials:DPO

GC SC-Blank-REG MDLs-DOD
Printed: 05/08/19 2:15:36 PM

EPA 8260B

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/07/19

Matrix: WATER Instrument: Loki

LCS ID: 190507AL-LCS Time Analyzed: 2040

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190507AL-LCS	Lab Control Spike	0507L20	05/07/19 2040
190507AL-LCSD	Lab Control SpikeD	0507L21	05/07/19 2109
190507AL-BLK	Blank	0507L22	05/07/19 2137
AZ90449	ERH815	0507L23	05/07/19 2206
AZ90446	ERH812	0507L24	05/07/19 2235
AZ90447	ERH813	0507L25	05/07/19 2304
AZ90448	ERH814	0507L26	05/07/19 2332
AZ90450	ERH816	0507L27	05/08/19 0001

Comments: Batch: #GRO86-190507AL

Laboratory Control Spike Recoveries
EPA 8260B GRO WATER

APPL ID: **190507W-90446 LCS - 240140**
Batch ID: #GRO86-190507AL

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
GASOLINE RANGE ORGANICS	300	299	304	99.7	101	78-122	1.7	20
SURROGATE: 4-BROMOFLUOROBENZE	25.0	25.6	25.2	102	101	85-114		

Comments: _____

Primary	SPK	DUP
Quant Method :	LSUR506W.M	LSUR506W.M
Extraction Date :	05/07/19	05/07/19
Analysis Date :	05/07/19	05/07/19
Instrument :	Loki	Loki
Run :	0507L20	0507L21
Initials :	DPO	

Printed: 05/08/19 2:15:33 PM
APPL Standard LCSD

RSK 175

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/03/19

Matrix: WATER Instrument: Rocky

Blank ID: 190503A-BLK Time Analyzed: 1039

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190503A-LCS	Lab Control Spike	19050300	05/03/19 1033
190503A-LCSD	Lab Control SpikeD	19050301	05/03/19 1036
190503A-BLK	Blank	19050302	05/03/19 1039
AZ90449	ERH815	19050323	05/03/19 1129
AZ90450	ERH816	19050324	05/03/19 1131

Comments: Batch: #RSKME-190503A

Printed: 05/10/19 9:51:39 AM
Form 4, Blank Summary

Method Blank
METHANE

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Blank Name/QCG: **190503W-89959 - 239958**
Batch ID: #RSKME-190503A

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	METHANE	1.00 U	5.0	1.00	0.25	ug/L	05/03/19	05/03/19

Quant Method:RSK0311.M
Run #:19050302
Instrument:Rocky
Sequence:190311
Initials:CMO

GC SC-Blank-REG MDLs-DOD
Printed: 05/10/19 9:51:50 AM

RSK 175

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/03/19

Matrix: WATER Instrument: Rocky

LCS ID: 190503A-LCS Time Analyzed: 1033

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190503A-LCS	Lab Control Spike	19050300	05/03/19 1033
190503A-LCSD	Lab Control SpikeD	19050301	05/03/19 1036
190503A-BLK	Blank	19050302	05/03/19 1039
AZ90449	ERH815	19050323	05/03/19 1129
AZ90450	ERH816	19050324	05/03/19 1131

Comments: Batch: #RSKME-190503A

Laboratory Control Spike Recoveries

METHANE

APPL ID: **190503W-89959 LCS - 239958**
Batch ID: #RSKME-190503A

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
METHANE	83.4	69.1	78.4	82.9	94.0	72-125	12.6	30

Comments: _____

Primary	SPK	DUP
Quant Method :	RSK0311.M	RSK0311.M
Extraction Date :	05/03/19	05/03/19
Analysis Date :	05/03/19	05/03/19
Instrument :	Rocky	Rocky
Run :	19050300	19050301
Initials :	CMO	

Printed: 05/10/19 9:51:42 AM
APPL Standard LCSD

EPA 300.0

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/01/19

Matrix: WATER Instrument: Charlie

Blank ID: 190501A2-BLK Time Analyzed: 1829

APPL ID.	Client Sample No.	File ID.	Date Analyzed
AZ90450	ERH816	13	05/01/19 1950
190501A2-BLK	Blank	2	05/01/19 1829
190501A2-LCS	Lab Control Spike	3	05/01/19 1836
190501A2-LCSD	Lab Control SpikeD	4	05/01/19 1843

Comments: Batch: #300W-190501A2

EPA 300.0

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Charlie

Blank ID: A190508-BLK Time Analyzed: 0831

APPL ID.	Client Sample No.	File ID.	Date Analyzed
AZ90450	ERH816	15	05/08/19 1023
A190508-BLK	Blank	3	05/08/19 0831
A190508-LCS	Lab Control Spike	4	05/08/19 0838
A190508-LCSD	Lab Control SpikeD	5	05/08/19 0845

Comments: Batch: #300WD-A190508

EPA 353.2

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/01/19

Matrix: WATER Instrument: EVE

Blank ID: 190501A-BLK Time Analyzed: 1817

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190501A-BLK	Blank	16	05/01/19 1817
190501A-LCS	Lab Control Spike	17	05/01/19 1819
190501A-LCSD	Lab Control SpikeD	18	05/01/19 1821
AZ90450	ERH816	35	05/01/19 1850

Comments: Batch: #35OF-190501A

Printed: 05/30/19 2:33:53 PM
Form 4, Blank Summary

SM 2320B

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/06/19

Matrix: WATER Instrument: Tiamo

Blank ID: 190506A-BLK Time Analyzed: 2129

APPL ID.	Client Sample No.	File ID.	Date Analyzed
AZ90450	ERH816	18	05/06/19 2053
190506A-BLK	Blank	22	05/06/19 2129
190506A-LCS	Lab Control Spike	23	05/06/19 2132
190506A-LCSD	Lab Control SpikeD	24	05/06/19 2143

Comments: Batch: #232W-190506A

SM3500FeB

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/03/19

Matrix: WATER Instrument: Manual Spec

Blank ID: 190503A-BLK Time Analyzed: 1545

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190503A-BLK	Blank	24	05/03/19 1545
190503A-LCS	Lab Control Spike	25	05/03/19 1546
190503A-LCSD	Lab Control SpikeD	26	05/03/19 1547
AZ90450	ERH816	28	05/03/19 1549

Comments: Batch: #35FE-190503A

SW846 9060A

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/07/19

Matrix: WATER Instrument: TicToc

Blank ID: 190506A-BLK Time Analyzed: 1837

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190506A-BLK	Blank	2	05/07/19 1837
190506A-LCS	Lab Control Spike	55	05/07/19 1911
190506A-LCSD	Lab Control SpikeD	56	05/07/19 1946
AZ90450	ERH816	61	05/07/19 2229

Comments: Batch: #DOCW5-190506A

SW846 9060A

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/07/19

Matrix: WATER Instrument: TicToc

Blank ID: 190506A-BLK Time Analyzed: 1837

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190506A-BLK	Blank	2	05/07/19 1837
190506A-LCS	Lab Control Spike	55	05/07/19 1911
190506A-LCSD	Lab Control SpikeD	56	05/07/19 1946
AZ90450	ERH816	57	05/07/19 2021

Comments: Batch: #TOCW5-190506A

WETLAB BLANK

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Analyte	Result	LOQ	LOD	DL	Units	Prep Date	Analysis Date	QC Group
SM 2320B	BICARBONATE AS	4.6	2.0	1.70	0.85	mg/L	05/06/19	05/06/19	#232W-190506A-AZ90450
SM 2320B	CARBONATE AS CA	1.70 U	2.0	1.70	0.85	mg/L	05/06/19	05/06/19	#232W-190506A-AZ90450
SM 2320B	TOTAL ALKALINITY	4.6	2.0	1.70	0.85	mg/L	05/06/19	05/06/19	#232W-190506A-AZ90450
EPA 300.0	NITRATE	0.18 U	0.5	0.18	0.04	mg/L	05/01/19	05/01/19	#300W-190501A2-AZ90450
EPA 300.0	SULFATE	0.20 U	1.0	0.20	0.09	mg/L	05/01/19	05/01/19	#300W-190501A2-AZ90450
EPA 300.0	CHLORIDE	0.30 J	1.0	0.20	0.08	mg/L	05/08/19	05/08/19	#300WD-A190508-AZ90450
SM3500Fe	FERROUS IRON	0.32 U	1.0	0.32	0.16	mg/L	05/03/19	05/03/19	#35FE-190503A-AZ90450
EPA 353.2	NITRATE-NITRITE-	0.090 U	0.10	0.090	0.028	mg/L	05/01/19	05/01/19	#35OF-190501A-AZ90051
SW846 90	DISSOLVED ORGA	0.350 U	0.93	0.350	0.130	mg/L	05/07/19	05/07/19	#DOCW5-190506A-AZ90450
SW846 90	TOTAL ORGANIC C	0.350 U	0.93	0.350	0.130	mg/L	05/07/19	05/07/19	#TOCW5-190506A-AZ90450

Wetlab SC-Blank-REG MDLs
Printed: 05/30/19 2:34:06 PM

EPA 300.0

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/01/19

Matrix: WATER Instrument: Charlie

LCS ID: 190501A2-LCS Time Analyzed: 1836

APPL ID.	Client Sample No.	File ID.	Date Analyzed
AZ90450	ERH816	13	05/01/19 1950
190501A2-BLK	Blank	2	05/01/19 1829
190501A2-LCS	Lab Control Spike	3	05/01/19 1836
190501A2-LCSD	Lab Control SpikeD	4	05/01/19 1843

Comments: Batch: #300W-190501A2

EPA 300.0

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Charlie

LCS ID: A190508-LCS Time Analyzed: 0838

APPL ID.	Client Sample No.	File ID.	Date Analyzed
AZ90450	ERH816	15	05/08/19 1023
A190508-BLK	Blank	3	05/08/19 0831
A190508-LCS	Lab Control Spike	4	05/08/19 0838
A190508-LCSD	Lab Control SpikeD	5	05/08/19 0845

Comments: Batch: #300WD-A190508

EPA 353.2

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/01/19

Matrix: WATER Instrument: EVE

LCS ID: 190501A-LCS Time Analyzed: 1819

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190501A-BLK	Blank	16	05/01/19 1817
190501A-LCS	Lab Control Spike	17	05/01/19 1819
190501A-LCSD	Lab Control SpikeD	18	05/01/19 1821
AZ90450	ERH816	35	05/01/19 1850

Comments: Batch: #35OF-190501A

SM 2320B

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/06/19

Matrix: WATER Instrument: Tiamo

LCS ID: 190506A-LCS Time Analyzed: 2132

APPL ID.	Client Sample No.	File ID.	Date Analyzed
AZ90450	ERH816	18	05/06/19 2053
190506A-BLK	Blank	22	05/06/19 2129
190506A-LCS	Lab Control Spike	23	05/06/19 2132
190506A-LCSD	Lab Control SpikeD	24	05/06/19 2143

Comments: Batch: #232W-190506A

SM3500FeB

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/03/19

Matrix: WATER Instrument: Manual Spec

LCS ID: 190503A-LCS Time Analyzed: 1546

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190503A-BLK	Blank	24	05/03/19 1545
190503A-LCS	Lab Control Spike	25	05/03/19 1546
190503A-LCSD	Lab Control SpikeD	26	05/03/19 1547
AZ90450	ERH816	28	05/03/19 1549

Comments: Batch: #35FE-190503A

SW846 9060A

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/07/19

Matrix: WATER Instrument: TicToc

LCS ID: 190506A-LCS Time Analyzed: 1911

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190506A-BLK	Blank	2	05/07/19 1837
190506A-LCS	Lab Control Spike	55	05/07/19 1911
190506A-LCSD	Lab Control SpikeD	56	05/07/19 1946
AZ90450	ERH816	61	05/07/19 2229

Comments: Batch: #DOCW5-190506A

SW846 9060A

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88764

Case No: 88764 Date Analyzed: 05/07/19

Matrix: WATER Instrument: TicToc

LCS ID: 190506A-LCS Time Analyzed: 1911

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190506A-BLK	Blank	2	05/07/19 1837
190506A-LCS	Lab Control Spike	55	05/07/19 1911
190506A-LCSD	Lab Control SpikeD	56	05/07/19 1946
AZ90450	ERH816	57	05/07/19 2021

Comments: Batch: #TOCW5-190506A

Laboratory Control Spike Recoveries

WETLAB

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Compound Name	Spike Lvl mg/L	SPK Res mg/L	DUP Res mg/L	SPK % Recov	DUP % Recov	RPD	RPD Max	QC Limits	Extract Date-Spk	Analysis Date-Spk	Extract Date-Dup	Analysis Date-Dup	QC Group
EPA 300.0	CHLORIDE	25.0	24.4	24.4	97.6	97.6	0.0	20	90-110	05/08/19	05/08/19	05/08/19	05/08/19	#300WD-A190508-AZ9045
EPA 300.0	NITRATE	22.1	22.6	22.6	102	102	0.0	20	90-110	05/01/19	05/01/19	05/01/19	05/01/19	#300W-190501A2-AZ9045
EPA 300.0	SULFATE	25.0	24.9	24.9	99.6	99.6	0.0	20	90-110	05/01/19	05/01/19	05/01/19	05/01/19	#300W-190501A2-AZ9045
EPA 353.2	NITRATE-NITRITE-N	3.00	3.14	3.12	105	104	0.64	20	90-110	05/01/19	05/01/19	05/01/19	05/01/19	#35OF-190501A-AZ90051
SM 2320B	BICARBONATE AS CACO3	250	251	251	100	100	0.0	20	90-110	05/06/19	05/06/19	05/06/19	05/06/19	#232W-190506A-AZ90450
SM 2320B	TOTAL ALKALINITY AS CA	250	251	251	100	100	0.0	20	90-110	05/06/19	05/06/19	05/06/19	05/06/19	#232W-190506A-AZ90450
SM3500Fe	FERROUS IRON	3.00	3.08	3.01	103	100	2.3	20	80-120	05/03/19	05/03/19	05/03/19	05/03/19	#35FE-190503A-AZ90450
SW846 906	DISSOLVED ORGANIC CA	2.50	2.41	2.42	96.4	96.8	0.41	20	90-110	05/07/19	05/07/19	05/07/19	05/07/19	#DOCW5-190506A-AZ904
SW846 906	TOTAL ORGANIC CARBO	2.5	2.41	2.42	96.4	96.8	0.41	20	90-110	05/07/19	05/07/19	05/07/19	05/07/19	#TOCW5-190506A-AZ9045

Comments: _____

ORGANICS
Calibration Data

TPH Extractables
DOC0411

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 04/11/19
Matrix: Water Instrument: Apollo

Initials: D.P.

Diesel / Motor Oil:	411002.D	411003.D	411004.D	411005.D	411006.D	411007.D										
Decanoic Acid:	411009.D	411010.D	411011.D	411012.D	411013.D	411014 D										

		Compound	1	2	3	4	5	6					Avg	%RSD	Type	r^2	Q
1	HATM	Diesel (C10-C24)	1479257	1066406	1154027	1149804	1155026	1151191					1192619	12	HATM		
2	HBTM	Motor Oil (C24-C40)	1115442	902464	913566	920399	937513	921175					951760	8.5	HBTM		
3	SCL	Decanoic Acid(S)	185262	314603	492479	537134	542867	560663					438835	35	SC	0.999	
4	SA	Ortho-Terphenyl(S)	2331995	1997948	2029193	1934422	1946955	1901973					2023748	7.8	SA		
5	SA	Octacosane(S)	2126705	1844471	1831603	1894540	1808281	1847266					1892144	6.3	SA		
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1.990883

Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411002.D Vial: 2
Acq On : 4-11-19 12:41:17 Operator: DP
Sample : Diesel / Motor Oil - 1 1/15/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:32 2019 Quant Results File: DOC0411.RES

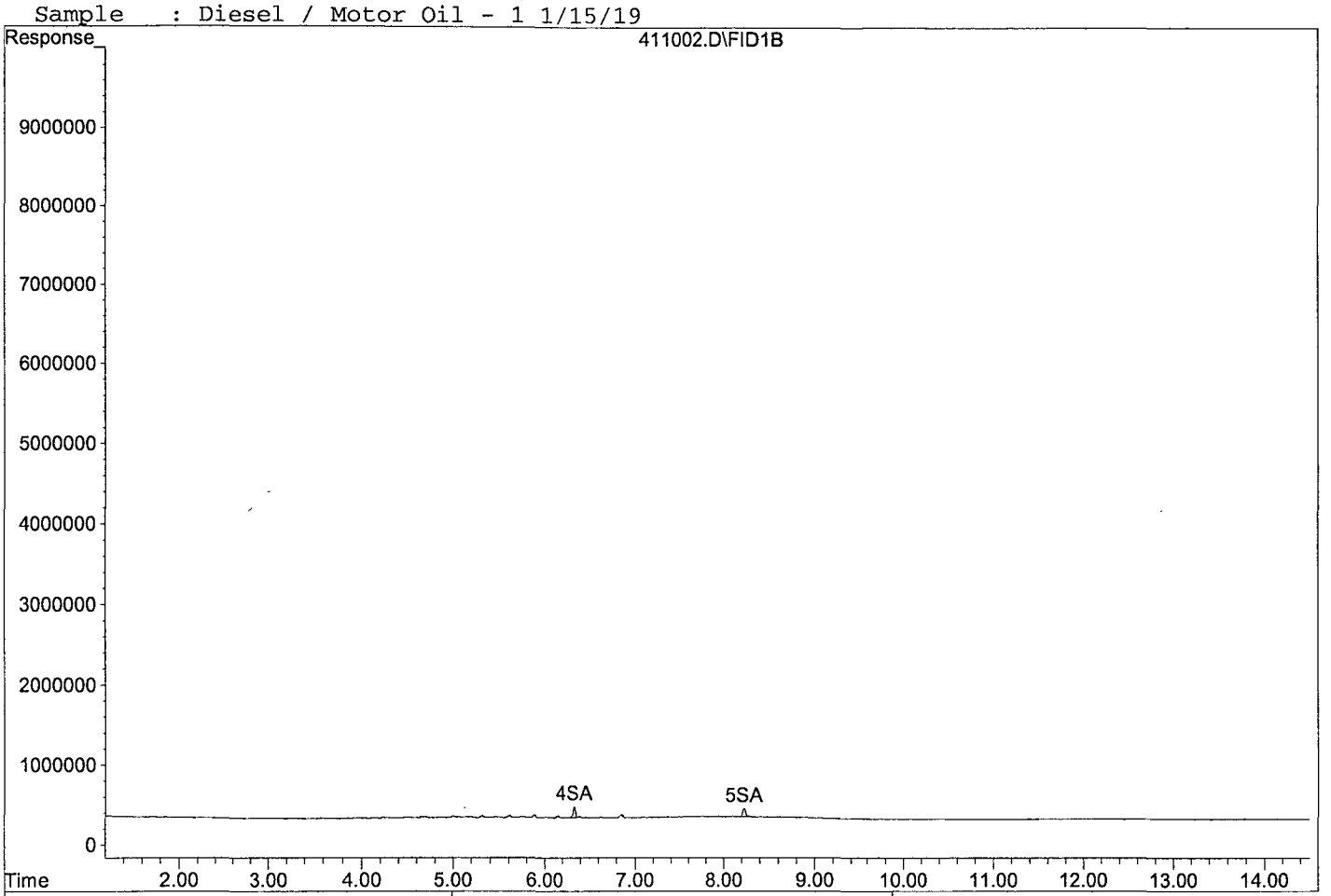
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

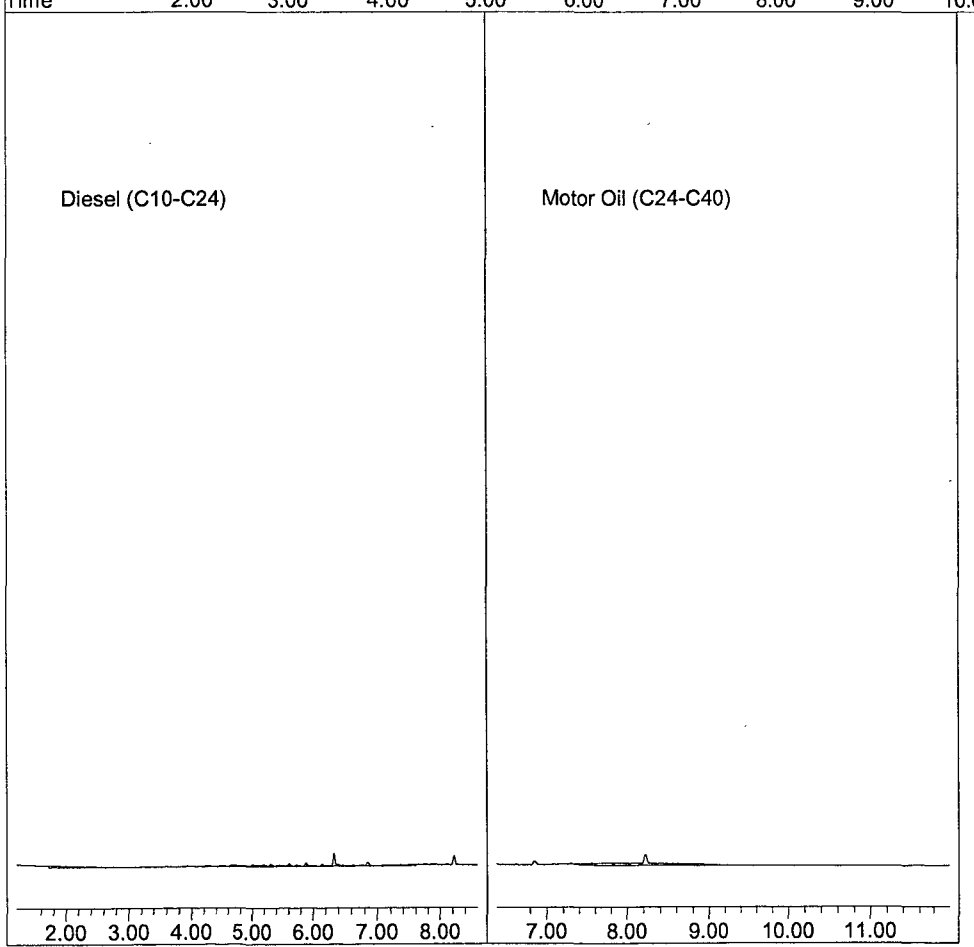
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.33	2331995	0.576 ppb
Surrogate Spike 30.000	Recovery =		1.92%
5) SA Octacosane(S)	8.23	2126705	0.562 ppb
Surrogate Spike 30.000	Recovery =		1.87%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	29585142	12.403 ppb
2) HBTM Motor Oil (C24-C40)	9.20	22308844	11.720 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411002.D
Sample : Diesel / Motor Oil - 1 1/15/19





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411003.D Vial: 3
Acq On : 4-11-19 13:00:16 Operator: DP
Sample : Diesel / Motor Oil - 2 4/11/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:32 2019 Quant Results File: DOC0411.RES

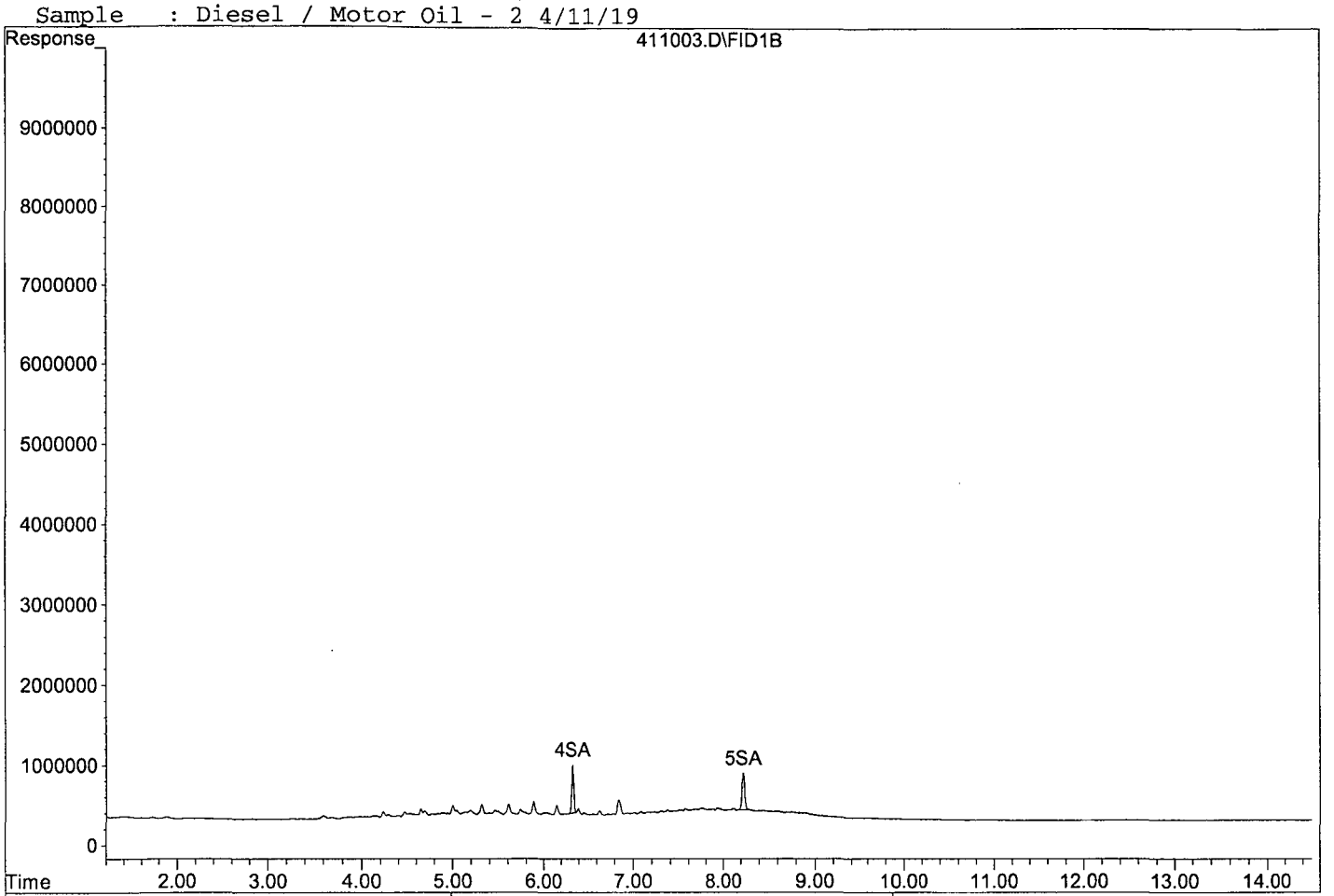
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

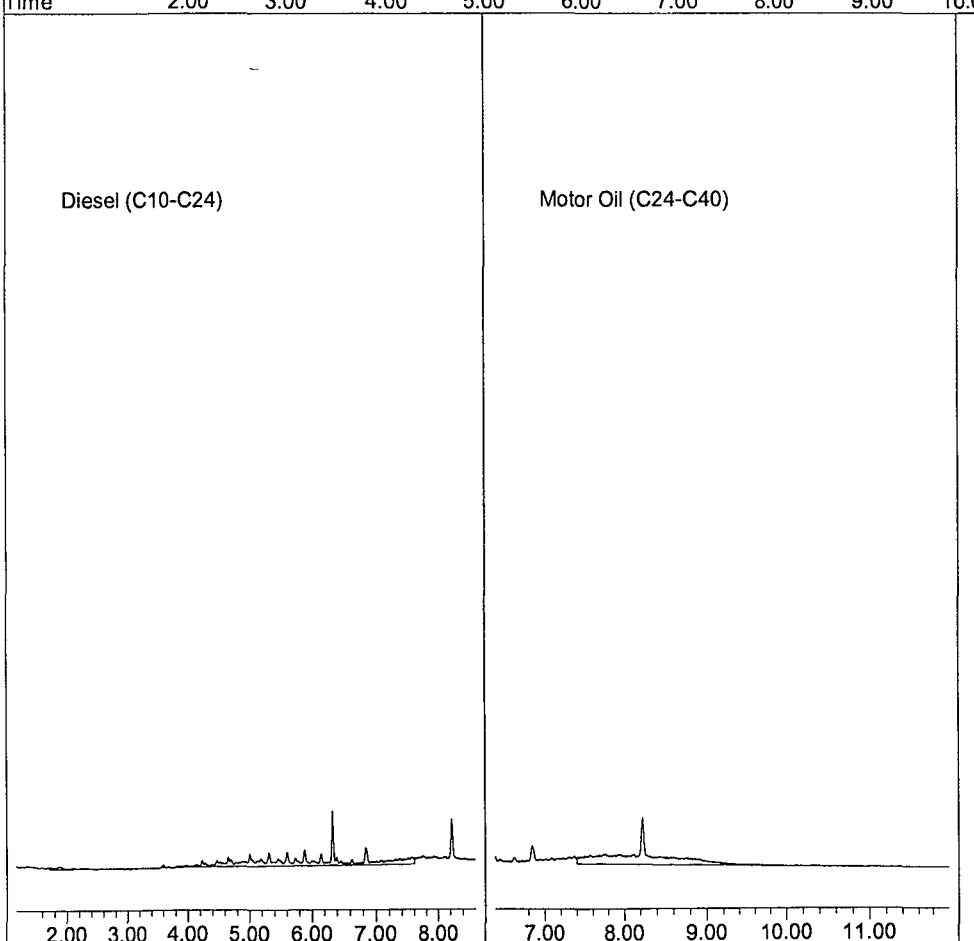
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.33	9989738	2.468 ppb
Surrogate Spike 30.000	Recovery =		8.23%
5) SA Octacosane(S)	8.22	9222354	2.437 ppb
Surrogate Spike 30.000	Recovery =		8.12%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	106640632	44.709 ppb
2) HBTM Motor Oil (C24-C40)	9.20	90246355	47.410 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411003.D
Sample : Diesel / Motor Oil - 2 4/11/19





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411004.D Vial: 4
Acq On : 4-11-19 13:19:58 Operator: DP
Sample : Diesel / Motor Oil - 3 4/11/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:32 2019 Quant Results File: DOC0411.RES

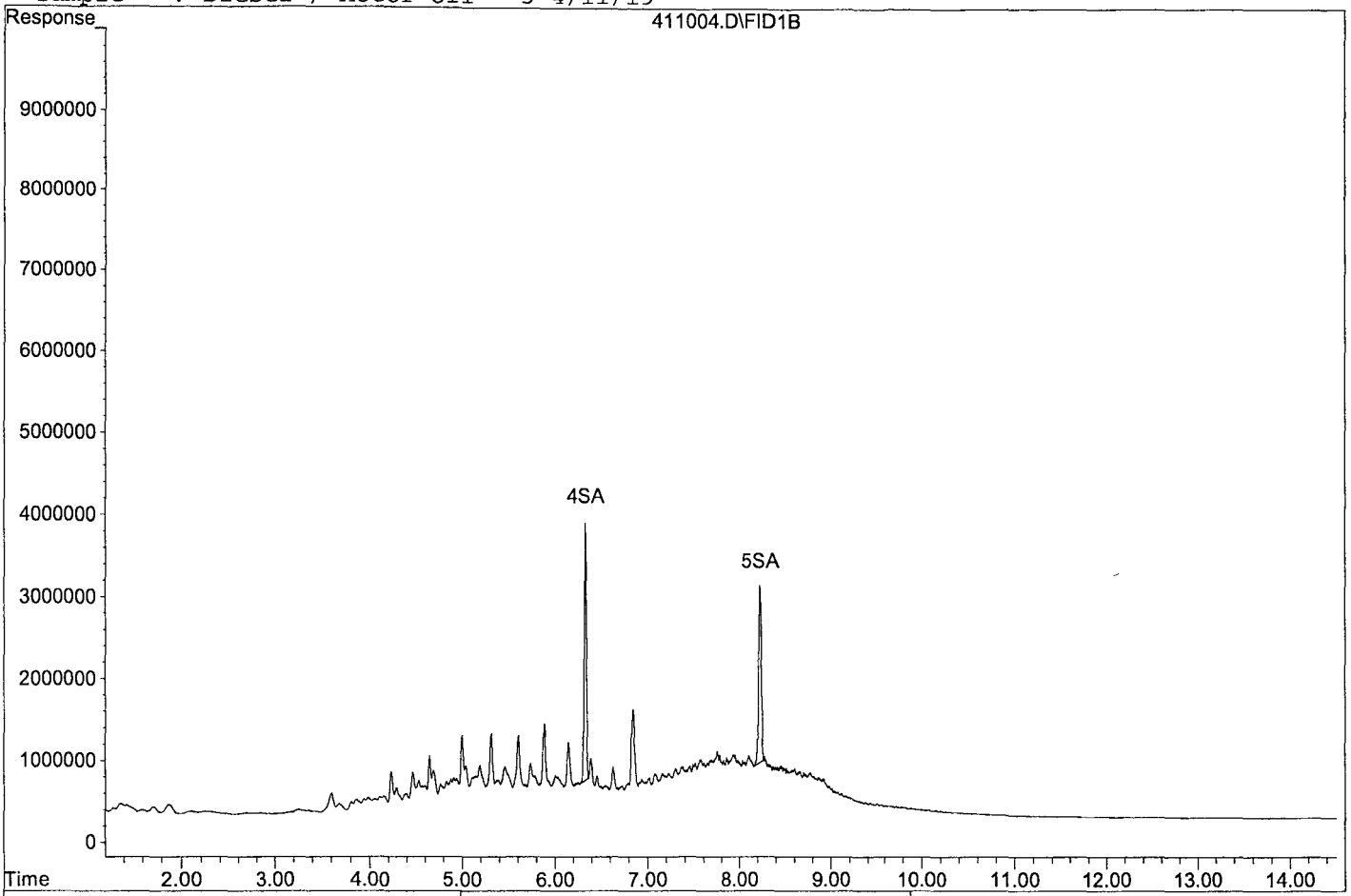
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

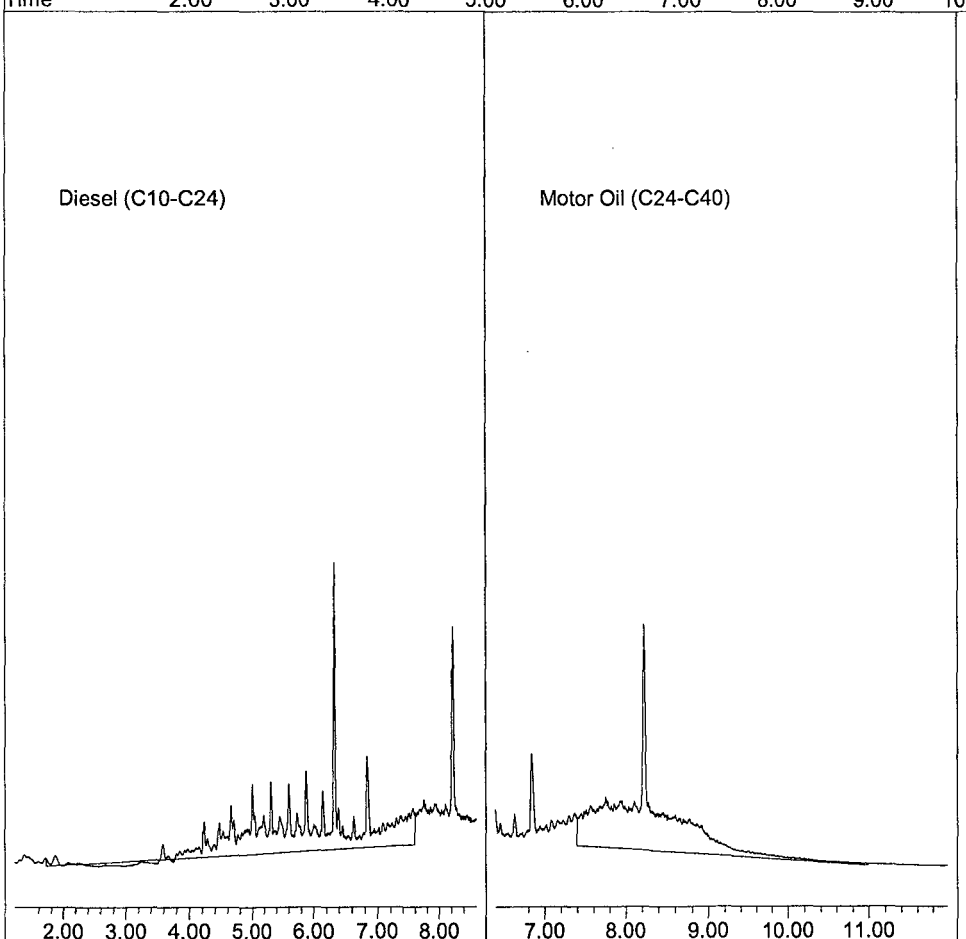
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.33	50729819	12.534 ppb
Surrogate Spike 30.000	Recovery =		41.78%
5) SA Octacosane(S)	8.23	45790065	12.100 ppb
Surrogate Spike 30.000	Recovery =		40.33%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	577013623	241.910 ppb
2) HBTM Motor Oil (C24-C40)	9.20	456782905	239.968 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411004.D
Sample : Diesel / Motor Oil - 3 4/11/19





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411005.D Vial: 5
Acq On : 4-11-19 13:39:40 Operator: DP
Sample : Diesel / Motor Oil - 4 4/11/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:32 2019 Quant Results File: DOC0411.RES

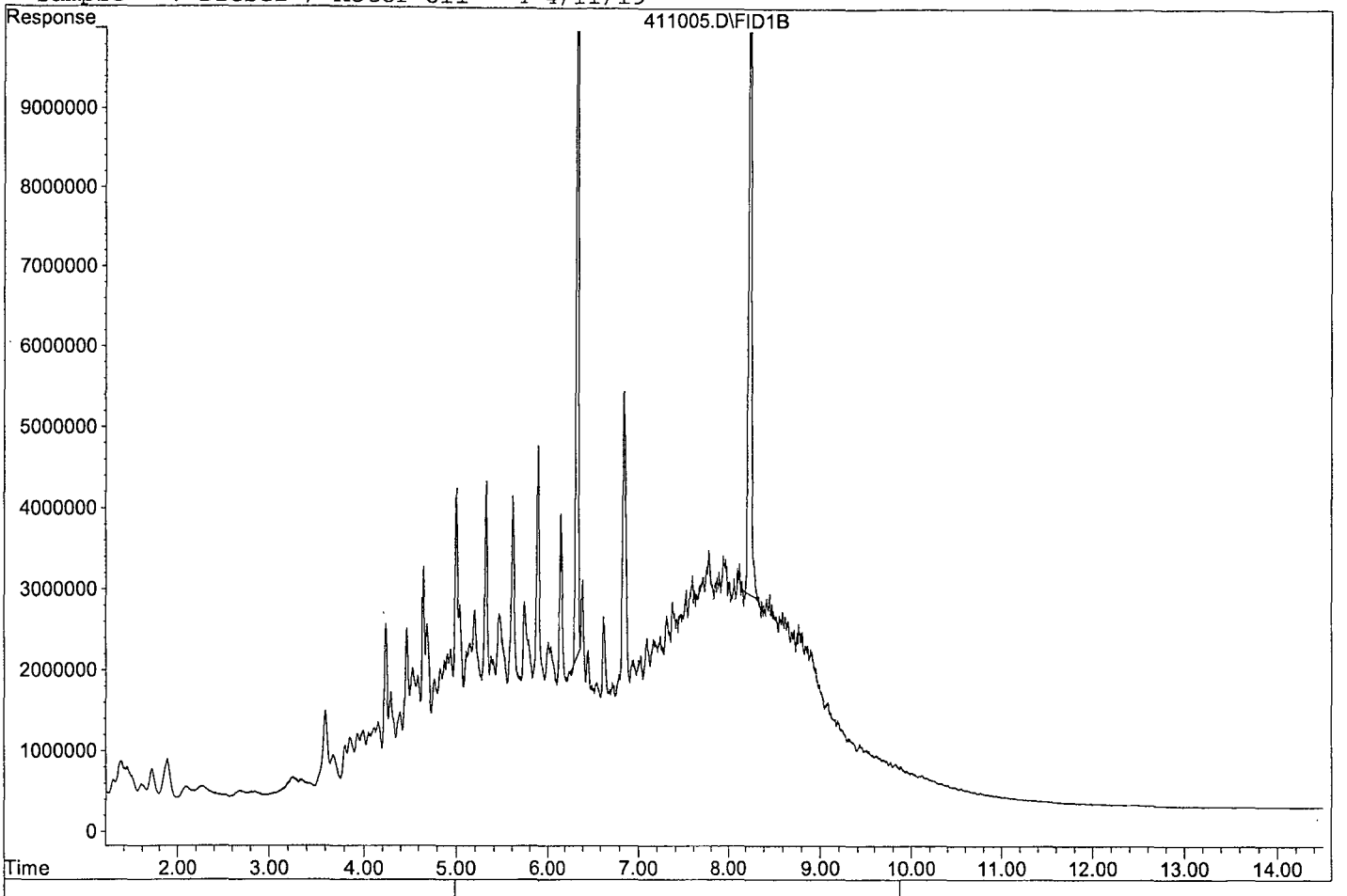
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

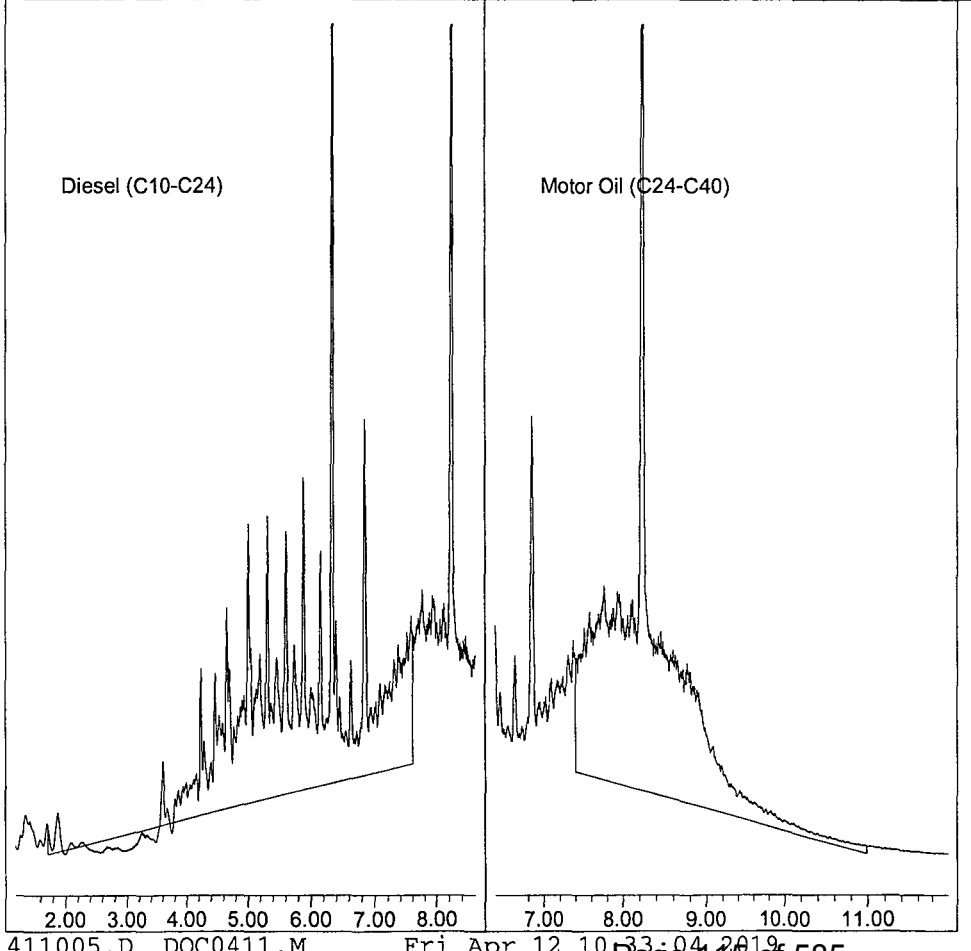
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.34	193442220	47.793 ppb
Surrogate Spike 30.000	Recovery =		159.31%
5) SA Octacosane(S)	8.24	189453974	50.063 ppb
Surrogate Spike 30.000	Recovery =		166.88%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	2299608823	964.101 ppb
2) HBTM Motor Oil (C24-C40)	9.20	1840797531	967.050 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411005.D
Sample : Diesel / Motor Oil - 4 4/11/19





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411006.D Vial: 6
Acq On : 4-11-19 13:59:26 Operator: DP
Sample : Diesel / Motor Oil - 5 4/11/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:32 2019 Quant Results File: DOC0411.RES

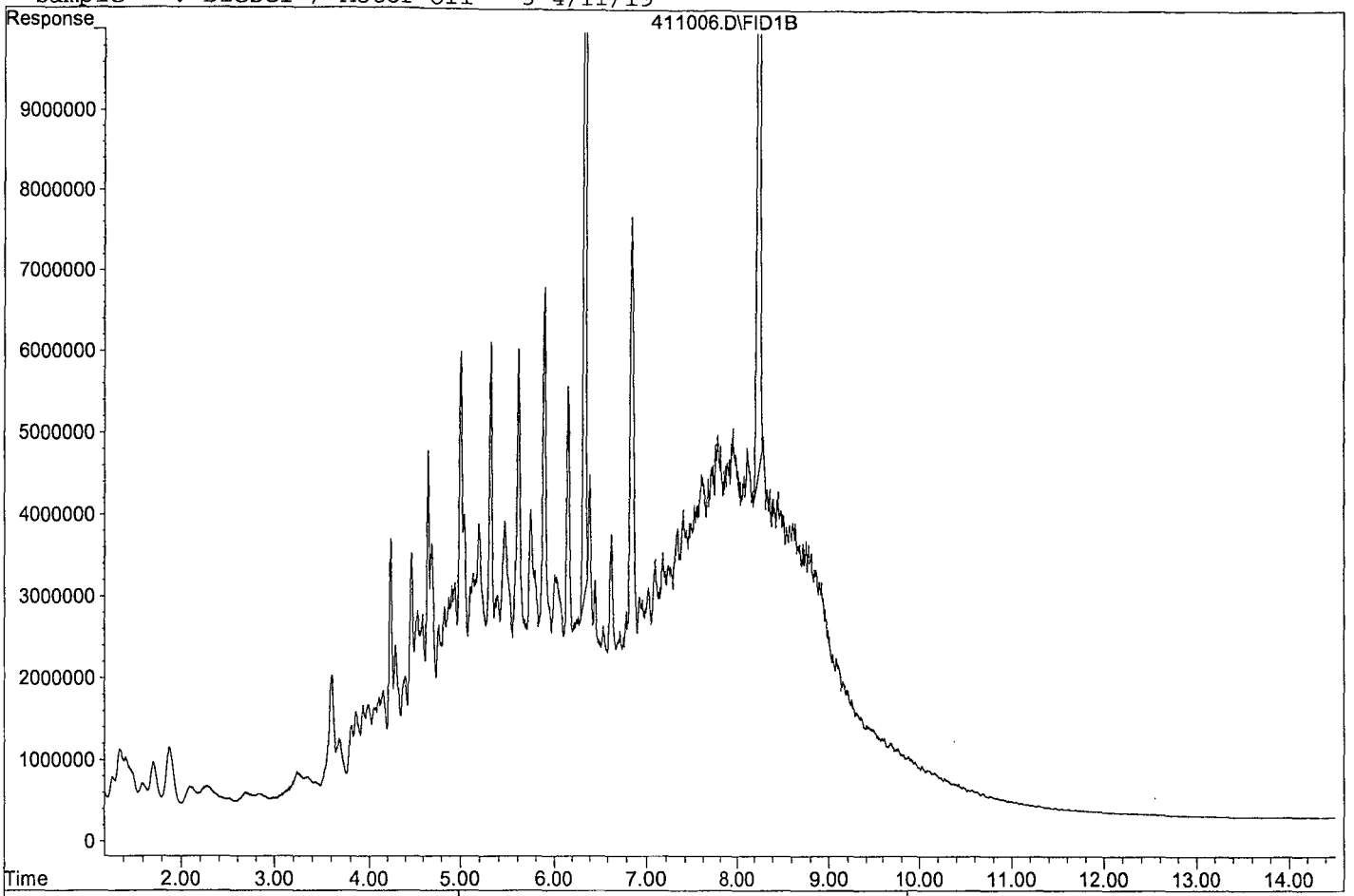
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

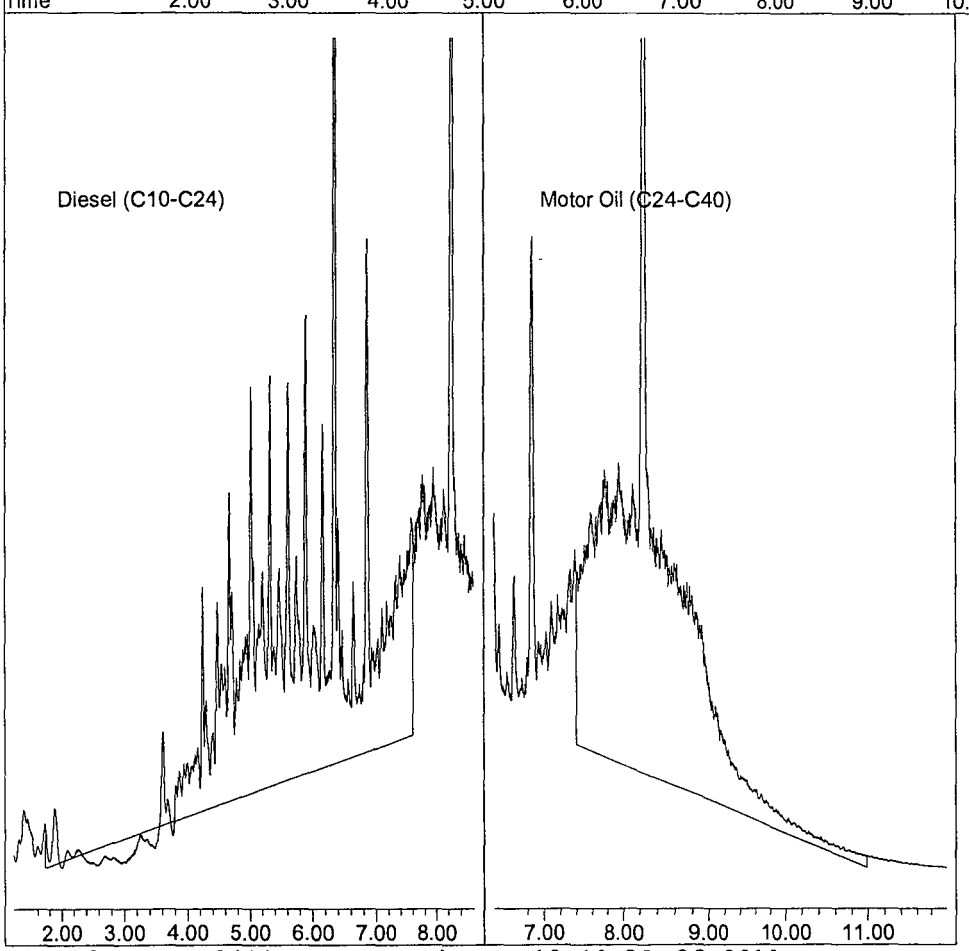
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc	Units
System Monitoring Compounds				
4) SA Ortho-Terphenyl(S)	6.35	292043263	72.154	ppb
Surrogate Spike 30.000	Recovery =		240.51%	
5) SA Octacosane(S)	8.25	271242076	71.676	ppb
Surrogate Spike 30.000	Recovery =		238.92%	
Target Compounds				
1) HATM Diesel (C10-C24)	4.66	3465077974	1452.718	ppb
2) HBTM Motor Oil (C24-C40)	9.20	2812537957	1477.546	ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411006.D
Sample : Diesel / Motor Oil - 5 4/11/19





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411007.D Vial: 7
Acq On : 4-11-19 14:19:10 Operator: DP
Sample : Diesel / Motor Oil - 6 4/11/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:32 2019 Quant Results File: DOC0411.RES

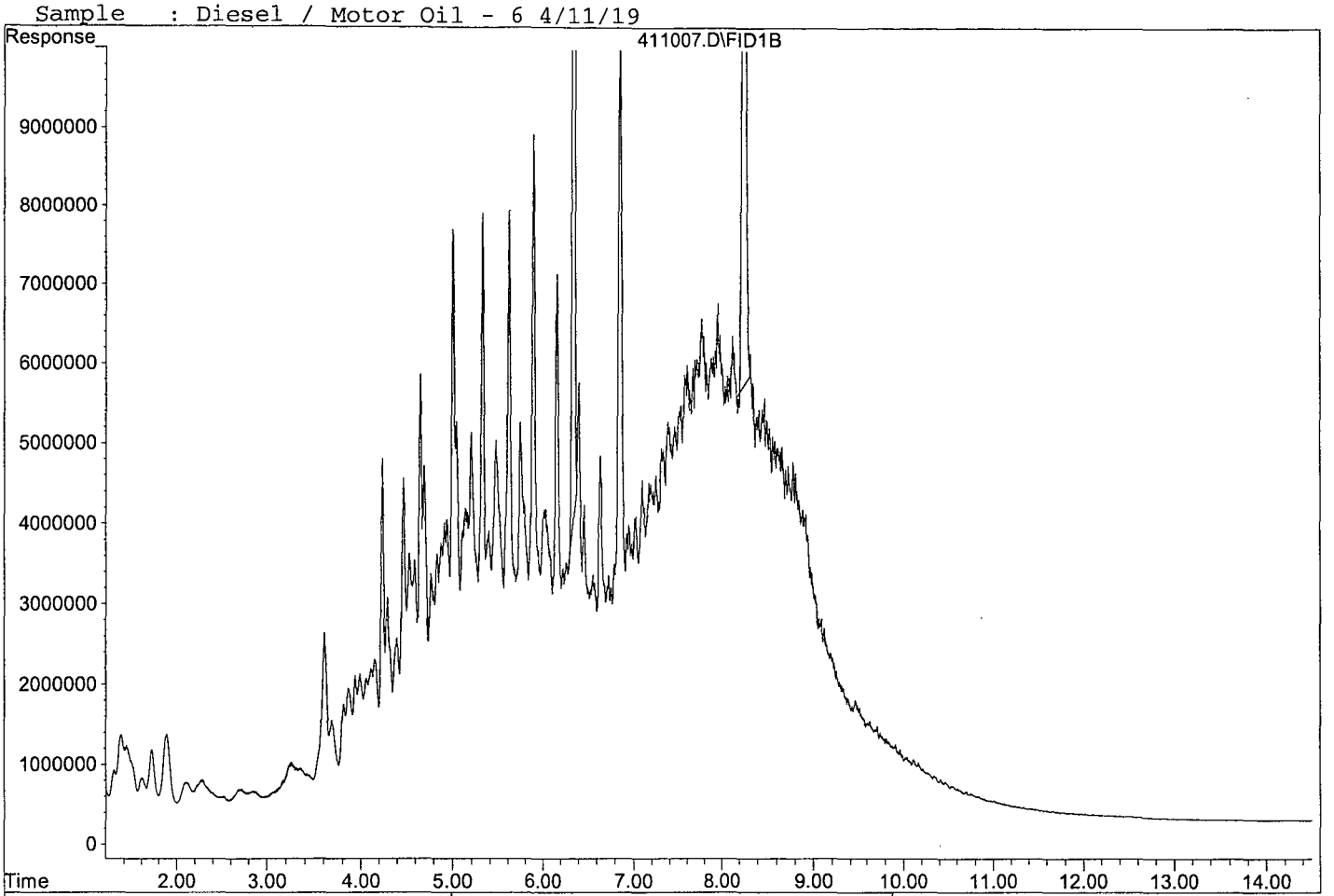
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

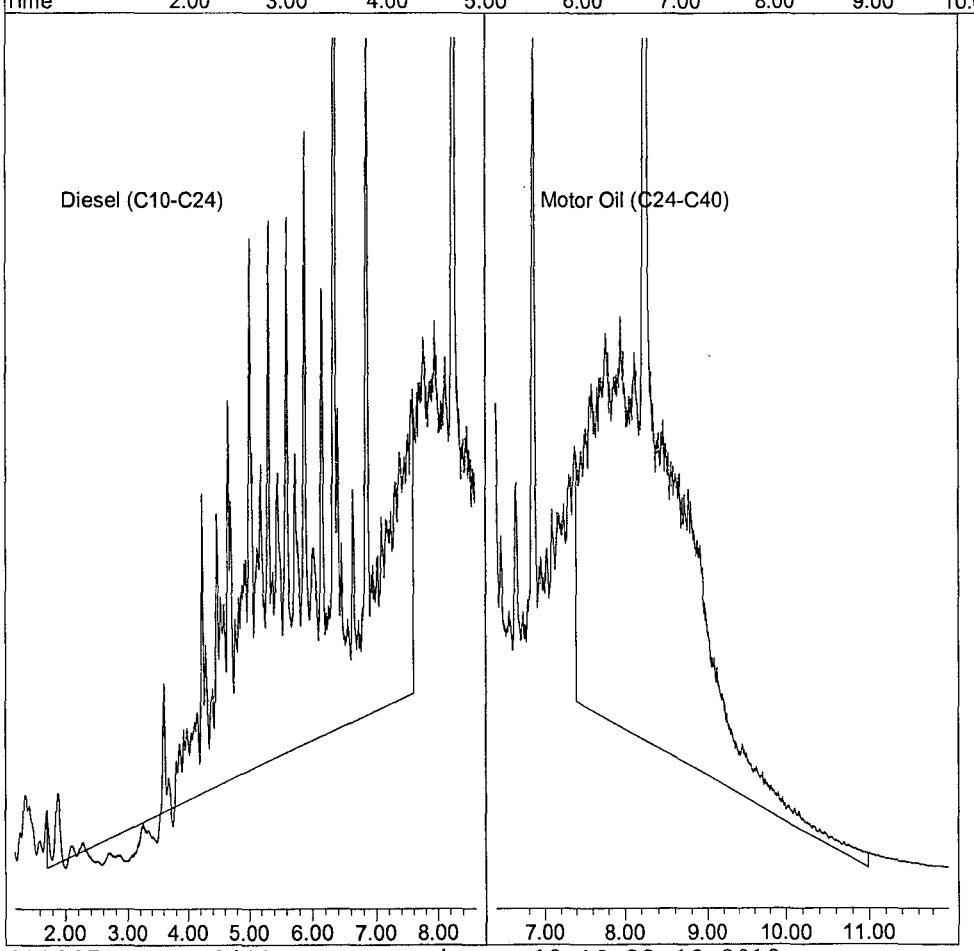
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.35	380394582	93.983 ppb
Surrogate Spike 30.000	Recovery =		313.28%
5) SA Octacosane(S)	8.25	369453158	97.628 ppb
Surrogate Spike 30.000	Recovery =		325.43%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	4604763920	1930.527 ppb
2) HBTM Motor Oil (C24-C40)	9.20	3684700650	1935.731 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411007.D
Sample : Diesel / Motor Oil - 6 4/11/19





TPH Extractables
DOC0411

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: Water

SDG No:
Date Analyzed: 04/11/19
Instrument: Apollo
Initial Cal. Date: 04/11/19
Data File: 411008.D

		Compound	MEAN	CCRF	%D	%Drift	
1	HATM	Diesel (C10-C24)	1192620	1089150	8.7	HATM	
2	HBTM	Motor Oil (C24-C40)	951760	887564	6.7	HBTM	
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		Average			7.7		

Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190411\411008.D Vial: 8
Acq On : 4-11-19 14:39:01 Operator: DP
Sample : Diesel / Motor Oil - 2nd Source 1/15/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: Apr 12 10:31 2019 Quant Results File: DOC0411.RES

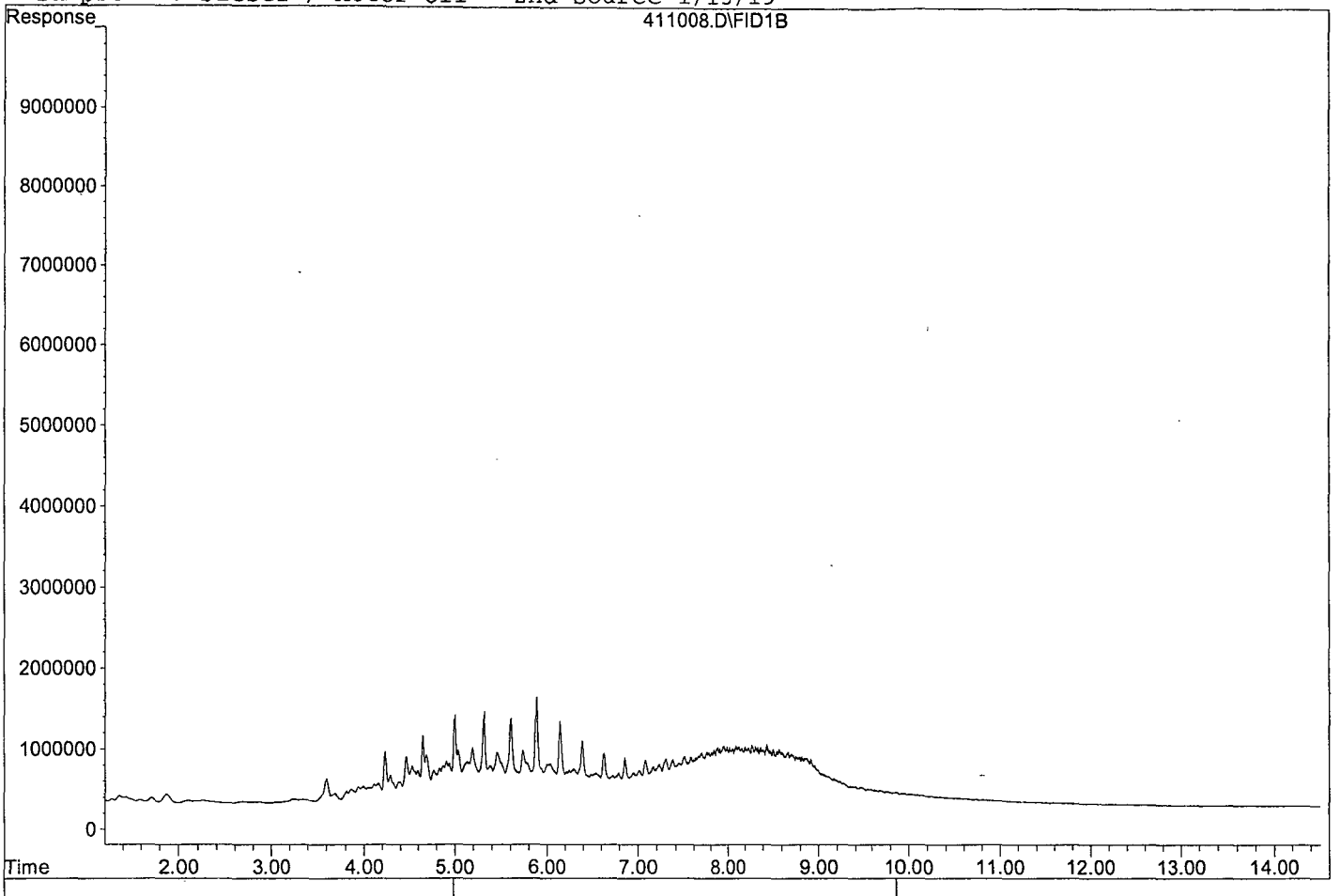
Method : G:\APOLLO\DATA\190411\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

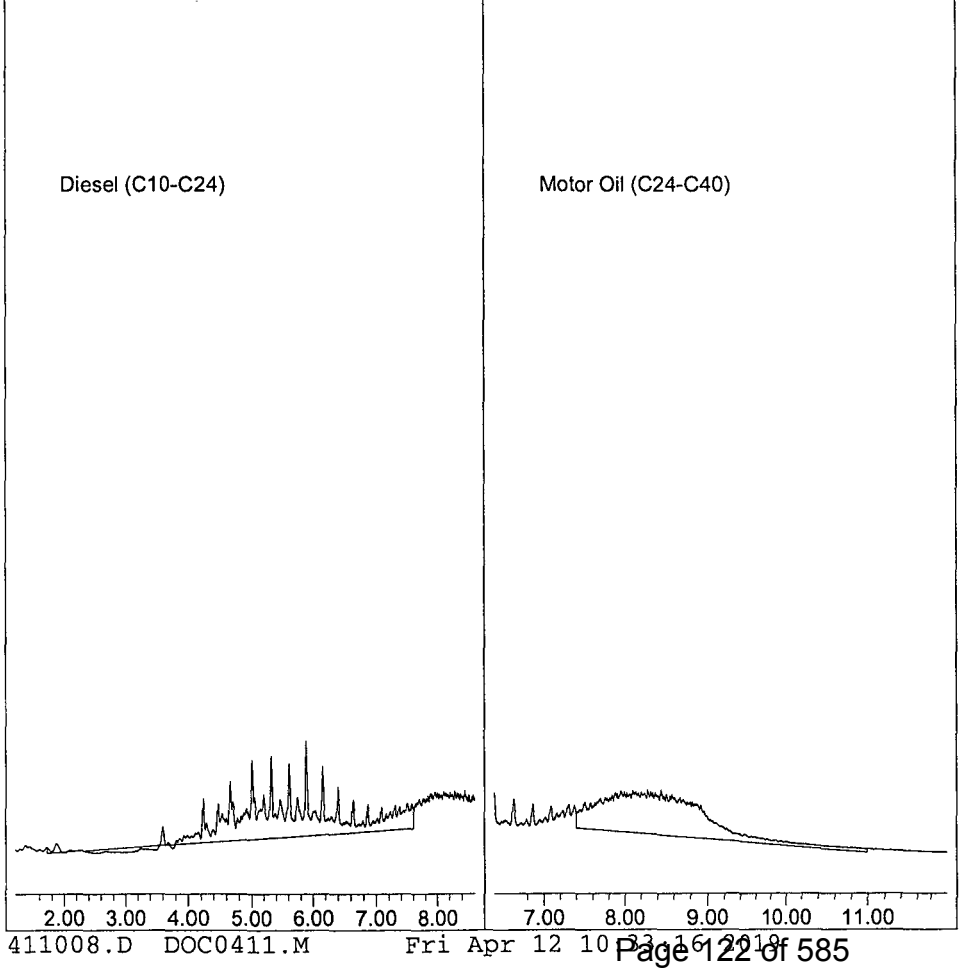
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	544574759	228.311 ppb
2) HBTM Motor Oil (C24-C40)	9.20	443782147	233.138 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190411\411008.D
Sample : Diesel / Motor Oil - 2nd Source 1/15/19





TPH Extractables
DOC0411

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: Water

SDG No:
Date Analyzed: 05/06/19
Instrument: Apollo
Initial Cal. Date: 04/11/19
Data File: 506002.D

		Compound	MEAN	CCRF	%D	%Drift	
1	HATM	Diesel (C10-C24)	1192620	1189150	0.29	HATM	
2	HBTM	Motor Oil (C24-C40)	951760	1039930	9.3	HBTM	
3	SA	Ortho-Terphenyl(S)	2023750	2093620	3.5	SA	
4	SA	Octacosane(S)	1892140	1954310	3.3	SA	
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		Average			4.1		

Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190506\506002.D Vial: 2
Acq On : 5-6-19 17:10:08 Operator: DP
Sample : Diesel/Motor Oil 3 4/16/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: May 6 17:24 2019 Quant Results File: DOC0411.RES

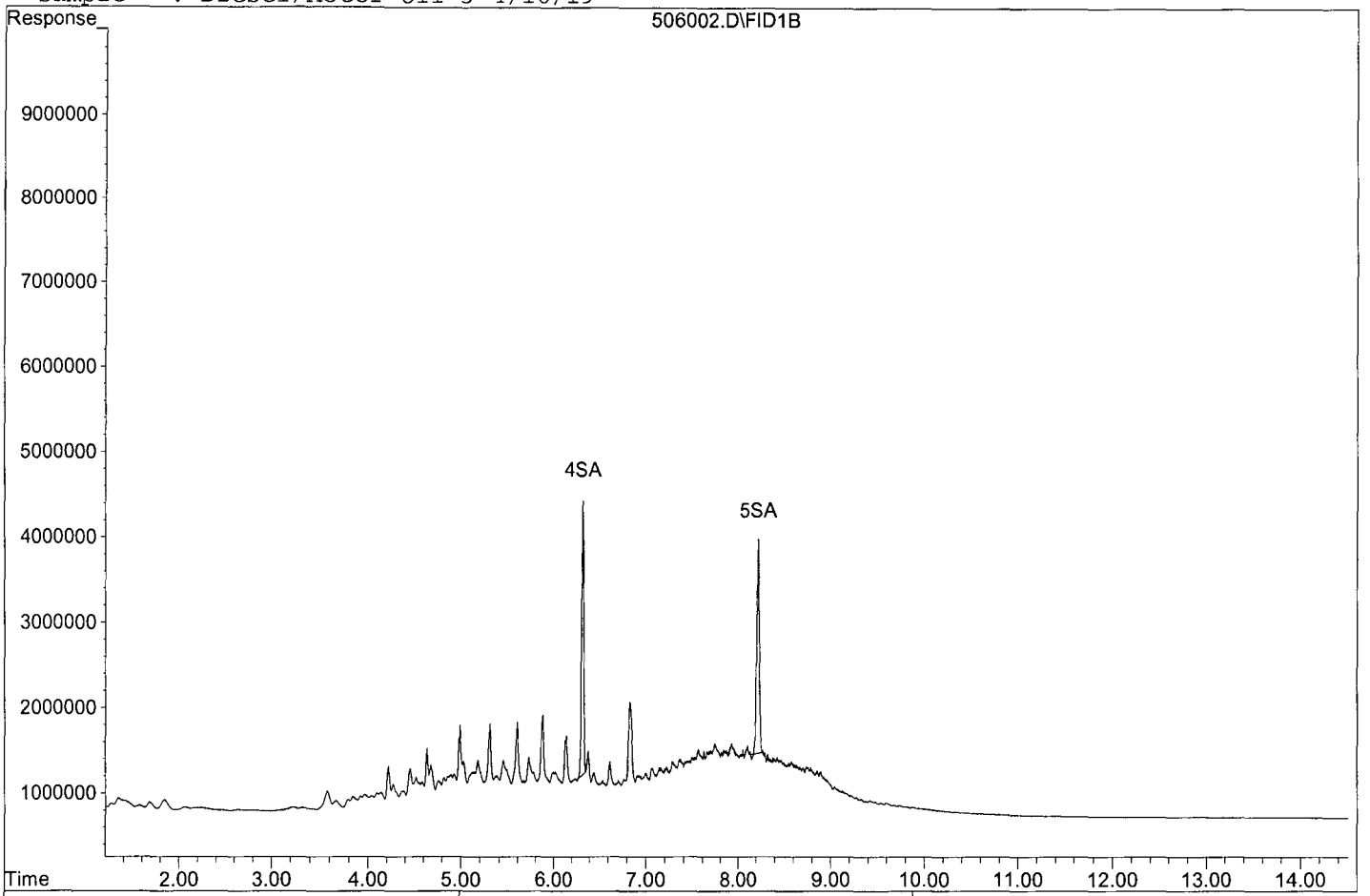
Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

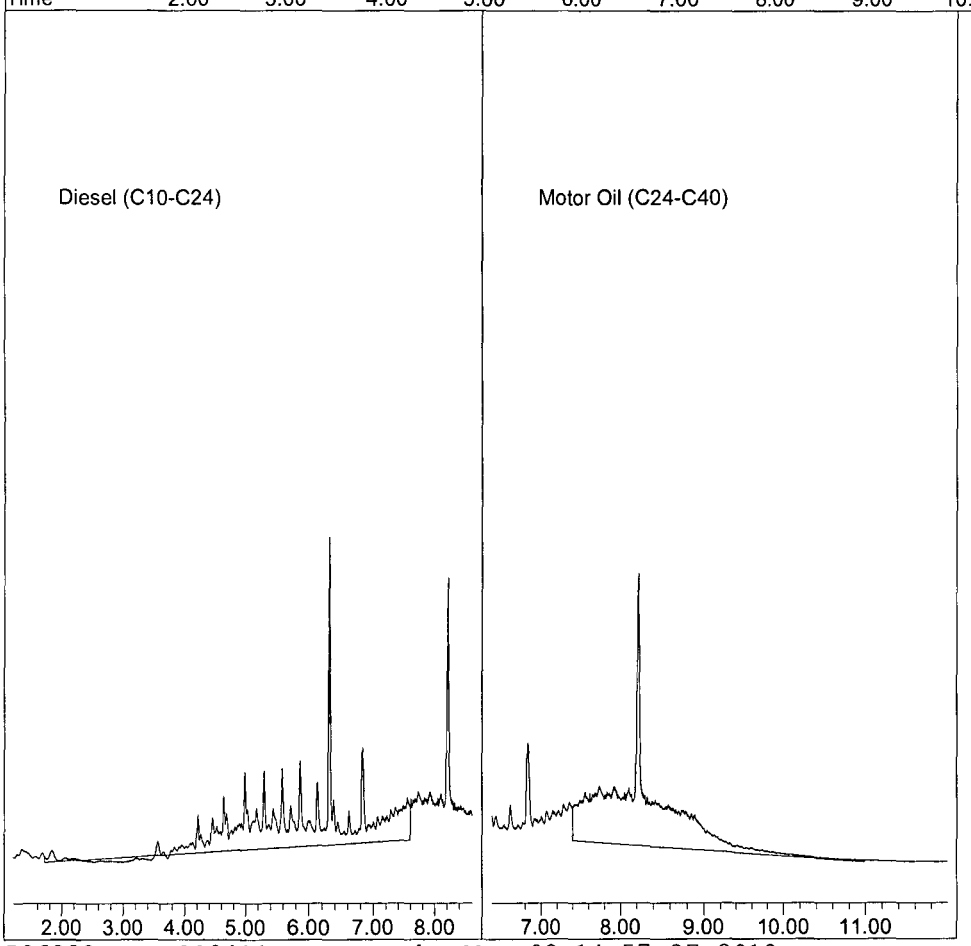
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.32	52340610	12.932 ppb
Surrogate Spike 30.000	Recovery =		43.11%
5) SA Octacosane(S)	8.22	48857718	12.911 ppb
Surrogate Spike 30.000	Recovery =		43.04%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	594574599	249.273 ppb
2) HBTM Motor Oil (C24-C40)	9.20	519962705	273.159 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190506\506002.D
Sample : Diesel/Motor Oil 3 4/16/19





TPH Extractables
DOC0411

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: Water

SDG No:
Date Analyzed: 05/06/19
Instrument: Apollo
Initial Cal. Date: 04/11/19
Data File: 506016.D

		Compound	MEAN	CCRF	%D	%Drift	
1	HATM	Diesel (C10-C24)	1192620	1231640	3.3	HATM	
2	HBTM	Motor Oil (C24-C40)	951760	1057410	11	HBTM	
3	SA	Ortho-Terphenyl(S)	2023750	2197200	8.6	SA	
4	SA	Octacosane(S)	1892140	2145190	13	SA	
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		Average			9.0		

Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190506\506016.D Vial: 16
Acq On : 5-6-19 21:49:32 Operator: DP
Sample : Diesel/Motor Oil 3 4/16/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: May 8 8:26 2019 Quant Results File: DOC0411.RES

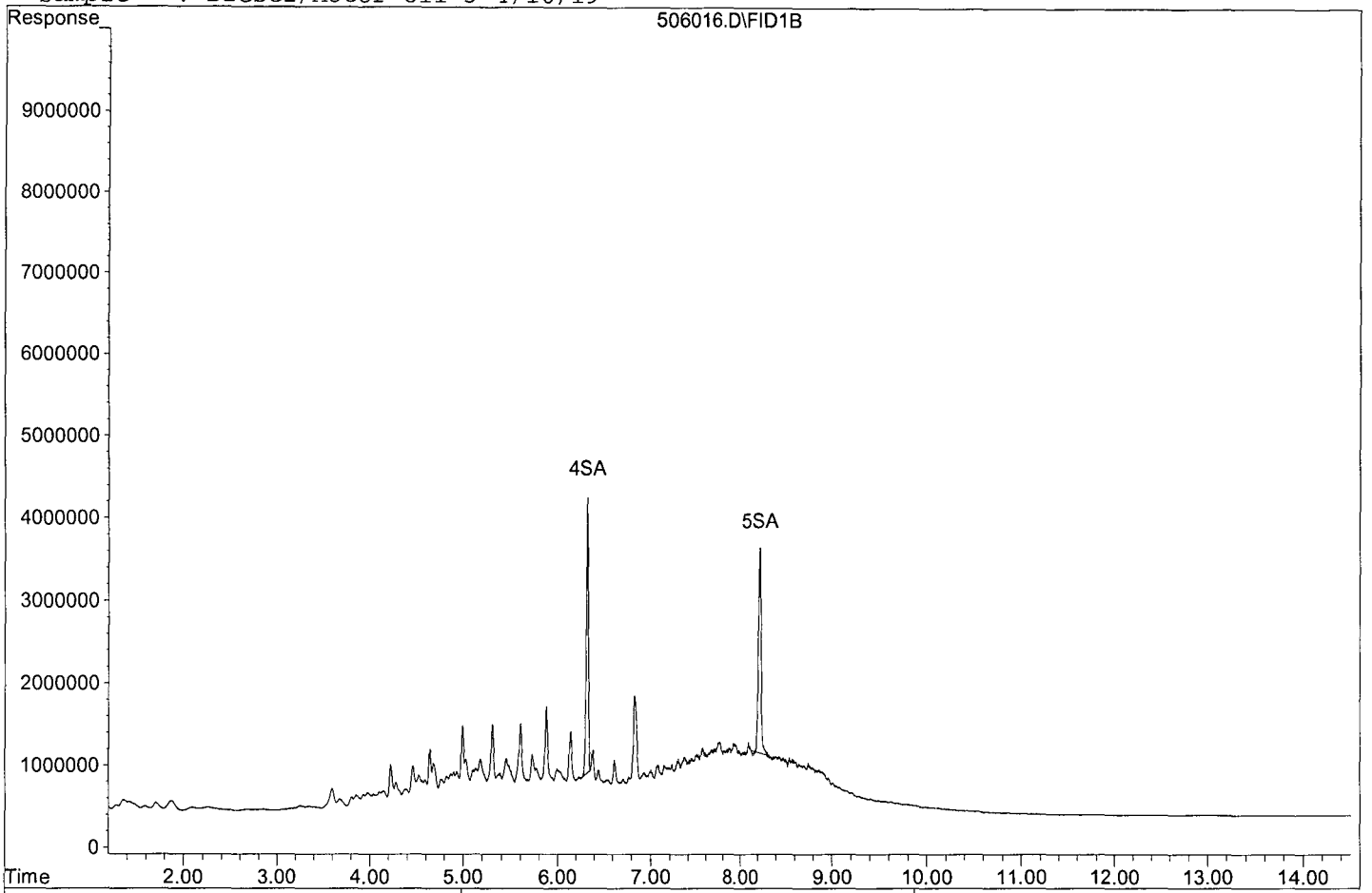
Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

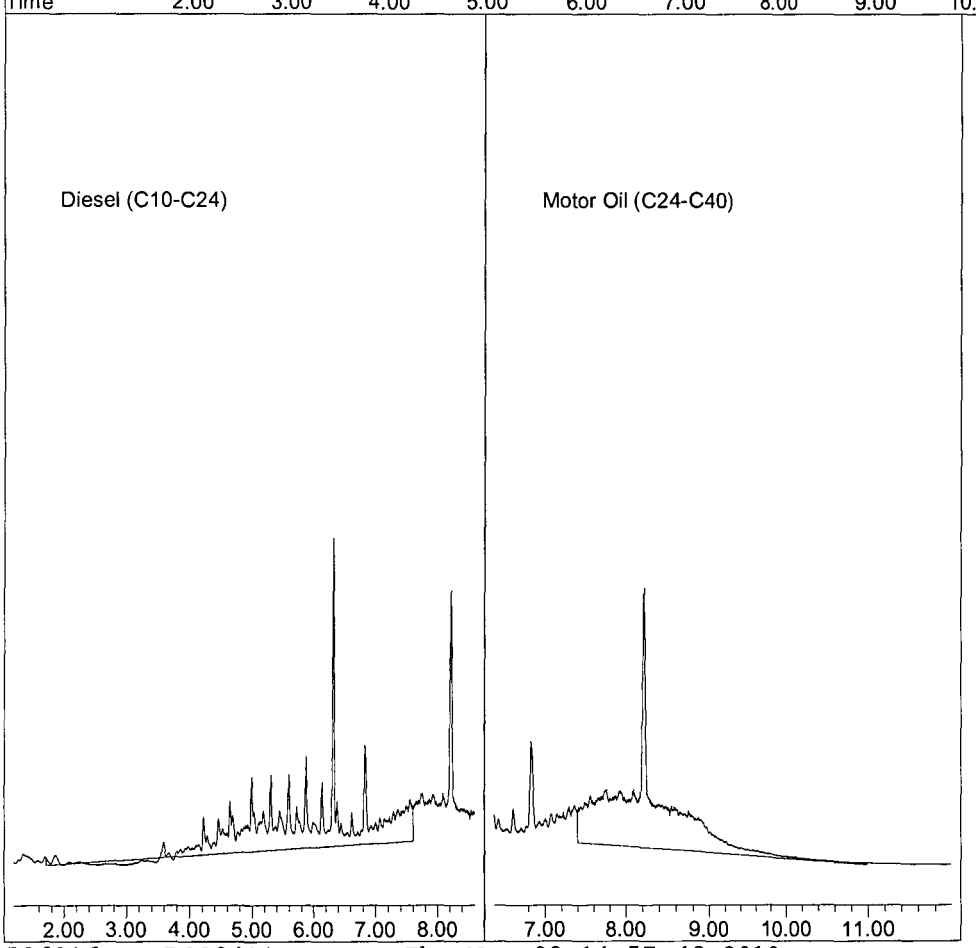
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.32	54930035	13.571 ppb
Surrogate Spike 30.000	Recovery =		45.24%
5) SA Octacosane(S)	8.22	53629644	14.172 ppb
Surrogate Spike 30.000	Recovery =		47.24%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	615821869	258.181 ppb
2) HBTM Motor Oil (C24-C40)	9.20	528706645	277.752 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190506\506016.D
Sample : Diesel/Motor Oil 3 4/16/19





506016.D DOC0411.M Thu May 09 14:57:42 2019 Page 2

TPH Extractables
DOC0411

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: Water

SDG No:
Date Analyzed: 05/06/19
Instrument: Apollo
Initial Cal. Date: 04/11/19
Data File: 506021.D

		Compound	MEAN	CCRF	%D	%Drift	
1	HATM	Diesel (C10-C24)	1192620	1291940	8.3	HATM	
2	HBTM	Motor Oil (C24-C40)	951760	1092120	15	HBTM	
3	SA	Ortho-Terphenyl(S)	2023750	2318430	15	SA	
4	SA	Octacosane(S)	1892140	2236170	18	SA	
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		Average			14.1		

Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190506\506021.D Vial: 21
Acq On : 5-6-19 23:28:29 Operator: DP
Sample : Diesel/Motor Oil 3 4/16/19 Inst : Apollo
Misc : water Multiplr: 1.00
IntFile : events.e
Quant Time: May 8 8:28 2019 Quant Results File: DOC0411.RES

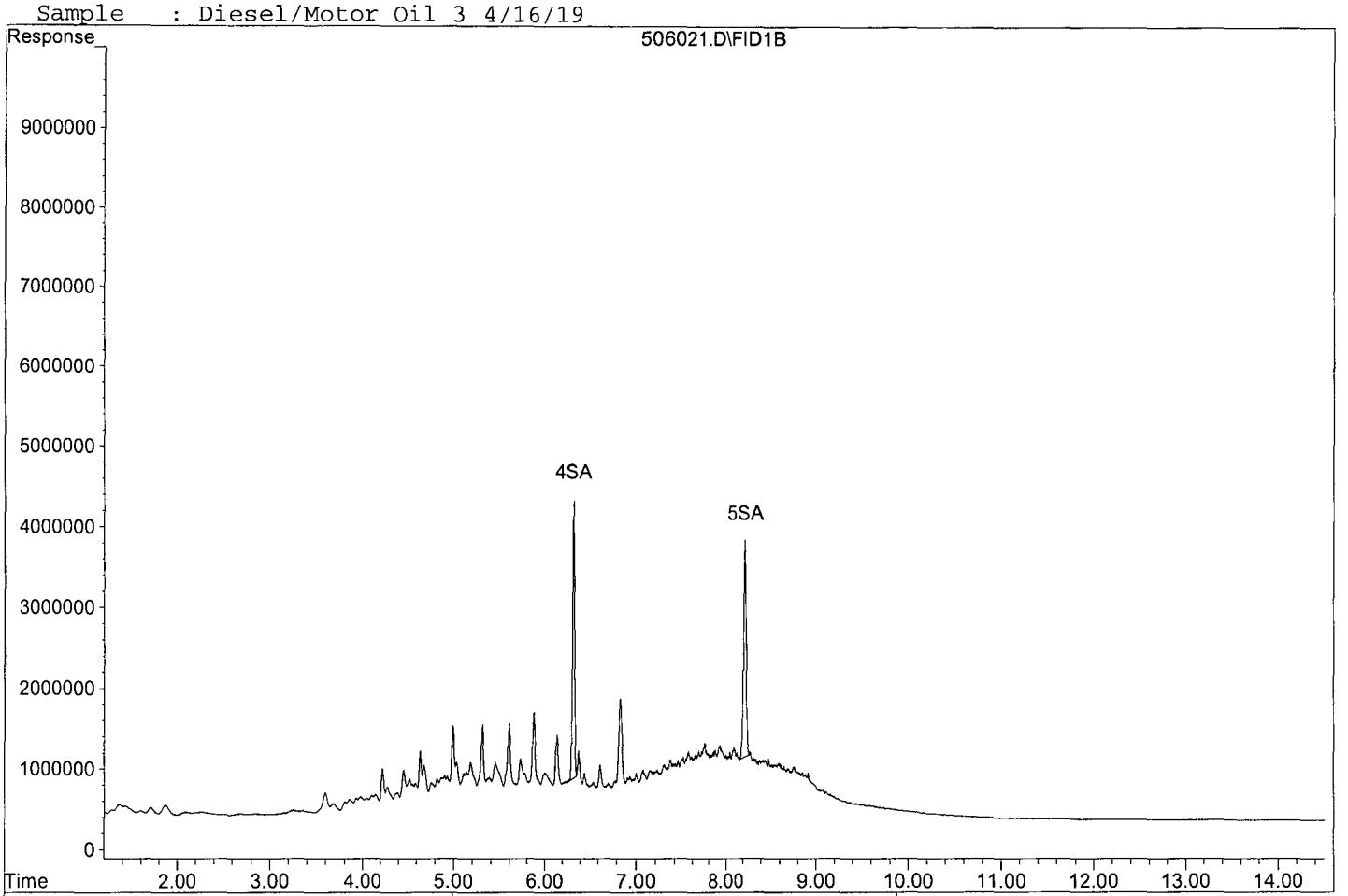
Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

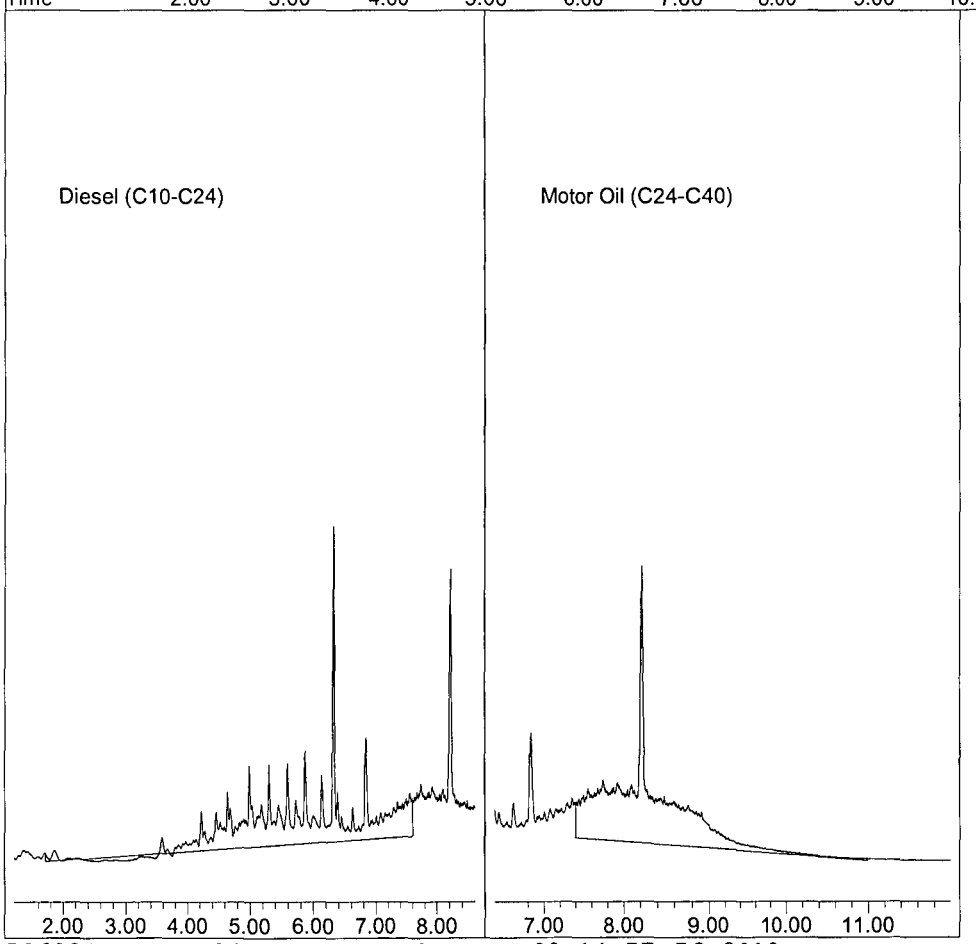
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.32	57960764	14.320 ppb
Surrogate Spike 30.000		Recovery =	47.73%
5) SA Octacosane(S)	8.22	55904366	14.773 ppb
Surrogate Spike 30.000		Recovery =	49.24%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	645970791	270.820 ppb
2) HBTM Motor Oil (C24-C40)	9.20	546058298	286.868 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190506\506021.D
Sample : Diesel/Motor Oil 3 4/16/19





506021.D DOC0411.M Thu May 09 14:57:58 2019 Page 2

ORGANICS
Raw Data

Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190506\506018.D Vial: 18
Acq On : 5-6-19 22:29:12 Operator: DP
Sample : AZ90447W11 2/800 Inst : Apollo
Misc : water Multiplr: 2.50
IntFile : events.e
Quant Time: May 8 8:36 2019 Quant Results File: DOC0411.RES

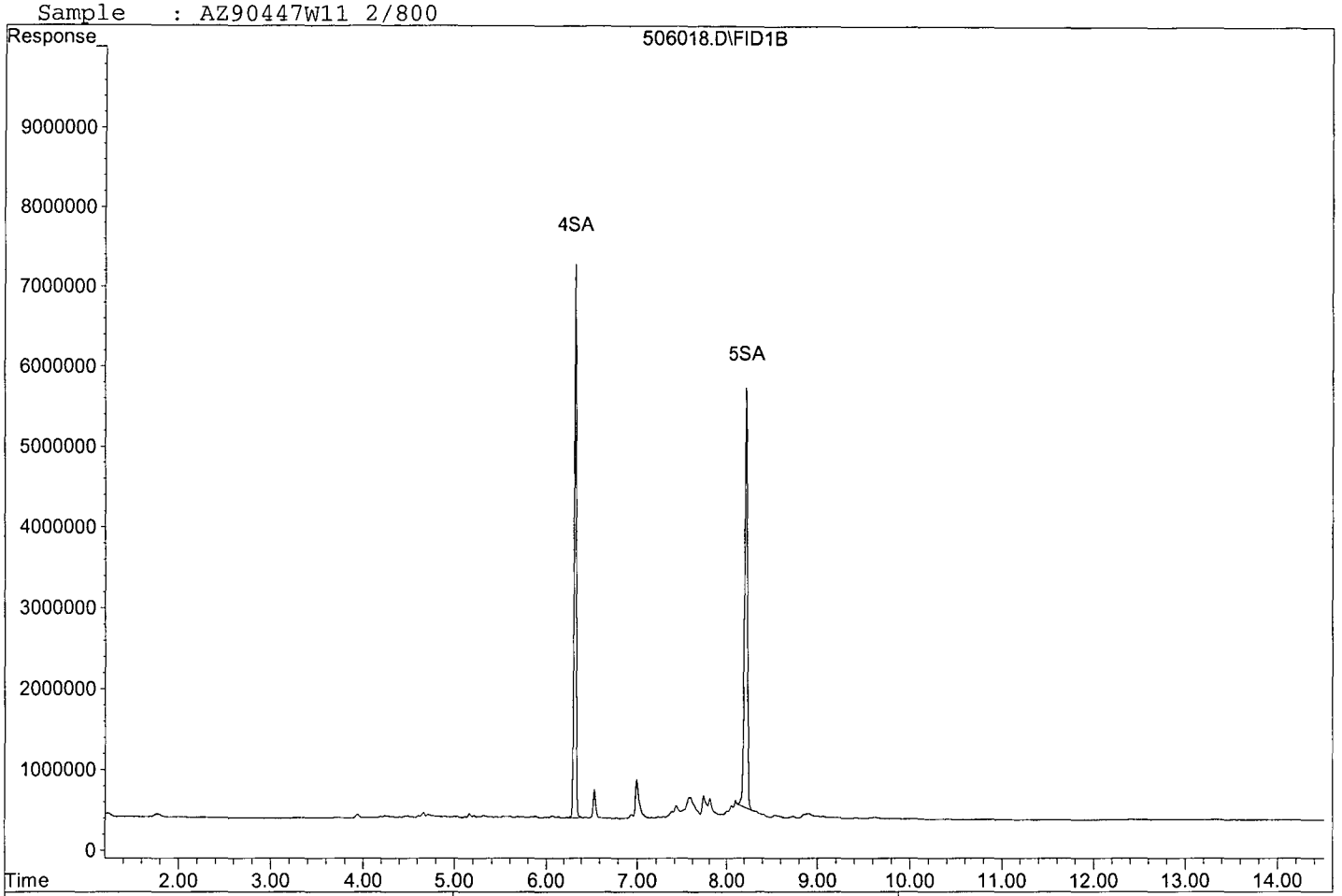
Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

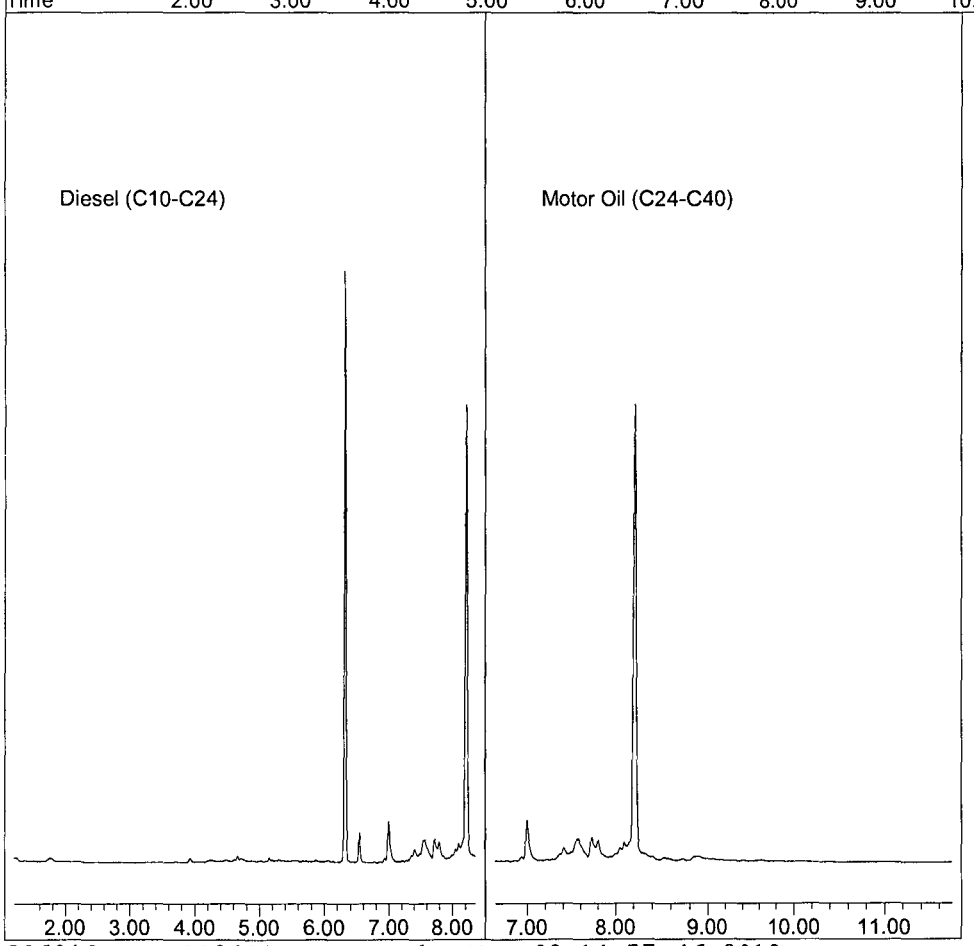
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc	Units
System Monitoring Compounds				
4) SA Ortho-Terphenyl(S)	6.32	114705215	70.850	ppb
Surrogate Spike 75.000		Recovery =	94.47%	
5) SA Octacosane(S)	8.22	113565382	75.024	ppb
Surrogate Spike 75.000		Recovery =	100.03%	
Target Compounds				

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190506\506018.D
Sample : AZ90447W11 2/800





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190506\506019.D Vial: 19
Acq On : 5-6-19 22:48:57 Operator: DP
Sample : AZ90448W08 2/800 Inst : Apollo
Misc : water Multiplr: 2.50
IntFile : events.e
Quant Time: May 8 8:37 2019 Quant Results File: DOC0411.RES

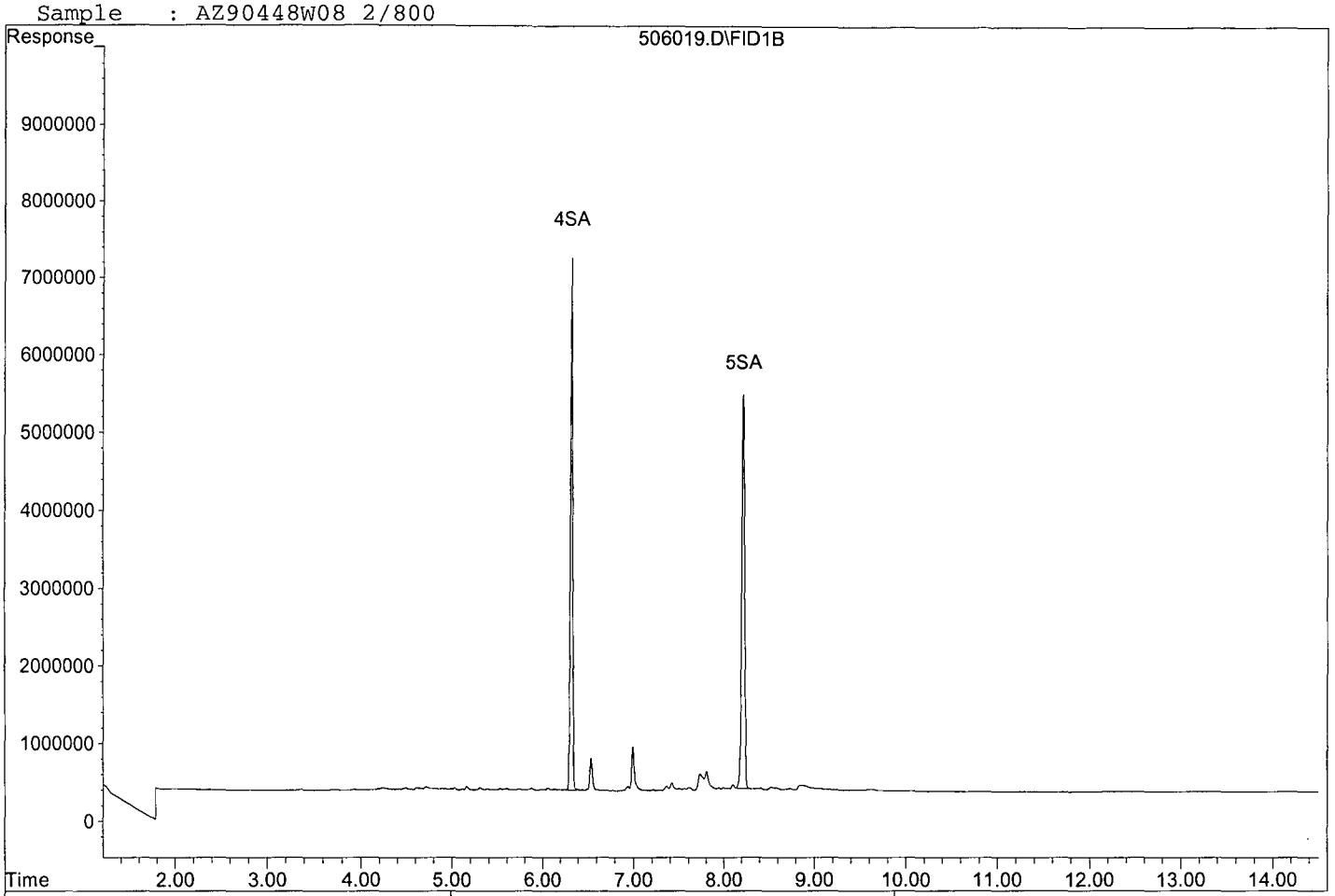
Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

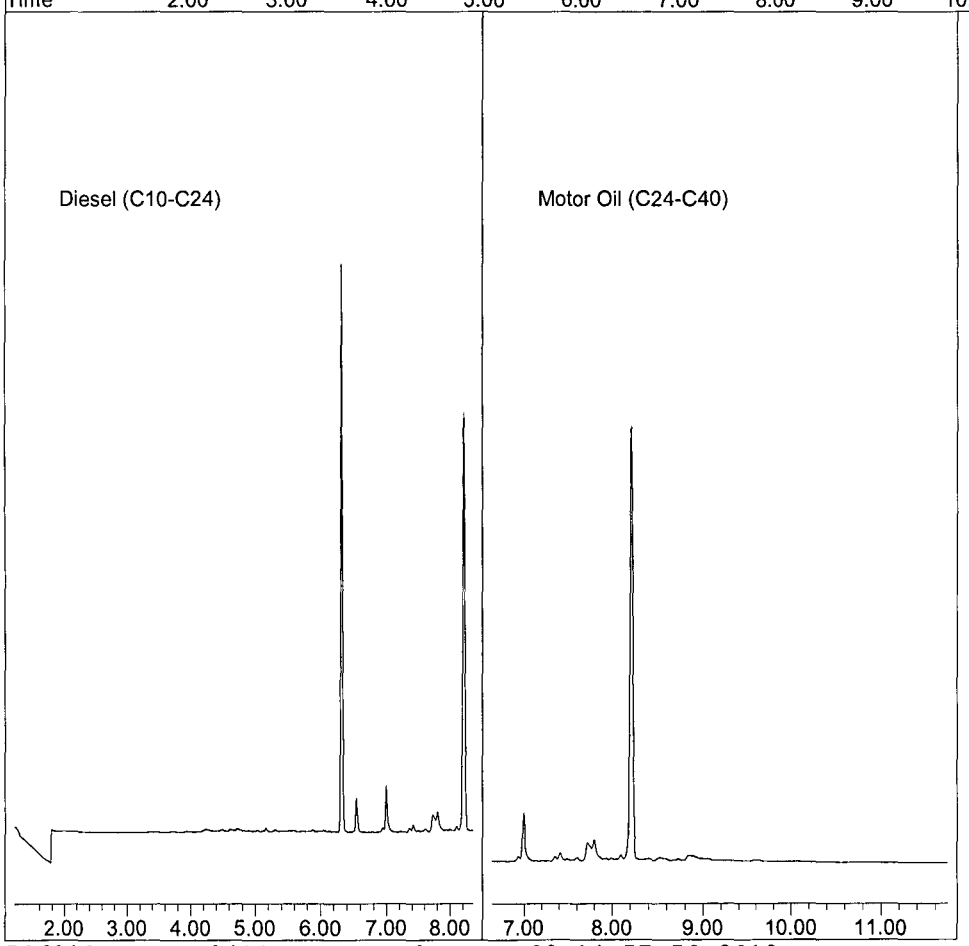
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc	Units
System Monitoring Compounds				
4) SA Ortho-Terphenyl(S)	6.33	114983730	71.022	ppb
Surrogate Spike 75.000		Recovery =	94.70%	
5) SA Octacosane(S)	8.22	112789281	74.512	ppb
Surrogate Spike 75.000		Recovery =	99.35%	
Target Compounds				

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190506\506019.D
Sample : AZ90448W08 2/800



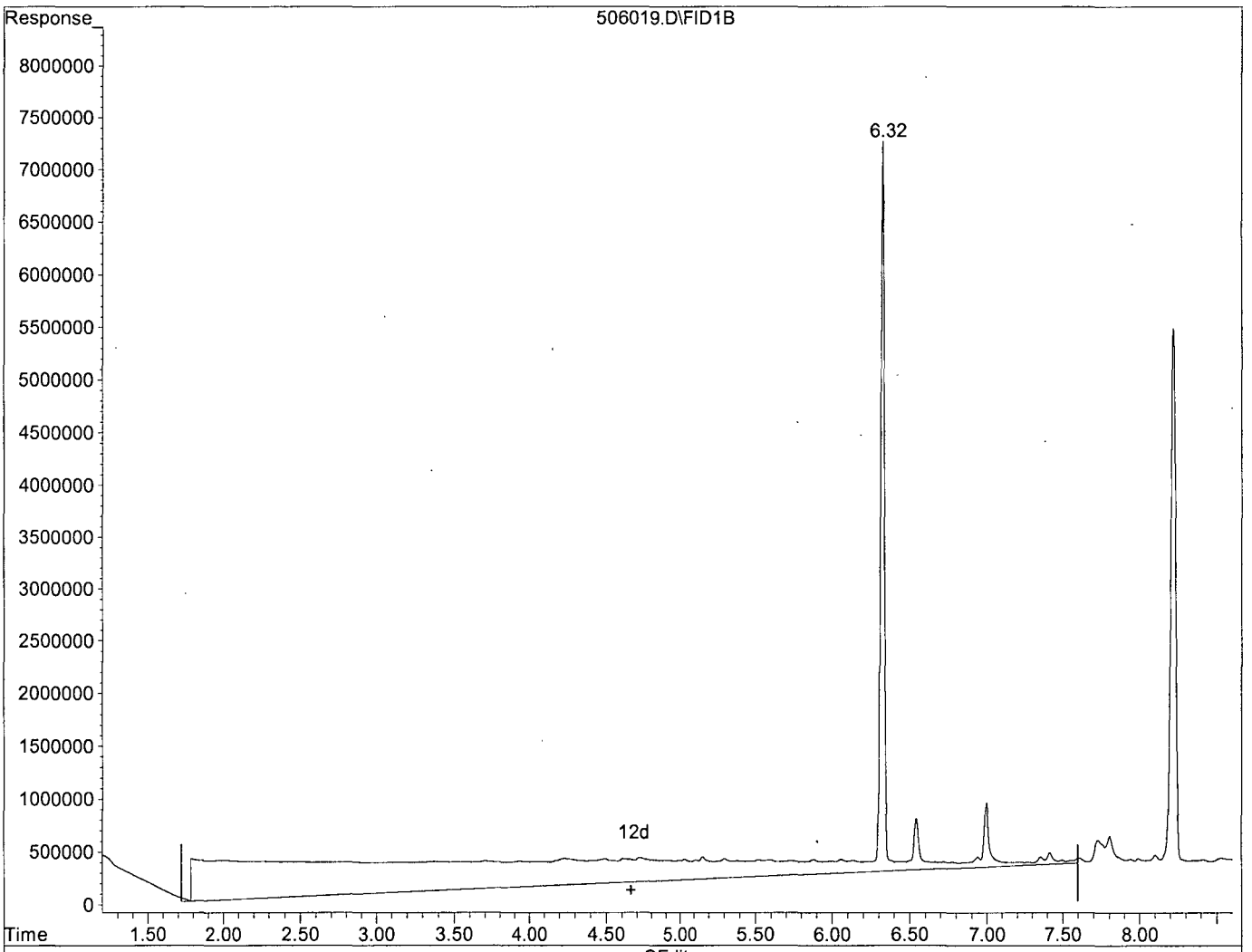


506019.D DOC0411.M Thu May 09 14:57:50 2019

Quantitation Report

Data File : G:\APOLLO\DATA\190506\506019.D Vial: 19
Acq On : 5-6-19 22:48:57 Operator: DP
Sample : AZ90448W08 2/800 Inst : Apollo
Misc : water Multiplr: 2.50
IntFile : events.e
Quant Time: May 8 8:36 2019 Quant Results File: DOC0411.RES

Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration



(1) Diesel (C10-C24) (HATM)

4.66min 740.090ppb m

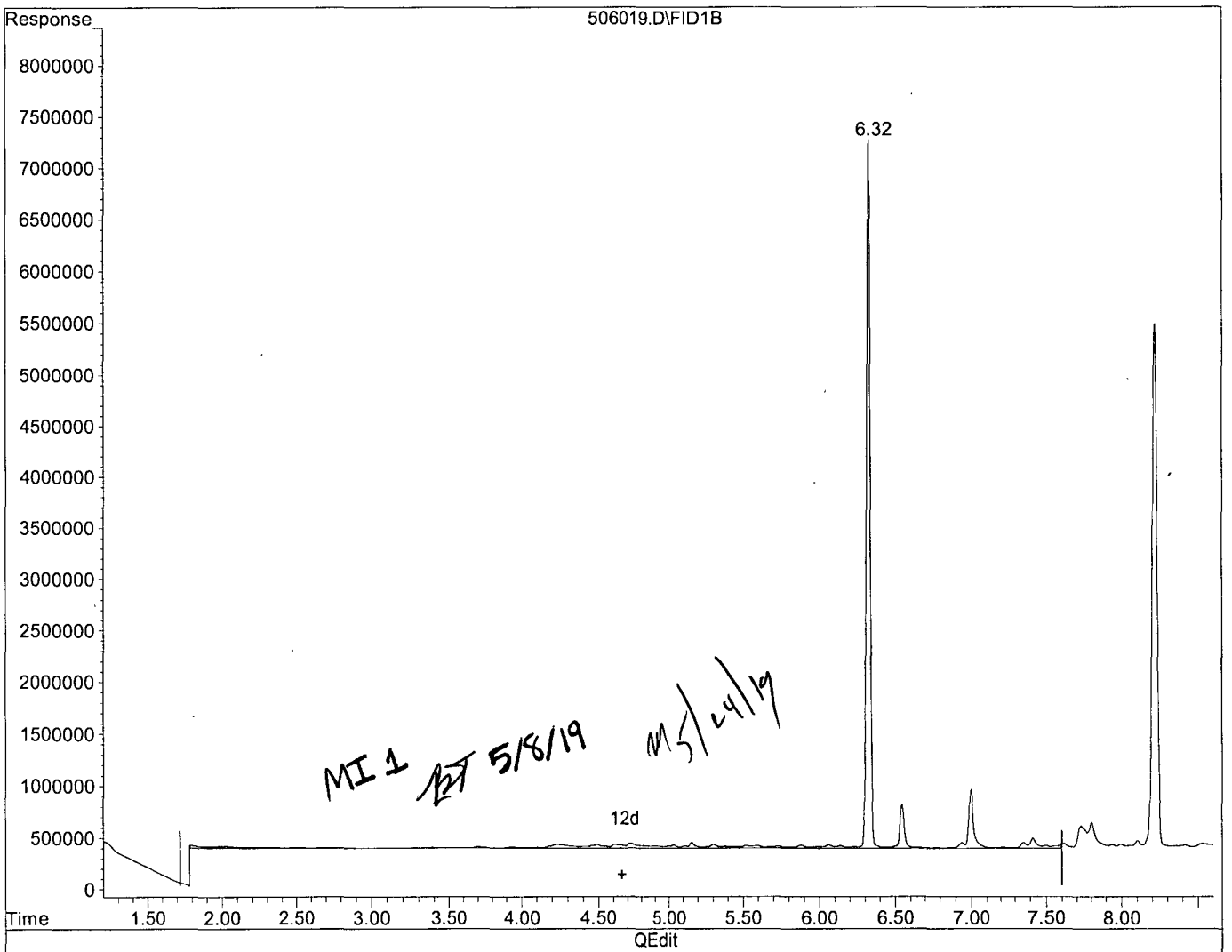
response 706115898

(+) = Expected Retention Time

Quantitation Report

Data File : G:\APOLLO\DATA\190506\506019.D Vial: 19
Acq On : 5-6-19 22:48:57 Operator: DP
Sample : AZ90448W08 2/800 Inst : Apollo
Misc : water Multiplr: 2.50
IntFile : events.e
Quant Time: May 8 8:36 2019 Quant Results File: DOC0411.RES

Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration



(1) Diesel (C10-C24) (HATM)

4.66min 68.177ppb m

response 65046854

(+) = Expected Retention Time

506019.D DOC0411.M Wed May 08 08:37:33 2019

Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190506\506020.D Vial: 20
Acq On : 5-6-19 23:08:45 Operator: DP
Sample : AZ90450W21 2/800 Inst : Apollo
Misc : water Multiplr: 2.50
IntFile : events.e
Quant Time: May 8 8:41 2019 Quant Results File: DOC0411.RES

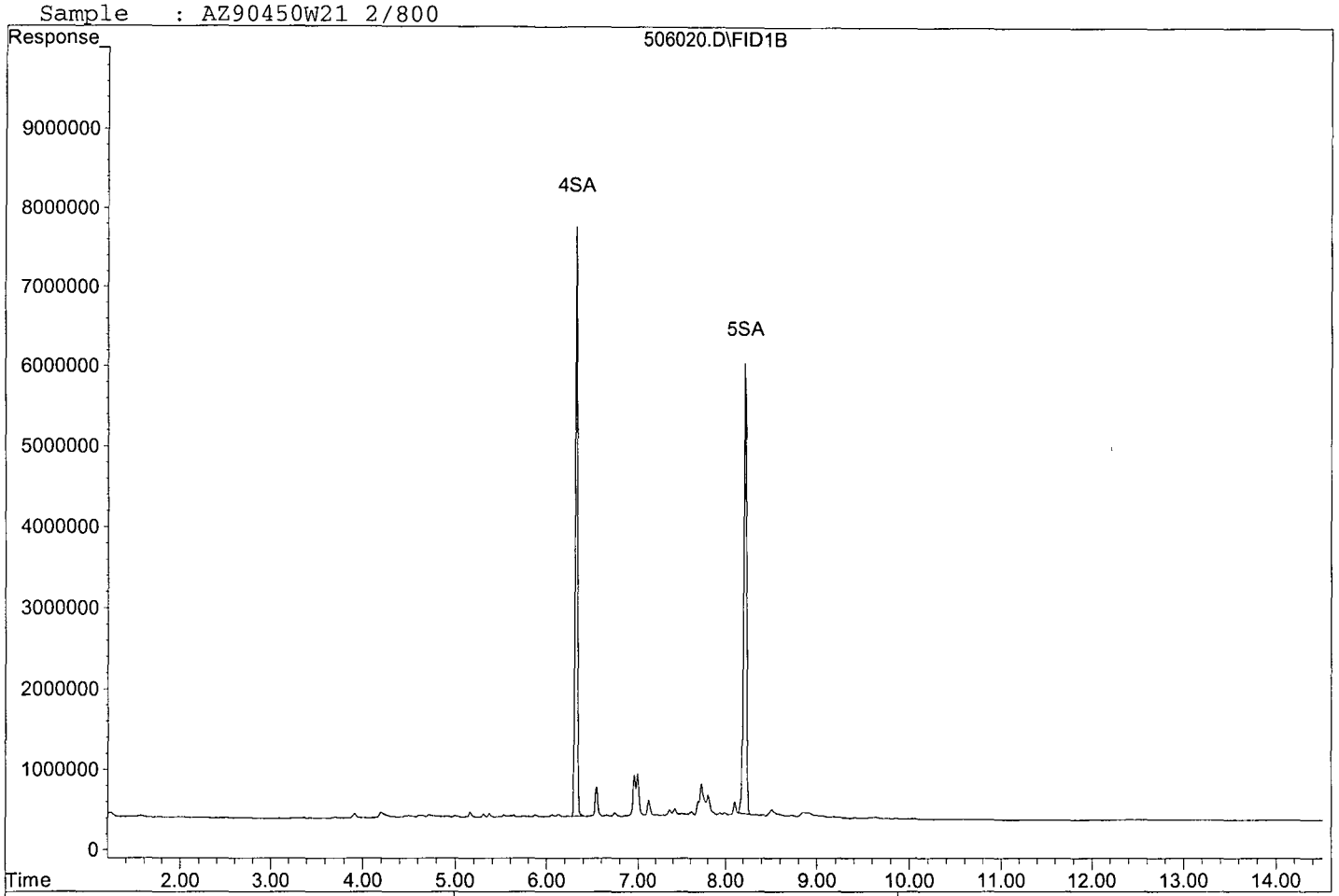
Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

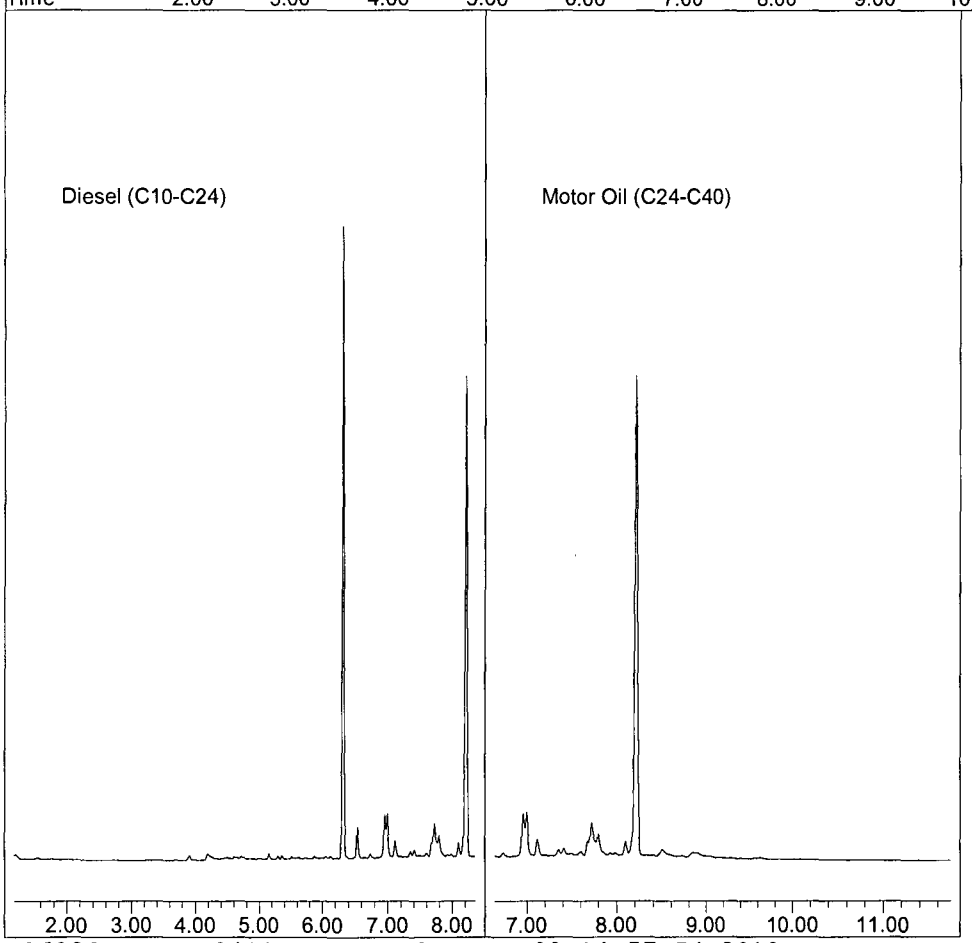
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc	Units
System Monitoring Compounds				
4) SA Ortho-Terphenyl(S)	6.32	122145781	75.445	ppb
Surrogate Spike 75.000		Recovery =	100.59%	
5) SA Octacosane(S)	8.22	119816320	79.154	ppb
Surrogate Spike 75.000		Recovery =	105.54%	
Target Compounds				

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190506\506020.D
Sample : AZ90450W21 2/800





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190506\506003.D Vial: 3
Acq On : 5-6-19 17:30:03 Operator: DP
Sample : 190502A BLK 2/800 Inst : Apollo
Misc : water Multiplr: 2.50
IntFile : events.e
Quant Time: May 9 14:39 2019 Quant Results File: DOC0411.RES

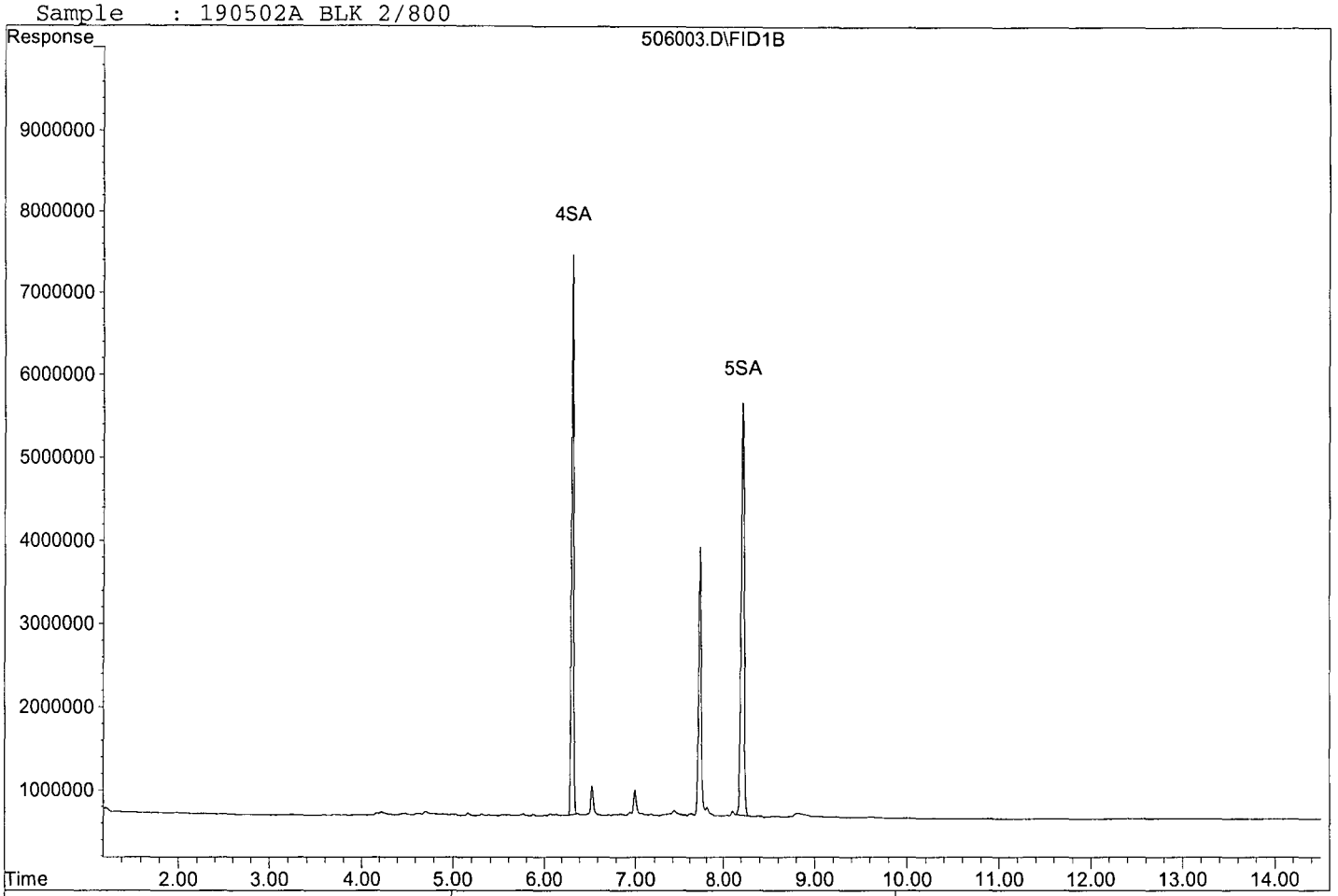
Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

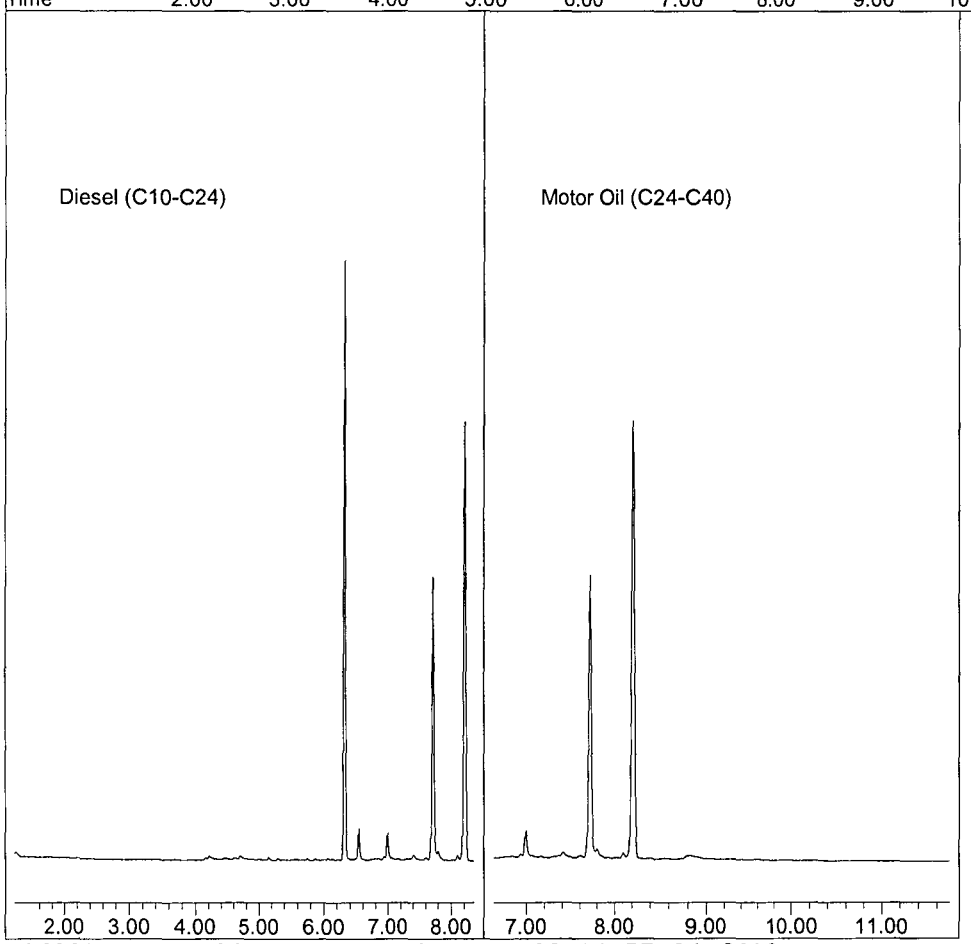
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc	Units
System Monitoring Compounds				
4) SA Ortho-Terphenyl(S)	6.32	113486320	70.097	ppb
Surrogate Spike 75.000		Recovery =	93.46%	
5) SA Octacosane(S)	8.22	110426276	72.950	ppb
Surrogate Spike 75.000		Recovery =	97.27%	
Target Compounds				

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190506\506003.D
Sample : 190502A BLK 2/800





Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190506\506004.D Vial: 4
Acq On : 5-6-19 17:50:07 Operator: DP
Sample : 190502A LCS-1 2/800 Inst : Apollo
Misc : water Multiplr: 2.50
IntFile : events.e
Quant Time: May 8 8:44 2019 Quant Results File: DOC0411.RES

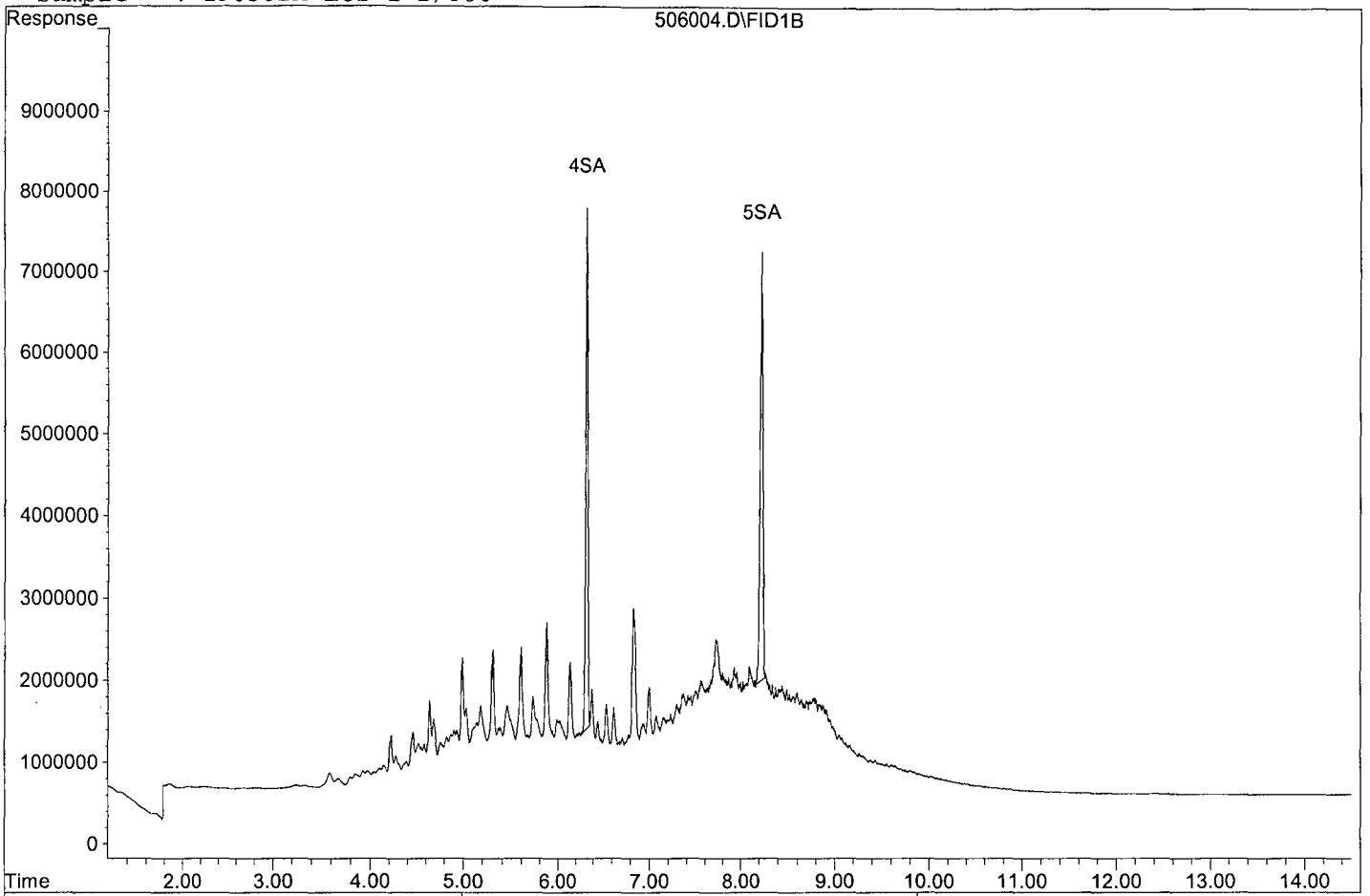
Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

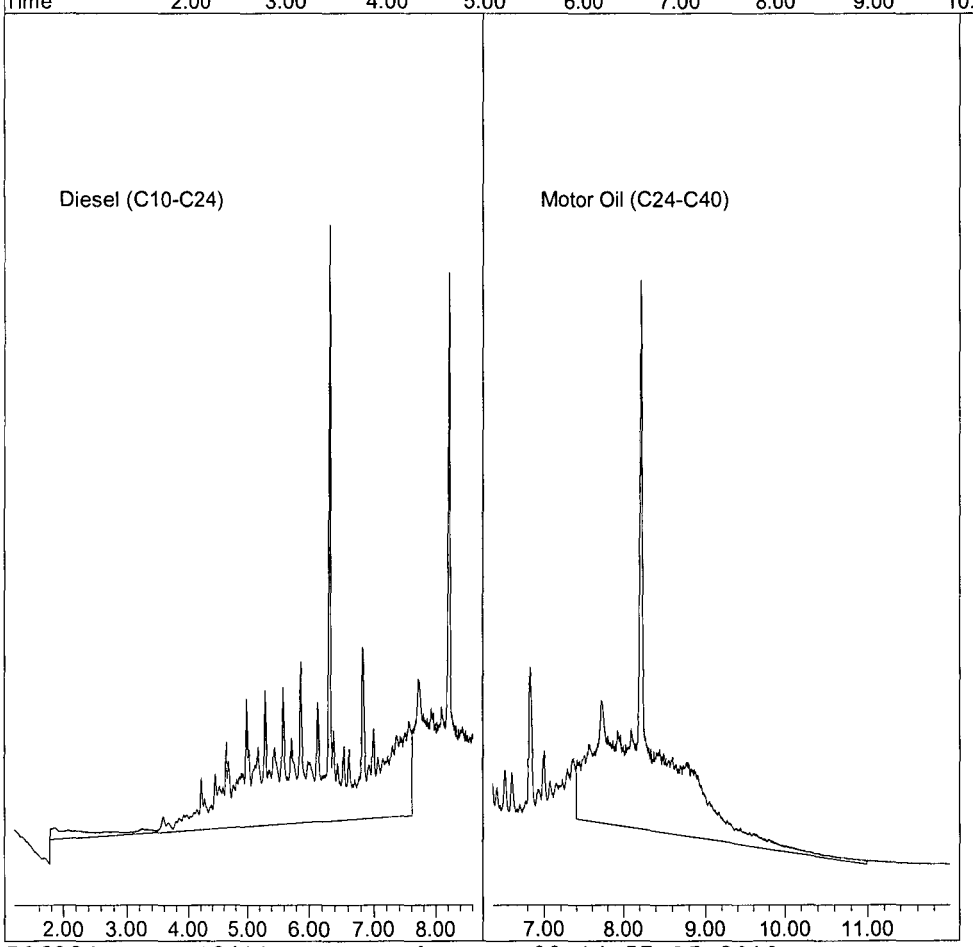
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.32	108692501	67.136 ppb
Surrogate Spike 75.000		Recovery =	89.51%
5) SA Octacosane(S)	8.22	102955317	68.015 ppb
Surrogate Spike 75.000		Recovery =	90.69%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	1477713726	1548.812 ppb
2) HBTM Motor Oil (C24-C40)	9.20	944760089	1240.807 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190506\506004.D
Sample : 190502A LCS-1 2/800



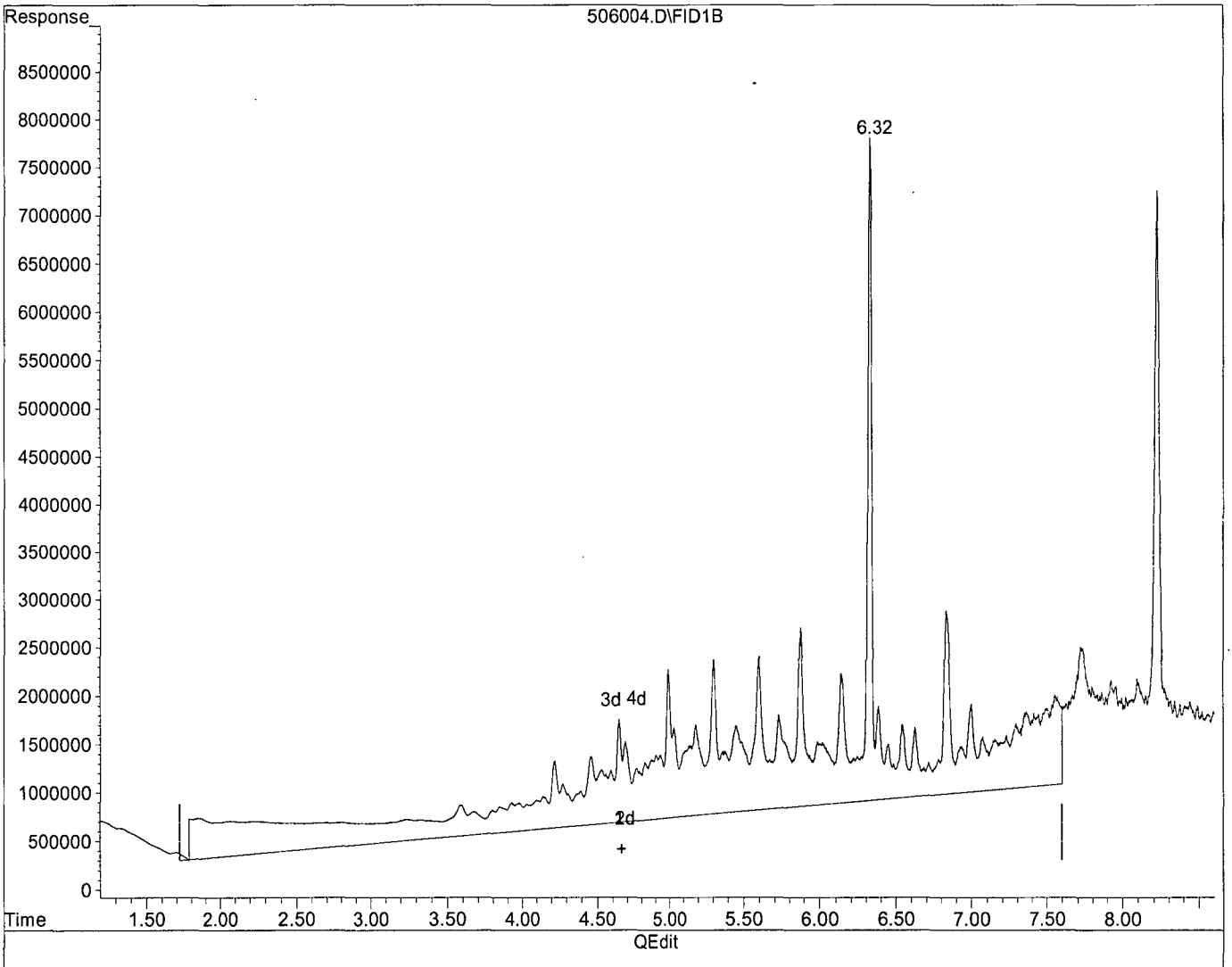


506004.D DOC0411.M Thu May 09 14:57:35 2019 Page 2

Quantitation Report

Data File : G:\APOLLO\DATA\190506\506004.D Vial: 4
Acq On : 5-6-19 17:50:07 Operator: DP
Sample : 190502A LCS-1 2/800 Inst : Apollo
Misc : water Multiplr: 2.50
IntFile : events.e
Quant Time: May 8 8:32 2019 Quant Results File: DOC0411.RES

Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration



(1) Diesel (C10-C24) (HATM)

4.66min 1678.079ppb m

response 1601046609

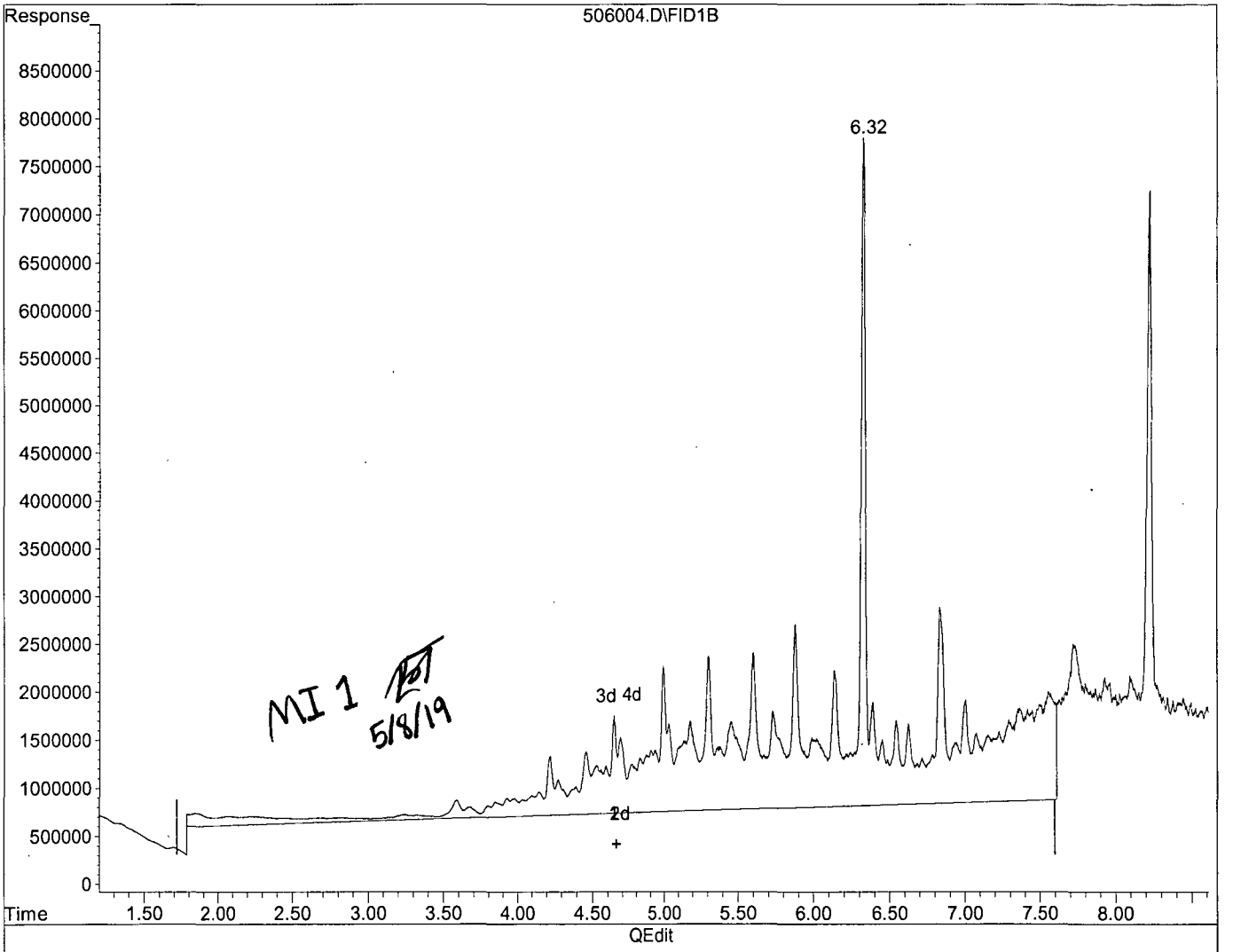
(+) = Expected Retention Time

506004.D DOC0411.M Wed May 08 08:42:56 2019

Quantitation Report

Data File : G:\APOLLO\DATA\190506\506004.D Vial: 4
Acq On : 5-6-19 17:50:07 Operator: DP
Sample : 190502A LCS-1 2/800 Inst : Apollo
Misc : water Multiplr: 2.50
IntFile : events.e
Quant Time: May 8 8:44 2019 Quant Results File: DOC0411.RES

Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration



(1) Diesel (C10-C24) (HATM)

4.66min 1548.812ppb m

response 1477713726

(+) = Expected Retention Time

506004.D DOC0411.M Wed May 08 08:46:46 2019

Quantitation Report (QT Reviewed)

Data File : G:\APOLLO\DATA\190506\506005.D Vial: 5
Acq On : 5-6-19 18:10:08 Operator: DP
Sample : 190502A LCSD-1 2/800 Inst : Apollo
Misc : water Multiplr: 2.50
IntFile : events.e
Quant Time: May 8 8:32 2019 Quant Results File: DOC0411.RES

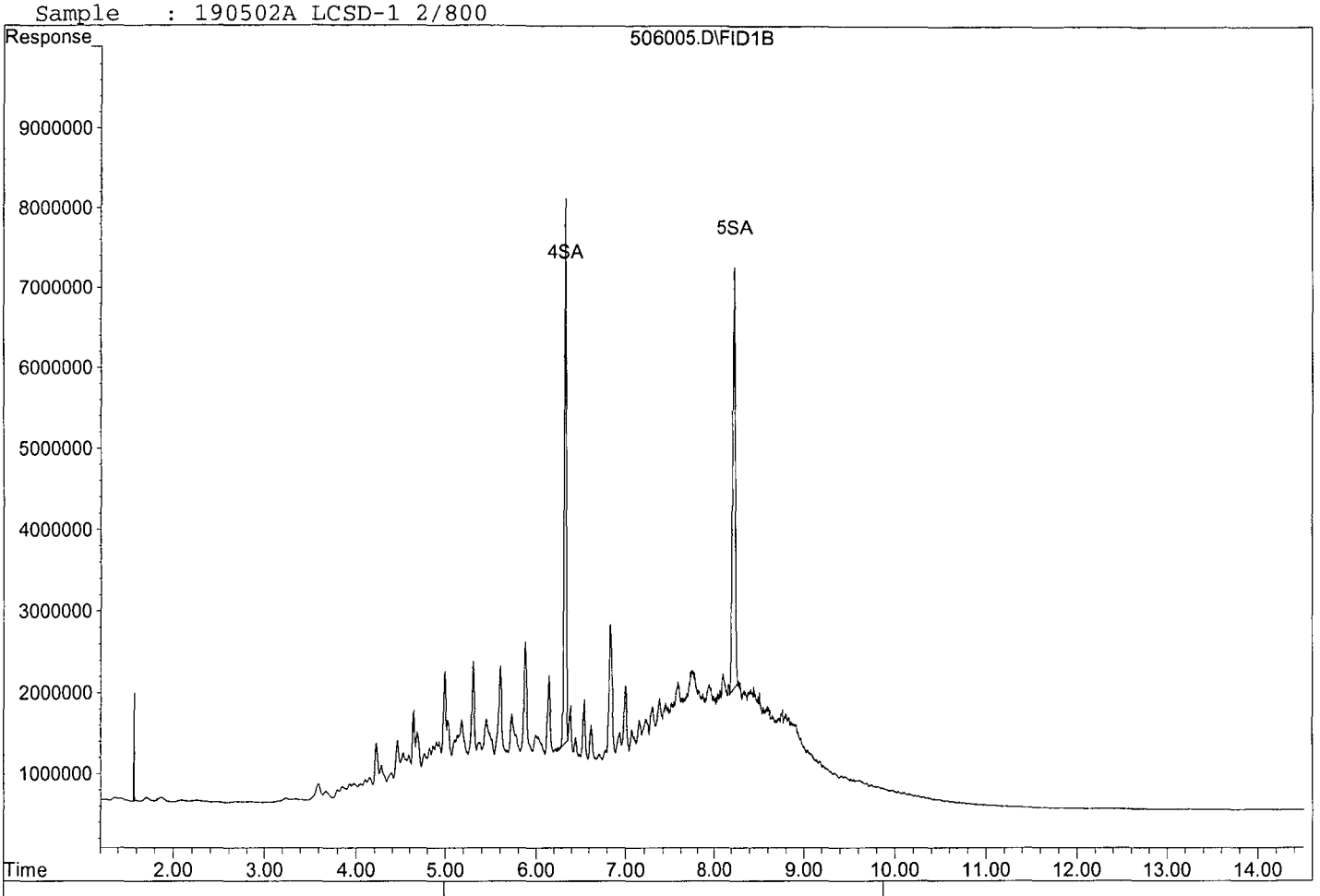
Method : G:\APOLLO\DATA\190506\DOC0411.M (Chemstation Integrator)
Title : 8015 B&C
Last Update : Fri Apr 12 10:31:44 2019
Response via : Multiple Level Calibration

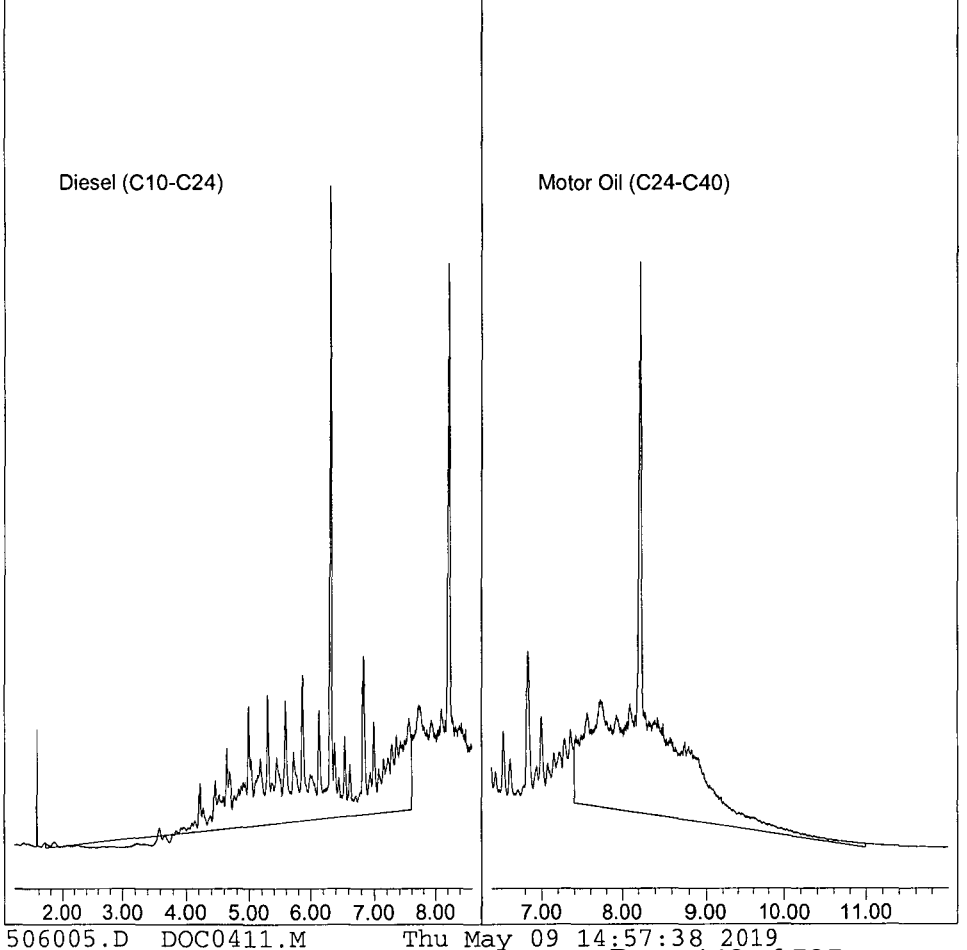
Volume Inj. : 2UL
Signal Phase : DB-5
Signal Info : FID02A

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
4) SA Ortho-Terphenyl(S)	6.33	107765211	66.563 ppb
Surrogate Spike 75.000	Recovery =		88.75%
5) SA Octacosane(S)	8.23	103354341	68.279 ppb
Surrogate Spike 75.000	Recovery =		91.04%
Target Compounds			
1) HATM Diesel (C10-C24)	4.66	1030429392	1080.007 ppb
2) HBTM Motor Oil (C24-C40)	9.20	1000358478	1313.828 ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\APOLLO\DATA\190506\506005.D
Sample : 190502A LCSD-1 2/800





Diesel / Motor Oil Calibration Curve

Prepared: 04/11/19

Expires: 10/11/19

Prepared By (Initials): BT

Methylene Chloride Lot No. 57278

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference to APPL Prep Date	Exp. Date	Exp. Date (Manufacturer)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Diesel / Motor Oil Calibration STD	APPL	Diesel / Motor Oil - 1	2,000	Prepared 04/11/19	01/15/20	N/A	5uL	1mL	MC	10
Diesel / Motor Oil Calibration STD	APPL	Diesel / Motor Oil -2	2,000	Prepared 04/11/19	01/15/20	N/A	25uL	1mL	MC	50
Diesel / Motor Oil Calibration STD	APPL	Diesel / Motor Oil - 3	2,000	Prepared 04/11/19	01/15/20	N/A	125uL	1mL	MC	250
Diesel / Motor Oil Calibration STD	APPL	Diesel / Motor Oil - 4	2,000	Prepared 04/11/19	01/15/20	N/A	500uL	1mL	MC	1000
Diesel / Motor Oil Calibration STD	APPL	Diesel / Motor Oil - 5	2,000	Prepared 04/11/19	01/15/20	N/A	750uL	1mL	MC	1500
Diesel / Motor Oil Calibration STD	APPL	Diesel / Motor Oil - 6	2,000	Prepared 04/11/19	01/15/20	N/A	100uL	100uL	N/A	2,000

Diesel / Motor Oil Second Source (SS)

Prepared: 01/15/19

Expires: 01/15/20

Prepared By (Initials): DP

Methylene Chloride Lot No. 56278

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturer)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Diesel Fuel #2	O2SI	G34-011598-03	50,000	**G34-319187-38958**	**08/02/19**	**09/29/21**	50uL	10mL	MC	250
Motor Oil Second Source	O2SI	116390-02-SS	50,000	**301142-37652**	**07/13/19**	**03/05/22**	50uL			

Diesel / Motor Oil Calibration Standard

Prepared: 01/15/19

Expires: 01/15/20

Prepared By (Initials): DP

Methylene Chloride Lot No. 56278

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturer)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Diesel Fuel #2	Restek	31258	50,000	**A0135614-39409**	**01/15/20**	**03/31/25**	400uL	10mL	MC	2000
Motor Oil	Restek	31464	50,000	**A0135245-39351**	**01/15/20**	**03/31/25**	400uL			2000
THC Surrogate	Phenova	ALO-130161	600	**CL12572-39691**	**08/13/19**	**06/30/23**	1666uL			100

Diesel / Motor Oil CCV

Prepared: 04/16/19

Expires: 10/16/19

Prepared By (Initials): BT

Methylene Chloride Lot No. 58059

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference to APPL Prep Date	Exp. Date	Exp. Date (Manufacturer)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Diesel / Motor Oil STD	APPL	Diesel / Motor Oil CCV	2,000	Prepared 01/15/19	01/15/20	N/A	1250uL	10mL	MC	250

Diesel Spike

Prepared: 04/26/19 **Prepared By (Initials): DP**

Expires: 04/25/20

Initial Standard Information							Final Standard Information			
(QAU Label)	Supplier	No.	(ug/mL)	Number	(1 yr.)	(Manufacturer)	From	Volume	Solvent	Conc. (ug/mL)
Diesel Fuel #2	Restek	31258	50,000	**A0135614-39408**	**04/26/20**	**03/31/25**	N/A	N/A	N/A	50,000

Motor Oil Spike

Prepared: 04/08/19 **Prepared By (Initials): DP**

Expires: 04/07/20

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturer)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Motor Oil Composite	Restek	31464	50,000	**A0141636-40470**	**04/09/20**	**10/20/25**	N/A	N/A	N/A	50,000

THC Surrogate

Prepared: 04/17/19 **Prepared By (Initials): BT**

Expires: 04/16/20

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturer)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
O-terphenyl / Octacosane Mix	Phenova	ALO-130161	600	**CL13256-40363**	**04/17/20**	**02/28/24**	N/A	N/A	N/A	600

_LIQ005SGC

Organic Extraction Worksheet

Method	Continuous Liq/Liq TPH- 3520C w/SGC	Extraction Set	190502A	Extraction Method	LIQ005SGC	Units	mL

Spiked ID 1	Diesel Spike 4-26-19 exp 4-26-20		Surrogate ID 1	THC Surrogate 4-17-19 exp 4-17-20	
Spiked ID 2	Motor Oil Spike 4-8-19 exp 4-8-20		Surrogate ID 2		
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	YES	
Spiked ID 7			Ext. Start Time:	05/02/19 14:00	
Spiked ID 8			Ext. End Time:	05/03/19 8:30 , 05/03/19 11:55	
			GC Requires Extract By:	04/30/19 0:00	

pH1	2	5/02/19 11:19:00 AM	Water Bath Temp Criteria 35,35,35 °
pH2			
pH3			

Spiked By: DL **Date** 05/02/19 **Witnessed By:** YL **Date** 05/02/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
1	190502A Blk				0.100	1	800	2	2	05/02/19 11:30	
						equip	e-hp51 e-wb1				
2	190502A LCS-1		0.020	1,2	0.100	1	800	2	2	05/02/19 11:30	
						equip	E-HP50 E-WB2				
3	190502A LCSD-1		0.020	1,2	0.100	1	800	2	2	05/02/19 11:30	
						equip	E-HP49 E-WB3				
4	AZ89958 MS-1	AZ89958W39	0.020	1,2	0.100	1	800	2	2	05/02/19 11:30	88687
						equip	E-HP47 E-WB1				
5	AZ89958 MSD-1	AZ89958W38	0.020	1,2	0.100	1	800	2	2	05/02/19 11:30	88687
						equip	E-HP25 E-WB2				
6	AZ89958	AZ89958W40			0.100	1	800	2	2	05/02/19 11:30	88687
						equip	E-HP48 E-WB3				
7	AZ89959	AZ89959W08			0.100	1	790	2	2	05/02/19 11:30	88687
						equip	E-HP26 E-WB1				
8	AZ89961	AZ89961W21			0.100	1	800	2	2	05/02/19 11:30	88687
						equip	E-HP27 E-WB2				
9	AZ90051 MS-1	AZ90051W32	0.020	1,2	0.100	1	800	2	2	05/02/19 11:30	88701
						equip	E-HP29 E-WB3				
10	AZ90051 MSD-1	AZ90051W28	0.020	1,2	0.100	1	800	2	2	05/02/19 11:30	88701
						equip	E-HP30 E-WB1				
11	AZ90051	AZ90051W34			0.100	1	810	2	2	05/02/19 11:30	88701
						equip	E-HP28 E-WB2				
12	AZ90052	AZ90052W08			0.100	1	790	2	2	05/02/19 11:30	88701
						equip	E-HP17 E-WB3				
13	AZ90213	AZ90213W18			0.100	1	800	2	2	05/02/19 11:30	88736
						equip	E-HP16 E-WB1				
14	AZ90215	AZ90215W21			0.100	1	800	2	2	05/02/19 11:30	88736
						equip	E-HP15 E-WB2				
15	AZ90447	AZ90447W11			0.100	1	800	2	2	05/02/19 11:30	88764
						equip	E-HP14 E-WB3				
16	AZ90448	AZ90448W08			0.100	1	800	2	2	05/02/19 11:30	88764
						equip	E-HP13 E-WB1				

Solvent and Lot#	
1+1 HCL (5mLs)	3-1-19
PH Strips	HC 601354
Filter Paper	400148
B. Sodium Sulfate	18D105205

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	BT
Date	5/3/19
Time	13:08
Refrigerator	Hubbard

	Technician's Initials
Scanned By	DL,FM
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	05/06/19 9:28:41 AM

Reviewed By: Page 156 of 585 5/6/19

_LIQ005SGC

Organic Extraction Worksheet

Method	Continuous Liq/Liq TPH- 3520C w/SGC	Extraction Set	190502A	Extraction Method	LIQ005SGC	Units	mL

Spiked ID 1	Diesel Spike 4-26-19 exp 4-26-20		Surrogate ID 1	THC Surrogate 4-17-19 exp 4-17-20	
Spiked ID 2	Motor Oil Spike 4-8-19 exp 4-8-20		Surrogate ID 2		
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	YES	
Spiked ID 7			Ext. Start Time:	05/02/19 14:00	
Spiked ID 8			Ext. End Time:	05/03/19 8:30 ,05/03/19 11:55	
			GC Requires Extract By:	04/30/19 0:00	

pH1	2	5/02/19 11:19:00 AM	Water Bath Temp Criteria	35,35,35 °
pH2				
pH3				

Spiked By: DL **Date** 05/02/19 **Witnessed By:** YL **Date** 05/02/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
17	AZ90450	AZ90450W21			0.100	1	800	2	2	05/02/19 11:30	88764
						equip	E-HP12 E-WB2				

KY 5/6/19

Solvent and Lot#	
1+1 HCL (5mLs)	3-1-19
PH Strips	HC 601354
Filter Paper	400148
B. Sodium Sulfate	18D105205

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	
Date	
Time	
Refrigerator	

	Technician's Initials
Scanned By	DL,FM
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	05/06/19 9:28:41 AM

Reviewed By: KY **Date** 5/6/19

Injection Log

Directory: G:\APOLLO\DATA\190411\

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	2	411002.D	1	Diesel / Motor Oil - 1 1/15/19	water	4-11-19 12:41:17
2	3	411003.D	1	Diesel / Motor Oil - 2 4/11/19	water	4-11-19 13:00:16
3	4	411004.D	1	Diesel / Motor Oil - 3 4/11/19	water	4-11-19 13:19:58
4	5	411005.D	1	Diesel / Motor Oil - 4 4/11/19	water	4-11-19 13:39:40
5	6	411006.D	1	Diesel / Motor Oil - 5 4/11/19	water	4-11-19 13:59:26
6	7	411007.D	1	Diesel / Motor Oil - 6 4/11/19	water	4-11-19 14:19:10
7	8	411008.D	1	Diesel / Motor Oil - 2nd Source 1/15/19	water	4-11-19 14:39:01
8	2	506002.D	1	Diesel/Motor Oil 3 4/16/19	water	5-6-19 17:10:08
9	3	506003.D	2.5	190502A BLK 2/800	water	5-6-19 17:30:03
10	4	506004.D	2.5	190502A LCS-1 2/800	water	5-6-19 17:50:07
11	5	506005.D	2.5	190502A LCSD-1 2/800	water	5-6-19 18:10:08
12	16	506016.D	1	Diesel/Motor Oil 3 4/16/19	water	5-6-19 21:49:32
13	18	506018.D	2.5	AZ90447W11 2/800	water	5-6-19 22:29:12
14	19	506019.D	2.5	AZ90448W08 2/800	water	5-6-19 22:48:57
15	20	506020.D	2.5	AZ90450W21 2/800	water	5-6-19 23:08:45
16	21	506021.D	1	Diesel/Motor Oil 3 4/16/19	water	5-6-19 23:28:29

ORGANICS
Calibration Data

PAH by GCMS SIM
EPA 8270 SIM

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/26/19
Matrix: Instrument: Linus
Initials: MA/JAM

			0326L013.D	0326L012.D	0326L005 D	0326L006.D	0326L007.D	0326L008.D	0326L009 D	0326L010.D								
		Compound	0.1	0.2	0.5	1	5	10	50	100			Avg	%RSD	Type	r^2	Q	MRF
1	I	Napthalene-D8(IS)																
2	S	Surrogate Recovery (NBZ)		0.3927	0.5340	0.4444	0.4714	0.4510	0.4089	0.4199			0.45	11	S			
3	TM	Naphthalene	1.529	1.407	1.448	1.163	1.400	1.287	1.154	1.122			1.3	12	TM			0.700
4	S	2-Methylnaphthalene-D10 (2M	1.387	1.168	1.650	1.306	1.518	1.400	1.203	1.197			1.4	13	S			
5	TM	2-Methylnaphthalene	0.7306	0.7642	0.8355	0.6668	0.8429	0.7635	0.6758	0.6477			0.74	10	TM			0.400
6	TM	1-Methylnaphthalene	0.9900	0.8580	0.9185	0.7134	0.8390	0.7536	0.6593				0.82	14	TM			
7	I	Acenaphthene-D10(IS)																
8	S	Surrogate Recovery (FBP)	1.722	1.658	2.258	1.803	2.110	1.951	1.630	1.592			1.8	13	S			
9	TM	Acenaphthylene	5.900	5.710	6.401	5.037	6.465	5.885	4.974	4.865			5.7	11	TM			0.900
10	*TM	Acenaphthene	1.794	1.633	1.703	1.318	1.581	1.463	1.266	1.170			1.5	15	*TM			0.900
11	TM	Fluorene	2.218	1.880	2.093	1.632	2.029	1.885	1.631	1.570			1.9	13	TM			0.900
12	I	Phenanthrene-D10(IS)																
13	TM	Phenanthrene	1.607	1.544	1.673	1.305	1.635	1.484	1.218	1.160			1.5	14	TM			0.700
14	TM	Anthracene	1.486	1.420	1.591	1.220	1.624	1.473	1.238	1.116			1.4	13	TM			0.700
15	S	Fluoranthene-D10 (FRT)	1.901	1.831	2.624	2.092	2.484	2.311	1.987	1.872			2.1	14	S			
16	*TM	Fluoranthene	2.537	2.471	2.787	2.228	2.784	2.506	2.112	1.908			2.4	13	*TM			0.600
17	I	Chrysene-D12(IS)																
18	TM	Pyrene	1.899	1.728	1.916	1.501	1.868	1.718	1.481	1.425			1.7	12	TM			0.600
19	S	Surrogate Recovery (TPH)	0.8126	0.7648	1.100	0.8569	0.9951	0.9476	0.8279	0.7820			0.89	13	S			
20	TM	Benz (a) anthracene	1.413	1.328	1.559	1.165	1.523	1.457	1.326	1.311			1.4	9.3	TM			0.800
21	TM	Chrysene	1.693	1.584	1.532	1.291	1.505	1.343	1.166	1.155			1.4	14	TM			0.700
22	TM	Indeno (1,2,3-cd) pyrene	1.684	1.533	1.535	1.269	1.597	1.490	1.366	1.338			1.5	9.5	TM			0.500
23	I	Perylene-D12(IS)																
24	TM	Benzo (b) fluoranthene	1.158	1.272	1.365	1.090	1.474	1.408	1.281	1.294			1.3	9.8	TM			0.700
25	TM	Benzo (k) fluoranthene	1.676	1.496	1.659	1.361	1.632	1.459	1.255	1.199			1.5	13	TM			0.700
26	*TM	Benzo (a) pyrene	1.243	1.369	1.446	1.176	1.471	1.369	1.224	1.197			1.3	8.8	*TM			0.700
27	TM	Dibenz (a,h) anthracene	1.391	1.269	1.295	1.077	1.349	1.244	1.099	1.054			1.2	11	TM			0.400
28	TM	Benzo (g,h,i) perylene	1.468	1.326	1.320	1.090	1.361	1.265	1.118	1.085			1.3	11	TM			0.500
29																		
30																		
31																		
32																		
33																		
34																		
35																		

Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190326\0326L005.D Vial: 5
Acq On : 26 Mar 19 10:39 Operator: MA
Sample : 0.5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 11:52 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Tue Mar 26 11:51:40 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	29983	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.98	164	14175	2.50000 ppb		0.00
12) Phenanthrene-D10(IS)	7.70	188	23888	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.79	240	35718	2.50000 ppb		0.00
23) Perylene-D12(IS)	13.16	264	34636	2.50000 ppb		0.00
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.14	82	1601	0.30171 ppb		0.01
Spiked Amount 5.000			Recovery	= 6.040%		
4) 2-Methylnaphthalene-D10 (2	4.75	152	4947	0.35041 ppb		0.01
Spiked Amount 5.000			Recovery	= 7.000%		
8) Surrogate Recovery (FBP)	5.23	172	3201	0.31519 ppb		0.01
Spiked Amount 5.000			Recovery	= 6.300%		
15) Fluoranthene-D10 (FRT)	9.09	212	6268	0.36113 ppb		0.00
Spiked Amount 5.000			Recovery	= 7.220%		
19) Surrogate Recovery (TPH)	9.58	244	3930	0.33442 ppb		0.00
Spiked Amount 5.000			Recovery	= 6.680%		
Target Compounds						Qvalue
3) Naphthalene	3.96	128	8684	0.57398 ppb		98
5) 2-Methylnaphthalene	4.78	142	5010	0.55092 ppb		99
6) 1-Methylnaphthalene	4.89	142	5508	0.59694 ppb		95
9) Acenaphthylene	5.82	152	18147	0.56976 ppb		100
10) Acenaphthene	6.01	154	4827	0.52888 ppb		97
11) Fluorene	6.63	166	5934	0.55241 ppb		99
13) Phenanthrene	7.73	178	7991	0.59247 ppb		99
14) Anthracene	7.80	178	7601	0.57039 ppb		99
16) Fluoranthene	9.11	202	13317	0.62414 ppb	#	89
18) Pyrene	9.37	202	13684	0.61385 ppb		98
20) Benz (a) anthracene	10.78	228	11134	0.56445 ppb		99
21) Chrysene	10.84	228	10947	0.57620 ppb		98
22) Indeno (1,2,3-cd) pyrene	14.70	276	10967	0.55654 ppb	#	98
24) Benzo (b) fluoranthene	12.50	252	9458	0.50818 ppb		99
25) Benzo (k) fluoranthene	12.54	252	11491	0.59936 ppb		96
26) Benzo (a) pyrene	13.08	252	10016	0.55876 ppb		99
27) Dibenz (a,h) anthracene	14.72	278	8973	0.54057 ppb		99
28) Benzo (g,h,i) perylene	15.04	276	9141	0.54410 ppb		98

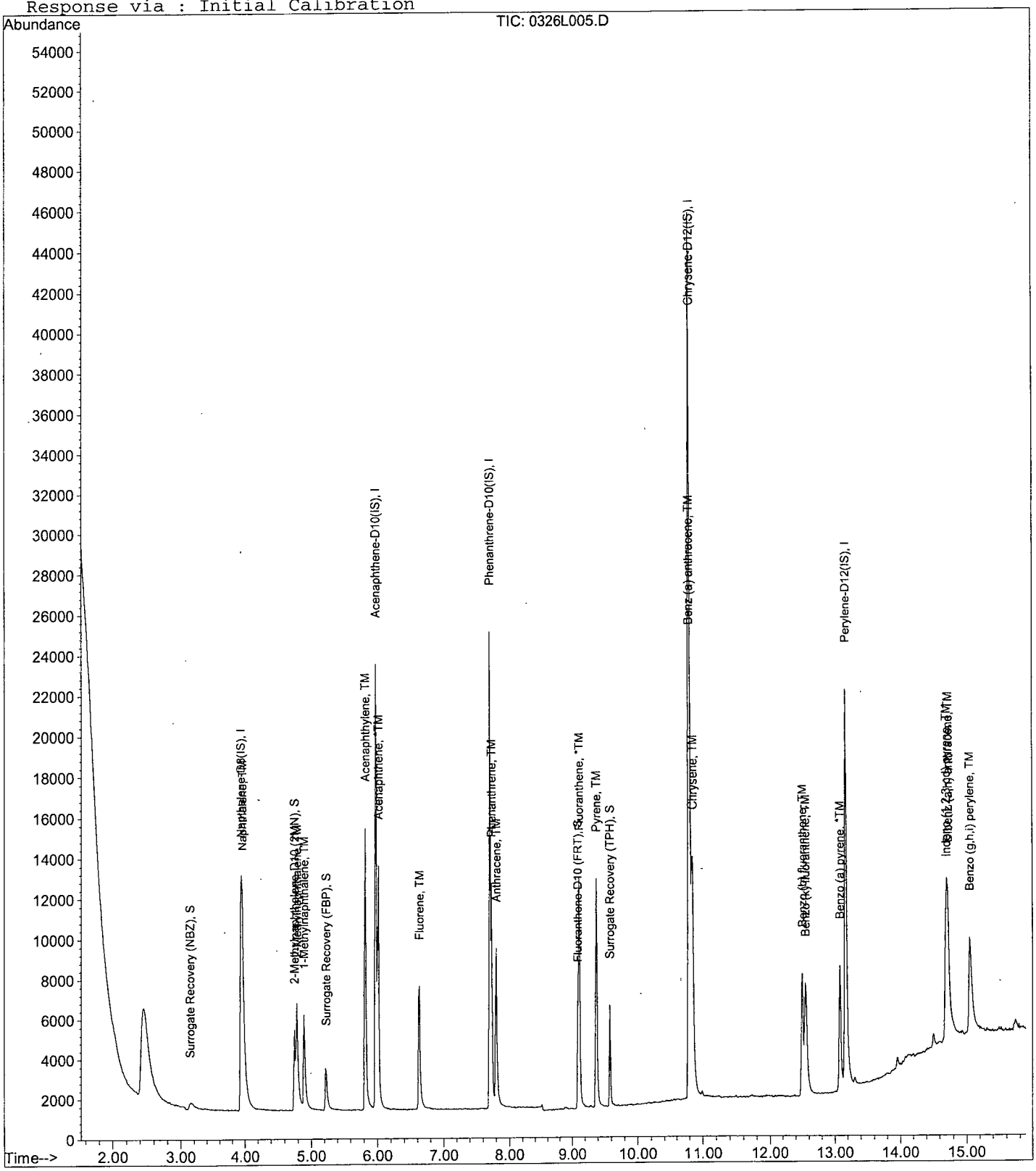
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190326\0326L005.D Vial: 5
Acq On : 26 Mar 19 10:39 Operator: MA
Sample : 0.5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 11:52 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration



0326L005.D L0326.M Wed Mar 27 09:48:41 2019 Page 2

Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190326\0326L006.D Vial: 6
Acq On : 26 Mar 19 11:01 Operator: MA
Sample : 1 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 11:52 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Tue Mar 26 11:51:40 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	35893	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.98	164	17165	2.50000 ppb		0.00
12) Phenanthrene-D10(IS)	7.70	188	29866	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.79	240	43804	2.50000 ppb		0.00
23) Perylene-D12(IS)	13.16	264	41942	2.50000 ppb		0.00
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.15	82	3190	0.50218 ppb		0.02
Spiked Amount 5.000			Recovery =	10.040%		
4) 2-Methylnaphthalene-D10 (2	4.74	152	9372	0.55454 ppb		0.01
Spiked Amount 5.000			Recovery =	11.100%		
8) Surrogate Recovery (FBP)	5.22	172	6188	0.50317 ppb		0.00
Spiked Amount 5.000			Recovery =	10.060%		
15) Fluoranthene-D10 (FRT)	9.09	212	12497	0.57589 ppb		0.00
Spiked Amount 5.000			Recovery =	11.520%		
19) Surrogate Recovery (TPH)	9.58	244	7507	0.52088 ppb		0.00
Spiked Amount 5.000			Recovery =	10.420%		
Target Compounds						Qvalue
3) Naphthalene	3.96	128	16693	0.92168 ppb		100
5) 2-Methylnaphthalene	4.78	142	9573	0.87935 ppb		98
6) 1-Methylnaphthalene	4.89	142	10243	0.92731 ppb		95
9) Acenaphthylene	5.82	152	34586	0.89675 ppb		99
10) Acenaphthene	6.01	154	9052	0.81904 ppb		96
11) Fluorene	6.62	166	11205	0.86141 ppb		93
13) Phenanthrene	7.73	178	15588	0.92440 ppb		98
14) Anthracene	7.80	178	14573	0.87468 ppb		99
16) Fluoranthene	9.11	202	26618	0.99782 ppb	#	93
18) Pyrene	9.37	202	26304	0.96215 ppb		95
20) Benz (a) anthracene	10.78	228	20420	0.84412 ppb		98
21) Chrysene	10.84	228	22628	0.97118 ppb		98
22) Indeno (1,2,3-cd) pyrene	14.68	276	22236	0.92011 ppb		98
24) Benzo (b) fluoranthene	12.49	252	18288	0.81146 ppb		99
25) Benzo (k) fluoranthene	12.54	252	22834	0.98354 ppb		98
26) Benzo (a) pyrene	13.07	252	19723	0.90862 ppb	#	95
27) Dibenz (a,h) anthracene	14.71	278	18076	0.89928 ppb		98
28) Benzo (g,h,i) perylene	15.03	276	18288	0.89893 ppb		98

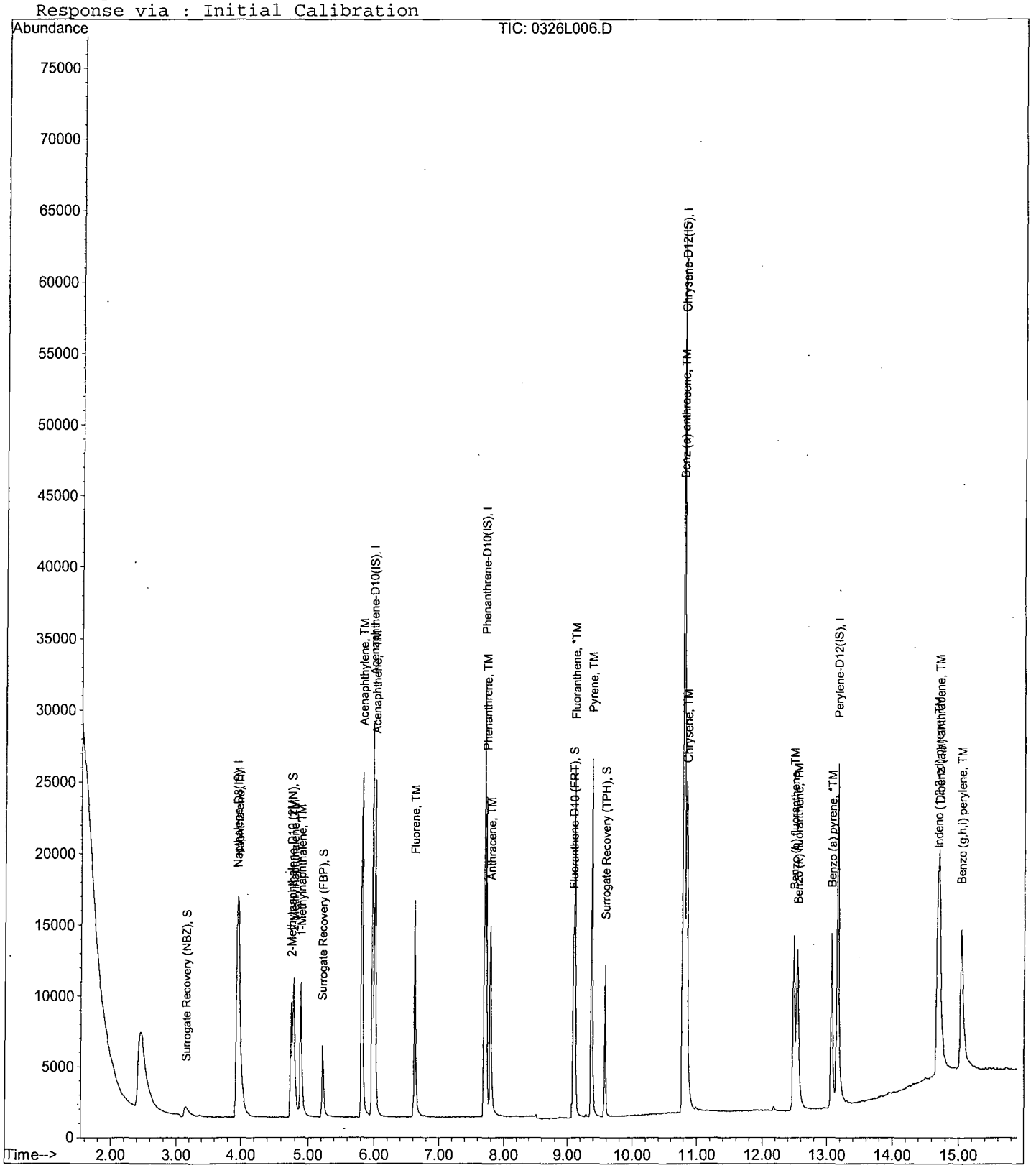
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190326\0326L006.D Vial: 6
Acq On : 26 Mar 19 11:01 Operator: MA
Sample : 1 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 11:52 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190326\0326L007.D Vial: 7
Acq On : 26 Mar 19 11:23 Operator: MA
Sample : 5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 11:55 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Tue Mar 26 11:52:44 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	31036	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.98	164	14429	2.50000 ppb		0.00
12) Phenanthrene-D10(IS)	7.70	188	24630	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.79	240	36703	2.50000 ppb		0.00
23) Perylene-D12(IS)	13.16	264	35401	2.50000 ppb		0.00
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.13	82	14629	2.66335 ppb		0.00
Spiked Amount 5.000			Recovery	= 53.260%		
4) 2-Methylnaphthalene-D10 (2	4.73	152	47125	3.22473 ppb		0.00
Spiked Amount 5.000			Recovery	= 64.500%		
8) Surrogate Recovery (FBP)	5.22	172	30446	2.94510 ppb		0.00
Spiked Amount 5.000			Recovery	= 58.900%		
15) Fluoranthene-D10 (FRT)	9.09	212	61183	3.41884 ppb		0.00
Spiked Amount 5.000			Recovery	= 68.380%		
19) Surrogate Recovery (TPH)	9.58	244	36522	3.02438 ppb		0.00
Spiked Amount 5.000			Recovery	= 60.480%		
Target Compounds						Qvalue
3) Naphthalene	3.96	128	86912	5.54970 ppb		100
5) 2-Methylnaphthalene	4.77	142	52323	5.55839 ppb		100
6) 1-Methylnaphthalene	4.88	142	52078	5.45251 ppb		100
9) Acenaphthylene	5.81	152	186553	5.75411 ppb		100
10) Acenaphthene	6.01	154	45619	4.91037 ppb		100
11) Fluorene	6.62	166	58567	5.35620 ppb		100
13) Phenanthrene	7.73	178	80559	5.79291 ppb		100
14) Anthracene	7.79	178	80019	5.82381 ppb		100
16) Fluoranthene	9.11	202	137128	6.23327 ppb		100
18) Pyrene	9.36	202	137146	5.98710 ppb		100
20) Benz (a) anthracene	10.78	228	111765	5.51397 ppb		100
21) Chrysene	10.83	228	110485	5.65939 ppb		100
22) Indeno (1,2,3-cd) pyrene	14.66	276	117203	5.78805 ppb	#	100
24) Benzo (b) fluoranthene	12.48	252	104380	5.48718 ppb		100
25) Benzo (k) fluoranthene	12.53	252	115527	5.89556 ppb	#	82
26) Benzo (a) pyrene	13.07	252	104139	5.68402 ppb		100
27) Dibenz (a,h) anthracene	14.70	278	95496	5.62874 ppb		100
28) Benzo (g,h,i) perylene	15.01	276	96360	5.61166 ppb		100

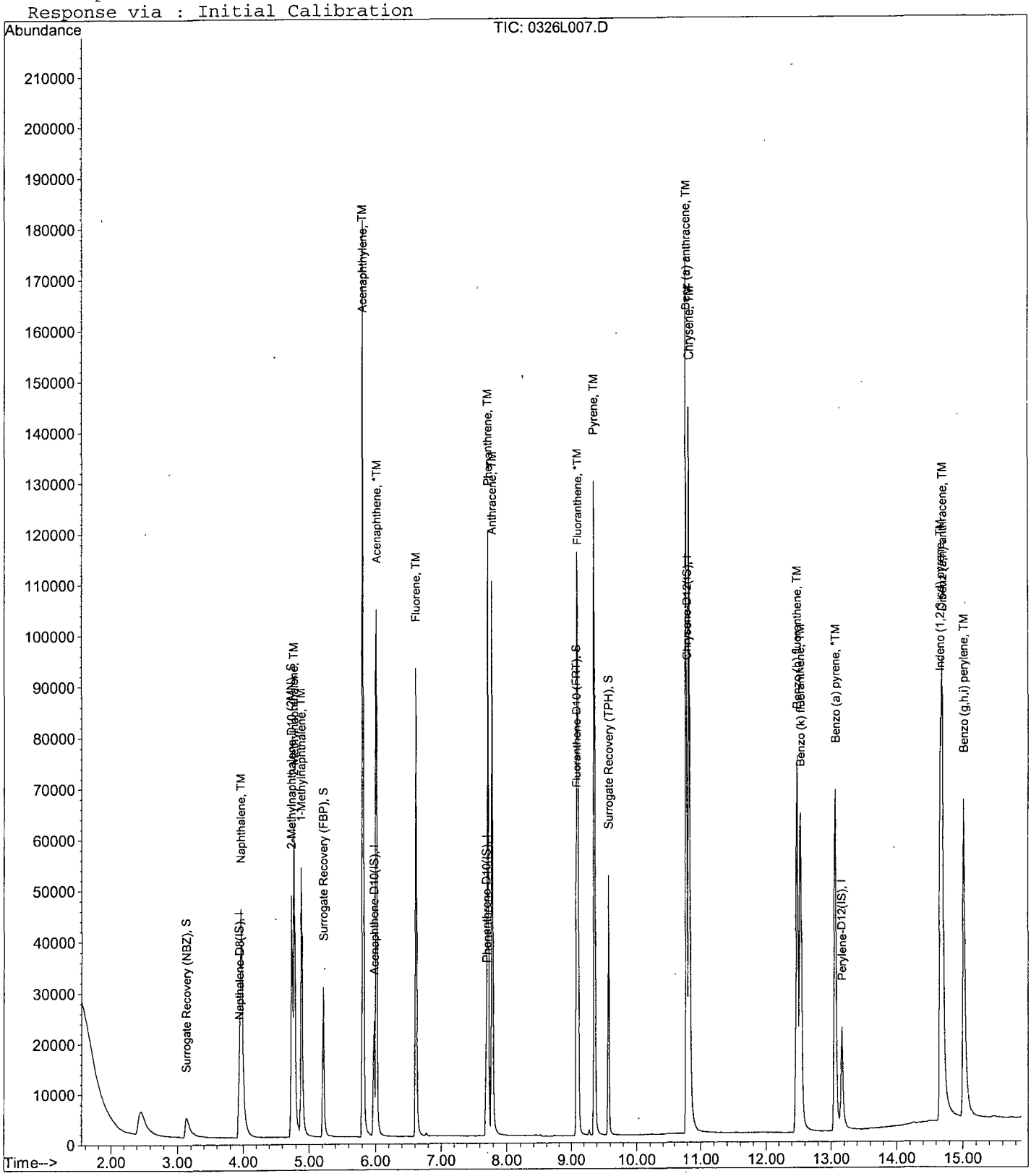
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190326\0326L007.D Vial: 7
Acq On : 26 Mar 19 11:23 Operator: MA
Sample : 5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 11:55 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190326\0326L008.D Vial: 8
Acq On : 26 Mar 19 11:45 Operator: MA
Sample : 10 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 12:03 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Tue Mar 26 11:52:44 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	35838	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.98	164	16640	2.50000 ppb		0.00
12) Phenanthrene-D10(IS)	7.70	188	28622	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.79	240	41948	2.50000 ppb		0.00
23) Perylene-D12(IS)	13.16	264	40987	2.50000 ppb		0.00
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.13	82	32326	5.09668 ppb		0.00
Spiked Amount 5.000			Recovery	= 101.940%		
4) 2-Methylnaphthalene-D10 (2	4.73	152	100381	5.94861 ppb		0.00
Spiked Amount 5.000			Recovery	= 118.980%		
8) Surrogate Recovery (FBP)	5.22	172	64921	5.44551 ppb		0.00
Spiked Amount 5.000			Recovery	= 108.920%		
15) Fluoranthene-D10 (FRT)	9.08	212	132302	6.36178 ppb		-0.01
Spiked Amount 5.000			Recovery	= 127.240%		
19) Surrogate Recovery (TPH)	9.58	244	79496	5.75993 ppb		0.00
Spiked Amount 5.000			Recovery	= 115.200%		
Target Compounds						Qvalue
3) Naphthalene	3.96	128	184477	10.20127 ppb		100
5) 2-Methylnaphthalene	4.77	142	109454	10.06955 ppb		99
6) 1-Methylnaphthalene	4.88	142	108031	9.79519 ppb		98
9) Acenaphthylene	5.81	152	391698	10.47636 ppb		100
10) Acenaphthene	6.01	154	97387	9.08975 ppb		99
11) Fluorene	6.62	166	125480	9.95086 ppb		99
13) Phenanthrene	7.73	178	169913	10.51414 ppb		100
14) Anthracene	7.79	178	168680	10.56433 ppb		100
16) Fluoranthene	9.10	202	286894	11.22214 ppb	#	86
18) Pyrene	9.36	202	288195	11.00804 ppb		99
20) Benz (a) anthracene	10.78	228	244430	10.55125 ppb		100
21) Chrysene	10.83	228	225305	10.09781 ppb		99
22) Indeno (1,2,3-cd) pyrene	14.66	276	249983	10.80176 ppb		99
24) Benzo (b) fluoranthene	12.48	252	230916	10.48469 ppb		99
25) Benzo (k) fluoranthene	12.53	252	239205	10.54342 ppb	#	81
26) Benzo (a) pyrene	13.05	252	224453	10.58124 ppb	#	96
27) Dibenz (a,h) anthracene	14.70	278	203908	10.38077 ppb		96
28) Benzo (g,h,i) perylene	15.01	276	207384	10.43132 ppb		94

(#) = qualifier out of range (m) = manual integration

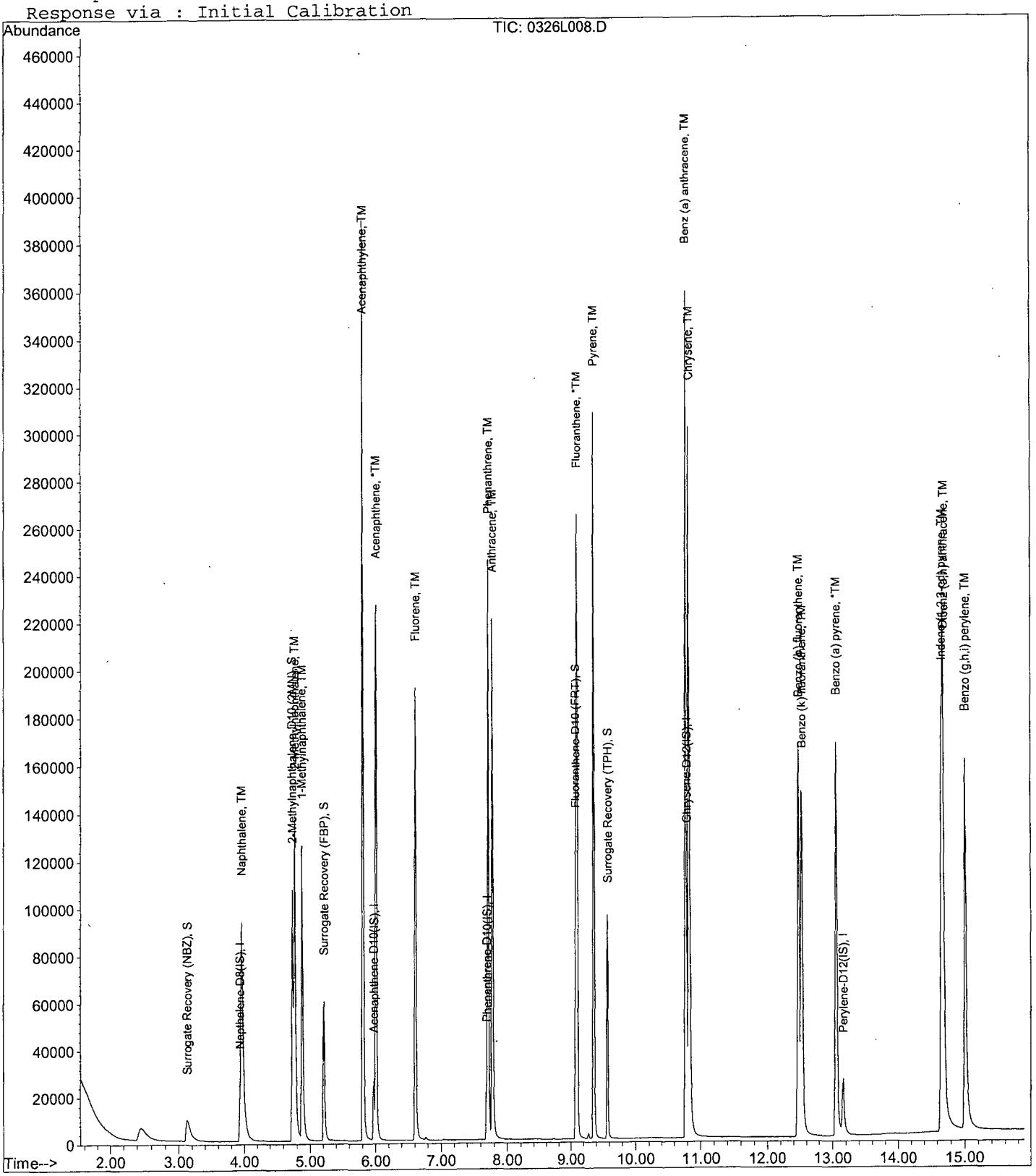
Quantitation Report

Data File : M:\LINUS\DATA\L190326\0326L008.D
Acq On : 26 Mar 19 11:45
Sample : 10 SIM 03/06/19
Misc :

Vial: 8
Operator: MA
Inst : Linus
Multiplr: 1.00

Quant Time: Mar 26 12:03 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190326\0326L009.D Vial: 9
Acq On : 26 Mar 19 12:08 Operator: MA
Sample : 50 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 12:40 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Tue Mar 26 11:52:44 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	34439	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.98	164	16178	2.50000 ppb		0.00
12) Phenanthrene-D10(IS)	7.70	188	28297	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.80	240	40379	2.50000 ppb		0.01
23) Perylene-D12(IS)	13.16	264	41022	2.50000 ppb		0.00
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.12	82	140833	21.64154 ppb		-0.01
Spiked Amount 5.000			Recovery	= 432.840%		
4) 2-Methylnaphthalene-D10 (2	4.73	152	414181	23.25797 ppb		0.00
Spiked Amount 5.000			Recovery	= 465.160%		
8) Surrogate Recovery (FBP)	5.20	172	263684	21.46228 ppb		-0.01
Spiked Amount 5.000			Recovery	= 429.240%		
15) Fluoranthene-D10 (FRT)	9.09	212	562390	24.48515 ppb		0.00
Spiked Amount 5.000			Recovery	= 489.700%		
19) Surrogate Recovery (TPH)	9.58	244	334289	23.27858 ppb		0.00
Spiked Amount 5.000			Recovery	= 465.580%		
Target Compounds						Qvalue
3) Naphthalene	3.96	128	794731	44.68961 ppb		100
5) 2-Methylnaphthalene	4.77	142	465489	44.02234 ppb		99
6) 1-Methylnaphthalene	4.88	142	454120	41.81636 ppb		98
9) Acenaphthylene	5.81	152	1609229	43.19390 ppb		100
10) Acenaphthene	6.01	154	409705	39.67961 ppb		97
11) Fluorene	6.62	166	527629	42.63457 ppb		99
13) Phenanthrene	7.73	178	689088	41.97703 ppb		99
14) Anthracene	7.79	178	700455	43.39211 ppb		99
16) Fluoranthene	9.11	202	1195144	44.94761 ppb	#	89
18) Pyrene	9.37	202	1195645	45.32840 ppb		94
20) Benz (a) anthracene	10.79	228	1070977	46.57534 ppb		99
21) Chrysene	10.84	228	941256	42.83259 ppb		98
22) Indeno (1,2,3-cd) pyrene	14.68	276	1103036	48.39365 ppb		100
24) Benzo (b) fluoranthene	12.50	252	1050669	47.36694 ppb		99
25) Benzo (k) fluoranthene	12.55	252	1029810	43.39875 ppb	#	85
26) Benzo (a) pyrene	13.09	252	1003811	46.19453 ppb	#	97
27) Dibenz (a,h) anthracene	14.72	278	901711	45.25262 ppb		96
28) Benzo (g,h,i) perylene	15.04	276	917218	45.43228 ppb		95

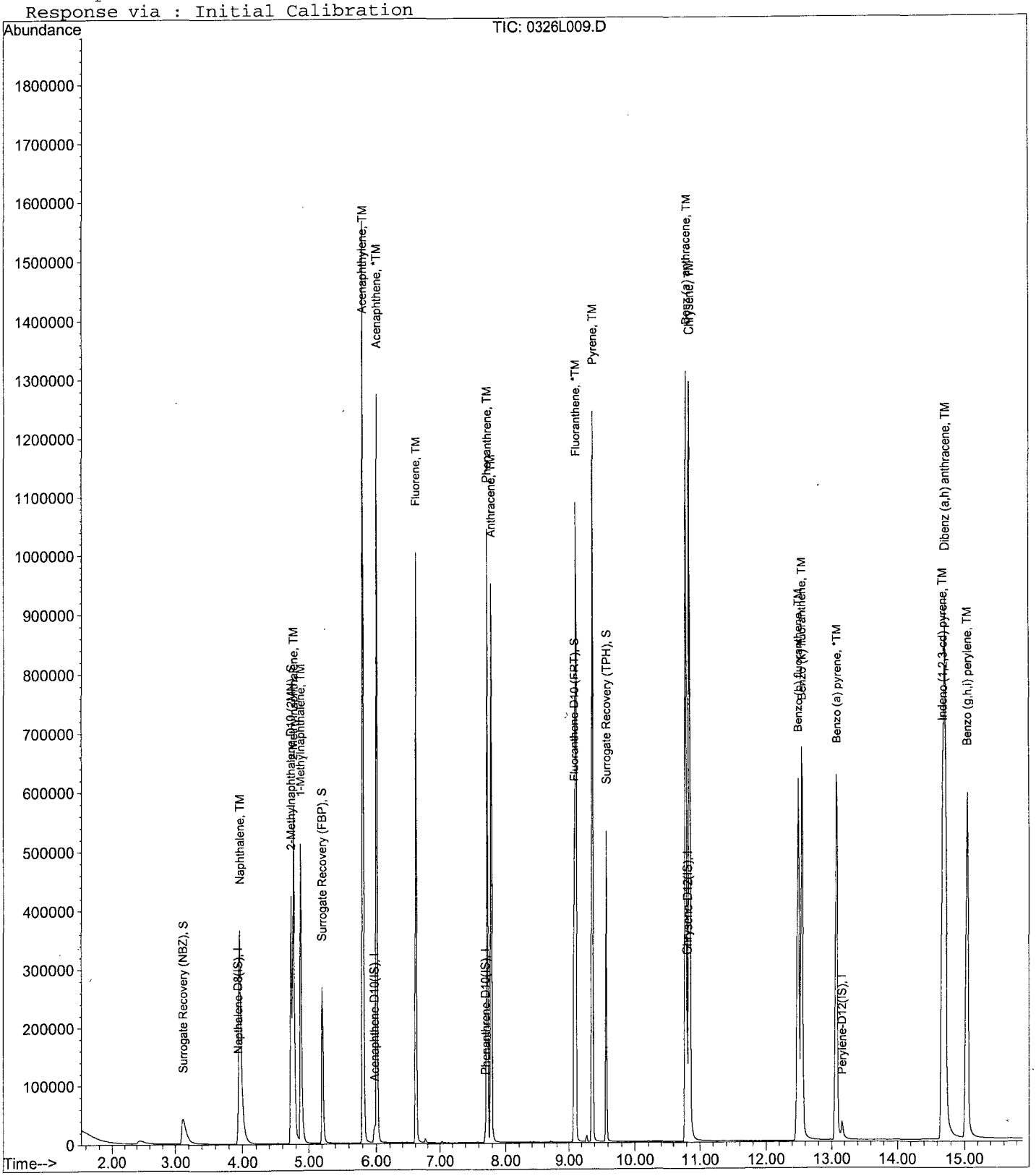
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190326\0326L009.D Vial: 9
Acq On : 26 Mar 19 12:08 Operator: MA
Sample : 50 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 12:40 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190326\0326L010.D Vial: 10
Acq On : 26 Mar 19 12:30 Operator: MA
Sample : 100 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 13:47 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Tue Mar 26 11:52:44 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	32479	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.98	164	15565	2.50000 ppb		0.00
12) Phenanthrene-D10(IS)	7.70	188	27637	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.82	240	38239	2.50000 ppb		0.02
23) Perylene-D12(IS)	13.17	264	38545	2.50000 ppb		0.01
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.10	82	272771	44.44570 ppb		-0.02
Spiked Amount 5.000			Recovery = 888.920%			
4) 2-Methylnaphthalene-D10 (2	4.73	152	777276	46.28122 ppb		0.00
Spiked Amount 5.000			Recovery = 925.620%			
8) Surrogate Recovery (FBP)	5.20	172	495434	41.91347 ppb		-0.01
Spiked Amount 5.000			Recovery = 838.260%			
15) Fluoranthene-D10 (FRT)	9.09	212	1034959	46.13577 ppb		0.00
Spiked Amount 5.000			Recovery = 922.720%			
19) Surrogate Recovery (TPH)	9.58	244	598059	43.97719 ppb		0.00
Spiked Amount 5.000			Recovery = 879.540%			
Target Compounds						Qvalue
3) Naphthalene	3.96	128	1458290	86.95172 ppb		99
5) 2-Methylnaphthalene	4.77	142	841432	84.37826 ppb		100
6) 1-Methylnaphthalene	4.89	142	836950	81.71899 ppb		93
9) Acenaphthylene	5.81	152	3029044	84.50567 ppb		99
10) Acenaphthene	6.01	154	728333	73.31651 ppb		92
11) Fluorene	6.62	166	977411	82.08923 ppb		98
13) Phenanthrene	7.74	178	1281823	79.94928 ppb		99
14) Anthracene	7.80	178	1233503	78.23844 ppb		99
16) Fluoranthene	9.12	202	2109540	81.23134 ppb	#	89
18) Pyrene	9.38	202	2180307	87.28404 ppb		96
20) Benz (a) anthracene	10.80	228	2005960	92.11857 ppb		98
21) Chrysene	10.86	228	1765953	84.85838 ppb	#	96
22) Indeno (1,2,3-cd) pyrene	14.73	276	2046970	94.83293 ppb	#	92
24) Benzo (b) fluoranthene	12.52	252	1994752	95.70774 ppb		99
25) Benzo (k) fluoranthene	12.59	252	1848388	82.90143 ppb	#	85
26) Benzo (a) pyrene	13.11	252	1845710	90.39635 ppb		98
27) Dibenz (a,h) anthracene	14.75	278	1624819	86.78209 ppb		100
28) Benzo (g,h,i) perylene	15.08	276	1672824	88.18424 ppb	#	87

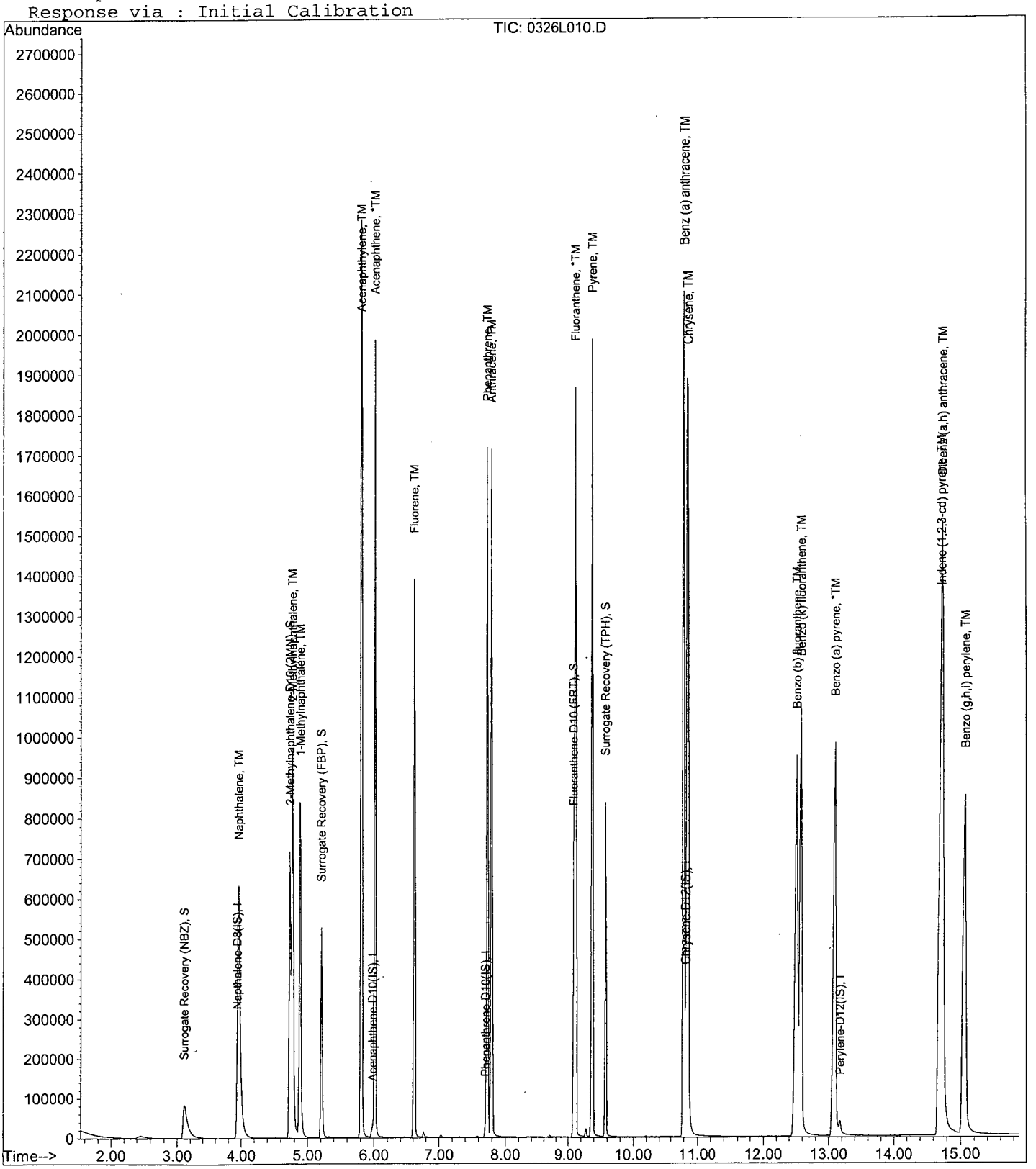
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190326\0326L010.D Vial: 10
Acq On : 26 Mar 19 12:30 Operator: MA
Sample : 100 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 13:47 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190326\0326L012.D Vial: 12
Acq On : 26 Mar 19 15:55 Operator: MA
Sample : 0.2 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 16:21 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Tue Mar 26 11:52:44 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	48893	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.98	164	22990	2.50000 ppb		0.00
12) Phenanthrene-D10(IS)	7.70	188	39076	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.79	240	57596	2.50000 ppb		0.00
23) Perylene-D12(IS)	13.16	264	55456	2.50000 ppb		0.00
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.16	82	768	0.08673 ppb		0.04
Spiked Amount 5.000			Recovery =	1.740%		
4) 2-Methylnaphthalene-D10 (2	4.76	152	2284	0.08927 ppb		0.02
Spiked Amount 5.000			Recovery =	1.780%		
8) Surrogate Recovery (FBP)	5.23	172	1525	0.08934 ppb		0.01
Spiked Amount 5.000			Recovery =	1.780%		
15) Fluoranthene-D10 (FRT)	9.10	212	2862	0.08813 ppb		0.01
Spiked Amount 5.000			Recovery =	1.760%		
19) Surrogate Recovery (TPH)	9.59	244	1762	0.08457 ppb		0.01
Spiked Amount 5.000			Recovery =	1.700%		
Target Compounds						Qvalue
3) Naphthalene	3.96	128	5503	0.21825 ppb		98
5) 2-Methylnaphthalene	4.78	142	2989	0.19863 ppb		98
6) 1-Methylnaphthalene	4.89	142	3356	0.21862 ppb		97
9) Acenaphthylene	5.82	152	10502	0.19841 ppb		100
10) Acenaphthene	6.01	154	3004	0.20647 ppb		96
11) Fluorene	6.63	166	3457	0.19696 ppb		96
13) Phenanthrene	7.73	178	4828	0.20973 ppb		97
14) Anthracene	7.80	178	4438	0.19743 ppb		98
16) Fluoranthene	9.12	202	7726	0.20526 ppb	#	95
18) Pyrene	9.38	202	7961	0.20588 ppb		93
20) Benz (a) anthracene	10.78	228	6119	0.18540 ppb		97
21) Chrysene	10.84	228	7299	0.22752 ppb		99
22) Indeno (1,2,3-cd) pyrene	14.70	276	7062	0.17330 ppb	#	92
24) Benzo (b) fluoranthene	12.51	252	5643	0.19039 ppb		99
25) Benzo (k) fluoranthene	12.55	252	6638	0.19712 ppb	#	84
26) Benzo (a) pyrene	13.08	252	6073	0.18974 ppb	#	94
27) Dibenz (a,h) anthracene	14.72	278	5632	0.16786 ppb	#	91
28) Benzo (g,h,i) perylene	15.05	276	5883	0.17144 ppb		99

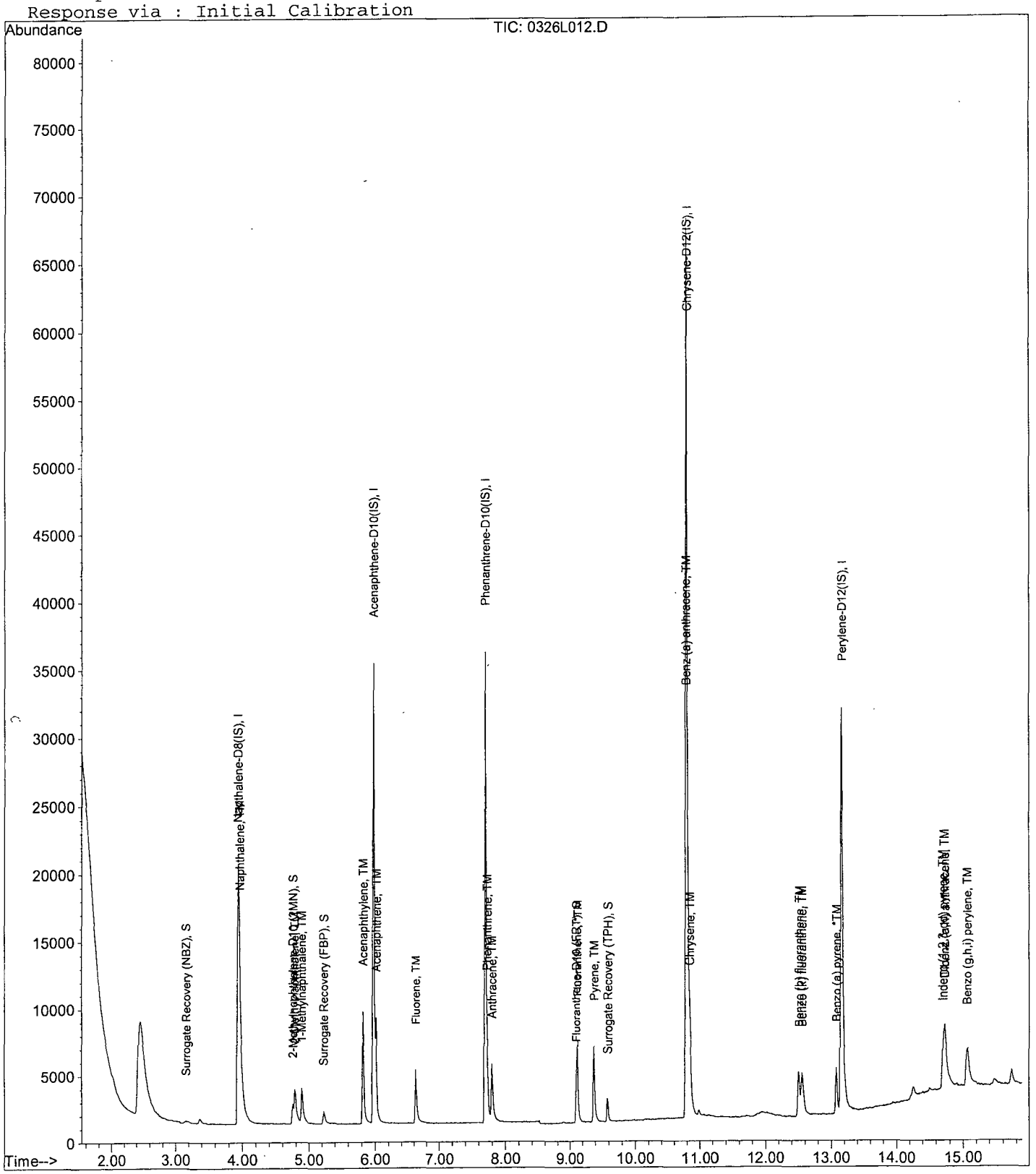
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190326\0326L012.D Vial: 12
Acq On : 26 Mar 19 15:55 Operator: MA
Sample : 0.2 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 16:21 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190326\0326L013.D Vial: 13
Acq On : 26 Mar 19 17:05 Operator: MA
Sample : 0.1 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 17:22 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Tue Mar 26 11:52:44 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.95	136	33055	2.50000 ppb		0.01
7) Acenaphthene-D10(IS)	5.98	164	15242	2.50000 ppb		0.00
12) Phenanthrene-D10(IS)	7.70	188	26118	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.79	240	37102	2.50000 ppb		0.00
23) Perylene-D12(IS)	13.16	264	35689	2.50000 ppb		0.00
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.16	82	174	0.02974 ppb		0.04
Spiked Amount 5.000			Recovery	= 0.600%		
4) 2-Methylnaphthalene-D10 (2	4.77	152	917	0.05892 ppb		0.04
Spiked Amount 5.000			Recovery	= 1.180%		
8) Surrogate Recovery (FBP)	5.24	172	525	0.04808 ppb		0.02
Spiked Amount 5.000			Recovery	= 0.960%		
15) Fluoranthene-D10 (FRT)	9.11	212	993	0.05233 ppb		0.02
Spiked Amount 5.000			Recovery	= 1.040%		
19) Surrogate Recovery (TPH)	9.59	244	603	0.04940 ppb		0.01
Spiked Amount 5.000			Recovery	= 0.980%		
Target Compounds						Qvalue
3) Naphthalene	3.97	128	2021	0.12117 ppb		98
5) 2-Methylnaphthalene	4.79	142	966	0.09635 ppb		93
6) 1-Methylnaphthalene	4.90	142	1309	0.12868 ppb		97
9) Acenaphthylene	5.83	152	3597	0.10503 ppb		100
10) Acenaphthene	6.01	154	1094	0.11148 ppb		97
11) Fluorene	6.64	166	1352	0.11705 ppb		98
13) Phenanthrene	7.74	178	1679	0.11386 ppb		98
14) Anthracene	7.81	178	1552	0.10652 ppb		99
16) Fluoranthene	9.13	202	2650	0.11360 ppb	#	94
18) Pyrene	9.39	202	2818	0.12170 ppb	#	94
20) Benz (a) anthracene	10.79	228	2097	0.10234 ppb		97
21) Chrysene	10.84	228	2513	0.12734 ppb		98
22) Indeno (1,2,3-cd) pyrene	14.73	276	2499	0.12209 ppb	#	81
24) Benzo (b) fluoranthene	12.52	252	1653	0.08620 ppb		97
25) Benzo (k) fluoranthene	12.58	252	2393	0.12113 ppb	#	82
26) Benzo (a) pyrene	13.09	252	1774	0.09605 ppb		98
27) Dibenz (a,h) anthracene	14.74	278	1986	0.11611 ppb	#	91
28) Benzo (g,h,i) perylene	15.09	276	2096	0.12108 ppb		92

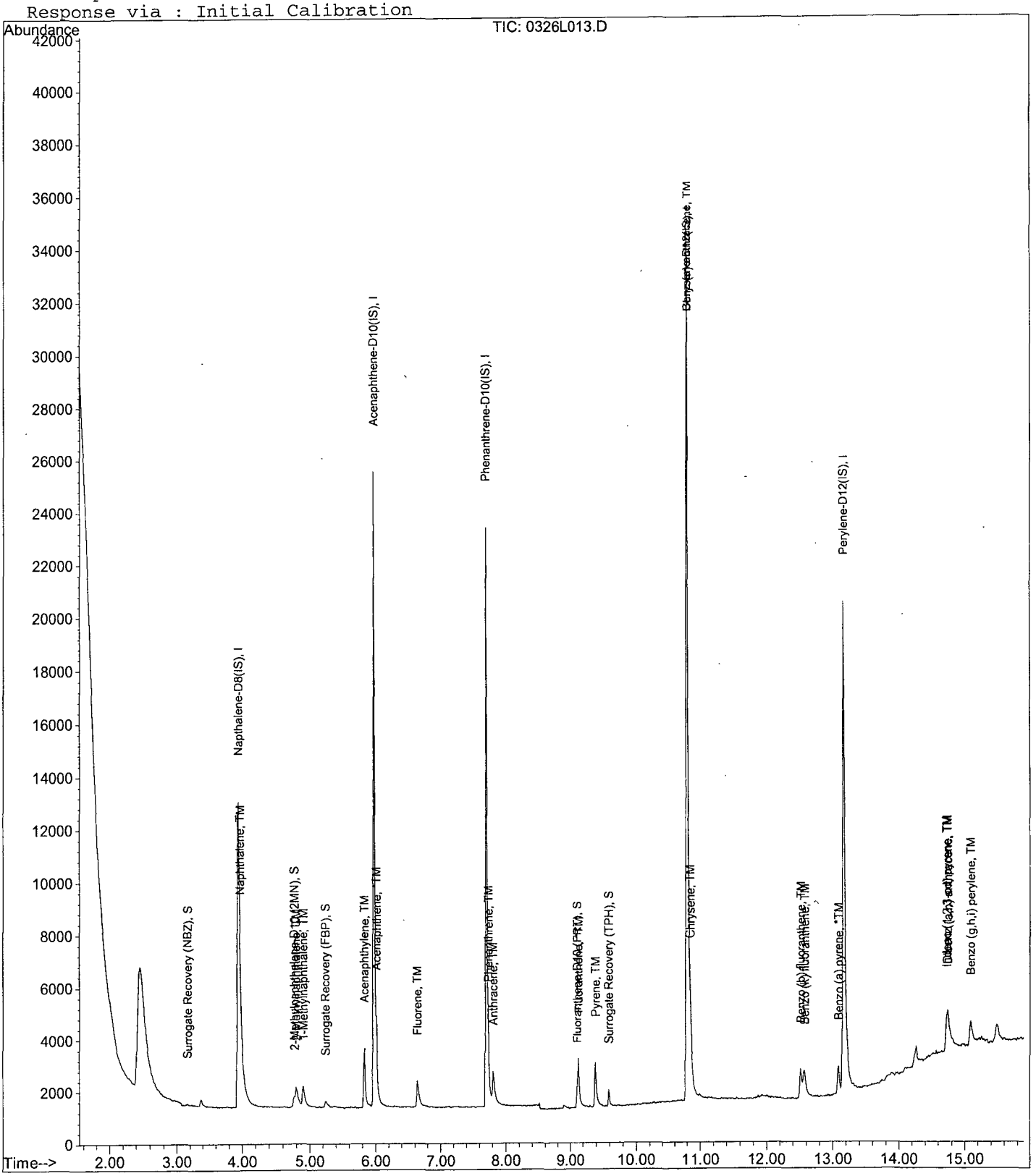
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190326\0326L013.D Vial: 13
Acq On : 26 Mar 19 17:05 Operator: MA
Sample : 0.1 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 26 17:22 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration



PAH by GCMS SIM
EPA 8270 SIM

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 03/26/19
Instrument: Linus
Initial Cal. Date: 03/26/19
Data File: 0326L014.D

		Compound	MEAN	CCRF	%D		%Drift
1	TM	Naphthalene	1.314	1.344	2.3	TM	
2	TM	2-Methylnaphthalene	0.7409	0.8066	8.9	TM	
3	TM	1-Methylnaphthalene	0.8188	0.8287	1.2	TM	
4	TM	Acenaphthylene	5.655	5.927	4.8	TM	
5	*TM	Acenaphthene	1.491	1.500	0.63	*TM	
6	TM	Fluorene	1.867	1.894	1.4	TM	
7	TM	Phenanthrene	1.453	1.496	2.9	TM	
8	TM	Anthracene	1.396	1.451	4.0	TM	
9	*TM	Fluoranthene	2.417	2.498	3.4	*TM	
10	TM	Pyrene	1.692	1.717	1.5	TM	
11	TM	Benz (a) anthracene	1.385	1.403	1.3	TM	
12	TM	Chrysene	1.409	1.442	2.3	TM	
13	TM	Indeno (1,2,3-cd) pyrene	1.476	1.465	0.75	TM	
14	TM	Benzo (b) fluoranthene	1.293	1.413	9.3	TM	
15	TM	Benzo (k) fluoranthene	1.467	1.533	4.5	TM	
16	*TM	Benzo (a) pyrene	1.312	1.326	1.1	*TM	
17	TM	Dibenz (a,h) anthracene	1.222	1.285	5.1	TM	
18	TM	Benzo (g,h,i) perylene	1.254	1.309	4.4	TM	
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
		Average			3.3		

PAH by GCMS SIM
EPA 8270 SIM

Form 7

Second Source Calibration

Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190326\0326L014.D Vial: 14
Acq On : 26 Mar 19 17:27 Operator: MA
Sample : SS SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: Mar 27 9:04 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	37593	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.98	164	17018	2.50000 ppb		0.00
12) Phenanthrene-D10(IS)	7.70	188	29145	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.79	240	42587	2.50000 ppb		0.00
23) Perylene-D12(IS)	13.16	264	40320	2.50000 ppb		0.00
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.15	82	89	0.01327 ppb		0.02
Spiked Amount 5.000			Recovery =	0.260%		
4) 2-Methylnaphthalene-D10 (2	4.74	152	61	0.00300 ppb		0.01
Spiked Amount 5.000			Recovery =	0.060%		
8) Surrogate Recovery (FBP)	5.26	172	21	0.00168 ppb		0.05
Spiked Amount 5.000			Recovery =	0.040%		
15) Fluoranthene-D10 (FRT)	9.09	212	62	0.00249 ppb		0.00
Spiked Amount 5.000			Recovery =	0.040%		
19) Surrogate Recovery (TPH)	9.60	244	51	0.00338 ppb		0.02
Spiked Amount 5.000			Recovery =	0.060%		
Target Compounds						Qvalue
3) Naphthalene	3.96	128	101084	5.11703 ppb		100
5) 2-Methylnaphthalene	4.77	142	60648	5.44385 ppb		98
6) 1-Methylnaphthalene	4.88	142	62305	5.06007 ppb		99
9) Acenaphthylene	5.81	152	201720	5.24063 ppb		99
10) Acenaphthene	6.01	154	51069	5.03134 ppb		100
11) Fluorene	6.62	166	64459	5.07138 ppb		99
13) Phenanthrene	7.73	178	87187	5.14639 ppb		100
14) Anthracene	7.79	178	84584	5.19763 ppb		100
16) Fluoranthene	9.11	202	145598	5.16794 ppb		98
18) Pyrene	9.36	202	146253	5.07448 ppb		99
20) Benz (a) anthracene	10.78	228	119541	5.06587 ppb		98
21) Chrysene	10.83	228	122783	5.11679 ppb		99
22) Indeno (1,2,3-cd) pyrene	14.66	276	124805	4.96230 ppb		98
24) Benzo (b) fluoranthene	12.47	252	113984	5.46678 ppb	#	96
25) Benzo (k) fluoranthene	12.52	252	123617	5.22426 ppb	#	84
26) Benzo (a) pyrene	13.05	252	106932	5.05468 ppb	#	94
27) Dibenz (a,h) anthracene	14.70	278	103583	5.25425 ppb		99
28) Benzo (g,h,i) perylene	15.01	276	105592	5.22057 ppb		99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

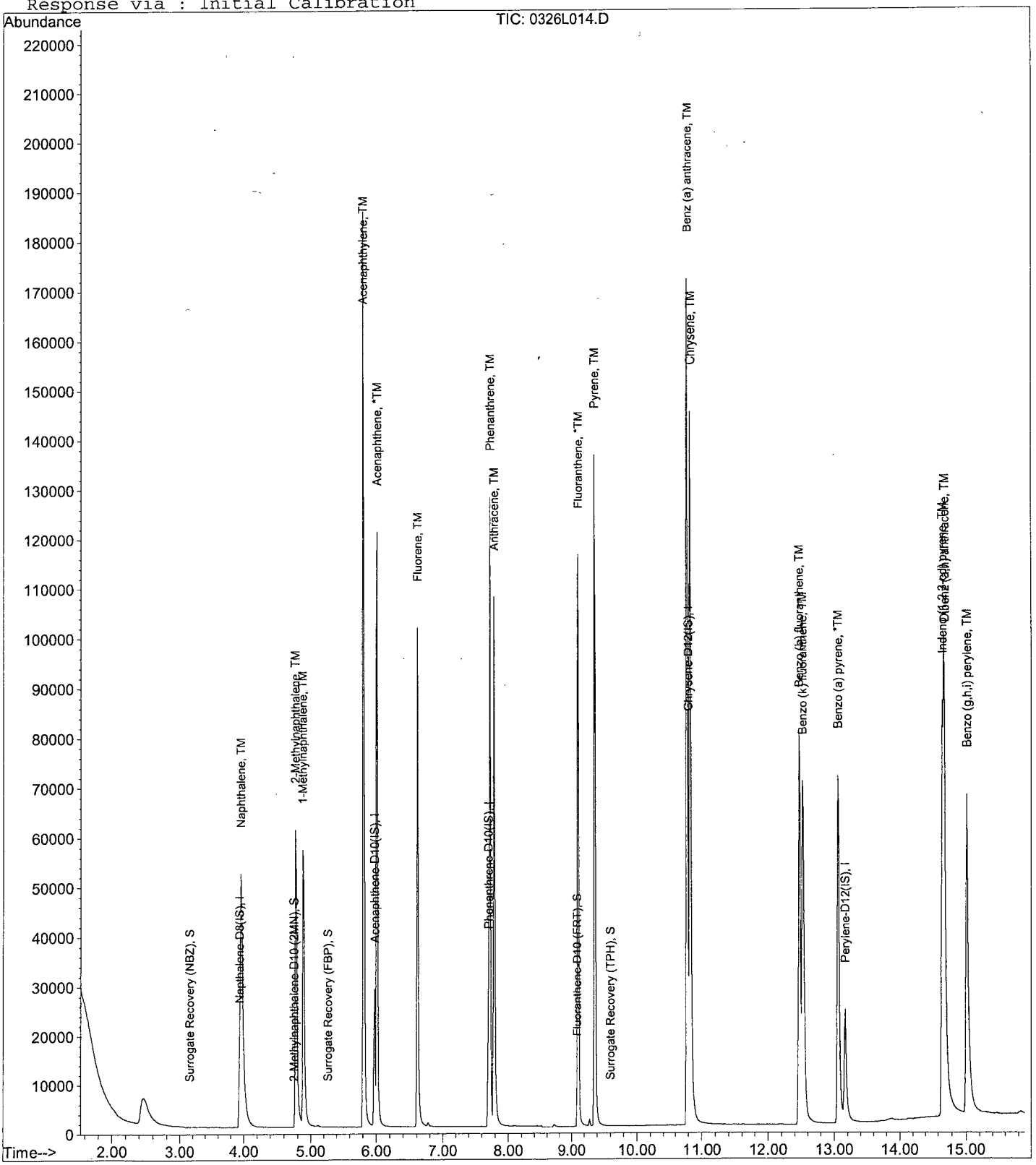
Data File : M:\LINUS\DATA\L190326\0326L014.D
Acq On : 26 Mar 19 17:27
Sample : SS SIM 03/06/19
Misc :

Vial: 14
Operator: MA
Inst : Linus
Multiplr: 1.00

Quant Time: Mar 27 9:04 2019

Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190326\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Wed Mar 27 09:03:54 2019
Response via : Initial Calibration



PAH by GCMS SIM
EPA 8270 SIM

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 8 May 19 8:58
Instrument: Linus
Initial Cal. Date: 03/26/19
Data File: 0426L056.D

		Compound	MEAN	CCRF	%D		%Drift	
1	I	Napthalene-D8(IS)	ISTD			I		
2	S	Surrogate Recovery (NBZ)	0.4460	0.4346	2.6	S		
3	TM	Naphthalene	1.314	1.242	5.4	TM		
4	S	2-Methylnaphthalene-D10 (2MN)	1.354	1.221	9.8	S		
5	TM	2-Methylnaphthalene	0.7409	0.6917	6.6	TM		
6	TM	1-Methylnaphthalene	0.8188	0.7431	9.3	TM		
7	I	Acenaphthene-D10(IS)	ISTD			I		
8	S	Surrogate Recovery (FBP)	1.840	1.912	3.9	S		
9	TM	Acenaphthylene	5.655	5.034	11	TM		
10	*TM	Acenaphthene	1.491	1.511	1.3	*TM		
11	TM	Fluorene	1.867	1.898	1.6	TM		
12	I	Phenanthrene-D10(IS)	ISTD			I		
13	TM	Phenanthrene	1.453	1.453	0.01	TM		
14	TM	Anthracene	1.396	1.402	0.46	TM		
15	S	Fluoranthene-D10 (FRT)	2.138	2.253	5.4	S		
16	*TM	Fluoranthene	2.417	2.527	4.6	*TM		
17	I	Chrysene-D12(IS)	ISTD			I		
18	TM	Pyrene	1.692	1.693	0.04	TM		
19	S	Surrogate Recovery (TPH)	0.8859	0.8591	3.0	S		
20	TM	Benz (a) anthracene	1.385	1.245	10	TM		
21	TM	Chrysene	1.409	1.469	4.3	TM		
22	TM	Indeno (1,2,3-cd) pyrene	1.476	1.338	9.3	TM		
23	I	Perylene-D12(IS)	ISTD			I		
24	TM	Benzo (b) fluoranthene	1.293	1.331	3.0	TM		
25	TM	Benzo (k) fluoranthene	1.467	1.812	24	TM		*NT
26	*TM	Benzo (a) pyrene	1.312	1.322	0.78	*TM		
27	TM	Dibenz (a,h) anthracene	1.222	1.286	5.2	TM		
28	TM	Benzo (g,h,i) perylene	1.254	1.236	1.4	TM		
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								
		Average			5.3			

Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L056.D Vial: 56
Acq On : 8 May 19 8:58 Operator: MA,SS
Sample : 5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: May 8 9:21 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	42798	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.96	164	17066	2.50000 ppb		-0.01
12) Phenanthrene-D10(IS)	7.69	188	27637	2.50000 ppb		-0.01
17) Chrysene-D12(IS)	10.79	240	41172	2.50000 ppb		0.00
23) Perylene-D12(IS)	13.18	264	34456	2.50000 ppb		0.02
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.15	82	18600	2.43590 ppb		0.02
Spiked Amount 5.000			Recovery	= 48.720%		
4) 2-Methylnaphthalene-D10 (2	4.73	152	52236	2.25427 ppb		0.00
Spiked Amount 5.000			Recovery	= 45.080%		
8) Surrogate Recovery (FBP)	5.22	172	32635	2.59760 ppb		0.00
Spiked Amount 5.000			Recovery	= 51.960%		
15) Fluoranthene-D10 (FRT)	9.08	212	62272	2.63483 ppb		-0.01
Spiked Amount 5.000			Recovery	= 52.700%		
19) Surrogate Recovery (TPH)	9.57	244	35369	2.42427 ppb		-0.01
Spiked Amount 5.000			Recovery	= 48.480%		
Target Compounds						Qvalue
3) Naphthalene	3.96	128	106333	4.72811 ppb		100
5) 2-Methylnaphthalene	4.77	142	59211	4.66848 ppb		98
6) 1-Methylnaphthalene	4.88	142	63603	4.53727 ppb		95
9) Acenaphthylene	5.81	152	171806	4.45092 ppb		99
10) Acenaphthene	6.00	154	51572	5.06661 ppb		98
11) Fluorene	6.62	166	64771	5.08159 ppb		97
13) Phenanthrene	7.73	178	80320	4.99974 ppb		99
14) Anthracene	7.79	178	77511	5.02289 ppb		99
16) Fluoranthene	9.10	202	139663	5.22777 ppb	#	82
18) Pyrene	9.36	202	139381	5.00225 ppb		95
20) Benz (a) anthracene	10.78	228	102485	4.49234 ppb		100
21) Chrysene	10.83	228	121002	5.21587 ppb		98
22) Indeno (1,2,3-cd) pyrene	14.68	276	110216	4.53284 ppb	#	73
24) Benzo (b) fluoranthene	12.48	252	91731	5.14825 ppb		97
25) Benzo (k) fluoranthene	12.53	252	124866	6.17514 ppb		98
26) Benzo (a) pyrene	13.09	252	91101	5.03924 ppb	#	95
27) Dibenz (a,h) anthracene	14.71	278	88633	5.26106 ppb	#	90
28) Benzo (g,h,i) perylene	15.04	276	85194	4.92892 ppb		92

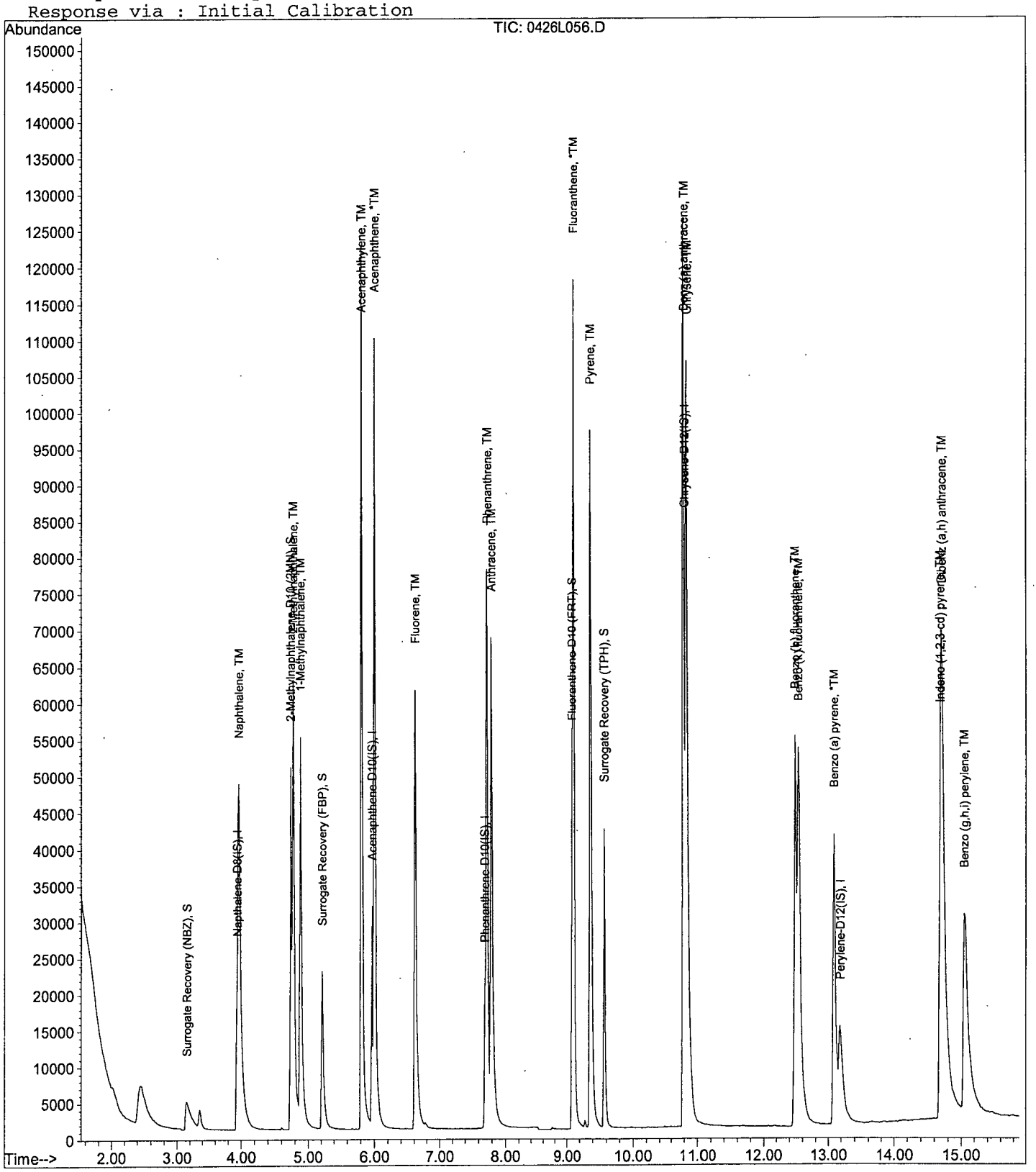
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L056.D Vial: 56
Acq On : 8 May 19 8:58 Operator: MA,SS
Sample : 5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: May 8 9:21 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



PAH by GCMS SIM
EPA 8270 SIM

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 8 May 19 13:07
Instrument: Linus
Initial Cal. Date: 03/26/19
Data File: 0426L065.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	Napthalene-D8(IS)	ISTD			I	
2	S	Surrogate Recovery (NBZ)	0.4460	0.4533	1.6	S	
3	TM	Naphthalene	1.314	1.447	10	TM	
4	S	2-Methylnaphthalene-D10 (2MN)	1.354	1.250	7.6	S	
5	TM	2-Methylnaphthalene	0.7409	0.8115	9.5	TM	
6	TM	1-Methylnaphthalene	0.8188	0.8520	4.0	TM	
7	I	Acenaphthene-D10(IS)	ISTD			I	
8	S	Surrogate Recovery (FBP)	1.840	1.910	3.8	S	
9	TM	Acenaphthylene	5.655	6.636	17	TM	
10	*TM	Acenaphthene	1.491	1.743	17	*TM	
11	TM	Fluorene	1.867	2.204	18	TM	
12	I	Phenanthrene-D10(IS)	ISTD			I	
13	TM	Phenanthrene	1.453	1.625	12	TM	
14	TM	Anthracene	1.396	1.768	27	TM	
15	S	Fluoranthene-D10 (FRT)	2.138	2.174	1.7	S	
16	*TM	Fluoranthene	2.417	2.818	17	*TM	
17	I	Chrysene-D12(IS)	ISTD			I	
18	TM	Pyrene	1.692	2.034	20	TM	
19	S	Surrogate Recovery (TPH)	0.8859	0.8737	1.4	S	
20	TM	Benz (a) anthracene	1.385	1.481	6.9	TM	
21	TM	Chrysene	1.409	1.622	15	TM	
22	TM	Indeno (1,2,3-cd) pyrene	1.476	1.667	13	TM	
23	I	Perylene-D12(IS)	ISTD			I	
24	TM	Benzo (b) fluoranthene	1.293	1.400	8.3	TM	
25	TM	Benzo (k) fluoranthene	1.467	1.871	28	TM	
26	*TM	Benzo (a) pyrene	1.312	1.500	14	*TM	
27	TM	Dibenz (a,h) anthracene	1.222	1.395	14	TM	
28	TM	Benzo (g,h,i) perylene	1.254	1.344	7.2	TM	
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			11.9		

Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L065.D Vial: 65
Acq On : 8 May 19 13:07 Operator: MA,SS
Sample : 5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: May 8 13:36 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	57479	2.50000 ppb		0.00
7) Acenaphthene-D10(IS)	5.96	164	23233	2.50000 ppb		-0.01
12) Phenanthrene-D10(IS)	7.70	188	38452	2.50000 ppb		0.00
17) Chrysene-D12(IS)	10.78	240	55097	2.50000 ppb		-0.01
23) Perylene-D12(IS)	13.17	264	53471	2.50000 ppb		0.01
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	3.15	82	26056	2.54079 ppb		0.02
Spiked Amount 5.000			Recovery	= 50.820%		
4) 2-Methylnaphthalene-D10 (2	4.73	152	71865	2.30924 ppb		0.00
Spiked Amount 5.000			Recovery	= 46.180%		
8) Surrogate Recovery (FBP)	5.22	172	44379	2.59473 ppb		0.00
Spiked Amount 5.000			Recovery	= 51.900%		
15) Fluoranthene-D10 (FRT)	9.08	212	83613	2.54276 ppb		-0.01
Spiked Amount 5.000			Recovery	= 50.860%		
19) Surrogate Recovery (TPH)	9.57	244	48140	2.46569 ppb		-0.01
Spiked Amount 5.000			Recovery	= 49.320%		
Target Compounds						Qvalue
3) Naphthalene	3.96	128	166347	5.50742 ppb		100
5) 2-Methylnaphthalene	4.77	142	93285	5.47645 ppb		99
6) 1-Methylnaphthalene	4.88	142	97940	5.20225 ppb		95
9) Acenaphthylene	5.81	152	308337	5.86764 ppb		100
10) Acenaphthene	6.00	154	80988	5.84454 ppb		95
11) Fluorene	6.62	166	102405	5.90156 ppb		98
13) Phenanthrene	7.73	178	124941	5.58986 ppb		99
14) Anthracene	7.79	178	135949	6.33196 ppb		99
16) Fluoranthene	9.10	202	216714	5.83034 ppb	#	85
18) Pyrene	9.36	202	224148	6.01133 ppb		100
20) Benz (a) anthracene	10.77	228	163145	5.34392 ppb		97
21) Chrysene	10.83	228	178767	5.75832 ppb		99
22) Indeno (1,2,3-cd) pyrene	14.67	276	183667	5.64457 ppb	#	78
24) Benzo (b) fluoranthene	12.47	252	149691	5.41359 ppb		97
25) Benzo (k) fluoranthene	12.52	252	200114	6.37715 ppb		98
26) Benzo (a) pyrene	13.08	252	160451	5.71914 ppb	#	96
27) Dibenz (a,h) anthracene	14.70	278	149199	5.70677 ppb	#	90
28) Benzo (g,h,i) perylene	15.04	276	143707	5.35756 ppb		96

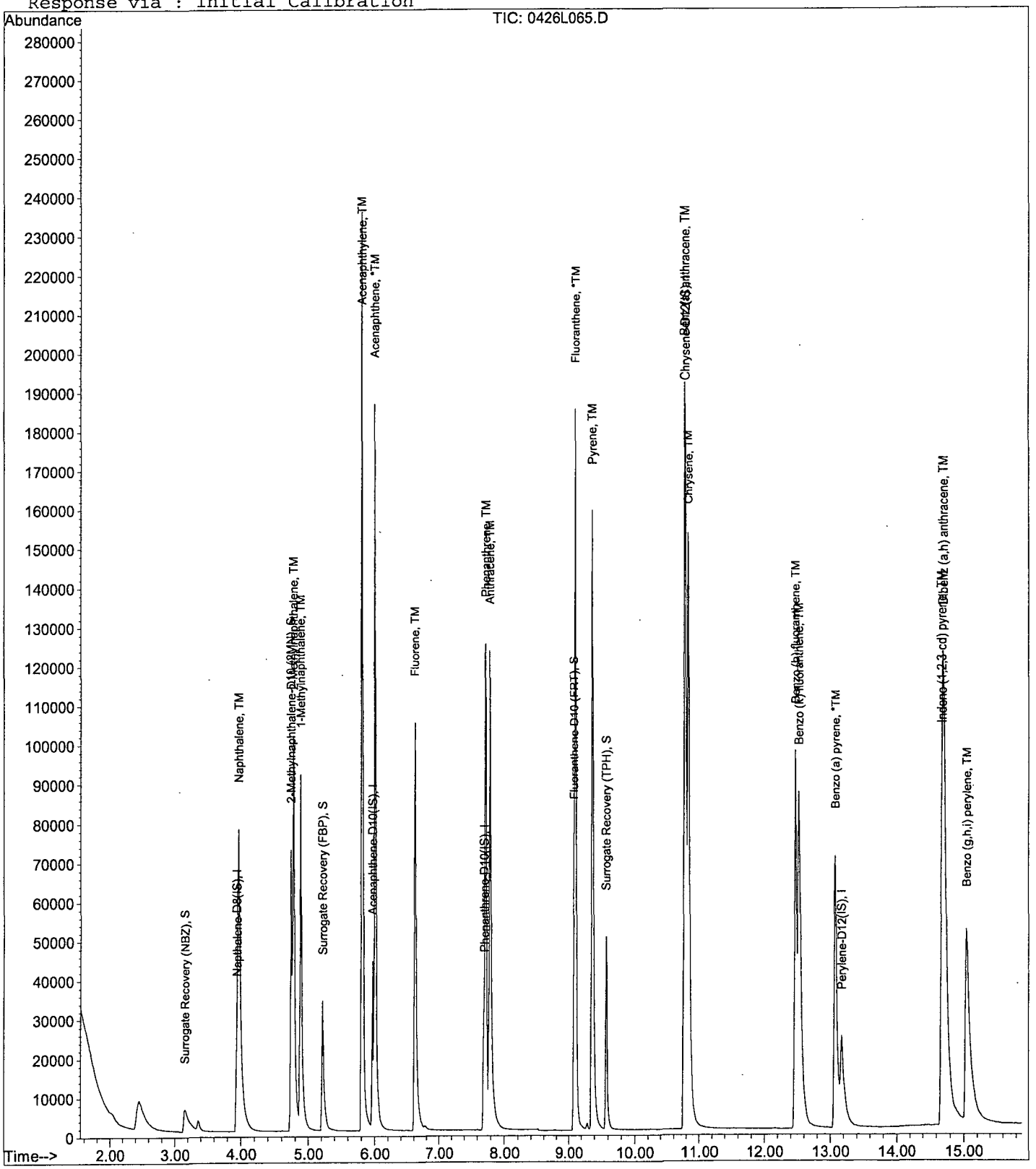
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L065.D Vial: 65
Acq On : 8 May 19 13:07 Operator: MA,SS
Sample : 5 SIM 03/06/19 Inst : Linus
Misc : Multiplr: 1.00

Quant Time: May 8 13:36 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



ORGANICS
Raw Data

Quantitation Report (QT Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L060.D Vial: 60
Acq On : 8 May 19 11:16 Operator: MA,SS
Sample : AZ90447W07 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 8 12:02 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Napthalene-D8(IS)	3.94	136	50530	2.5000 ppb	0.00
7) Acenaphthene-D10(IS)	5.96	164	20636	2.5000 ppb	-0.01
12) Phenanthrene-D10(IS)	7.70	188	34996	2.5000 ppb	0.00
17) Chrysene-D12(IS)	10.80	240	50526	2.5000 ppb	0.01
23) Perylene-D12(IS)	13.20	264	48187	2.5000 ppb	0.03
System Monitoring Compounds					
2) Surrogate Recovery (NBZ)	3.10	82	753104	104.4205 ppb	-0.02
Spiked Amount 6.250			Recovery	= 1670.736%	
4) 2-Methylnaphthalene-D10 (2	4.73	152	99884	4.5637 ppb	0.00
Spiked Amount 6.250			Recovery	= 73.024%	
8) Surrogate Recovery (FBP)	5.20	172	1090756	89.7496 ppb	-0.01
Spiked Amount 6.250			Recovery	= 1436.000%	
15) Fluoranthene-D10 (FRT)	9.08	212	127079	5.3078 ppb	-0.01
Spiked Amount 6.250			Recovery	= 84.928%	
19) Surrogate Recovery (TPH)	9.57	244	1249022	87.2019 ppb	-0.01
Spiked Amount 6.250			Recovery	= 1395.232%	

Target Compounds Qvalue

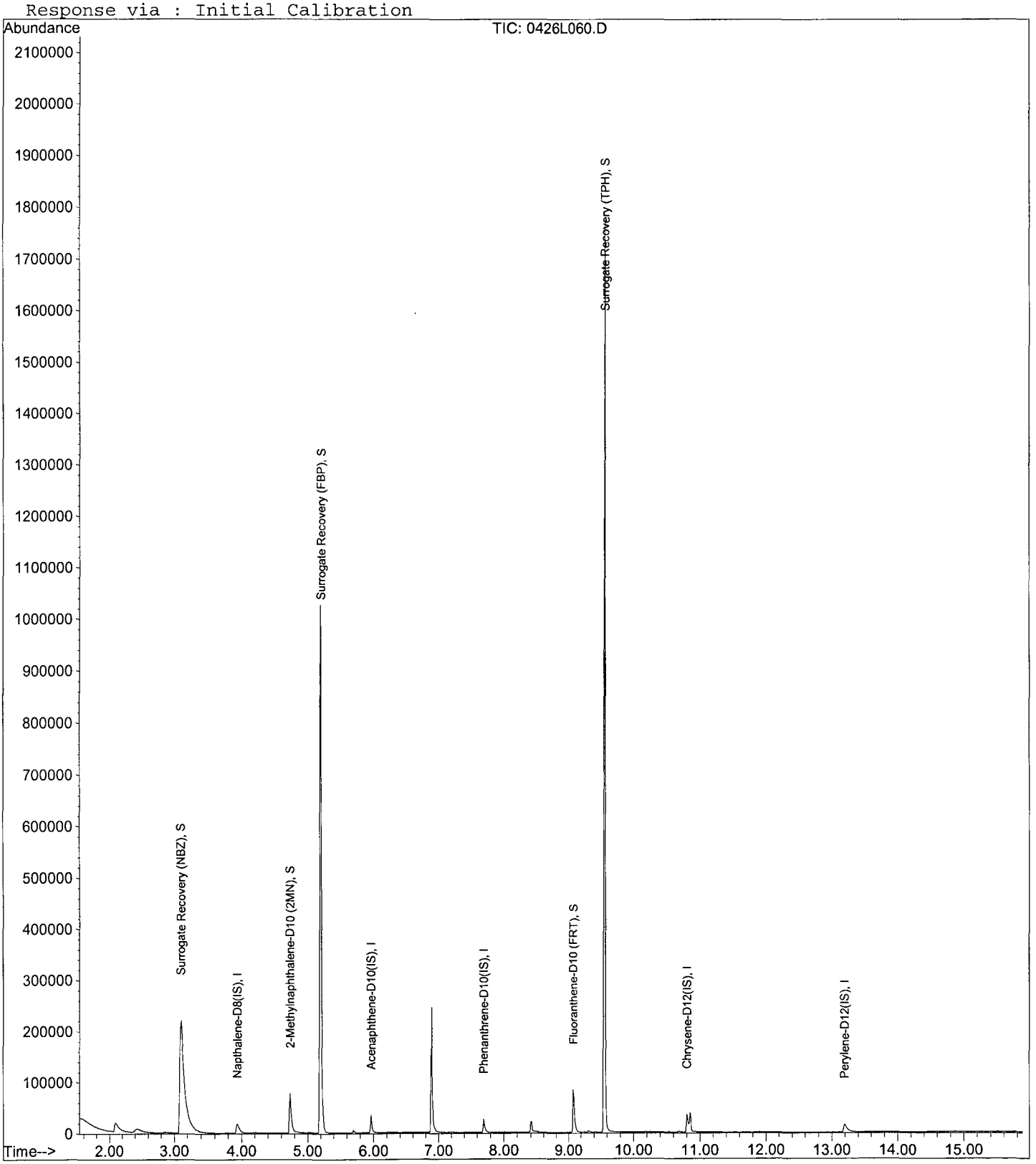
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L060.D Vial: 60
Acq On : 8 May 19 11:16 Operator: MA,SS
Sample : AZ90447W07 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 8 12:02 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L061.D Vial: 61
Acq On : 8 May 19 11:38 Operator: MA,SS
Sample : AZ90448W10 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 8 12:03 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Napthalene-D8(IS)	3.94	136	50155	2.5000 ppb	0.00
7) Acenaphthene-D10(IS)	5.96	164	21234	2.5000 ppb	-0.01
12) Phenanthrene-D10(IS)	7.70	188	34777	2.5000 ppb	0.00
17) Chrysene-D12(IS)	10.80	240	46482	2.5000 ppb	0.01
23) Perylene-D12(IS)	13.20	264	47439	2.5000 ppb	0.03
System Monitoring Compounds					
2) Surrogate Recovery (NBZ)	3.10	82	752124	105.0644 ppb	-0.02
Spiked Amount 6.250			Recovery	= 1681.024%	
4) 2-Methylnaphthalene-D10 (2	4.73	152	100755	4.6379 ppb	0.00
Spiked Amount 6.250			Recovery	= 74.208%	
8) Surrogate Recovery (FBP)	5.20	172	1115223	89.1785 ppb	-0.01
Spiked Amount 6.250			Recovery	= 1426.864%	
15) Fluoranthene-D10 (FRT)	9.08	212	128354	5.3948 ppb	-0.01
Spiked Amount 6.250			Recovery	= 86.320%	
19) Surrogate Recovery (TPH)	9.57	244	1212953	92.0513 ppb	-0.01
Spiked Amount 6.250			Recovery	= 1472.816%	

Target Compounds Qvalue

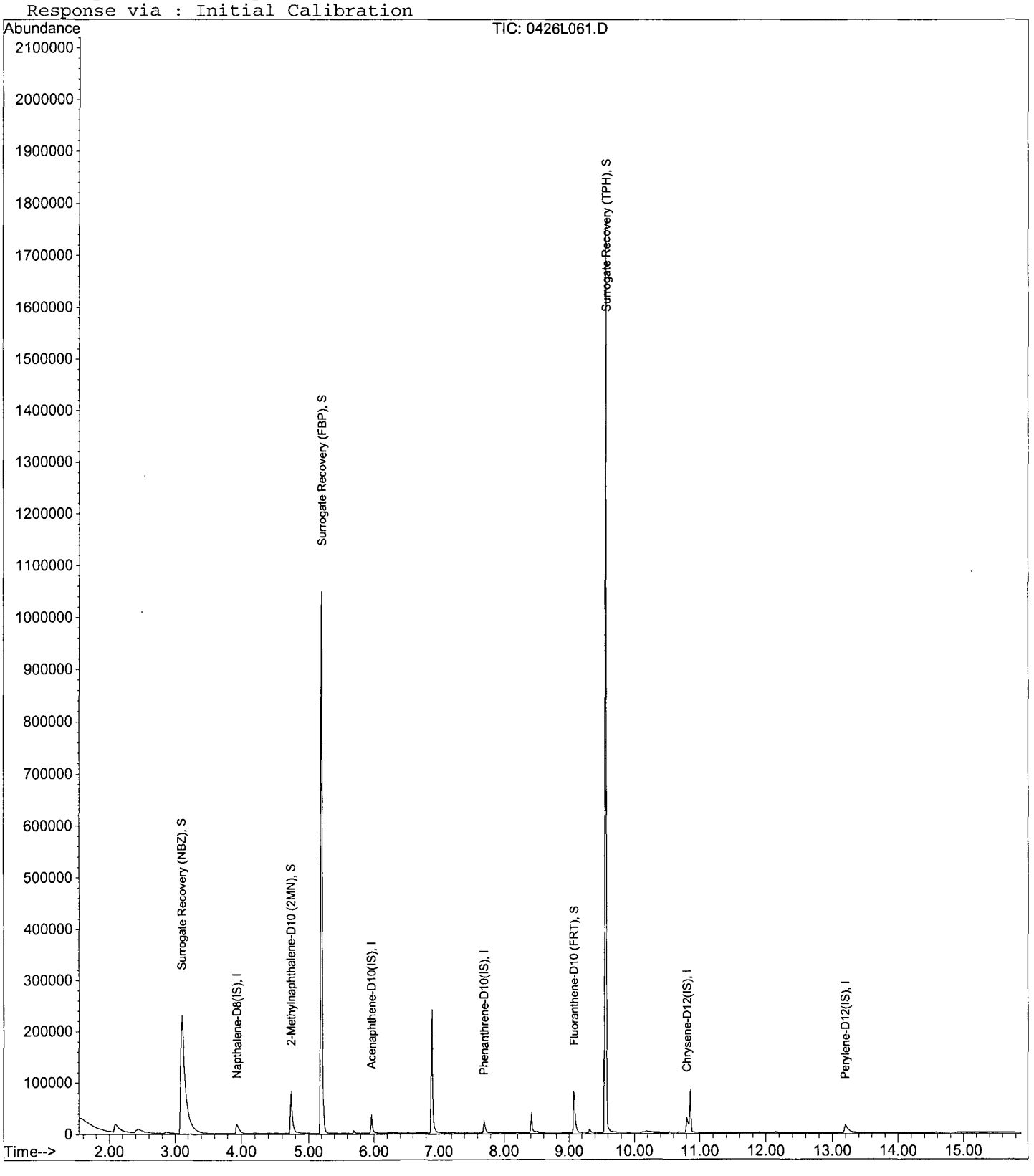
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L061.D Vial: 61
Acq On : 8 May 19 11:38 Operator: MA,SS
Sample : AZ90448W10 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 8 12:03 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L062.D Vial: 62
Acq On : 8 May 19 12:00 Operator: MA,SS
Sample : AZ90450W22 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 8 12:43 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Napthalene-D8(IS)	3.94	136	43691	2.5000 ppb	0.00
7) Acenaphthene-D10(IS)	5.96	164	19153	2.5000 ppb	-0.01
12) Phenanthrene-D10(IS)	7.70	188	33643	2.5000 ppb	0.00
17) Chrysene-D12(IS)	10.80	240	47634	2.5000 ppb	0.01
23) Perylene-D12(IS)	13.20	264	46127	2.5000 ppb	0.03
System Monitoring Compounds					
2) Surrogate Recovery (NBZ)	3.10	82	780300	125.1267 ppb	-0.02
Spiked Amount 6.250			Recovery	= 2002.032%	
4) 2-Methylnaphthalene-D10 (2	4.73	152	101668	5.3723 ppb	0.00
Spiked Amount 6.250			Recovery	= 85.952%	
8) Surrogate Recovery (FBP)	5.20	172	1141622	101.2083 ppb	-0.01
Spiked Amount 6.250			Recovery	= 1619.328%	
15) Fluoranthene-D10 (FRT)	9.08	212	124889	5.4261 ppb	-0.01
Spiked Amount 6.250			Recovery	= 86.816%	
19) Surrogate Recovery (TPH)	9.57	244	1217905	90.1919 ppb	-0.01
Spiked Amount 6.250			Recovery	= 1443.072%	

Target Compounds Qvalue

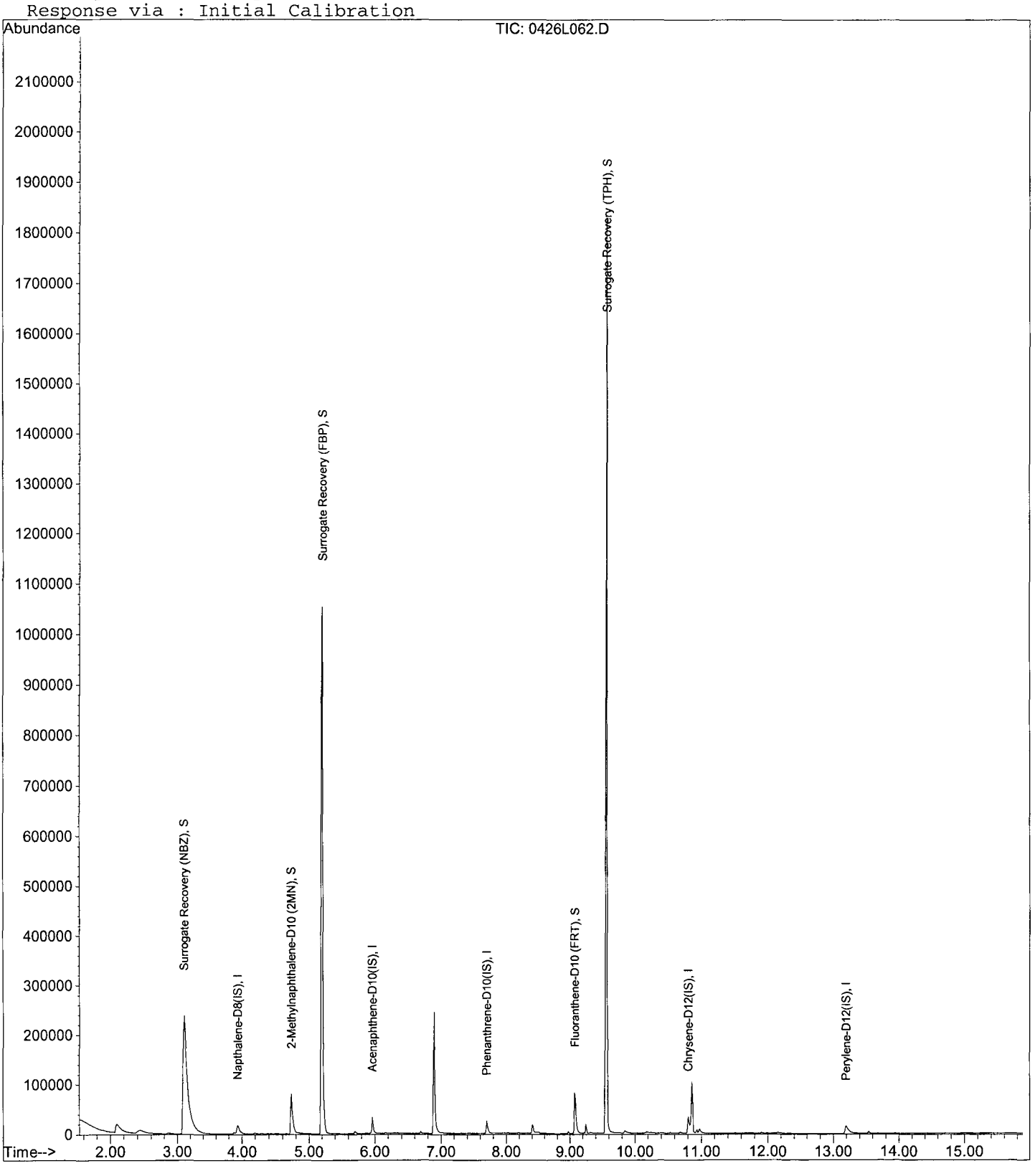
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L062.D Vial: 62
Acq On : 8 May 19 12:00 Operator: MA,SS
Sample : AZ90450W22 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 8 12:43 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L057.D Vial: 57
Acq On : 8 May 19 10:09 Operator: MA,SS
Sample : 190506A BLK 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 8 10:59 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Napthalene-D8(IS)	3.94	136	52108	2.5000 ppb	0.00
7) Acenaphthene-D10(IS)	5.96	164	20864	2.5000 ppb	-0.01
12) Phenanthrene-D10(IS)	7.70	188	35674	2.5000 ppb	0.00
17) Chrysene-D12(IS)	10.82	240	48821	2.5000 ppb	0.02
23) Perylene-D12(IS)	13.21	264	45724	2.5000 ppb	0.04
System Monitoring Compounds					
2) Surrogate Recovery (NBZ)	3.10	82	782278	105.1809 ppb	-0.02
Spiked Amount 6.250			Recovery	= 1682.896%	
4) 2-Methylnaphthalene-D10 (2	4.73	152	100740	4.4634 ppb	0.00
Spiked Amount 6.250			Recovery	= 71.408%	
8) Surrogate Recovery (FBP)	5.19	172	1077009	87.6500 ppb	-0.02
Spiked Amount 6.250			Recovery	= 1402.400%	
15) Fluoranthene-D10 (FRT)	9.08	212	123948	5.0787 ppb	-0.01
Spiked Amount 6.250			Recovery	= 81.264%	
19) Surrogate Recovery (TPH)	9.57	244	1181806	85.3907 ppb	-0.01
Spiked Amount 6.250			Recovery	= 1366.256%	

Target Compounds Qvalue

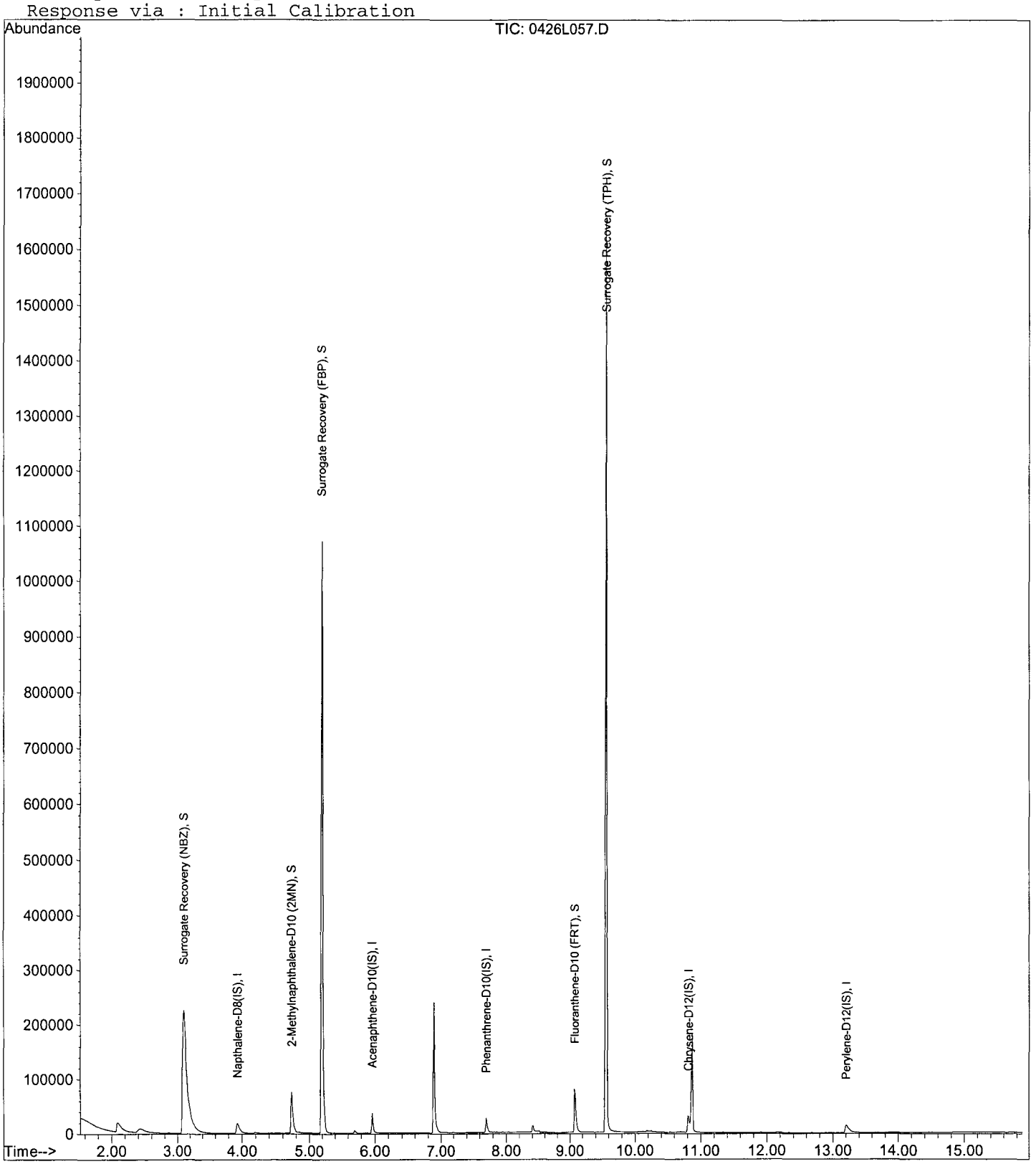
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L057.D Vial: 57
Acq On : 8 May 19 10:09 Operator: MA,SS
Sample : 190506A BLK 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 8 10:59 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L058.D Vial: 58
Acq On : 8 May 19 10:31 Operator: MA,SS
Sample : 190506A LCS-2 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 8 11:00 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	53850	2.5000 ppb		0.00
7) Acenaphthene-D10(IS)	5.96	164	21067	2.5000 ppb		-0.01
12) Phenanthrene-D10(IS)	7.69	188	36440	2.5000 ppb		-0.01
17) Chrysene-D12(IS)	10.78	240	52874	2.5000 ppb		-0.01
23) Perylene-D12(IS)	13.17	264	28992	2.5000 ppb		0.01
System Monitoring Compounds						
2) Surrogate Recovery (NBZ)	0.00	82	0	0.0000 ppb		
Spiked Amount 6.250			Recovery	= 0.000%		
4) 2-Methylnaphthalene-D10 (2	4.73	152	98461	4.2213 ppb		0.00
Spiked Amount 6.250			Recovery	= 67.536%		
8) Surrogate Recovery (FBP)	5.23	172	71	0.0057 ppb		0.01
Spiked Amount 6.250			Recovery	= 0.096%		
15) Fluoranthene-D10 (FRT)	9.07	212	126896	5.0901 ppb		-0.02
Spiked Amount 6.250			Recovery	= 81.440%		
19) Surrogate Recovery (TPH)	9.58	244	655	0.0437 ppb		0.00
Spiked Amount 6.250			Recovery	= 0.704%		
Target Compounds						Qvalue
3) Naphthalene	3.95	128	157405	6.9532 ppb		99
5) 2-Methylnaphthalene	4.76	142	89549	7.0143 ppb		98
6) 1-Methylnaphthalene	4.87	142	90759	6.4321 ppb		99
9) Acenaphthylene	5.79	152	241010	6.3224 ppb		99
10) Acenaphthene	6.00	154	77496	7.7094 ppb		98
11) Fluorene	6.60	166	104730	8.3201 ppb		99
13) Phenanthrene	7.71	178	133727	7.8916 ppb		99
14) Anthracene	7.79	178	88651	5.4462 ppb		100
16) Fluoranthene	9.09	202	219799	7.7998 ppb	#	80
18) Pyrene	9.36	202	207566	7.2508 ppb		97
20) Benz (a) anthracene	10.77	228	163571	6.9789 ppb		99
21) Chrysene	10.82	228	183302	7.6908 ppb	#	97
22) Indeno (1,2,3-cd) pyrene	14.67	276	173482	6.9446 ppb	#	80
24) Benzo (b) fluoranthene	12.47	252	148949	12.4187 ppb		100
25) Benzo (k) fluoranthene	12.51	252	198345	14.5720 ppb		96
26) Benzo (a) pyrene	13.08	252	111591	9.1700 ppb	#	96
27) Dibenz (a,h) anthracene	14.70	278	143804	12.6808 ppb	#	94
28) Benzo (g,h,i) perylene	15.03	276	134413	11.5526 ppb		94

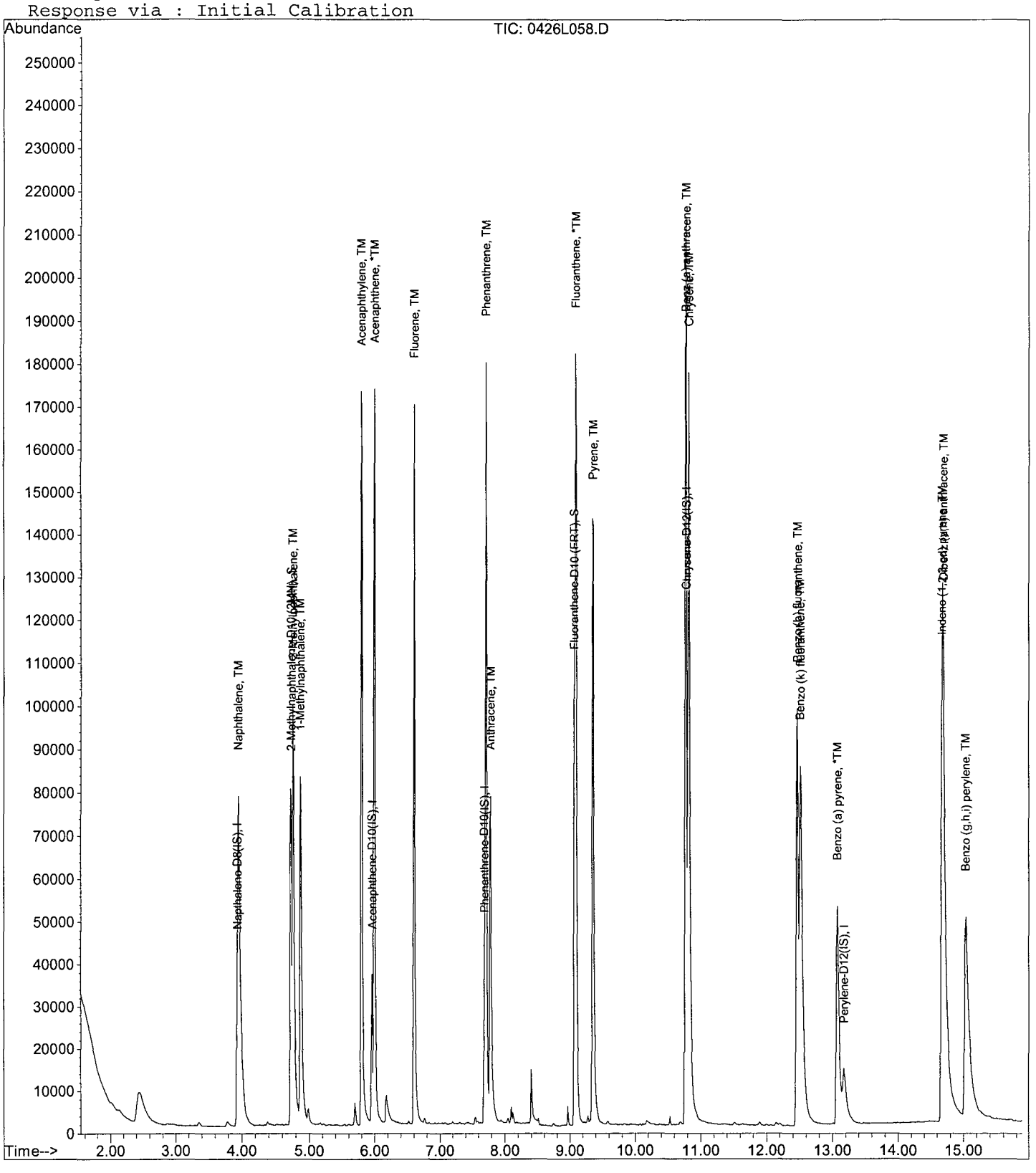
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L058.D Vial: 58
Acq On : 8 May 19 10:31 Operator: MA,SS
Sample : 190506A LCS-2 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 8 11:00 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LINUS\DATA\L190426\0426L064.D Vial: 64
Acq On : 8 May 19 12:45 Operator: MA,SS
Sample : 190506A LCSD-2 1/800 Inst : Linus
Misc : Multiplr: 1.25

Quant Time: May 8 13:17 2019 Quant Results File: L0326.RES

Quant Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration
DataAcq Meth : SIM_2

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Napthalene-D8(IS)	3.94	136	58118	2.5000	ppb		0.00
7) Acenaphthene-D10(IS)	5.96	164	23779	2.5000	ppb		-0.01
12) Phenanthrene-D10(IS)	7.69	188	38671	2.5000	ppb		-0.01
17) Chrysene-D12(IS)	10.78	240	58538	2.5000	ppb		-0.01
23) Perylene-D12(IS)	13.17	264	55506	2.5000	ppb		0.01
System Monitoring Compounds							
2) Surrogate Recovery (NBZ)	3.12	82	73	0.0088	ppb		-0.01
Spiked Amount 6.250			Recovery	=	0.144%		
4) 2-Methylnaphthalene-D10 (2	4.73	152	100080	3.9756	ppb		0.00
Spiked Amount 6.250			Recovery	=	63.616%		
8) Surrogate Recovery (FBP)	5.22	172	187	0.0134	ppb		0.00
Spiked Amount 6.250			Recovery	=	0.208%		
15) Fluoranthene-D10 (FRT)	9.08	212	129289	4.8869	ppb		-0.01
Spiked Amount 6.250			Recovery	=	78.192%		
19) Surrogate Recovery (TPH)	9.59	244	691	0.0416	ppb		0.01
Spiked Amount 6.250			Recovery	=	0.672%		
Target Compounds							Qvalue
3) Naphthalene	3.96	128	159050	6.5099	ppb		100
5) 2-Methylnaphthalene	4.77	142	91413	6.6344	ppb		97
6) 1-Methylnaphthalene	4.88	142	92865	6.0981	ppb		97
9) Acenaphthylene	5.81	152	306066	7.1134	ppb		99
10) Acenaphthene	6.00	154	80847	7.1255	ppb		99
11) Fluorene	6.60	166	106224	7.4764	ppb		95
13) Phenanthrene	7.71	178	124981	6.9500	ppb		97
14) Anthracene	7.79	178	122134	7.0704	ppb		100
16) Fluoranthene	9.10	202	225905	7.5540	ppb	#	91
18) Pyrene	9.36	202	227034	7.1635	ppb		97
20) Benz (a) anthracene	10.77	228	167622	6.4598	ppb		99
21) Chrysene	10.82	228	189438	7.1792	ppb	#	96
22) Indeno (1,2,3-cd) pyrene	14.67	276	185146	6.6944	ppb	#	79
24) Benzo (b) fluoranthene	12.47	252	158728	6.9124	ppb		98
25) Benzo (k) fluoranthene	12.52	252	193377	7.4207	ppb		98
26) Benzo (a) pyrene	13.08	252	152874	6.5616	ppb	#	96
27) Dibenz (a,h) anthracene	14.70	278	152238	7.0119	ppb	#	92
28) Benzo (g,h,i) perylene	15.04	276	145769	6.5440	ppb		96

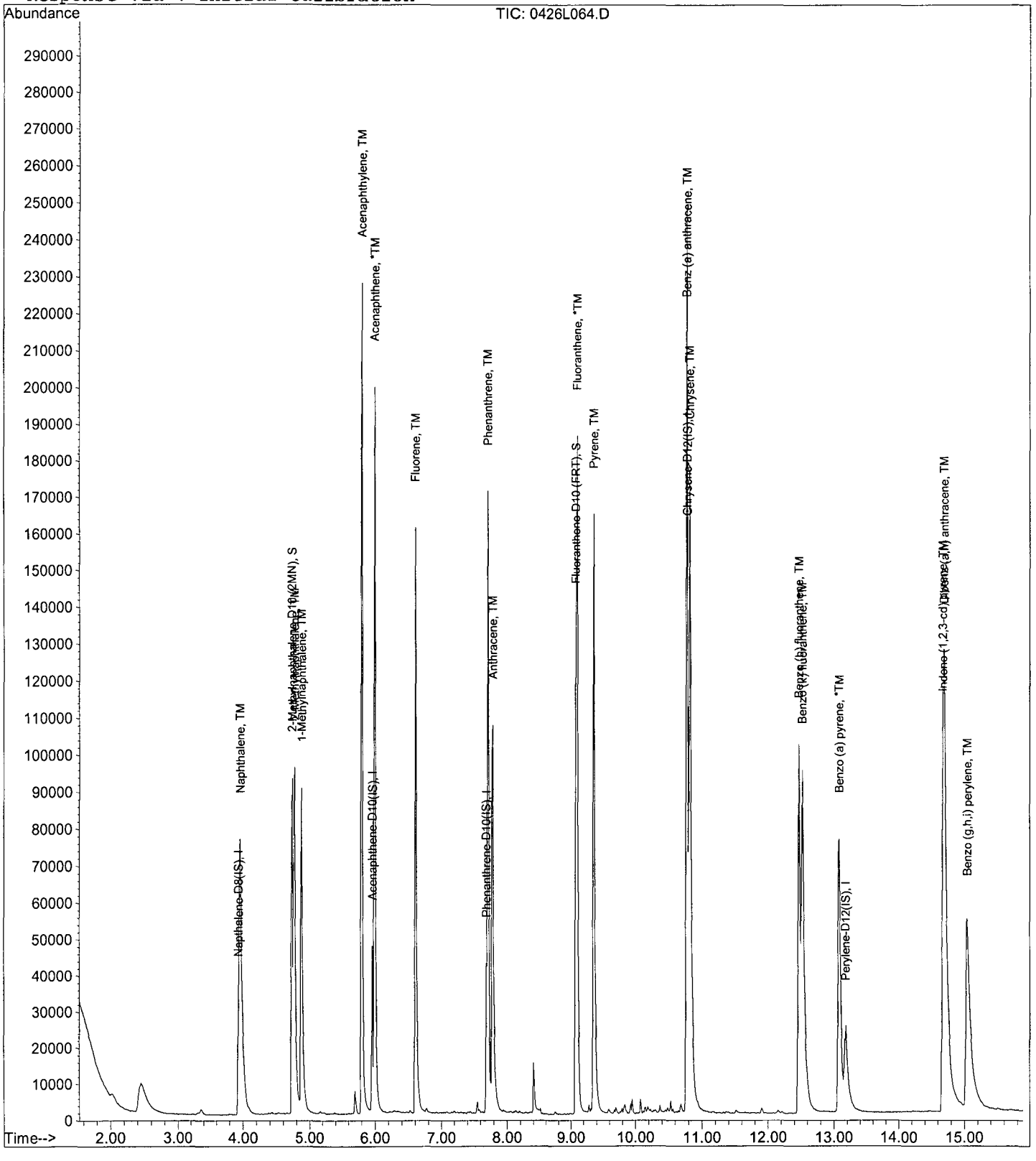
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LINUS\DATA\L190426\0426L064.D Vial: 64
Acq On : 8 May 19 12:45 Operator: MA,SS
Sample : 190506A LCSD-2 1/800 Inst : Linus
Misc : Multiplr: 1.25

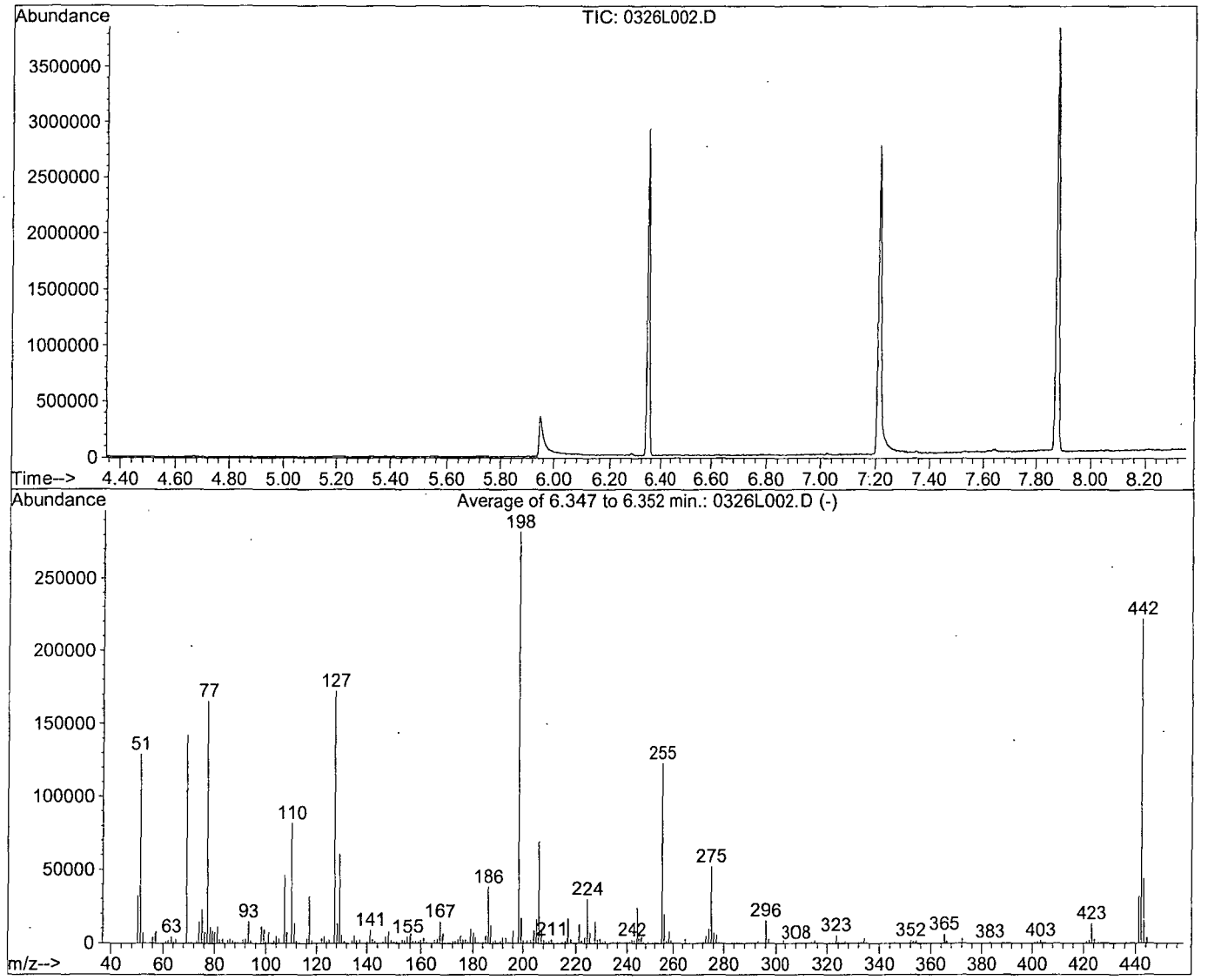
Quant Time: May 8 13:17 2019 Quant Results File: L0326.RES

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270
Last Update : Mon Apr 15 10:16:53 2019
Response via : Initial Calibration



Data File : M:\LINUS\DATA\L190326\0326L002.D Vial: 2
Acq On : 26 Mar 19 9:39 Operator: MA
Sample : SV Tune 10/11/18 Inst : Linus
Misc : Multiplr: 1.00

Method : M:\LINUS\DATA\L190326\L0122.M (RTE Integrator)
Title : EPA 8270



AutoFind: Scans 1511, 1512, 1513; Background Corrected with Scan 1501

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	45.8	129276	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.4	622	PASS
127	198	10	80	61.0	172437	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	282517	PASS
199	198	5	9	6.0	17040	PASS
275	198	10	60	18.6	52443	PASS
365	198	1	100	2.2	6254	PASS
441	442	0.01	24	14.3	31867	PASS
442	198	50	150	78.8	222613	PASS
443	442	15	24	19.8	44029	PASS

Data File Name:	**0326L002.D**
Data File Path:	**M:\LINUS\DATA\L190326**
Operator:	**MA**
Date Acquired:	**26 Mar 2019 09:39**
Method File:	**DFTPP2.M**
Sample Name:	**SV Tune 10/11/18**
Vial Number:	**2**
Instrument Name:	**Linus**

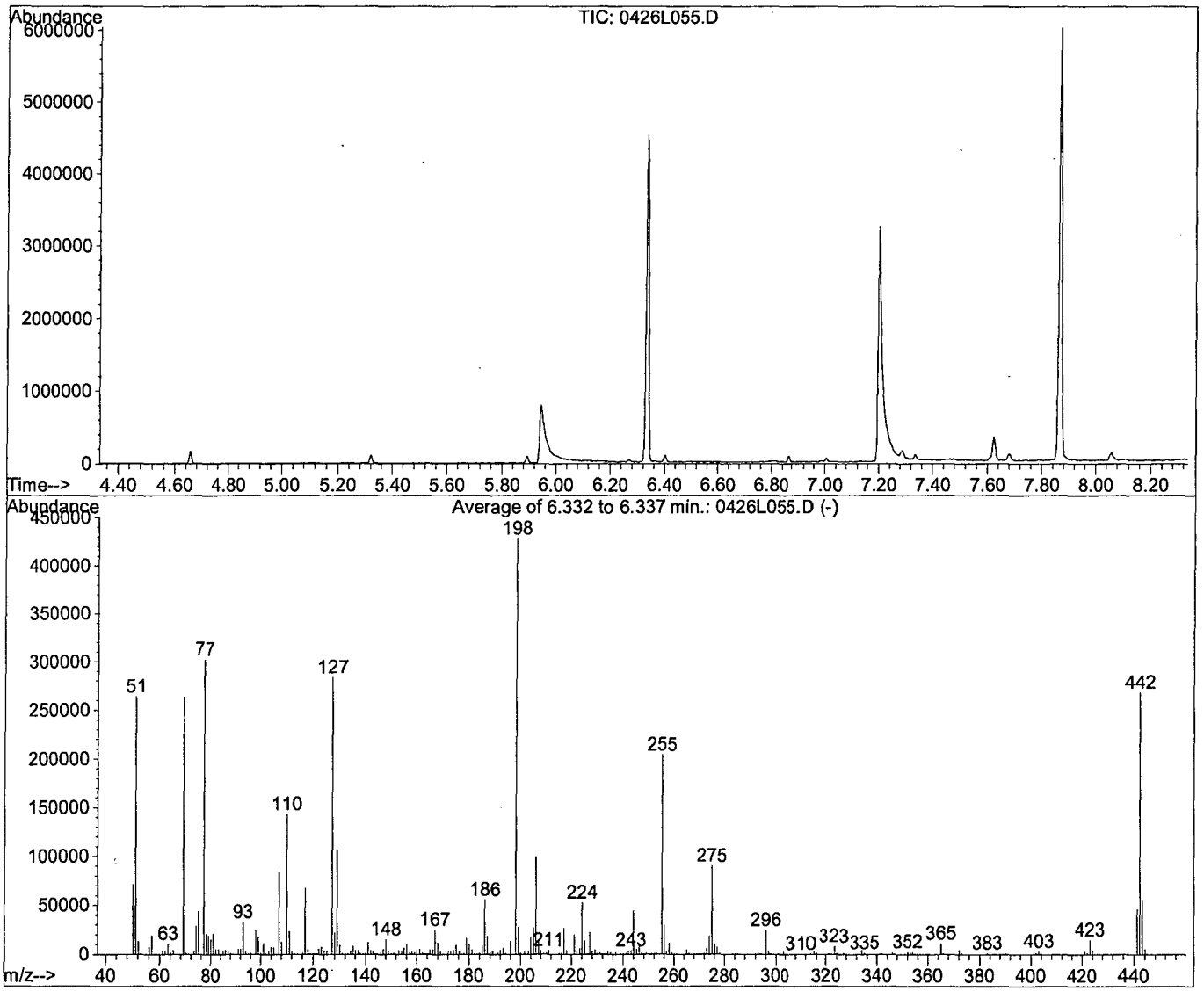
#	Name	Ret Time	Target Response
1)	DDT	7.88	26061300
2)	DDD	7.65	254374
3)	DDE	7.70	0

Breakdown **0.97**

DFTPP

Data File : M:\LINUS\DATA\L190426\0426L055.D Vial: 55
Acq On : 8 May 19 8:42 Operator: MA,SS
Sample : SV Tune 10/11/18 Inst : Linus
Misc : Multiplr: 1.00

Method : M:\LINUS\DATA\L190426\L0326.M (RTE Integrator)
Title : EPA 8270



AutoFind: Scans 1505, 1506, 1507; Background Corrected with Scan 1496

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	61.6	263916	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.6	1541	PASS
127	198	10	80	66.2	283949	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	428672	PASS
199	198	5	9	6.4	27480	PASS
275	198	10	60	21.0	89923	PASS
365	198	1	100	2.5	10876	PASS
441	442	0.01	24	17.1	45787	PASS
442	198	50	150	62.6	268437	PASS
443	442	15	24	20.6	55371	PASS

Data File Name:	**0426L055.D**
Data File Path:	**M:\LINUS\DATA\L190426**
Operator:	**MA,SS**
Date Acquired:	**8 May 19 8:42**
Method File:	**DFTPP2.M**
Sample Name:	**SV Tune 10/11/18**
Vial Number:	**55**
Instrument Name:	**Linus**

#	Name	Ret Time	Target Response
1)	DDT	7.88	42261900
2)	DDD	7.65	2939610
3)	DDE	7.70	807031

Breakdown **8.14**

Name of Final Standard	**Semivolatile (SV) Tuning Solution**	**Prep'd By (Initials)**	**GA**
Prep Date	**10/11/18**		
Exp Date	**09/30/19**		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Semivolatile GC/MS Tuning Standard	Ultra Scientific	GCM-150-1	1,000 ug/mL	CR3789-38879	**09/30/19**	1,250 uL	25 mL	**MC #56258**	50 ug/mL

Name of Final Standard: SIM Curve
Prep Date: 03/06/19
Exp Date: 06/01/19
Prep'd By (Initials): GA

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
1.0 ug/mL SIM	Phenova	1.0 ug/mL SIM	1.0 ug/mL	03/06/19	06/01/19	10 uL	100uL	MC 56258 90uL	0.1 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL
1.0 ug/mL SIM	Phenova	1.0 ug/mL SIM	1.0 ug/mL	03/06/19	06/01/19	20 uL	100uL	MC 56258 80uL	0.2 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL
5.0 ug/mL SIM	Phenova	5.0 ug/mL SIM	5.0 ug/mL	03/06/19	06/01/19	10 uL	100uL	MC 56258 90uL	0.5 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL
5.0 ug/mL SIM	APPL	5.0 ug/mL SIM	5.0 ug/mL	03/06/19	06/01/19	20 uL	100uL	MC 56258 80 uL	1.0 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL
PAH SIM STOCK	Phenova	PAH SIM STOCK	200 ug/mL	12/28/18	12/28/19	5 uL	200uL	MC 56258 190 uL	5.0 ug/mL
Sim 2S Surrogate	Restek	SIM 2S SURR	100 ug/mL	06/07/18	06/01/19	5 uL	*	*	2.5 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	4 uL	*	*	2.5ug/mL
PAH SIM STOCK	Phenova	PAH SIM STOCK	200 ug/mL	12/28/18	12/28/19	5 uL	100 uL	MC 56258 90 uL	10 ug/mL
Sim 2S Surrogate	APPL	SIM 2S SURROGATE	100 ug/mL	06/07/18	06/01/19	5 uL	*	*	5 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL
PAH SIM STOCK	Phenova	PAH SIM STOCK	200 ug/mL	12/28/18	12/28/19	25 uL	100uL	MC 56258 50 uL	50 ug/mL
Sim 2S Surrogate	Restek	SIM 2S SURROGATE	100 ug/mL	06/07/18	06/01/19	25 uL	*	*	25 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL
PAH SIM STOCK	Phenova	PAH SIM STOCK	200 ug/mL	12/28/18	12/28/19	50 uL	100uL	na	100 ug/mL
Sim 2S Surrogate	Restek	SIM 2S SURROGATE	100 ug/mL	06/07/18	06/01/19	50 uL	*	*	50 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	*	*	2.5ug/mL

Name of Final Standard: 8270 PAH SIM Second Source
Prep Date: 03/06/19
Exp Date: 11/06/19
Prep'd By (Initials): GA

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
PAH SIM SS Stock	Phenova	AL0-130490	200 ug/mL	12/28/18	12/28/19	5 uL	200uL	MC 56258 195uL	5 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	4 uL	*	*	2.5ug/mL

Name of Final Standard: **SIM Curve** Prep'd By (Initials): GA

Prep Date: 01/18/19

Exp Date: 06/01/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
1.0 ug/mL SIM	Phenova	1.0 ug/mL SIM	1.0 ug/mL	01/18/19	06/01/19	10 uL	100uL	MC 56258 90uL	0.1 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	"	"	2.5ug/mL
1.0 ug/mL SIM	Phenova	1.0 ug/mL SIM	1.0 ug/mL	01/18/19	06/01/19	20 uL	100uL	MC 56258 80uL	0.2 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	"	"	2.5ug/mL
5.0 ug/mL SIM	Phenova	5.0 ug/mL SIM	5.0 ug/mL	01/18/19	06/01/19	10 uL	100uL	MC 56258 90uL	0.5 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	"	"	2.5ug/mL
5.0 ug/mL SIM	APPL	5.0 ug/mL SIM	5.0 ug/mL	01/18/19	06/01/19	20 uL	100uL	MC 56258 80 uL	1.0 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	"	"	2.5ug/mL
PAH SIM STOCK	Phenova	PAH SIM STOCK	200 ug/mL	CL13117-40078	12/28/19	5 uL	200uL	MC 56258 190 uL	5.0 ug/mL
SIM 2S SURROGATE	Restek	SIM 2S SURR	100 ug/mL	06/07/18	06/01/19	5 uL	"	"	5.0 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	4 uL	"	"	2.5ug/mL
PAH SIM STOCK	Phenova	PAH SIM STOCK	200 ug/mL	CL13117-40078	12/28/19	5 uL	100 uL	MC 56258 90 uL	10 ug/mL
SIM 2S SURROGATE	APPL	SIM 2S SURROGATE	100 ug/mL	06/07/18	06/01/19	5 uL	"	"	10 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	"	"	2.5ug/mL
PAH SIM STOCK	Phenova	PAH SIM STOCK	200	CL13117-40078	12/28/19	25 uL	100uL	MC 56258 50 uL	50 ug/mL
SIM 2S SURROGATE	Restek	SIM 2S SURROGATE	100 ug/mL	06/07/18	06/01/19	25 uL	"	"	50 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	"	"	2.5ug/mL
PAH SIM STOCK	Phenova	PAH SIM STOCK	200 ug/mL	CL13117-40078	12/28/19	50 uL	100uL	na	100 ug/mL
SIM 2S SURROGATE	Restek	SIM 2S SURROGATE	100 ug/mL	06/07/18	06/01/19	50 uL	"	"	100 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	2 uL	"	"	2.5ug/mL

Name of Final Standard: **8270 PAH SIM Second Source** Prep'd By (Initials): GA

Prep Date: 01/18/19

Exp Date: 06/01/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
PAH SIM SS Stock	Phenova	AL0-130490	200 ug/mL	CL13121 - 40082	12/28/19	5 uL	200uL	MC 56258 195uL	5 ug/mL
SIM Internal Standard	Restek	SIM Internal Standard	125 ug/mL	11/06/18	11/06/19	4 uL	"	"	2.5ug/mL

Name of Final Standard SIM Spike **Prep'd By (Initials)** GA

Prep Date 03/20/19

Exp Date 03/20/20

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Custom PAH Sim Mix	Phenova	AL0-130490	200 mg/L	**CL13117 - 40079**	**03/20/20**	1 mL	1 mL	**NA**	200 mg/L

Name of Final Standard SIM Surrogate **Prep'd By (Initials)** GA

Prep Date 05/01/19

Exp Date 05/01/20

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Sim Surrogate Deuterated	Restek	33913	2000 ug/mL	**A0145699 - 40650 40651**	**01/31/25**	1250 uL	25 mL	**Acetone #101717I**	100 ug/mL

Organic Extraction Worksheet

Method	Continuous Liquid/Liquid SVOC 3520C	Extraction Set	190506A	Extraction Method	LIQ003	Units	mL

Spiked ID 1	8270T Spike 4-12-19 EXP 10-20-19		Surrogate ID 1	8270 Surrogate 4-10-19 EXP 3-15-20	
Spiked ID 2	Sim Spike 3-20-19 EXP 3-20-20		Surrogate ID 2	SIM Surrogate 5-1-19 EXP 5-1-20	
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	no	
Spiked ID 7			Ext. Start Time:	05/06/19 11:00 ,05/07/19 08:35	
Spiked ID 8			Ext. End Time:	05/07/19 6:30 ,05/08/19 05:30, 9:50	
			GC Requires Extract By:	05/02/19 0:00	

pH1	2	5/06/19 10:00:00 AM	Water Bath Temp Criteria	75 °C
pH2	14	05/07/19 8:30:00 AM		
pH3				

Spiked By: DL **Date** 05/06/19 **Witnessed By:** KY **Date** 05/06/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
1	190506A Blk				1,0.050	1,2	800	1	2/1	05/06/19 9:50	
						equip	E-HP51 E-WB6				
2	190506A LCS-1		0.250	1	1	1	800	1	2/1	05/06/19 9:50	
						equip	E-HP50 E-WB6				
3	190506A LCS-2		0.0250	2	0.050	2	800	1	2/1	05/06/19 9:50	
						equip	E-HP48 E-WB6				
4	190506A LCSD-1		0.250	1	1	1	800	1	2/1	05/06/19 9:50	
						equip	E-HP49 E-WB6				
5	190506A LCSD-2		0.0250	2	0.050	2	800	1	2/1	05/06/19 9:50	
						equip	E-HP47 E-WB6				
6	AZ90215	AZ90215W19			1,0.050	1,2	800	1	2/1	05/06/19 9:50	88736 RE-EXTRACT
						equip	E-HP25 E-WB6				
7	AZ90447	AZ90447W07			1,0.050	1,2	800	1	2/1	05/06/19 9:50	88764
						equip	E-HP26 E-WB6				
8	AZ90448	AZ90448W10			1,0.050	1,2	800	1	2/1	05/06/19 9:50	88764
						equip	E-HP27 E-WB6				
9	AZ90450	AZ90450W22			1,0.050	1,2	800	1	2/1	05/06/19 9:50	88764
						equip	E-HP28 E-WB6				

Ky 5/8/19

Solvent and Lot#	
PH Strips	HC 857466
Dichloromethane (DCM)	58240
1+1 H2SO4	4-22-19
10N NaOH	4-22-19
Filter Paper	400148
Acidified Na2SO4	2-28-19
B.Na2SO4	18D105205

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	MA
Date	5/8/19
Time	0950
Refrigerator	GC-C

	Technician's Initials
Scanned By	DL
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	05/08/19 8:42:43 AM

Reviewed By: Ky **Date** 5/8/19

05/08/19 12:30:48 PM Ext_ID 62732 Page 1 of 1

Injection Log

Directory: M:\LINUS\DATA\L190326\

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	2	0326L002.D	1	SV Tune 10/11/18		26 Mar 19 9:39
2	5	0326L005.D	1	0.5 SIM 03/06/19		26 Mar 19 10:39
3	6	0326L006.D	1	1 SIM 03/06/19		26 Mar 19 11:01
4	7	0326L007.D	1	5 SIM 03/06/19		26 Mar 19 11:23
5	8	0326L008.D	1	10 SIM 03/06/19		26 Mar 19 11:45
6	9	0326L009.D	1	50 SIM 03/06/19		26 Mar 19 12:08
7	10	0326L010.D	1	100 SIM 03/06/19		26 Mar 19 12:30
8	12	0326L012.D	1	0.2 SIM 01/18/19		26 Mar 19 15:55
9	13	0326L013.D	1	0.1 SIM 01/18/19		26 Mar 19 17:05
10	14	0326L014.D	1	SS SIM 03/06/19		26 Mar 19 17:27
11	55	0426L055.D	1	SV Tune 10/11/18		8 May 19 8:42
12	56	0426L056.D	1	5 SIM 03/06/19		8 May 19 8:58
13	57	0426L057.D	1.25	190506A BLK 1/800		8 May 19 10:09
14	58	0426L058.D	1.25	190506A LCS-2 1/800		8 May 19 10:31
15	60	0426L060.D	1.25	AZ90447W07 1/800		8 May 19 11:16
16	61	0426L061.D	1.25	AZ90448W10 1/800		8 May 19 11:38
17	62	0426L062.D	1.25	AZ90450W22 1/800		8 May 19 12:00
18	64	0426L064.D	1.25	190506A LCSD-2 1/800		8 May 19 12:45
19	65	0426L065.D	1	5 SIM 03/06/19		8 May 19 13:07

ORGANICS
Calibration Data

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/19/19
Matrix: Instrument: Yoda
Initials: MA/

			0319Y004.D	0319Y005.D	0319Y006.D	0319Y007.D	0319Y008.D	0319Y003.D	0319Y009.D	0319Y010.D	0319Y011.D							
		Compound	4	5	10	20	40	50	60	80	100		Avg	%RSD	Type	r^2	Q	MRF
1	I	1,4-dichlorobenzene-D4(IS)	ISTD															
2		1,4-Dioxane		0.2083	0.2289	0.2577	0.2765	0.3092	0.3137	0.3004	0.2718		0.27	14				
3	TM	n-Nitrosodimethylamine		0.6432	0.5399	0.5100	0.4462	0.5113	0.4873	0.4661	0.4623		0.51	12	TM			
4	TM	Pyridine		1.255	1.395	1.213	1.241	1.247	1.229	1.101	1.098		1.2	7.7	TM			
5	S	2-Fluorophenol (S)		1.375	1.526	1.553	1.455	1.536	1.549	1.482	1.487		1.5	4.0	S			
6	S	Phenol-D6 (S)		1.849	2.006	2.053	1.890	2.013	2.009	1.900	1.917		2.0	3.8	S			
7	*TM	Phenol		2.418	2.403	2.277	2.046	2.081	2.107	2.009	1.961		2.2	8.3	*TM			0.800
8	TM	Aniline		2.284	2.346	2.196	2.060	2.006	2.081	1.961	1.933		2.1	7.2	TM			
9	TM	Bis (2-chloroethyl) ether		1.068	1.038	0.9839	0.9400	0.9369	0.9481	0.8915	0.8834		0.96	6.8	TM			0.700
10	TM	2-Chlorophenol		1.699	1.735	1.606	1.517	1.552	1.559	1.477	1.441		1.6	6.5	TM			0.800
11	TM	1,3-DCB		1.869	1.829	1.683	1.591	1.607	1.620	1.523	1.490		1.7	8.2	TM			
12	*TM	1,4-DCB		1.996	1.861	1.738	1.623	1.664	1.647	1.546	1.513		1.7	9.5	*TM			
13	TM	Benzyl alcohol		0.9401	0.9733	0.9065	0.8909	0.9247	0.9210	0.8902	0.8725		0.91	3.5	TM			
14	TM	1,2-DCB		1.824	1.731	1.617	1.495	1.541	1.517	1.451	1.417		1.6	9.0	TM			
15	TM	2-Methylphenol		1.623	1.481	1.389	1.309	1.330	1.329	1.261	1.243		1.4	9.2	TM			0.700
16	TM	Bis (2-chloroisopropyl) ether		1.614	1.589	1.448	1.349	1.383	1.381	1.296	1.267		1.4	9.0	TM			0.010
17	TM	Acetophenone		2.397	2.321	2.123	2.020	2.056	2.039	1.942	1.896		2.1	8.4	TM			0.010
18	TM	3&4-Methylphenol		1.847	1.780	1.676	1.580	1.620	1.613	1.541	1.506		1.6	7.1	TM			0.600
19	**TM	n-Nitrosodi-n-propylamine		1.325	1.288	1.159	1.114	1.129	1.116	1.050	1.037		1.2	9.0	**TM			0.500
20	TM	Hexachloroethane		0.7326	0.7189	0.6438	0.6187	0.6212	0.6148	0.5862	0.5788		0.64	8.9	TM			0.300
21	I	Napthalene-D8(IS)	ISTD															
22	S	Nitrobenzene-D5(S)		0.4036	0.4481	0.4428	0.4092	0.4401	0.4199	0.4120	0.4051		0.42	4.3	S			
23	TM	Nitrobenzene		0.4636	0.4541	0.4209	0.3913	0.4042	0.3893	0.3799	0.3626		0.41	8.7	TM			0.200
24	TM	Isophorone		0.7995	0.7871	0.7264	0.6740	0.7092	0.6839	0.6638	0.6355		0.71	8.2	TM			0.400
25	*TM	2-Nitrophenol		0.2130	0.2243	0.2061	0.2032	0.2140	0.2031	0.1972	0.1946		0.21	4.7	*TM			0.100
26	TM	2,4-Dimethylphenol		0.3719	0.3513	0.3249	0.3195	0.3247	0.3133	0.3054	0.2986		0.33	7.4	TM			0.200
27	TM	Benzoic acid			0.1610	0.2025	0.2286	0.2242	0.2467	0.2499	0.2474		0.22	14	TM			
28	TM	Bis (2-chloroethoxy) methane		0.4841	0.4859	0.4404	0.4136	0.4319	0.4182	0.4019	0.3931		0.43	8.1	TM			0.300
29	*TM	2,4-Dichlorophenol		0.2934	0.2985	0.2811	0.2683	0.2800	0.2689	0.2659	0.2569		0.28	5.2	*TM			0.200
30	TM	1,2,4-Trichlorobenzene		0.3367	0.3392	0.3144	0.2936	0.3050	0.2892	0.2812	0.2699		0.30	8.3	TM			
31	TM	3,4-Dimethylphenol		0.5587	0.5474	0.4891	0.4564	0.4760	0.4559	0.4449	0.4308		0.48	9.8	TM			
32	TM	Naphthalene		1.237	1.222	1.100	1.039	1.078	1.023	0.9927	0.9676		1.1	9.3	TM			0.700
33	TM	4-Chloroaniline		0.4513	0.4768	0.4305	0.3918	0.3933	0.3784	0.3518	0.3185		0.40	13	TM			0.010
34	TM	2,6-Dichlorophenol		0.3085	0.3065	0.2861	0.2670	0.2807	0.2665	0.2580	0.2515		0.28	7.7	TM			
35	TM	Hexachloropropene		0.1687	0.1744	0.1722	0.1660	0.1739	0.1681	0.1639	0.1625		0.17	2.7	TM			

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/19/19
Matrix: Instrument: Yoda Initials:

		Compound	4	5	10	20	40	50	60	80	100		Avg	%RSD	Type		Q	
36	*TM	Hexachlorobutadiene		0.1694	0.1661	0.1534	0.1428	0.1491	0.1420	0.1371	0.1317		0.15	9.0	*TM			0.010
37	TM	Caprolactum		0.1478	0.1541	0.1397	0.1352	0.1418	0.1370	0.1308	0.1287		0.14	6.1	TM			0.010
38	*TM	4-Chloro-3-methylphenol		0.3629	0.3613	0.3391	0.3259	0.3411	0.3277	0.3136	0.3108		0.34	5.9	*TM			0.200
39	TM	2-Methylnaphthalene		0.7804	0.7657	0.7030	0.6569	0.6856	0.6652	0.6437	0.6212		0.69	8.2	TM			0.400
40	TM	1-Methylnaphthalene		0.8230	0.8014	0.7233	0.6897	0.6992	0.6841	0.6613	0.6407		0.72	9.1	TM			
41	I	Acenaphthene-D10(IS)	ISTD															
42	**TMQ	Hexachlorocyclopentadiene				0.0301	0.0672	0.0885	0.1000	0.1257	0.1432		0.09	44	**TMQ	0.999		0.050
43	TM	1,2,4,5-Tetrachlorobenzene		0.5827	0.5952	0.5304	0.5097	0.5190	0.4978	0.4794	0.4637		0.52	8.9	TM			0.010
44	*TM	2,4,6-Trichlorophenol		0.3548	0.3607	0.3334	0.3325	0.3415	0.3279	0.3212	0.3146		0.34	4.7	*TM			0.200
45	TM	2,4,5-Trichlorophenol		0.3961	0.4059	0.3592	0.3559	0.3567	0.3419	0.3391	0.3327		0.36	7.4	TM			0.200
46	S	2-Fluorobiphenyl(S)		1.491	1.616	1.556	1.423	1.484	1.458	1.405	1.382		1.5	5.3	S			
47	TM	1,1'-Biphenyl		1.864	1.851	1.700	1.616	1.634	1.564	1.518	1.480		1.7	8.7	TM			0.010
48	TM	2-Chloronaphthalene		1.393	1.437	1.279	1.200	1.220	1.182	1.129	1.109		1.2	9.5	TM			0.800
49	TM	2-Nitroaniline		0.4278	0.4515	0.4195	0.4009	0.4153	0.3909	0.3810	0.3738		0.41	6.4	TM			0.010
50	TM	Dimethyl phthalate		1.618	1.625	1.487	1.404	1.413	1.384	1.328	1.306		1.4	8.4	TM			0.010
51	TM	2,6-DNT		0.3572	0.3611	0.3439	0.3373	0.3359	0.3312	0.3188	0.3185		0.34	4.7	TM			0.200
52	TM	Acenaphthylene		2.241	2.183	2.017	1.915	1.932	1.881	1.811	1.765		2.0	8.6	TM			0.900
53	TM	3-Nitroaniline		0.3751	0.4164	0.3837	0.3767	0.3749	0.3636	0.3469	0.3348		0.37	6.6	TM			0.010
54	*TM	Acenaphthene		1.477	1.436	1.295	1.236	1.235	1.192	1.154	1.118		1.3	10	*TM			0.900
55	**TML	2,4-Dinitrophenol			0.0629	0.0984	0.1325	0.1407	0.1477	0.1554	0.1622		0.13	28	**TML	0.998		0.010
56	**TMQ	4-Nitrophenol				0.0399	0.2038	0.2264	0.2092	0.2146	0.2178		0.19	39	**TMQ	0.993		0.010
57	TM	Dibenzofuran		2.010	1.948	1.757	1.676	1.685	1.610	1.564	1.514		1.7	10	TM			0.800
58	TM	2,4-DNT		0.4665	0.4994	0.4758	0.4552	0.4666	0.4495	0.4242	0.4174		0.46	5.9	TM			0.200
59	TM	2,3,4,6-Tetrachlorophenol		0.1873	0.2274	0.2275	0.2353	0.2494	0.2360	0.2358	0.2348		0.23	8.0	TM			0.010
60	TM	Diethyl phthalate		1.622	1.615	1.470	1.404	1.397	1.359	1.303	1.243		1.4	9.6	TM			0.010
61	TM	4-Chlorophenyl phenyl ether		0.7793	0.7448	0.6754	0.6269	0.6475	0.6168	0.5875	0.5816		0.66	11	TM			0.400
62	TM	Fluorene		1.649	1.624	1.484	1.408	1.404	1.348	1.297	1.268		1.4	9.9	TM			0.900
63	TM	4-Nitroaniline		0.4183	0.4299	0.3988	0.3690	0.3701	0.3531	0.3384	0.3290		0.38	9.8	TM			0.010
64	S	2,4,6-Tribromophenol(S)		0.1108	0.1312	0.1374	0.1314	0.1423	0.1391	0.1326	0.1359		0.13	7.3	S			
65	I	Phenanthrene-D10(IS)	ISTD															
66	TM	4,6-Dinitro-2-methylphenol		0.1114	0.1353	0.1511	0.1561	0.1630	0.1612	0.1567	0.1592		0.15	12	TM			0.010
67	TM	Diphenyl amine		0.7664	0.7653	0.6881	0.6527	0.6549	0.6478	0.6004	0.5930		0.67	9.8	TM			
68	*TM	n-Nitrosodiphenylamine		0.7664	0.7653	0.6881	0.6527	0.6549	0.6478	0.6004	0.5930		0.67	9.8	*TM			0.010
69	TM	1,2-Diphenylhydrazine		1.063	1.009	0.9258	0.8681	0.8924	0.8755	0.9545	0.9253		0.94	7.2	TM			
70	TM	4-Bromophenyl phenyl ether		0.2299	0.2348	0.2119	0.2034	0.2080	0.2040	0.1924	0.1907		0.21	7.6	TM			0.100

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/19/19
Matrix: Instrument: Yoda Initials:

		Compound	4	5	10	20	40	50	60	80	100		Avg	%RSD	Type		Q	
71	TM	Hexachlorobenzene		0.2203	0.2151	0.1979	0.1863	0.1927	0.1876	0.1800	0.1758		0.19	8.2	TM			0.100
72	TM	Atrazine		0.2516	0.2617	0.2290	0.2249	0.2273	0.2233	0.2103	0.2067		0.23	8.2	TM			0.010
73	*TML	Pentachlorophenol			0.0405	0.0499	0.0629	0.0766	0.0666	0.0749	0.0786		0.06	22	*TML	0.992		0.050
74	TM	Phenanthrene		1.407	1.374	1.246	1.173	1.199	1.179	1.110	1.091		1.2	9.4	TM			0.700
75	TM	Anthracene		1.450	1.477	1.323	1.248	1.258	1.248	1.175	1.149		1.3	9.2	TM			0.700
76	TM	Carbazol		1.339	1.327	1.220	1.149	1.156	1.154	1.094	1.073		1.2	8.3	TM			0.010
77	TM	Di-n-butylphthalate		1.692	1.656	1.541	1.434	1.489	1.439	1.338	1.322		1.5	9.1	TM			0.010
78	*TM	Fluoranthene		1.452	1.418	1.303	1.222	1.251	1.241	1.173	1.163		1.3	8.4	*TM			0.600
79	I	Chrysene-D12(IS)	ISTD															
80	TM	Benzidine			0.3883	0.3450	0.3138	0.2584	0.2922	0.2852	0.2777		0.31	14	TM			
81	TM	Pyrene		1.688	1.628	1.498	1.401	1.432	1.421	1.381	1.349		1.5	8.3	TM			0.600
82	S	Terphenyl-D14(S)		0.9769	1.028	1.015	0.9194	1.003	0.9914	0.9548	0.9326		0.98	4.0	S			
83	TM	Butyl benzylphthalate		0.8445	0.8254	0.7609	0.7102	0.7295	0.7236	0.6958	0.6822		0.75	8.0	TM			0.010
84	TM	3,3'-Dichlorobenzidine		0.4221	0.4411	0.3868	0.3566	0.3523	0.3532	0.3364	0.3177		0.37	11	TM			0.010
85	TM	Benz (a) anthracene		1.494	1.457	1.322	1.242	1.268	1.253	1.228	1.169		1.3	8.8	TM			0.800
86	TM	Bis (2-ethylhexyl) phthalate		1.282	1.208	1.089	1.013	1.026	1.009	0.9879	0.9390		1.1	11	TM			0.010
87	TM	Chrysene		1.439	1.441	1.255	1.188	1.232	1.198	1.174	1.132		1.3	9.4	TM			0.700
88	*TM	Di-n-octylphthalate		2.085	2.047	1.847	1.759	1.816	1.786	1.722	1.688		1.8	7.9	*TM			0.010
89	I	Perylene-D12(IS)	ISTD															
90	TM	Benzo (b) fluoranthene		1.414	1.260	1.197	1.198	1.062	1.197	1.065	1.130		1.2	9.6	TM			0.700
91	TM	Benzo (k) fluoranthene		1.414	1.260	1.197	1.198	1.062	1.197	1.065	1.130		1.2	9.6	TM			0.700
92	*TM	Benzo (a) pyrene	1.251	1.297	1.304	1.187	1.138	1.172	1.144	1.099	1.079		1.2	6.9	*TM			0.700
93	TM	Indeno (1,2,3-cd) pyrene		1.420	1.445	1.291	1.214	1.272	1.218	1.182	1.164		1.3	8.3	TM			0.500
94	TM	Dibenz (a,h) anthracene	1.172	1.224	1.230	1.116	1.072	1.115	1.074	1.043	1.019		1.1	6.8	TM			0.400
95	TM	Benzo (g,h,i) perylene		1.143	1.124	1.035	0.9798	1.010	0.9780	0.9425	0.9325		1.0	7.7	TM			0.500
96																		
97																		
98																		
99																		
100																		
101																		
102																		
103																		
104																		
105																		

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y003.D Vial: 3
Acq On : 19 Mar 19 18:31 Operator: MA
Sample : 50ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:46 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Wed Mar 20 09:42:54 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	114637	40.00000 ppb	0.00
21) Napthalene-D8(IS)	6.84	136	472309	40.00000 ppb	0.00
41) Acenaphthene-D10(IS)	8.86	164	256108	40.00000 ppb	0.00
65) Phenanthrene-D10(IS)	10.60	188	425827	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.69	240	388787	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.55	264	380454	40.00000 ppb	0.00
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.84	112	440131	102.72345 ppb	0.00
Spiked Amount 200.000			Recovery	= 51.362%	
6) Phenol-D6 (S)	5.01	99	576782	102.96746 ppb	0.00
Spiked Amount 200.000			Recovery	= 51.484%	
22) Nitrobenzene-D5(S)	6.03	82	259817	52.06712 ppb	0.00
Spiked Amount 100.000			Recovery	= 52.067%	
46) 2-Fluorobiphenyl(S)	8.08	172	475108	50.24297 ppb	0.00
Spiked Amount 100.000			Recovery	= 50.243%	
64) 2,4,6-Tribromophenol(S)	9.79	330	91088	107.31607 ppb	0.00
Spiked Amount 200.000			Recovery	= 53.658%	
82) Terphenyl-D14(S)	12.46	244	487603	51.30654 ppb	0.00
Spiked Amount 100.000			Recovery	= 51.307%	
Target Compounds					Qvalue
2) 1,4-Dioxane	1.71	58	4430	5.70818	100
3) n-Nitrosodimethylamine	1.94	42	73272	50.29680 ppb	100
4) Pyridine	1.95	79	178684	51.00094 ppb	100
7) Phenol	5.03	94	298210	48.11297 ppb	100
8) Aniline	5.03	93	287448	47.57204 ppb	100
9) Bis (2-chloroethyl) ether	5.10	63	134256	48.73577 ppb	100
10) 2-Chlorophenol	5.17	128	222358	49.31260 ppb	100
11) 1,3-DCB	5.33	146	230327	48.65913 ppb	100
12) 1,4-DCB	5.42	146	238399	48.97673 ppb	100
13) Benzyl alcohol	5.57	108	132506	50.53539 ppb	100
14) 1,2-DCB	5.59	146	220888	48.96362 ppb	100
15) 2-Methylphenol	5.71	107	190581	48.51630 ppb	100
16) Bis (2-chloroisopropyl) et	5.70	45	198207	48.84754 ppb	100
17) Acetophenone	5.87	105	294577	48.96670 ppb	100
18) 3&4-Methylphenol	5.88	107	464156	98.43562 ppb	100
19) n-Nitrosodi-n-propylamine	5.87	70	161718	48.97969 ppb	100
20) Hexachloroethane	5.96	117	89016	48.57976 ppb	100
23) Nitrobenzene	6.06	77	238631	49.50538 ppb	100
24) Isophorone	6.32	82	418697	49.94868 ppb	100
25) 2-Nitrophenol	6.41	139	126352	51.70904 ppb	100
26) 2,4-Dimethylphenol	6.46	122	191726	49.77633 ppb	100
27) Benzoic acid	6.61	105	132350	50.34444 ppb	100
28) Bis (2-chloroethoxy) metha	6.56	93	254996	49.79802 ppb	100
29) 2,4-Dichlorophenol	6.69	162	165330	50.62002 ppb	100
30) 1,2,4-Trichlorobenzene	6.78	180	180070	50.22423 ppb	100
31) 3,4-Dimethylphenol	6.80	107	280998	49.33330 ppb	100
32) Naphthalene	6.86	128	636316	49.78667 ppb	100
33) 4-Chloroaniline	6.93	127	232189	49.27866 ppb	100
34) 2,6-Dichlorophenol	6.94	162	165733	50.46907 ppb	100
35) Hexachloropropene	6.95	213	102692	51.54934 ppb	100
36) Hexachlorobutadiene	6.99	225	88022	50.04871 ppb	100
37) Caprolactum	7.37	55	83739	50.88266 ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y003.D Vial: 3
Acq On : 19 Mar 19 18:31 Operator: MA
Sample : 50ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:46 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Wed Mar 20 09:42:54 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38)	4-Chloro-3-methylphenol	7.51	107	201357	50.85987	ppb	100
39)	2-Methylnaphthalene	7.65	142	404769	49.66629	ppb	100
40)	1-Methylnaphthalene	7.77	142	412817	48.87466	ppb	100
42)	Hexachlorocyclopentadiene	7.82	237	28347	50.32166	ppb	100
43)	1,2,4,5-Tetrachlorobenzene	7.84	216	166150	49.69069	ppb	100
44)	2,4,6-Trichlorophenol	7.99	196	109340	50.84958	ppb	100
45)	2,4,5-Trichlorophenol	8.05	196	114208	49.41944	ppb	100
47)	1,1'-Biphenyl	8.19	154	523036	49.40623	ppb	100
48)	2-Chloronaphthalene	8.21	162	390686	49.06511	ppb	100
49)	2-Nitroaniline	8.35	65	132948	50.94556	ppb	100
50)	Dimethyl phthalate	8.54	163	452410	48.88515	ppb	100
51)	2,6-DNT	8.63	165	107526	49.68734	ppb	100
52)	Acenaphthylene	8.70	152	618641	49.08888	ppb	100
53)	3-Nitroaniline	8.84	138	120032	50.46037	ppb	100
54)	Acenaphthene	8.90	154	395327	48.70090	ppb	100
55)	2,4-Dinitrophenol	8.98	184	45050	48.81434	ppb	96
56)	4-Nitrophenol	9.10	65	72463	52.83268	ppb	100
57)	Dibenzofuran	9.10	168	539583	48.98033	ppb	100
58)	2,4-DNT	9.11	165	149368	51.06896	ppb	100
59)	2,3,4,6-Tetrachlorophenol	9.25	232	79846	54.41028	ppb	100
60)	Diethyl phthalate	9.36	149	447162	48.96183	ppb	100
61)	4-Chlorophenyl phenyl ethe	9.50	204	207297	49.24255	ppb	100
62)	Fluorene	9.50	166	449417	48.90581	ppb	100
63)	4-Nitroaniline	9.55	138	118496	49.24349	ppb	100
66)	4,6-Dinitro-2-methylphenol	9.58	198	86742	54.59940	ppb	100
67)	Diphenyl amine	9.64	169	697220	97.59456	ppb	100
68)	n-Nitrosodiphenylamine	9.64	169	697220	97.59456	ppb	100
69)	1,2-Diphenylhydrazine	9.68	77	474998	47.50747	ppb	100
70)	4-Bromophenyl phenyl ether	10.06	248	110691	49.65994	ppb	100
71)	Hexachlorobenzene	10.14	284	102559	49.54057	ppb	100
72)	Atrazine	10.26	200	60502	24.78178	ppb	100
73)	Pentachlorophenol	10.40	266	40781	53.51964	ppb	100
74)	Phenanthrene	10.63	178	638282	49.05585	ppb	100
75)	Anthracene	10.68	178	669670	48.72190	ppb	100
76)	Carbazol	10.88	167	615499	48.62748	ppb	100
77)	Di-n-butylphthalate	11.26	149	792368	49.99257	ppb	100
78)	Fluoranthene	12.02	202	666118	48.96306	ppb	100
80)	Benzidine	12.19	184	125559	40.87845	ppb	100
81)	Pyrene	12.28	202	695754	48.54023	ppb	100
83)	Butyl benzylphthalate	13.01	149	354521	48.86000	ppb	100
84)	3,3'-Dichlorobenzidine	13.65	252	171204	47.50798	ppb	100
85)	Benz (a) anthracene	13.68	228	616195	48.61545	ppb	100
86)	Bis (2-ethylhexyl) phthala	13.66	149	498649	47.98090	ppb	100
87)	Chrysene	13.73	228	598755	48.99615	ppb	100
88)	Di-n-octylphthalate	14.42	149	882741	49.26053	ppb	100
90)	Benzo (b) fluoranthene	15.04	252	505099	44.60811	ppb	100
91)	Benzo (k) fluoranthene	15.04	252	505099	44.60811	ppb	100
92)	Benzo (a) pyrene	15.46	252	557254	49.41467	ppb	100
93)	Indeno (1,2,3-cd) pyrene	17.47	276	605012	49.86727	ppb	100
94)	Dibenz (a,h) anthracene	17.49	278	530453	49.86829	ppb	100
95)	Benzo (g,h,i) perylene	18.05	276	480148	49.59085	ppb	100

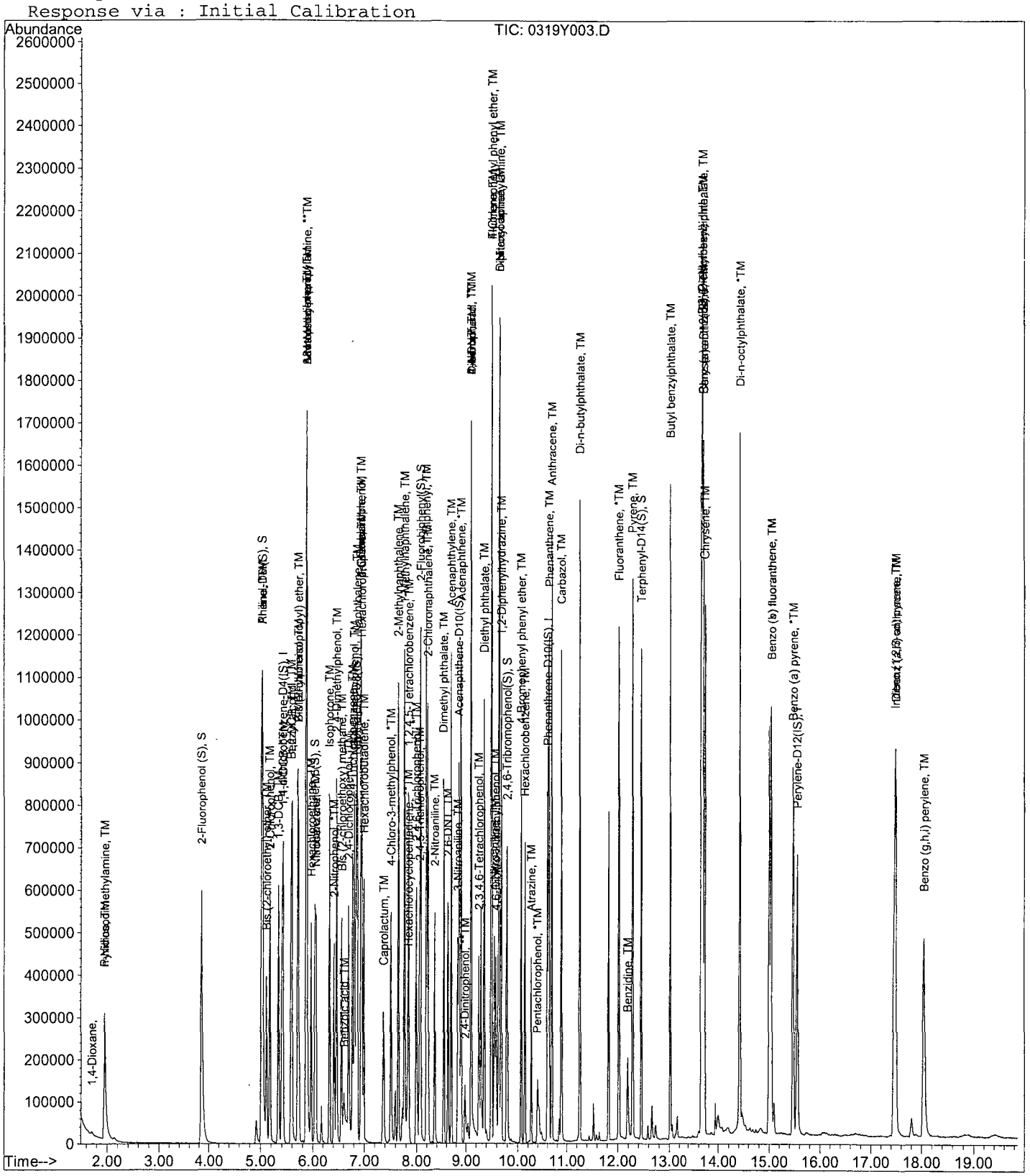
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190319\0319Y003.D Vial: 3
Acq On : 19 Mar 19 18:31 Operator: MA
Sample : 50ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:46 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y004.D Vial: 4
Acq On : 19 Mar 19 18:58 Operator: MA
Sample : 4ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 19 20:40 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 20:39:51 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	114954	40.00000	ppb	0.00
21) Napthalene-D8(IS)	6.83	136	490093	40.00000	ppb	0.00
41) Acenaphthene-D10(IS)	8.86	164	262404	40.00000	ppb	0.00
65) Phenanthrene-D10(IS)	10.59	188	432886	40.00000	ppb	0.00
79) Chrysene-D12(IS)	13.69	240	405658	40.00000	ppb	0.00
89) Perylene-D12(IS)	15.55	264	394479	40.00000	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol (S)	0.00	112	0d	0.00000	ppb	
Spiked Amount 200.000			Recovery =	0.000%		
6) Phenol-D6 (S)	0.00	99	0d	0.00000	ppb	
Spiked Amount 200.000			Recovery =	0.000%		
22) Nitrobenzene-D5(S)	0.00	82	0d	0.00000	ppb	
Spiked Amount 100.000			Recovery =	0.000%		
46) 2-Fluorobiphenyl(S)	0.00	172	0d	0.00000	ppb	
Spiked Amount 100.000			Recovery =	0.000%		
64) 2,4,6-Tribromophenol(S)	0.00	330	0d	0.00000	ppb	
Spiked Amount 200.000			Recovery =	0.000%		
82) Terphenyl-D14(S)	0.00	244	0d	0.00000	ppb	
Spiked Amount 100.000			Recovery =	0.000%		
Target Compounds						Qvalue
92) Benzo (a) pyrene	15.47	252	49367	4.21111	ppb	97
94) Dibenz (a,h) anthracene	17.49	278	46216	4.19356	ppb	97

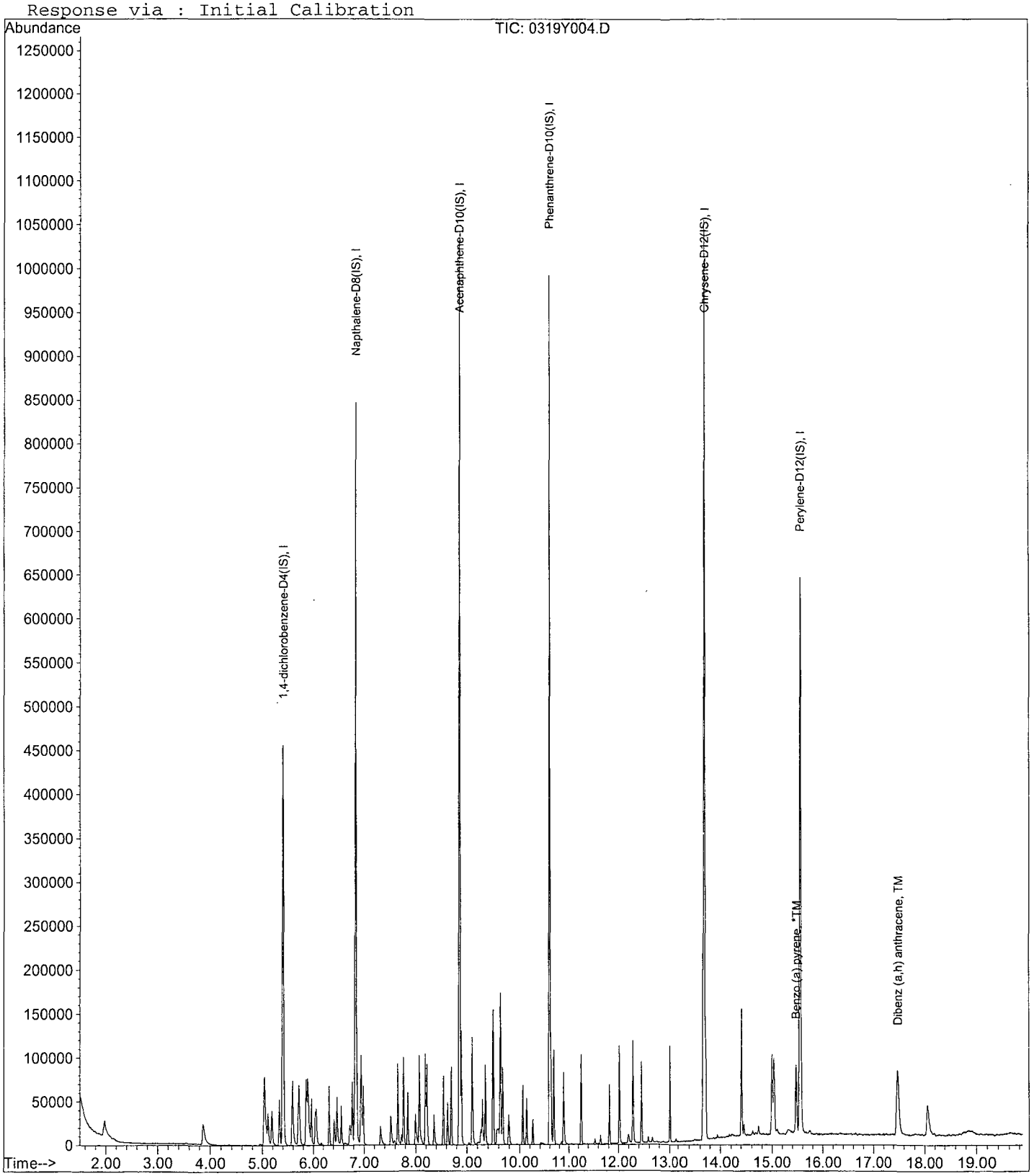
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190319\0319Y004.D Vial: 4
Acq On : 19 Mar 19 18:58 Operator: MA
Sample : 4ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 19 20:40 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y005.D Vial: 5
Acq On : 19 Mar 19 19:26 Operator: MA
Sample : 5ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	115611	40.00000 ppb	0.00
21) Napthalene-D8(IS)	6.84	136	503407	40.00000 ppb	0.00
41) Acenaphthene-D10(IS)	8.85	164	266346	40.00000 ppb	0.00
65) Phenanthrene-D10(IS)	10.60	188	439621	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.69	240	399547	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.55	264	399700	40.00000 ppb	0.00
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.86	112	39728	9.19412 ppb	0.02
Spiked Amount 200.000			Recovery	= 4.597%	
6) Phenol-D6 (S)	5.03	99	53431	9.45817 ppb	0.02
Spiked Amount 200.000			Recovery	= 4.729%	
22) Nitrobenzene-D5(S)	6.03	82	25398	4.77532 ppb	0.00
Spiked Amount 100.000			Recovery	= 4.775%	
46) 2-Fluorobiphenyl(S)	8.07	172	49637	5.04737 ppb	0.00
Spiked Amount 100.000			Recovery	= 5.047%	
64) 2,4,6-Tribromophenol(S)	9.79	330	7376	8.35606 ppb	0.00
Spiked Amount 200.000			Recovery	= 4.178%	
82) Terphenyl-D14(S)	12.45	244	48790	4.99552 ppb	-0.01
Spiked Amount 100.000			Recovery	= 4.996%	
Target Compounds					Qvalue
2) 1,4-Dioxane	1.72	58	301	0.38458	# 1
3) n-Nitrosodimethylamine	1.95	42	9295	6.32670 ppb	67
4) Pyridine	1.98	79	18131	5.13145 ppb	98
7) Phenol	5.05	94	34943	5.59018 ppb	97
8) Aniline	5.04	93	33010	5.41706 ppb	90
9) Bis (2-chloroethyl) ether	5.10	63	15432	5.55472 ppb	98
10) 2-Chlorophenol	5.19	128	24557	5.40015 ppb	97
11) 1,3-DCB	5.34	146	27006	5.65725 ppb	98
12) 1,4-DCB	5.42	146	28848	5.87661 ppb	99
13) Benzyl alcohol	5.58	108	13586	5.13780 ppb	98
14) 1,2-DCB	5.59	146	26355	5.79282 ppb	98
15) 2-Methylphenol	5.71	107	23457	5.92115 ppb	96
16) Bis (2-chloroisopropyl) et	5.71	45	23325	5.69995 ppb	91
17) Acetophenone	5.86	105	34635	5.70877 ppb	78
18) 3&4-Methylphenol	5.88	107	53388	11.22684 ppb	97
19) n-Nitrosodi-n-propylamine	5.86	70	19145	5.74961 ppb	96
20) Hexachloroethane	5.96	117	10587	5.72909 ppb	94
23) Nitrobenzene	6.06	77	29173	5.67824 ppb	94
24) Isophorone	6.32	82	50308	5.63078 ppb	96
25) 2-Nitrophenol	6.42	139	13403	5.14628 ppb	98
26) 2,4-Dimethylphenol	6.47	122	23401	5.70011 ppb	96
27) Benzoic acid	6.63	105	6735	2.38744 ppb	94
28) Bis (2-chloroethoxy) metha	6.56	93	30463	5.58160 ppb	96
29) 2,4-Dichlorophenol	6.73	162	18460	5.30285 ppb	96
30) 1,2,4-Trichlorobenzene	6.77	180	21184	5.54354 ppb	99
31) 3,4-Dimethylphenol	6.81	107	35156	5.79086 ppb	100
32) Naphthalene	6.86	128	77852	5.71501 ppb	98
33) 4-Chloroaniline	6.93	127	28396	5.65433 ppb	97
34) 2,6-Dichlorophenol	6.94	162	19414	5.54675 ppb	98
35) Hexachloropropene	6.95	213	10616	4.99982 ppb	98
36) Hexachlorobutadiene	6.99	225	10662	5.68784 ppb	94
37) Caprolactum	7.32	55	9298	5.30076 ppb	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y005.D Vial: 5
Acq On : 19 Mar 19 19:26 Operator: MA
Sample : 5ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.51	107	22835	5.41149 ppb		95
39)	2-Methylnaphthalene	7.66	142	49109	5.65357 ppb		94
40)	1-Methylnaphthalene	7.77	142	51788	5.75258 ppb		100
43)	1,2,4,5-Tetrachlorobenzene	7.84	216	19399	5.57867 ppb		97
44)	2,4,6-Trichlorophenol	8.00	196	11813	5.28257 ppb		89
45)	2,4,5-Trichlorophenol	8.07	196	13189	5.48770 ppb		93
47)	1,1'-Biphenyl	8.19	154	62061	5.63697 ppb		100
48)	2-Chloronaphthalene	8.21	162	46372	5.59987 ppb		99
49)	2-Nitroaniline	8.35	65	14244	5.24848 ppb		91
50)	Dimethyl phthalate	8.54	163	53870	5.59717 ppb		99
51)	2,6-DNT	8.63	165	11891	5.28357 ppb		97
52)	Acenaphthylene	8.70	152	74622	5.69362 ppb		98
53)	3-Nitroaniline	8.84	138	12488	5.04805 ppb	#	88
54)	Acenaphthene	8.89	154	49162	5.82354 ppb		99
55)	2,4-Dinitrophenol	9.05	184	114	7.13477 ppb	#	33
56)	4-Nitrophenol	9.10	65	1432	17.24815 ppb	#	26
57)	Dibenzofuran	9.10	168	66911	5.84034 ppb		94
58)	2,4-DNT	9.10	165	15531	5.10594 ppb		82
59)	2,3,4,6-Tetrachlorophenol	9.26	232	6236	4.08612 ppb		95
60)	Diethyl phthalate	9.36	149	53987	5.68406 ppb		98
61)	4-Chlorophenyl phenyl ethe	9.49	204	25947	5.92668 ppb		94
62)	Fluorene	9.49	166	54887	5.74325 ppb		97
63)	4-Nitroaniline	9.57	138	13928	5.56559 ppb		86
66)	4,6-Dinitro-2-methylphenol	9.60	198	6121	3.73195 ppb		87
67)	Diphenyl amine	9.63	169	84233	11.42070 ppb		98
68)	n-Nitrosodiphenylamine	9.63	169	84233	11.42070 ppb		98
69)	1,2-Diphenylhydrazine	9.68	77	58429	5.66048 ppb		95
70)	4-Bromophenyl phenyl ether	10.06	248	12632	5.48935 ppb		97
71)	Hexachlorobenzene	10.14	284	12105	5.66379 ppb		92
72)	Atrazine	10.26	200	6913	2.74274 ppb		94
73)	Pentachlorophenol	10.43	266	696	7.10872 ppb	#	57
74)	Phenanthrene	10.62	178	77308	5.75516 ppb		98
75)	Anthracene	10.68	178	79708	5.61720 ppb		99
76)	Carbazol	10.89	167	73559	5.62918 ppb		98
77)	Di-n-butylphthalate	11.26	149	92978	5.68216 ppb		99
78)	Fluoranthene	12.02	202	79788	5.68080 ppb		98
80)	Benzidine	12.20	184	18852	5.94895 ppb		96
81)	Pyrene	12.28	202	84308	5.72346 ppb		100
83)	Butyl benzylphthalate	13.01	149	42179	5.65655 ppb		94
84)	3,3'-Dichlorobenzidine	13.65	252	21081	5.69230 ppb		97
85)	Benz (a) anthracene	13.68	228	74607	5.72769 ppb		98
86)	Bis (2-ethylhexyl) phthala	13.66	149	64037	5.99582 ppb		98
87)	Chrysene	13.72	228	71859	5.72187 ppb		97
88)	Di-n-octylphthalate	14.41	149	104149	5.65542 ppb	#	94
90)	Benzo (b) fluoranthene	15.03	252	70654	5.93939 ppb	#	94
91)	Benzo (k) fluoranthene	15.03	252	70654	5.93939 ppb	#	94
92)	Benzo (a) pyrene	15.46	252	64822	5.47133 ppb		99
93)	Indeno (1,2,3-cd) pyrene	17.47	276	70934	5.56511 ppb		97
94)	Dibenz (a,h) anthracene	17.49	278	61171	5.47383 ppb		98
95)	Benzo (g,h,i) perylene	18.05	276	57086	5.61208 ppb		98

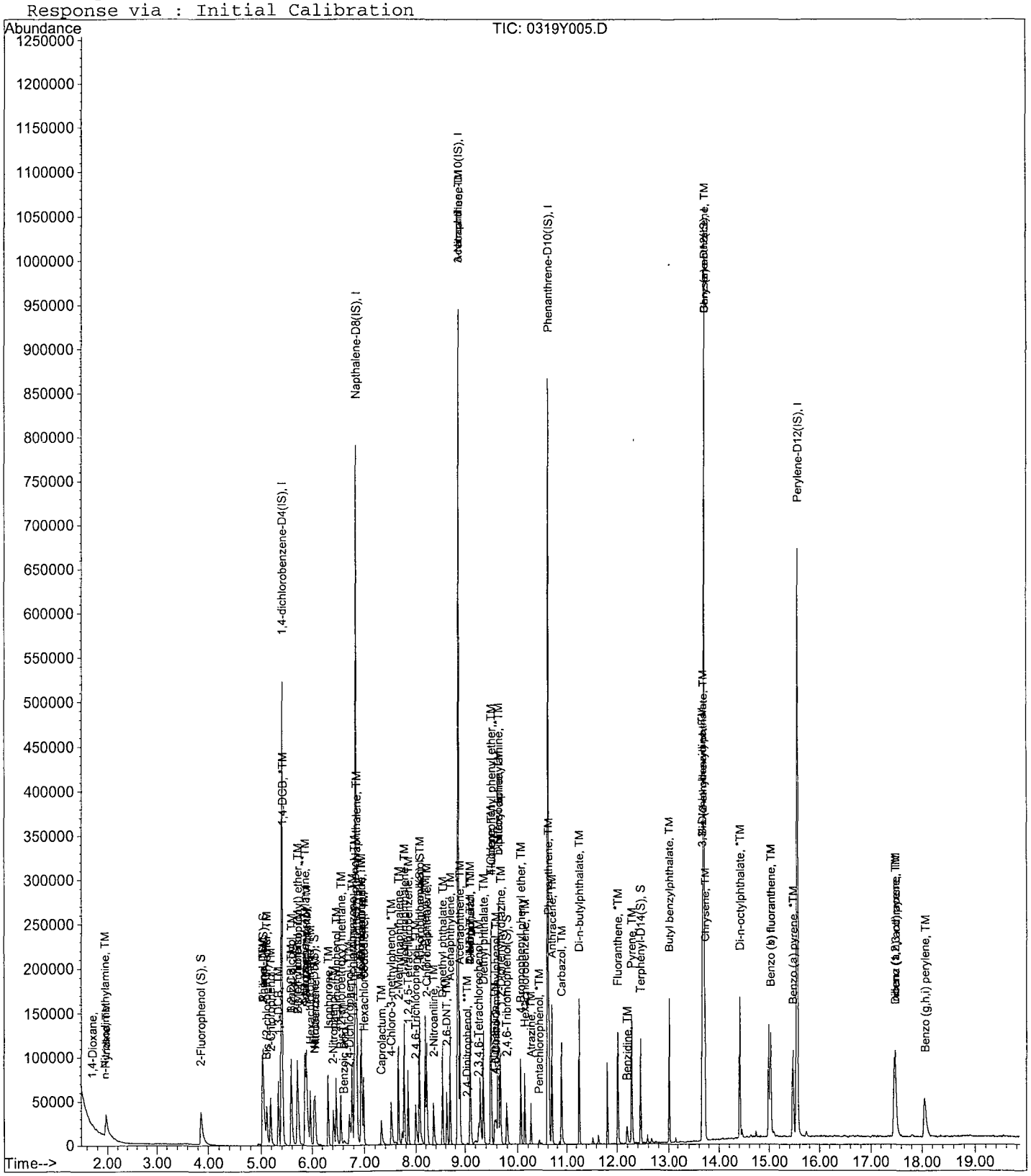
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190319\0319Y005.D Vial: 5
Acq On : 19 Mar 19 19:26 Operator: MA
Sample : 5ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y006.D Vial: 6
Acq On : 19 Mar 19 19:54 Operator: MA
Sample : 10ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:17 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	121984	40.00000 ppb		0.00
21) Napthalene-D8(IS)	6.83	136	512288	40.00000 ppb		0.00
41) Acenaphthene-D10(IS)	8.86	164	269599	40.00000 ppb		0.00
65) Phenanthrene-D10(IS)	10.59	188	449398	40.00000 ppb		0.00
79) Chrysene-D12(IS)	13.69	240	410594	40.00000 ppb		0.00
89) Perylene-D12(IS)	15.55	264	404320	40.00000 ppb		0.00
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.85	112	93067	20.41293 ppb		0.01
Spiked Amount 200.000			Recovery =	10.207%		
6) Phenol-D6 (S)	5.01	99	122377	20.53100 ppb		0.00
Spiked Amount 200.000			Recovery =	10.266%		
22) Nitrobenzene-D5(S)	6.04	82	57383	10.60208 ppb		0.00
Spiked Amount 100.000			Recovery =	10.602%		
46) 2-Fluorobiphenyl(S)	8.07	172	108893	10.93926 ppb		0.00
Spiked Amount 100.000			Recovery =	10.939%		
64) 2,4,6-Tribromophenol(S)	9.79	330	17684	19.79197 ppb		0.00
Spiked Amount 200.000			Recovery =	9.896%		
82) Terphenyl-D14(S)	12.45	244	105565	10.51781 ppb		0.00
Spiked Amount 100.000			Recovery =	10.518%		
Target Compounds						Qvalue
2) 1,4-Dioxane	1.71	58	698	0.84522	#	3
3) n-Nitrosodimethylamine	1.94	42	16466	10.62215 ppb		92
4) Pyridine	1.96	79	42557	11.41525 ppb		95
7) Phenol	5.03	94	73295	11.11313 ppb		86
8) Aniline	5.03	93	71536	11.12600 ppb		91
9) Bis (2-chloroethyl) ether	5.11	63	31653	10.79819 ppb		96
10) 2-Chlorophenol	5.18	128	52907	11.02656 ppb		97
11) 1,3-DCB	5.33	146	55787	11.07578 ppb		99
12) 1,4-DCB	5.42	146	56752	10.95692 ppb		96
13) Benzyl alcohol	5.57	108	29683	10.63873 ppb		98
14) 1,2-DCB	5.59	146	52788	10.99660 ppb		98
15) 2-Methylphenol	5.70	107	45159	10.80374 ppb		93
16) Bis (2-chloroisopropyl) et	5.70	45	48455	11.22236 ppb		96
17) Acetophenone	5.86	105	70767	11.05490 ppb		79
18) 3&4-Methylphenol	5.88	107	108589	21.64194 ppb		99
19) n-Nitrosodi-n-propylamine	5.85	70	39282	11.18081 ppb		94
20) Hexachloroethane	5.96	117	21924	11.24421 ppb		98
23) Nitrobenzene	6.05	77	58158	11.12364 ppb		95
24) Isophorone	6.31	82	100807	11.08733 ppb		100
25) 2-Nitrophenol	6.42	139	28728	10.83931 ppb		96
26) 2,4-Dimethylphenol	6.46	122	44991	10.76910 ppb		99
27) Benzoic acid	6.60	105	20618	7.18201 ppb		90
28) Bis (2-chloroethoxy) metha	6.56	93	62236	11.20553 ppb		98
29) 2,4-Dichlorophenol	6.71	162	38227	10.79078 ppb		94
30) 1,2,4-Trichlorobenzene	6.77	180	43440	11.17053 ppb		97
31) 3,4-Dimethylphenol	6.81	107	70107	11.34776 ppb		98
32) Naphthalene	6.86	128	156443	11.28518 ppb		99
33) 4-Chloroaniline	6.94	127	61067	11.94912 ppb		99
34) 2,6-Dichlorophenol	6.94	162	39255	11.02106 ppb	#	95
35) Hexachloropropene	6.95	213	22334	10.33630 ppb		98
36) Hexachlorobutadiene	6.98	225	21272	11.15121 ppb		98
37) Caprolactum	7.33	55	19734	11.05527 ppb		98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y006.D Vial: 6
Acq On : 19 Mar 19 19:54 Operator: MA
Sample : 10ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:17 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

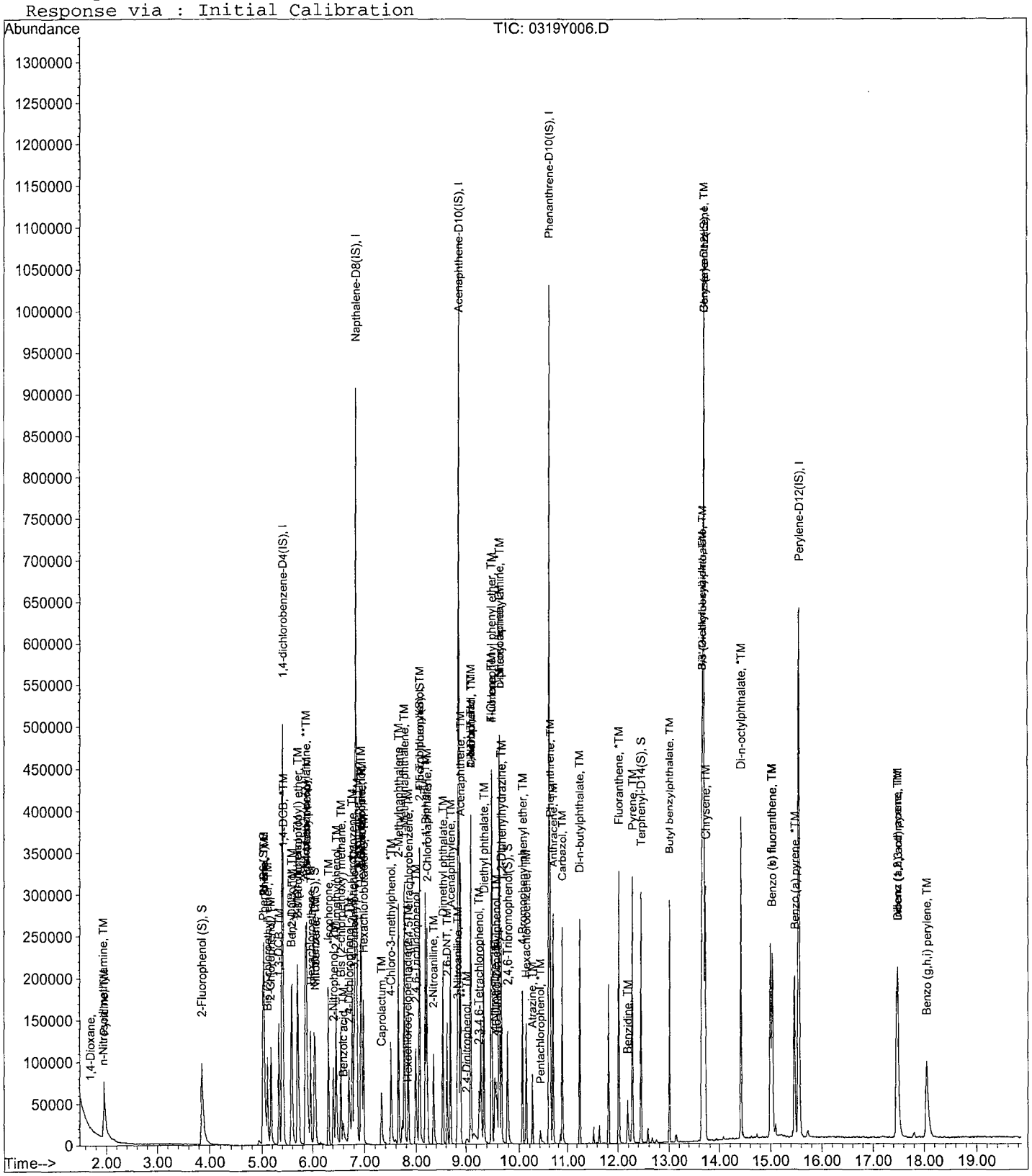
	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.50	107	46274	10.77600	ppb		96
39)	2-Methylnaphthalene	7.65	142	98063	11.09358	ppb		100
40)	1-Methylnaphthalene	7.76	142	102639	11.20342	ppb		99
42)	Hexachlorocyclopentadiene	7.82	237	696	15.95530	ppb	#	86
43)	1,2,4,5-Tetrachlorobenzene	7.85	216	40116	11.39717	ppb		99
44)	2,4,6-Trichlorophenol	7.99	196	24311	10.74029	ppb		99
45)	2,4,5-Trichlorophenol	8.06	196	27355	11.24457	ppb		97
47)	1,1'-Biphenyl	8.19	154	124754	11.19462	ppb		97
48)	2-Chloronaphthalene	8.22	162	96857	11.55529	ppb		93
49)	2-Nitroaniline	8.35	65	30428	11.07651	ppb		88
50)	Dimethyl phthalate	8.54	163	109505	11.24045	ppb		98
51)	2,6-DNT	8.63	165	24341	10.68503	ppb		88
52)	Acenaphthylene	8.70	152	147145	11.09161	ppb		100
53)	3-Nitroaniline	8.83	138	28068	11.20907	ppb		90
54)	Acenaphthene	8.89	154	96774	11.32515	ppb		99
55)	2,4-Dinitrophenol	9.02	184	4240	10.29161	ppb	#	33
56)	4-Nitrophenol	9.10	65	2643	17.74907	ppb	#	57
57)	Dibenzofuran	9.10	168	131289	11.32131	ppb		90
58)	2,4-DNT	9.10	165	33662	10.93312	ppb	#	71
59)	2,3,4,6-Tetrachlorophenol	9.26	232	15327	9.92179	ppb		94
60)	Diethyl phthalate	9.35	149	108817	11.31864	ppb		98
61)	4-Chlorophenyl phenyl ethe	9.49	204	50202	11.32853	ppb		91
62)	Fluorene	9.50	166	109490	11.31854	ppb		97
63)	4-Nitroaniline	9.55	138	28975	11.43862	ppb		96
66)	4,6-Dinitro-2-methylphenol	9.58	198	15197	9.06397	ppb		93
67)	Diphenyl amine	9.64	169	171955	22.80723	ppb		98
68)	n-Nitrosodiphenylamine	9.64	169	171955	22.80723	ppb		98
69)	1,2-Diphenylhydrazine	9.67	77	113332	10.74050	ppb		96
70)	4-Bromophenyl phenyl ether	10.06	248	26382	11.21511	ppb		88
71)	Hexachlorobenzene	10.14	284	24168	11.06191	ppb	#	85
72)	Atrazine	10.26	200	14699	5.70496	ppb		97
73)	Pentachlorophenol	10.42	266	4554	11.29771	ppb		96
74)	Phenanthrene	10.62	178	154357	11.24104	ppb		99
75)	Anthracene	10.69	178	165890	11.43630	ppb		99
76)	Carbazol	10.88	167	149122	11.16344	ppb		98
77)	Di-n-butylphthalate	11.26	149	186080	11.12450	ppb		99
78)	Fluoranthene	12.01	202	159257	11.09221	ppb		97
80)	Benzidine	12.19	184	39860	12.23984	ppb		99
81)	Pyrene	12.28	202	167082	11.03761	ppb		98
83)	Butyl benzylphthalate	13.01	149	84725	11.05662	ppb		94
84)	3,3'-Dichlorobenzidine	13.65	252	45275	11.89626	ppb	#	97
85)	Benz (a) anthracene	13.68	228	149542	11.17168	ppb		99
86)	Bis (2-ethylhexyl) phthala	13.66	149	124012	11.29890	ppb	#	97
87)	Chrysene	13.72	228	147918	11.46127	ppb		97
88)	Di-n-octylphthalate	14.41	149	210080	11.10068	ppb		97
90)	Benzo (b) fluoranthene	15.03	252	127409	10.58801	ppb		100
91)	Benzo (k) fluoranthene	15.03	252	127409	10.58801	ppb		100
92)	Benzo (a) pyrene	15.47	252	131774	10.99536	ppb		99
93)	Indeno (1,2,3-cd) pyrene	17.46	276	146088	11.33034	ppb		98
94)	Dibenz (a,h) anthracene	17.48	278	124313	10.99692	ppb		98
95)	Benzo (g,h,i) perylene	18.04	276	113616	11.04188	ppb		99

(#) = qualifier out of range (m) = manual integration

Data File : M:\YODA\DATA\Y190319\0319Y006.D Vial: 6
Acq On : 19 Mar 19 19:54 Operator: MA
Sample : 10ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:17 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y007.D Vial: 7
Acq On : 19 Mar 19 20:22 Operator: MA
Sample : 20ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	118806	40.00000	ppb	0.00
21) Napthalene-D8(IS)	6.84	136	501030	40.00000	ppb	0.00
41) Acenaphthene-D10(IS)	8.86	164	264687	40.00000	ppb	0.00
65) Phenanthrene-D10(IS)	10.59	188	443329	40.00000	ppb	0.00
79) Chrysene-D12(IS)	13.69	240	402412	40.00000	ppb	0.00
89) Perylene-D12(IS)	15.55	264	394461	40.00000	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.84	112	184447	41.53801	ppb	0.00
Spiked Amount 200.000			Recovery =	20.769%		
6) Phenol-D6 (S)	5.01	99	243905	42.01414	ppb	0.00
Spiked Amount 200.000			Recovery =	21.007%		
22) Nitrobenzene-D5(S)	6.03	82	110927	20.95539	ppb	0.00
Spiked Amount 100.000			Recovery =	20.955%		
46) 2-Fluorobiphenyl(S)	8.07	172	205898	21.06811	ppb	0.00
Spiked Amount 100.000			Recovery =	21.068%		
64) 2,4,6-Tribromophenol(S)	9.78	330	36355	41.44368	ppb	0.00
Spiked Amount 200.000			Recovery =	20.722%		
82) Terphenyl-D14(S)	12.45	244	204305	20.76951	ppb	0.00
Spiked Amount 100.000			Recovery =	20.770%		
Target Compounds						Qvalue
2) 1,4-Dioxane	1.71	58	1531	1.90351		# 1
3) n-Nitrosodimethylamine	1.94	42	30296	20.06661	ppb	87
4) Pyridine	1.96	79	72084	19.85262	ppb	93
7) Phenol	5.03	94	135235	21.05307	ppb	90
8) Aniline	5.04	93	130467	20.83433	ppb	83
9) Bis (2-chloroethyl) ether	5.11	63	58445	20.47142	ppb	98
10) 2-Chlorophenol	5.17	128	95389	20.41220	ppb	98
11) 1,3-DCB	5.33	146	99950	20.37458	ppb	99
12) 1,4-DCB	5.42	146	103214	20.46023	ppb	98
13) Benzyl alcohol	5.57	108	53846	19.81527	ppb	99
14) 1,2-DCB	5.59	146	96064	20.54700	ppb	98
15) 2-Methylphenol	5.70	107	82532	20.27295	ppb	98
16) Bis (2-chloroisopropyl) et	5.70	45	86001	20.45096	ppb	96
17) Acetophenone	5.86	105	126134	20.23115	ppb	85
18) 3&4-Methylphenol	5.88	107	199094	40.74112	ppb	98
19) n-Nitrosodi-n-propylamine	5.86	70	68841	20.11830	ppb	98
20) Hexachloroethane	5.96	117	38241	20.13738	ppb	95
23) Nitrobenzene	6.05	77	105433	20.61886	ppb	93
24) Isophorone	6.32	82	181974	20.46426	ppb	96
25) 2-Nitrophenol	6.41	139	51636	19.92046	ppb	96
26) 2,4-Dimethylphenol	6.46	122	81380	19.91691	ppb	98
27) Benzoic acid	6.61	105	50723	18.06571	ppb	94
28) Bis (2-chloroethoxy) metha	6.55	93	110336	20.31227	ppb	98
29) 2,4-Dichlorophenol	6.70	162	70409	20.32176	ppb	98
30) 1,2,4-Trichlorobenzene	6.78	180	78773	20.71151	ppb	95
31) 3,4-Dimethylphenol	6.80	107	122536	20.27977	ppb	99
32) Naphthalene	6.86	128	275604	20.32770	ppb	99
33) 4-Chloroaniline	6.93	127	107839	21.57524	ppb	98
34) 2,6-Dichlorophenol	6.93	162	71676	20.57560	ppb	93
35) Hexachloropropene	6.95	213	43151	20.41925	ppb	96
36) Hexachlorobutadiene	6.99	225	38425	20.59577	ppb	100
37) Caprolactum	7.34	55	35007	20.05208	ppb	96

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190319\0319Y007.D Vial: 7
Acq On : 19 Mar 19 20:22 Operator: MA
Sample : 20ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.50	107	84939	20.22452	ppb		96
39)	2-Methylnaphthalene	7.65	142	176107	20.37012	ppb		100
40)	1-Methylnaphthalene	7.76	142	181203	20.22340	ppb		99
42)	Hexachlorocyclopentadiene	7.83	237	3981	20.96140	ppb		89
43)	1,2,4,5-Tetrachlorobenzene	7.84	216	70192	20.31201	ppb		99
44)	2,4,6-Trichlorophenol	7.99	196	44129	19.85742	ppb		98
45)	2,4,5-Trichlorophenol	8.06	196	47541	19.90491	ppb		92
47)	1,1'-Biphenyl	8.19	154	225012	20.56583	ppb		99
48)	2-Chloronaphthalene	8.22	162	169311	20.57409	ppb		97
49)	2-Nitroaniline	8.35	65	55513	20.58305	ppb		88
50)	Dimethyl phthalate	8.54	163	196774	20.57326	ppb		99
51)	2,6-DNT	8.62	165	45513	20.34971	ppb		86
52)	Acenaphthylene	8.70	152	266936	20.49472	ppb		100
53)	3-Nitroaniline	8.83	138	50779	20.65514	ppb	#	84
54)	Acenaphthene	8.89	154	171432	20.43445	ppb		99
55)	2,4-Dinitrophenol	8.99	184	13024	17.19958	ppb	#	52
56)	4-Nitrophenol	9.10	65	5285	18.90553	ppb	#	65
57)	Dibenzofuran	9.10	168	232569	20.42706	ppb		91
58)	2,4-DNT	9.10	165	62972	20.83231	ppb	#	75
59)	2,3,4,6-Tetrachlorophenol	9.25	232	30114	19.85577	ppb		99
60)	Diethyl phthalate	9.36	149	194484	20.60474	ppb		98
61)	4-Chlorophenyl phenyl ethe	9.49	204	89386	20.54507	ppb		89
62)	Fluorene	9.50	166	196332	20.67248	ppb		98
63)	4-Nitroaniline	9.55	138	52779	21.22251	ppb		95
66)	4,6-Dinitro-2-methylphenol	9.58	198	33489	20.24732	ppb		94
67)	Diphenyl amine	9.64	169	305041	41.01295	ppb		98
68)	n-Nitrosodiphenylamine	9.64	169	305041	41.01295	ppb		98
69)	1,2-Diphenylhydrazine	9.67	77	205211	19.71414	ppb		93
70)	4-Bromophenyl phenyl ether	10.06	248	46973	20.24181	ppb		94
71)	Hexachlorobenzene	10.14	284	43877	20.35782	ppb		93
72)	Atrazine	10.26	200	25376	9.98374	ppb		97
73)	Pentachlorophenol	10.41	266	11068	18.56422	ppb		94
74)	Phenanthrene	10.62	178	276104	20.38252	ppb		99
75)	Anthracene	10.68	178	293214	20.49062	ppb		99
76)	Carbazol	10.88	167	270495	20.52677	ppb		100
77)	Di-n-butylphthalate	11.26	149	341694	20.70728	ppb		99
78)	Fluoranthene	12.01	202	288849	20.39367	ppb	#	95
80)	Benzidine	12.19	184	69416	21.74901	ppb		98
81)	Pyrene	12.28	202	301452	20.31913	ppb		99
83)	Butyl benzylphthalate	13.01	149	153106	20.38659	ppb		90
84)	3,3'-Dichlorobenzidine	13.65	252	77820	20.86338	ppb	#	96
85)	Benz (a) anthracene	13.68	228	266081	20.28200	ppb		98
86)	Bis (2-ethylhexyl) phthala	13.66	149	219023	20.36123	ppb		98
87)	Chrysene	13.72	228	252603	19.97064	ppb		99
88)	Di-n-octylphthalate	14.41	149	371572	20.03317	ppb	#	94
90)	Benzo (b) fluoranthene	15.03	252	236137	20.11405	ppb		99
91)	Benzo (k) fluoranthene	15.03	252	236137	20.11405	ppb		99
92)	Benzo (a) pyrene	15.47	252	234062	20.01851	ppb		99
93)	Indeno (1,2,3-cd) pyrene	17.46	276	254606	20.24037	ppb		98
94)	Dibenz (a,h) anthracene	17.48	278	220046	19.95212	ppb		97
95)	Benzo (g,h,i) perylene	18.04	276	204083	20.32972	ppb		98

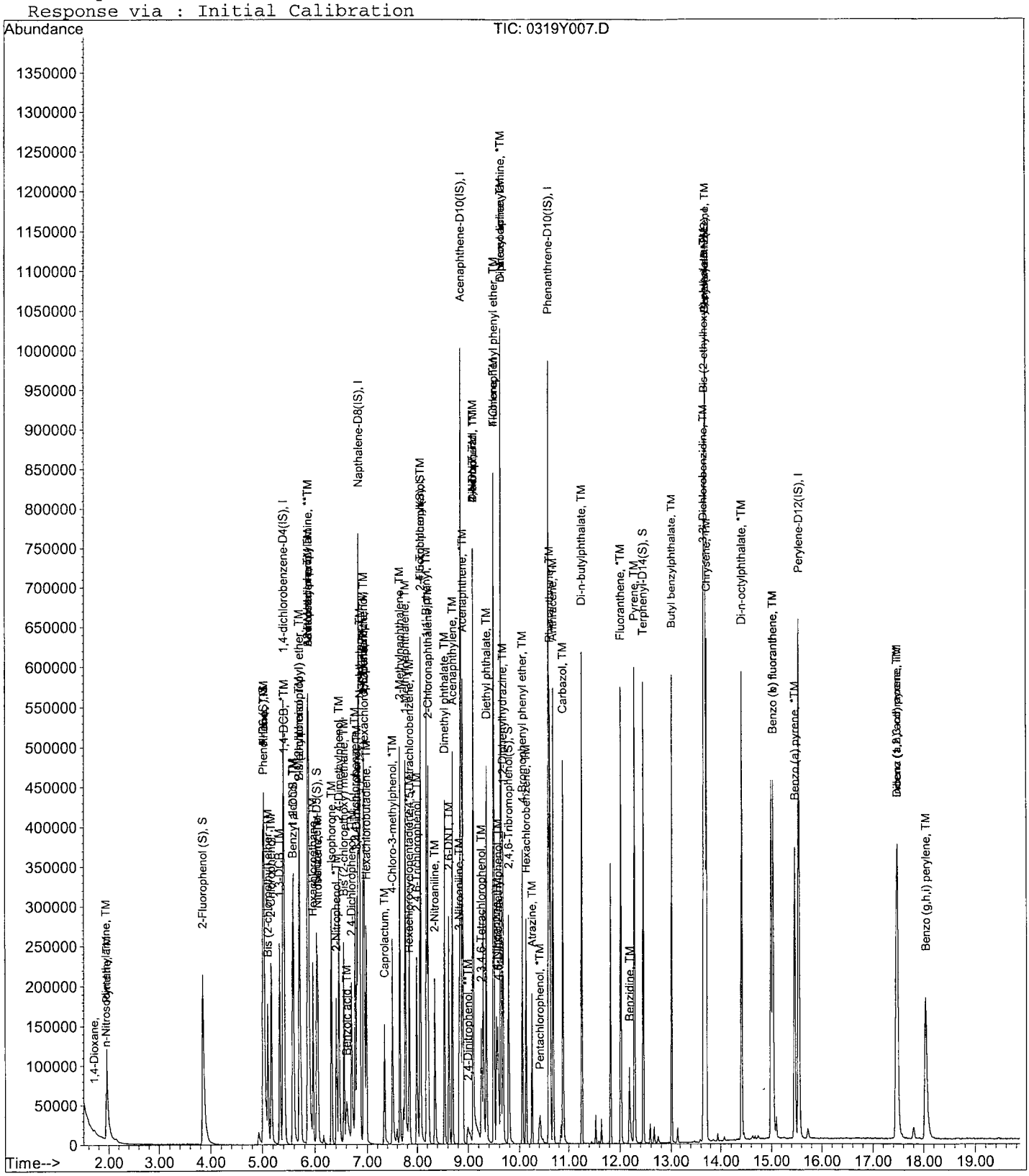
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190319\0319Y007.D Vial: 7
Acq On : 19 Mar 19 20:22 Operator: MA
Sample : 20ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Acq On : 19 Mar 19 20:49 Operator: MA
Sample : 40ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	120598	40.00000	ppb	0.00
21) Napthalene-D8(IS)	6.84	136	508253	40.00000	ppb	0.00
41) Acenaphthene-D10(IS)	8.85	164	266643	40.00000	ppb	0.00
65) Phenanthrene-D10(IS)	10.59	188	448301	40.00000	ppb	0.00
79) Chrysene-D12(IS)	13.69	240	408816	40.00000	ppb	0.00
89) Perylene-D12(IS)	15.55	264	402433	40.00000	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.84	112	350844	77.83705	ppb	0.00
Spiked Amount 200.000			Recovery = 38.919%			
6) Phenol-D6 (S)	5.01	99	455781	77.34446	ppb	0.00
Spiked Amount 200.000			Recovery = 38.672%			
22) Nitrobenzene-D5(S)	6.03	82	208001	38.73536	ppb	0.00
Spiked Amount 100.000			Recovery = 38.735%			
46) 2-Fluorobiphenyl(S)	8.07	172	379372	38.53374	ppb	0.00
Spiked Amount 100.000			Recovery = 38.534%			
64) 2,4,6-Tribromophenol(S)	9.79	330	70048	79.26698	ppb	0.00
Spiked Amount 200.000			Recovery = 39.634%			
82) Terphenyl-D14(S)	12.45	244	375873	37.61243	ppb	0.00
Spiked Amount 100.000			Recovery = 37.612%			
Target Compounds						Qvalue
2) 1,4-Dioxane	1.71	58	3334	4.08361		70
3) n-Nitrosodimethylamine	1.94	42	53816	35.11547	ppb	99
4) Pyridine	1.96	79	149718	40.62106	ppb	94
7) Phenol	5.03	94	246766	37.84513	ppb	93
8) Aniline	5.03	93	248414	39.07988	ppb	97
9) Bis (2-chloroethyl) ether	5.10	63	113368	39.11914	ppb	97
10) 2-Chlorophenol	5.17	128	182996	38.57726	ppb	98
11) 1,3-DCB	5.34	146	191910	38.53912	ppb	99
12) 1,4-DCB	5.42	146	195735	38.22422	ppb	98
13) Benzyl alcohol	5.57	108	107441	38.95066	ppb	97
14) 1,2-DCB	5.59	146	180303	37.99173	ppb	98
15) 2-Methylphenol	5.70	107	157863	38.20086	ppb	97
16) Bis (2-chloroisopropyl) et	5.71	45	162678	38.10985	ppb	95
17) Acetophenone	5.87	105	243630	38.49616	ppb	96
18) 3&4-Methylphenol	5.87	107	381090	76.82465	ppb	98
19) n-Nitrosodi-n-propylamine	5.86	70	134357	38.68144	ppb	96
20) Hexachloroethane	5.96	117	74608	38.70414	ppb	97
23) Nitrobenzene	6.06	77	198863	38.33767	ppb	99
24) Isophorone	6.32	82	342537	37.97327	ppb	98
25) 2-Nitrophenol	6.41	139	103270	39.27397	ppb	99
26) 2,4-Dimethylphenol	6.46	122	162398	39.18039	ppb	95
27) Benzoic acid	6.60	105	116208	40.80091	ppb	97
28) Bis (2-chloroethoxy) metha	6.56	93	210236	38.15330	ppb	99
29) 2,4-Dichlorophenol	6.69	162	136350	38.79467	ppb	97
30) 1,2,4-Trichlorobenzene	6.78	180	149205	38.67244	ppb	98
31) 3,4-Dimethylphenol	6.80	107	231946	37.84165	ppb	100
32) Naphthalene	6.86	128	528234	38.40722	ppb	100
33) 4-Chloroaniline	6.93	127	199123	39.27218	ppb	100
34) 2,6-Dichlorophenol	6.94	162	135706	38.40269	ppb	99
35) Hexachloropropene	6.95	213	84365	39.35456	ppb	99
36) Hexachlorobutadiene	6.99	225	72578	38.34890	ppb	97
37) Caprolactum	7.36	55	68694	38.78887	ppb	99

(#) = qualifier out of range (m) = manual integration

Acq On : 19 Mar 19 20:49 Operator: MA
Sample : 40ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

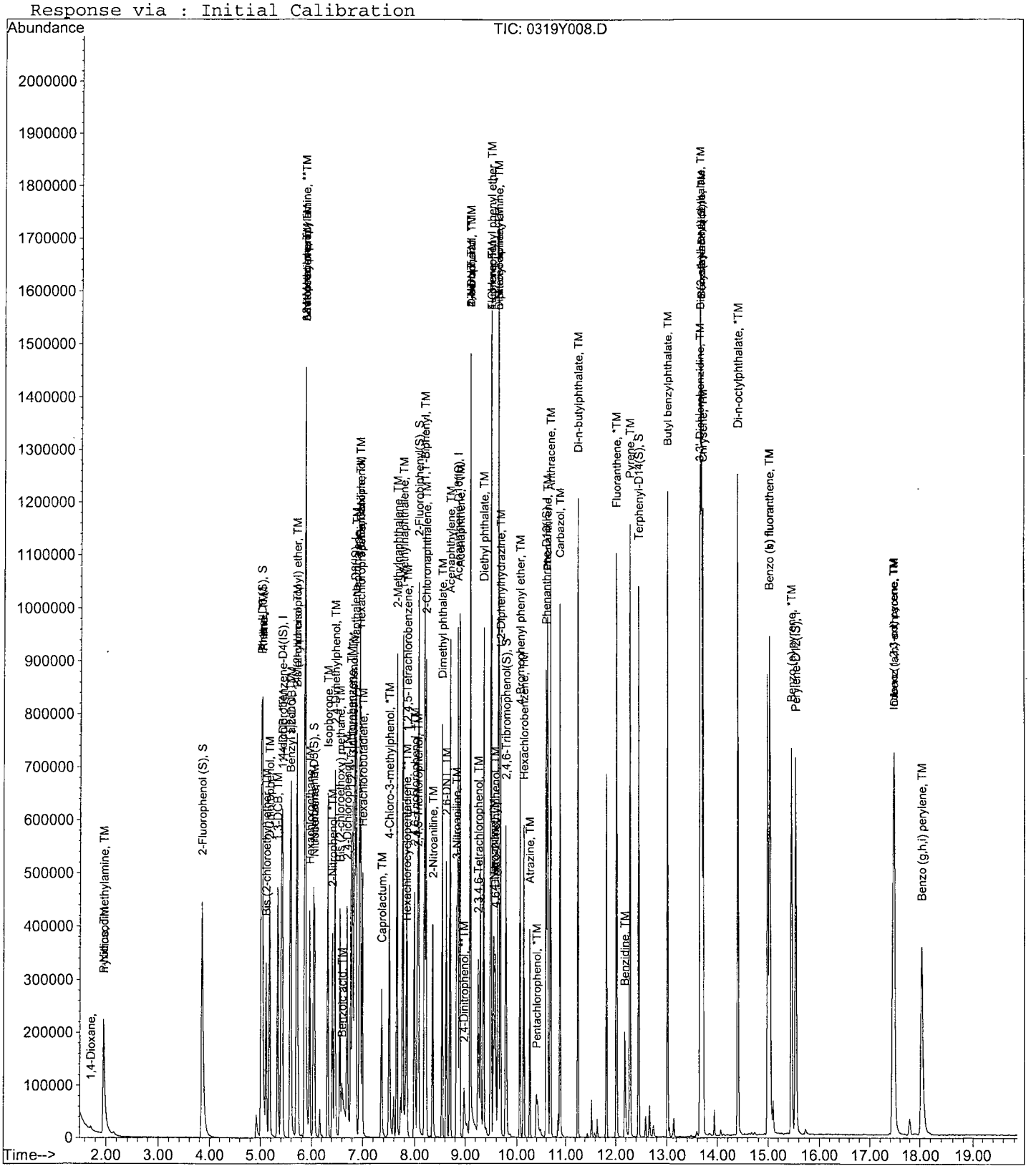
	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.50	107	165627	38.87639	ppb		94
39)	2-Methylnaphthalene	7.65	142	333856	38.06799	ppb		100
40)	1-Methylnaphthalene	7.77	142	350525	38.56483	ppb		98
42)	Hexachlorocyclopentadiene	7.82	237	17908	38.38937	ppb		96
43)	1,2,4,5-Tetrachlorobenzene	7.84	216	135909	39.04054	ppb		100
44)	2,4,6-Trichlorophenol	7.99	196	88646	39.59683	ppb		97
45)	2,4,5-Trichlorophenol	8.05	196	94897	39.44090	ppb		98
47)	1,1'-Biphenyl	8.19	154	430945	39.09893	ppb		98
48)	2-Chloronaphthalene	8.21	162	320001	38.60017	ppb		99
49)	2-Nitroaniline	8.34	65	106898	39.34478	ppb		88
50)	Dimethyl phthalate	8.54	163	374261	38.84296	ppb		99
51)	2,6-DNT	8.63	165	89947	39.92197	ppb		94
52)	Acenaphthylene	8.70	152	510591	38.91442	ppb		99
53)	3-Nitroaniline	8.83	138	100451	40.56025	ppb		86
54)	Acenaphthene	8.90	154	329590	38.99847	ppb		98
55)	2,4-Dinitrophenol	8.98	184	35320	34.37892	ppb		89
56)	4-Nitrophenol	9.10	65	54344	41.65344	ppb		98
57)	Dibenzofuran	9.10	168	447008	38.97371	ppb		95
58)	2,4-DNT	9.10	165	121371	39.85725	ppb	#	63
59)	2,3,4,6-Tetrachlorophenol	9.25	232	62752	41.07223	ppb		95
60)	Diethyl phthalate	9.36	149	374381	39.37309	ppb		99
61)	4-Chlorophenyl phenyl ethe	9.50	204	167169	38.14137	ppb		99
62)	Fluorene	9.50	166	375496	39.24725	ppb		99
63)	4-Nitroaniline	9.55	138	98403	39.27774	ppb		93
66)	4,6-Dinitro-2-methylphenol	9.58	198	69984	41.84279	ppb		97
67)	Diphenyl amine	9.63	169	585175	77.80455	ppb		98
68)	n-Nitrosodiphenylamine	9.63	169	585175	77.80455	ppb		98
69)	1,2-Diphenylhydrazine	9.68	77	389175	36.97247	ppb		98
70)	4-Bromophenyl phenyl ether	10.06	248	91164	38.84908	ppb		98
71)	Hexachlorobenzene	10.14	284	83502	38.31313	ppb		95
72)	Atrazine	10.26	200	50408	19.61218	ppb		98
73)	Pentachlorophenol	10.40	266	28214	37.16629	ppb		95
74)	Phenanthrene	10.63	178	525732	38.38010	ppb		100
75)	Anthracene	10.68	178	559632	38.67492	ppb		99
76)	Carbazol	10.88	167	515005	38.64820	ppb		99
77)	Di-n-butylphthalate	11.26	149	642809	38.52335	ppb		100
78)	Fluoranthene	12.01	202	547930	38.25656	ppb	#	94
80)	Benzidine	12.18	184	128293	39.56635	ppb		99
81)	Pyrene	12.28	202	572657	37.99483	ppb		99
83)	Butyl benzylphthalate	13.01	149	290328	38.05260	ppb		95
84)	3,3'-Dichlorobenzidine	13.65	252	145766	38.46739	ppb	#	96
85)	Benz (a) anthracene	13.68	228	507691	38.09250	ppb		99
86)	Bis (2-ethylhexyl) phthala	13.66	149	413948	37.87940	ppb		99
87)	Chrysene	13.72	228	485669	37.79523	ppb		99
88)	Di-n-octylphthalate	14.42	149	718957	38.15510	ppb		99
90)	Benzo (b) fluoranthene	15.03	252	482020	40.24491	ppb		97
91)	Benzo (k) fluoranthene	15.03	252	482020	40.24491	ppb		97
92)	Benzo (a) pyrene	15.46	252	458006	38.39569	ppb		98
93)	Indeno (1,2,3-cd) pyrene	17.46	276	488450	38.06101	ppb		98
94)	Dibenz (a,h) anthracene	17.48	278	431503	38.35040	ppb		98
95)	Benzo (g,h,i) perylene	18.04	276	394295	38.49960	ppb		99

(#) = qualifier out of range (m) = manual integration

Sample : 40ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Acq On : 19 Mar 19 21:17 Operator: MA
Sample : 60ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	119422	40.00000	ppb	0.00
21) Napthalene-D8(IS)	6.84	136	509759	40.00000	ppb	0.00
41) Acenaphthene-D10(IS)	8.86	164	274152	40.00000	ppb	0.00
65) Phenanthrene-D10(IS)	10.59	188	446170	40.00000	ppb	0.00
79) Chrysene-D12(IS)	13.69	240	403300	40.00000	ppb	0.00
89) Perylene-D12(IS)	15.55	264	398594	40.00000	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.84	112	554819	124.30237	ppb	0.00
Spiked Amount 200.000			Recovery = 62.151%			
6) Phenol-D6 (S)	5.01	99	719608	123.31751	ppb	0.00
Spiked Amount 200.000			Recovery = 61.659%			
22) Nitrobenzene-D5(S)	6.03	82	321087	59.61836	ppb	0.00
Spiked Amount 100.000			Recovery = 59.618%			
46) 2-Fluorobiphenyl(S)	8.08	172	599687	59.24331	ppb	0.00
Spiked Amount 100.000			Recovery = 59.243%			
64) 2,4,6-Tribromophenol(S)	9.79	330	114414	125.92573	ppb	0.00
Spiked Amount 200.000			Recovery = 62.963%			
82) Terphenyl-D14(S)	12.45	244	599770	60.83796	ppb	0.00
Spiked Amount 100.000			Recovery = 60.838%			
Target Compounds						Qvalue
2) 1,4-Dioxane	1.71	58	5619	6.95014		81
3) n-Nitrosodimethylamine	1.94	42	87300	57.52505	ppb	97
4) Pyridine	1.95	79	220241	60.34360	ppb	99
7) Phenol	5.03	94	377378	58.44629	ppb	98
8) Aniline	5.03	93	372737	59.21550	ppb	99
9) Bis (2-chloroethyl) ether	5.11	63	169839	59.18233	ppb	94
10) 2-Chlorophenol	5.17	128	279330	59.46524	ppb	99
11) 1,3-DCB	5.33	146	290271	58.86587	ppb	98
12) 1,4-DCB	5.42	146	295031	58.18265	ppb	99
13) Benzyl alcohol	5.57	108	164974	60.39709	ppb	99
14) 1,2-DCB	5.59	146	271735	57.82124	ppb	98
15) 2-Methylphenol	5.70	107	238089	58.18189	ppb	98
16) Bis (2-chloroisopropyl) et	5.70	45	247456	58.54127	ppb	93
17) Acetophenone	5.87	105	365171	58.26916	ppb	97
18) 3&4-Methylphenol	5.88	107	577737	117.61399	ppb	99
19) n-Nitrosodi-n-propylamine	5.87	70	199853	58.10437	ppb	98
20) Hexachloroethane	5.96	117	110136	57.69751	ppb	98
23) Nitrobenzene	6.06	77	297656	57.21389	ppb	96
24) Isophorone	6.32	82	522924	57.79950	ppb	99
25) 2-Nitrophenol	6.41	139	155294	58.88441	ppb	98
26) 2,4-Dimethylphenol	6.46	122	239596	57.63452	ppb	98
27) Benzoic acid	6.62	105	188602	66.02299	ppb	96
28) Bis (2-chloroethoxy) metha	6.56	93	319808	57.86678	ppb	99
29) 2,4-Dichlorophenol	6.69	162	205603	58.32590	ppb	97
30) 1,2,4-Trichlorobenzene	6.78	180	221096	57.13656	ppb	99
31) 3,4-Dimethylphenol	6.80	107	348609	56.70702	ppb	97
32) Naphthalene	6.86	128	782266	56.70953	ppb	100
33) 4-Chloroaniline	6.93	127	289331	56.89493	ppb	99
34) 2,6-Dichlorophenol	6.94	162	203765	57.49197	ppb	98
35) Hexachloropropene	6.95	213	128538	59.78323	ppb	98
36) Hexachlorobutadiene	6.99	225	108569	57.19641	ppb	97
37) Caprolactum	7.37	55	104723	58.95836	ppb	99

(#) = qualifier out of range (m) = manual integration
0319Y009.D Y0319NC.M Thu Mar 21 16:07:23 2019 Page 1

Acq On : 19 Mar 19 21:17 Operator: MA
Sample : 60ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

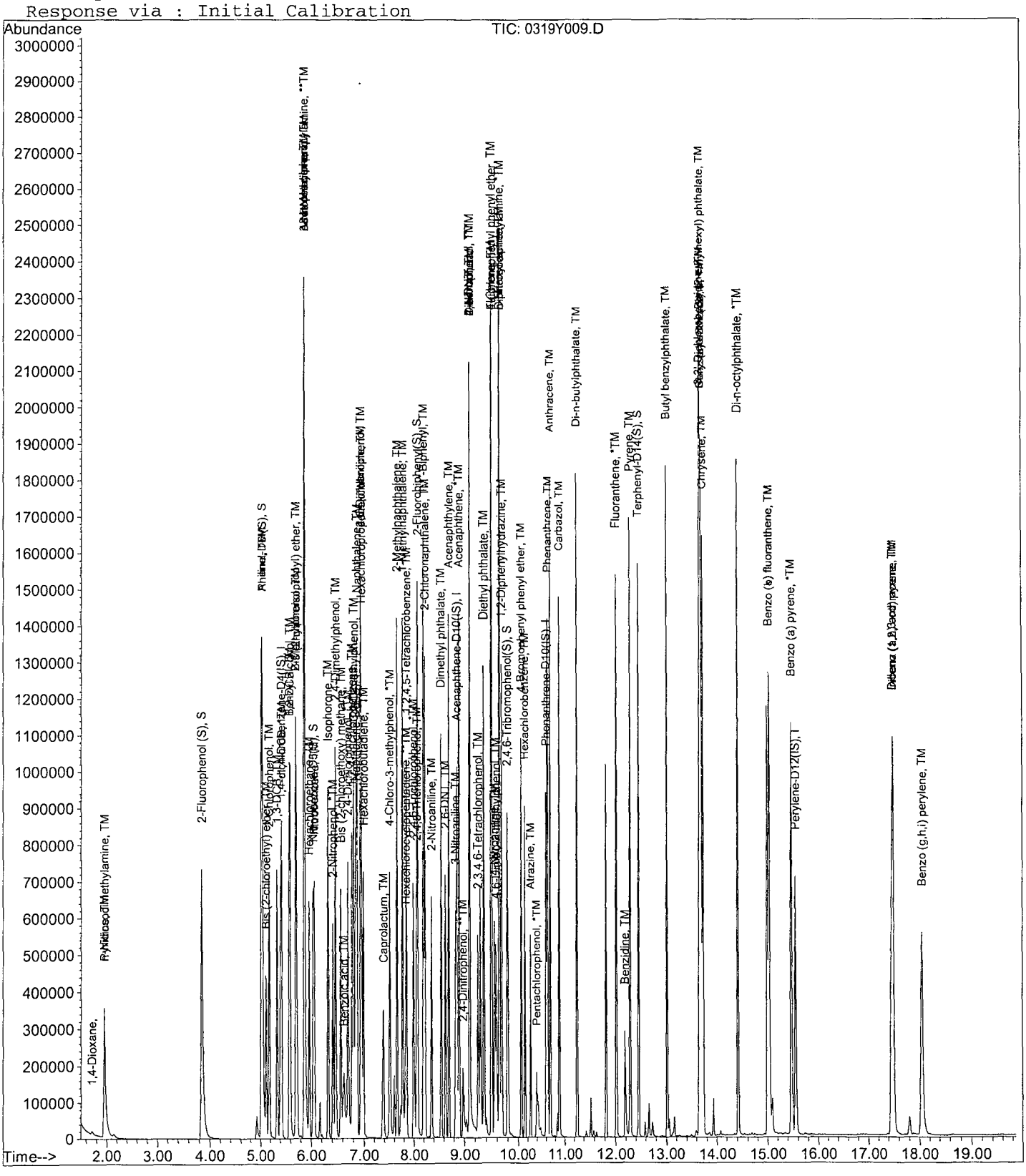
	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.50	107	250598	58.64722 ppb		95
39)	2-Methylnaphthalene	7.65	142	508641	57.82653 ppb		99
40)	1-Methylnaphthalene	7.77	142	523067	57.37792 ppb		100
42)	Hexachlorocyclopentadiene	7.83	237	41106	59.83288 ppb		99
43)	1,2,4,5-Tetrachlorobenzene	7.84	216	204706	57.19222 ppb		98
44)	2,4,6-Trichlorophenol	7.99	196	134842	58.58213 ppb		99
45)	2,4,5-Trichlorophenol	8.05	196	140586	56.82967 ppb		97
47)	1,1'-Biphenyl	8.19	154	643208	56.75881 ppb		99
48)	2-Chloronaphthalene	8.22	162	486021	57.02059 ppb		98
49)	2-Nitroaniline	8.35	65	160739	57.54102 ppb		97
50)	Dimethyl phthalate	8.54	163	568962	57.43277 ppb		99
51)	2,6-DNT	8.63	165	136200	58.79510 ppb		95
52)	Acenaphthylene	8.70	152	773677	57.35032 ppb		99
53)	3-Nitroaniline	8.84	138	149508	58.71506 ppb		99
54)	Acenaphthene	8.90	154	490001	56.39093 ppb		98
55)	2,4-Dinitrophenol	8.98	184	60741	52.76357 ppb		97
56)	4-Nitrophenol	9.10	65	86024	57.49889 ppb		98
57)	Dibenzofuran	9.10	168	661897	56.12878 ppb		99
58)	2,4-DNT	9.11	165	184830	59.03420 ppb		98
59)	2,3,4,6-Tetrachlorophenol	9.26	232	97056	61.78484 ppb		99
60)	Diethyl phthalate	9.36	149	558668	57.14501 ppb		99
61)	4-Chlorophenyl phenyl ethe	9.50	204	253625	56.28224 ppb		98
62)	Fluorene	9.50	166	554278	56.34694 ppb		100
63)	4-Nitroaniline	9.55	138	145202	56.37019 ppb		98
66)	4,6-Dinitro-2-methylphenol	9.58	198	107862	64.79772 ppb		95
67)	Diphenyl amine	9.65	169	867131	115.84393 ppb		99
68)	n-Nitrosodiphenylamine	9.65	169	867131	115.84393 ppb		99
69)	1,2-Diphenylhydrazine	9.68	77	585945	55.93193 ppb		98
70)	4-Bromophenyl phenyl ether	10.06	248	136546	58.46632 ppb		98
71)	Hexachlorobenzene	10.14	284	125566	57.88847 ppb		98
72)	Atrazine	10.26	200	74712	29.20694 ppb		98
73)	Pentachlorophenol	10.39	266	44547	55.24805 ppb		97
74)	Phenanthrene	10.63	178	788815	57.86103 ppb		100
75)	Anthracene	10.69	178	835558	58.01934 ppb		100
76)	Carbazol	10.88	167	772017	58.21221 ppb		99
77)	Di-n-butylphthalate	11.26	149	963212	58.00071 ppb		100
78)	Fluoranthene	12.01	202	830711	58.27740 ppb	#	93
80)	Benzidine	12.18	184	176783	55.26666 ppb		97
81)	Pyrene	12.28	202	859734	57.82208 ppb		100
83)	Butyl benzylphthalate	13.02	149	437718	58.15532 ppb		96
84)	3,3'-Dichlorobenzidine	13.65	252	213681	57.16130 ppb	#	96
85)	Benz (a) anthracene	13.68	228	757726	57.63043 ppb		100
86)	Bis (2-ethylhexyl) phthala	13.67	149	610683	56.64646 ppb		99
87)	Chrysene	13.72	228	724548	57.15621 ppb		99
88)	Di-n-octylphthalate	14.42	149	1080420	58.12218 ppb		99
90)	Benzo (b) fluoranthene	15.04	252	715694	60.33039 ppb		99
91)	Benzo (k) fluoranthene	15.04	252	715694	60.33039 ppb		99
92)	Benzo (a) pyrene	15.47	252	683990	57.89271 ppb		98
93)	Indeno (1,2,3-cd) pyrene	17.47	276	728010	57.27438 ppb		98
94)	Dibenz (a,h) anthracene	17.49	278	642062	57.61372 ppb		99
95)	Benzo (g,h,i) perylene	18.05	276	584721	57.64299 ppb		99

(#) = qualifier out of range (m) = manual integration

Acq On : 19 Mar 19 21:17 Operator: MA
Sample : 60ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Acq On : 19 Mar 19 21:44 Operator: MA
Sample : 80ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	124639	40.00000	ppb	0.00
21) Napthalene-D8(IS)	6.84	136	522881	40.00000	ppb	0.00
41) Acenaphthene-D10(IS)	8.86	164	282109	40.00000	ppb	0.00
65) Phenanthrene-D10(IS)	10.60	188	471351	40.00000	ppb	0.00
79) Chrysene-D12(IS)	13.69	240	412376	40.00000	ppb	0.00
89) Perylene-D12(IS)	15.55	264	411654	40.00000	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.84	112	738693	158.57052	ppb	0.00
Spiked Amount 200.000			Recovery = 79.286%			
6) Phenol-D6 (S)	5.01	99	947457	155.56742	ppb	0.00
Spiked Amount 200.000			Recovery = 77.784%			
22) Nitrobenzene-D5(S)	6.04	82	430884	77.99732	ppb	0.01
Spiked Amount 100.000			Recovery = 77.997%			
46) 2-Fluorobiphenyl(S)	8.08	172	792997	76.13085	ppb	0.00
Spiked Amount 100.000			Recovery = 76.131%			
64) 2,4,6-Tribromophenol(S)	9.79	330	149661	160.07313	ppb	0.00
Spiked Amount 200.000			Recovery = 80.037%			
82) Terphenyl-D14(S)	12.46	244	787455	78.11789	ppb	0.00
Spiked Amount 100.000			Recovery = 78.118%			
Target Compounds						Qvalue
2) 1,4-Dioxane	1.71	58	7489	8.87541		91
3) n-Nitrosodimethylamine	1.94	42	116191	73.35769	ppb	100
4) Pyridine	1.95	79	274406	72.03723	ppb	95
7) Phenol	5.03	94	500767	74.30987	ppb	88
8) Aniline	5.04	93	488876	74.41526	ppb	86
9) Bis (2-chloroethyl) ether	5.12	63	222242	74.20123	ppb	98
10) 2-Chlorophenol	5.17	128	368198	75.10302	ppb	99
11) 1,3-DCB	5.34	146	379628	73.76470	ppb	98
12) 1,4-DCB	5.42	146	385398	72.82252	ppb	99
13) Benzyl alcohol	5.58	108	221913	77.84194	ppb	91
14) 1,2-DCB	5.59	146	361603	73.72321	ppb	99
15) 2-Methylphenol	5.71	107	314233	73.57507	ppb	98
16) Bis (2-chloroisopropyl) et	5.71	45	323030	73.22129	ppb	96
17) Acetophenone	5.87	105	483988	73.99586	ppb	97
18) 3&4-Methylphenol	5.88	107	768184	149.83886	ppb	98
19) n-Nitrosodi-n-propylamine	5.87	70	261635	72.88269	ppb	95
20) Hexachloroethane	5.96	117	146122	73.34555	ppb	97
23) Nitrobenzene	6.06	77	397299	74.45028	ppb	95
24) Isophorone	6.33	82	694207	74.80602	ppb	97
25) 2-Nitrophenol	6.42	139	206201	76.22518	ppb	97
26) 2,4-Dimethylphenol	6.46	122	319334	74.88767	ppb	99
27) Benzoic acid	6.64	105	261327	89.18570	ppb	98
28) Bis (2-chloroethoxy) metha	6.56	93	420280	74.13799	ppb	98
29) 2,4-Dichlorophenol	6.69	162	278019	76.88976	ppb	96
30) 1,2,4-Trichlorobenzene	6.78	180	294061	74.08541	ppb	99
31) 3,4-Dimethylphenol	6.81	107	465258	73.78263	ppb	99
32) Naphthalene	6.86	128	1038095	73.36699	ppb	100
33) 4-Chloroaniline	6.93	127	367949	70.53883	ppb	98
34) 2,6-Dichlorophenol	6.94	162	269825	74.22015	ppb	98
35) Hexachloropropene	6.95	213	171358	77.69879	ppb	99
36) Hexachlorobutadiene	6.99	225	143366	73.63278	ppb	99
37) Caprolactum	7.39	55	136816	75.09349	ppb	94

(#) = qualifier out of range (m) = manual integration

Acq On : 19 Mar 19 21:44 Operator: MA
Sample : 80ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

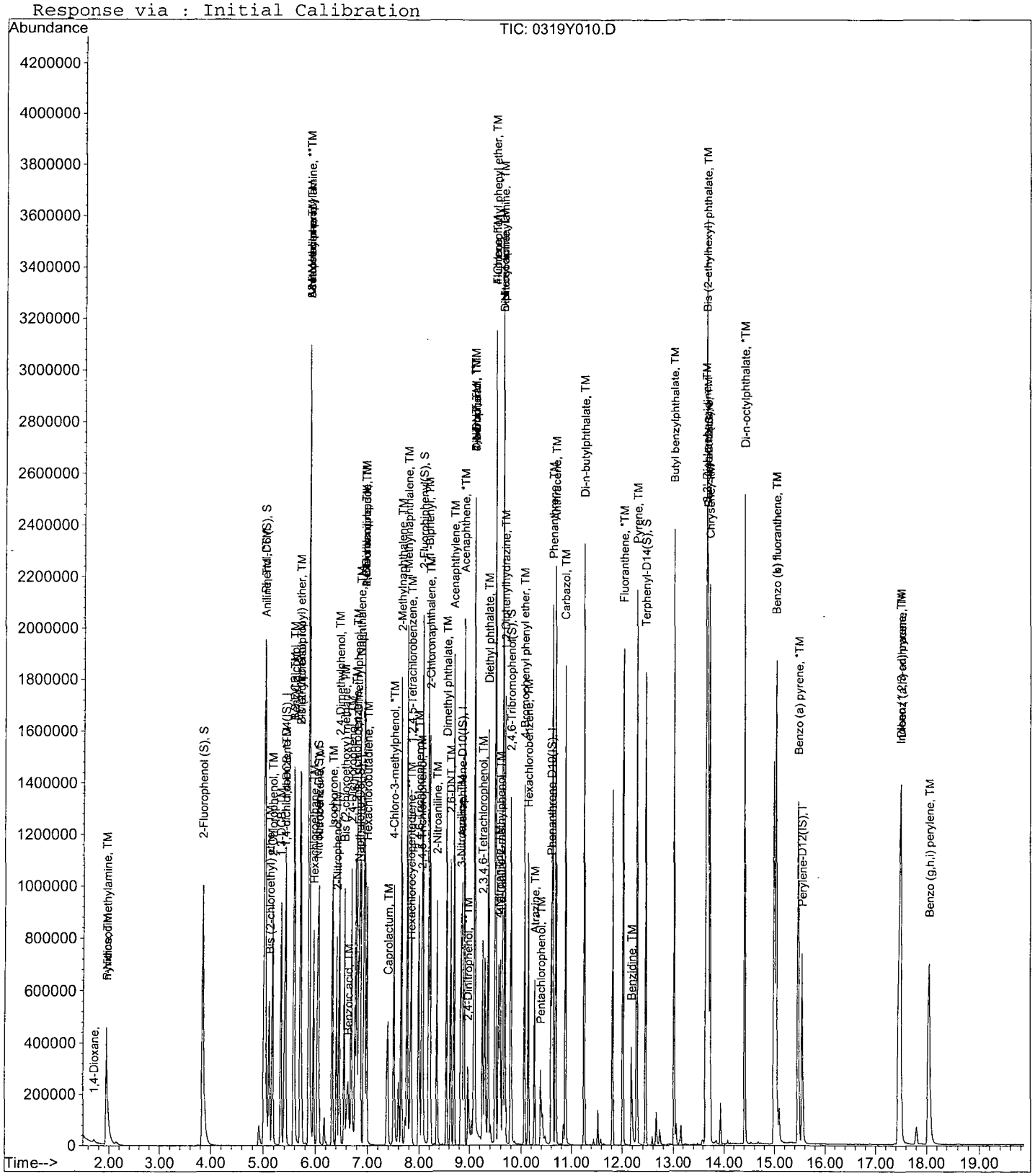
	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.50	107	327934	74.82010	ppb		96
39)	2-Methylnaphthalene	7.65	142	673129	74.60640	ppb		98
40)	1-Methylnaphthalene	7.77	142	691557	73.95670	ppb		100
42)	Hexachlorocyclopentadiene	7.83	237	70940	80.93094	ppb		99
43)	1,2,4,5-Tetrachlorobenzene	7.84	216	270466	73.43339	ppb		100
44)	2,4,6-Trichlorophenol	7.99	196	181249	76.52267	ppb		99
45)	2,4,5-Trichlorophenol	8.05	196	191311	75.15320	ppb		96
47)	1,1'-Biphenyl	8.19	154	856636	73.46029	ppb		100
48)	2-Chloronaphthalene	8.23	162	636805	72.60351	ppb		95
49)	2-Nitroaniline	8.36	65	214971	74.78434	ppb		99
50)	Dimethyl phthalate	8.55	163	749146	73.48817	ppb		99
51)	2,6-DNT	8.63	165	179882	75.46163	ppb		92
52)	Acenaphthylene	8.70	152	1021819	73.60792	ppb		99
53)	3-Nitroaniline	8.84	138	195736	74.70167	ppb		97
54)	Acenaphthene	8.90	154	651107	72.81806	ppb		99
55)	2,4-Dinitrophenol	8.98	184	87654	71.15902	ppb		95
56)	4-Nitrophenol	9.10	65	121095	77.09489	ppb		94
57)	Dibenzofuran	9.10	168	882579	72.73162	ppb		98
58)	2,4-DNT	9.11	165	239317	74.28125	ppb		91
59)	2,3,4,6-Tetrachlorophenol	9.26	232	133018	82.28950	ppb		99
60)	Diethyl phthalate	9.37	149	735163	73.07732	ppb		98
61)	4-Chlorophenyl phenyl ethe	9.50	204	331462	71.48049	ppb		99
62)	Fluorene	9.51	166	731875	72.30262	ppb		99
63)	4-Nitroaniline	9.56	138	190904	72.02220	ppb		96
66)	4,6-Dinitro-2-methylphenol	9.59	198	147764	84.02641	ppb		89
67)	Diphenyl amine	9.65	169	1131969	143.14595	ppb		99
68)	n-Nitrosodiphenylamine	9.65	169	1131969	143.14595	ppb		99
69)	1,2-Diphenylhydrazine	9.68	77	899802	81.30286	ppb		97
70)	4-Bromophenyl phenyl ether	10.06	248	181349	73.50178	ppb		99
71)	Hexachlorobenzene	10.14	284	169696	74.05384	ppb		96
72)	Atrazine	10.27	200	99114	36.67639	ppb		95
73)	Pentachlorophenol	10.39	266	70646	79.76194	ppb		98
74)	Phenanthrene	10.63	178	1046291	72.64729	ppb		100
75)	Anthracene	10.69	178	1107324	72.78248	ppb		100
76)	Carbazol	10.88	167	1031382	73.61438	ppb		100
77)	Di-n-butylphthalate	11.26	149	1261013	71.87650	ppb		99
78)	Fluoranthene	12.02	202	1105666	73.42266	ppb		99
80)	Benzidine	12.18	184	235199	71.91062	ppb		98
81)	Pyrene	12.28	202	1139228	74.93335	ppb		99
83)	Butyl benzylphthalate	13.02	149	573895	74.56968	ppb		99
84)	3,3'-Dichlorobenzidine	13.65	252	277452	72.58701	ppb	#	96
85)	Benz (a) anthracene	13.68	228	1012545	75.31628	ppb		99
86)	Bis (2-ethylhexyl) phthala	13.67	149	814809	73.91756	ppb		99
87)	Chrysene	13.73	228	967964	74.67760	ppb		99
88)	Di-n-octylphthalate	14.42	149	1420300	74.72471	ppb		98
90)	Benzo (b) fluoranthene	15.04	252	876462	71.53857	ppb		97
91)	Benzo (k) fluoranthene	15.04	252	876462	71.53857	ppb		97
92)	Benzo (a) pyrene	15.48	252	904838	74.15550	ppb		98
93)	Indeno (1,2,3-cd) pyrene	17.48	276	972746	74.10046	ppb		96
94)	Dibenz (a,h) anthracene	17.50	278	858807	74.61788	ppb		98
95)	Benzo (g,h,i) perylene	18.06	276	775963	74.06913	ppb		99

(#) = qualifier out of range (m) = manual integration

Acq On : 19 Mar 19 21:44 Operator: MA
Sample : 80ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



0319Y010.D Y0319NC.M Thu Mar 21 16:07:32 2019 Page 3

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	128999	40.00000 ppb	0.00
21) Napthalene-D8(IS)	6.84	136	546463	40.00000 ppb	0.00
41) Acenaphthene-D10(IS)	8.86	164	293849	40.00000 ppb	0.00
65) Phenanthrene-D10(IS)	10.60	188	490122	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.70	240	432203	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.55	264	424247	40.00000 ppb	0.00
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.84	112	958858	198.87509 ppb	0.00
Spiked Amount 200.000				Recovery = 99.438%	
6) Phenol-D6 (S)	5.02	99	1236542	196.17137 ppb	0.00
Spiked Amount 200.000				Recovery = 98.086%	
22) Nitrobenzene-D5(S)	6.04	82	553462	95.86260 ppb	0.00
Spiked Amount 100.000				Recovery = 95.863%	
46) 2-Fluorobiphenyl(S)	8.08	172	1015497	93.59670 ppb	0.00
Spiked Amount 100.000				Recovery = 93.597%	
64) 2,4,6-Tribromophenol(S)	9.79	330	199616	204.97357 ppb	0.00
Spiked Amount 200.000				Recovery = 102.487%	
82) Terphenyl-D14(S)	12.46	244	1007645	95.37573 ppb	0.00
Spiked Amount 100.000				Recovery = 95.376%	
Target Compounds					Qvalue
2) 1,4-Dioxane	1.71	58	8764	10.03540	79
3) n-Nitrosodimethylamine	1.94	42	149106	90.95695 ppb	96
4) Pyridine	1.95	79	353962	89.78167 ppb	96
7) Phenol	5.03	94	632343	90.66321 ppb	92
8) Aniline	5.04	93	623311	91.67179 ppb	97
9) Bis (2-chloroethyl) ether	5.11	63	284907	91.90851 ppb	99
10) 2-Chlorophenol	5.18	128	464858	91.61443 ppb	94
11) 1,3-DCB	5.34	146	480677	90.24254 ppb	99
12) 1,4-DCB	5.42	146	487952	89.08426 ppb	99
13) Benzyl alcohol	5.58	108	281389	95.36865 ppb	95
14) 1,2-DCB	5.59	146	456948	90.01328 ppb	99
15) 2-Methylphenol	5.71	107	400929	90.70140 ppb	99
16) Bis (2-chloroisopropyl) et	5.71	45	408465	89.45755 ppb	93
17) Acetophenone	5.87	105	611533	90.33590 ppb	88
18) 3&4-Methylphenol	5.89	107	971454	183.08343 ppb	100
19) n-Nitrosodi-n-propylamine	5.88	70	334389	90.00116 ppb	99
20) Hexachloroethane	5.96	117	186656	90.52483 ppb	95
23) Nitrobenzene	6.06	77	495416	88.83027 ppb	94
24) Isophorone	6.33	82	868215	89.51935 ppb	99
25) 2-Nitrophenol	6.41	139	265905	94.05379 ppb	94
26) 2,4-Dimethylphenol	6.47	122	407998	91.55147 ppb	95
27) Benzoic acid	6.66	105	338030	110.38455 ppb	97
28) Bis (2-chloroethoxy) metha	6.56	93	537091	90.65506 ppb	99
29) 2,4-Dichlorophenol	6.69	162	350974	92.87762 ppb	99
30) 1,2,4-Trichlorobenzene	6.78	180	368788	88.90253 ppb	99
31) 3,4-Dimethylphenol	6.80	107	588474	89.29551 ppb	100
32) Naphthalene	6.87	128	1321905	89.39350 ppb	99
33) 4-Chloroaniline	6.94	127	435084	79.80973 ppb	96
34) 2,6-Dichlorophenol	6.94	162	343607	90.43650 ppb	98
35) Hexachloropropene	6.95	213	221953	96.29705 ppb	98
36) Hexachlorobutadiene	6.99	225	179910	88.41428 ppb	97
37) Caprolactum	7.40	55	175756	92.30339 ppb	99

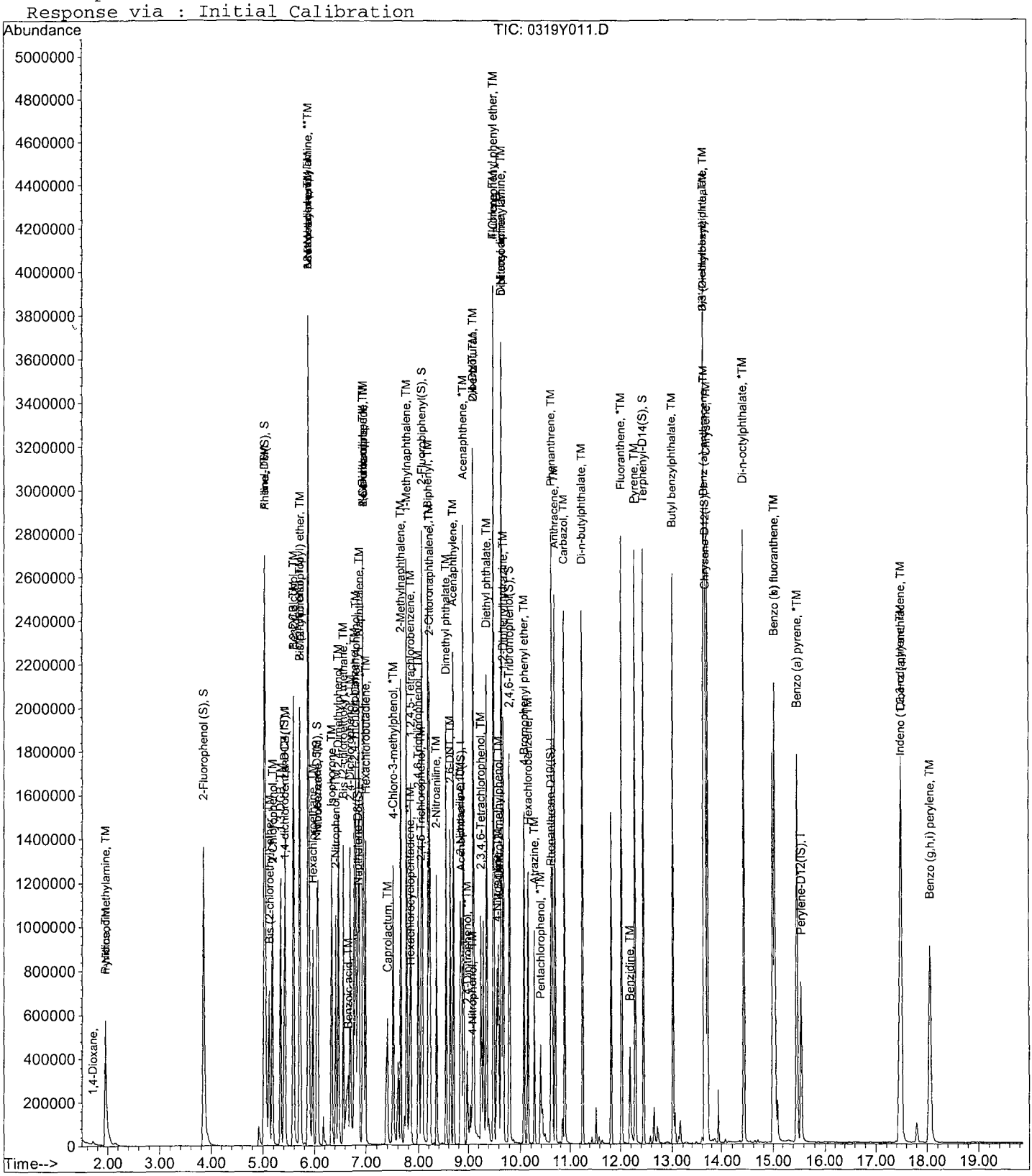
(#) = qualifier out of range (m) = manual integration

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.51	107	424655	92.70650	ppb		99
39)	2-Methylnaphthalene	7.66	142	848678	90.00421	ppb		100
40)	1-Methylnaphthalene	7.77	142	875232	89.56016	ppb		99
42)	Hexachlorocyclopentadiene	7.83	237	105184	99.60718	ppb		97
43)	1,2,4,5-Tetrachlorobenzene	7.84	216	340674	88.79992	ppb		97
44)	2,4,6-Trichlorophenol	7.99	196	231114	93.67710	ppb		99
45)	2,4,5-Trichlorophenol	8.05	196	244412	92.17705	ppb		99
47)	1,1'-Biphenyl	8.20	154	1087136	89.50203	ppb		98
48)	2-Chloronaphthalene	8.22	162	814565	89.15991	ppb		97
49)	2-Nitroaniline	8.35	65	274610	91.71489	ppb		94
50)	Dimethyl phthalate	8.55	163	959118	90.32661	ppb		99
51)	2,6-DNT	8.63	165	233972	94.23128	ppb		82
52)	Acenaphthylene	8.70	152	1296743	89.68034	ppb		99
53)	3-Nitroaniline	8.84	138	245951	90.11579	ppb		92
54)	Acenaphthene	8.90	154	821465	88.19999	ppb		98
55)	2,4-Dinitrophenol	8.98	184	119143	90.70931	ppb		96
56)	4-Nitrophenol	9.07	65	159994	102.32682	ppb	#	76
57)	Dibenzofuran	9.11	168	1112137	87.98744	ppb		93
58)	2,4-DNT	9.11	165	306608	91.36542	ppb		79
59)	2,3,4,6-Tetrachlorophenol	9.26	232	172487	102.44319	ppb		96
60)	Diethyl phthalate	9.37	149	913366	87.16387	ppb		99
61)	4-Chlorophenyl phenyl ethe	9.50	204	427282	88.46288	ppb		95
62)	Fluorene	9.51	166	931717	88.36777	ppb		99
63)	4-Nitroaniline	9.57	138	241665	87.53018	ppb		93
66)	4,6-Dinitro-2-methylphenol	9.60	198	195017	106.64976	ppb	#	79
67)	Diphenyl amine	9.65	169	1453305	176.74271	ppb		99
68)	n-Nitrosodiphenylamine	9.65	169	1453305	176.74271	ppb		99
69)	1,2-Diphenylhydrazine	9.68	77	1133772	98.52009	ppb		94
70)	4-Bromophenyl phenyl ether	10.07	248	233692	91.08917	ppb		86
71)	Hexachlorobenzene	10.15	284	215413	90.40410	ppb		86
72)	Atrazine	10.27	200	126617	45.05924	ppb		97
73)	Pentachlorophenol	10.39	266	96308	102.60104	ppb		98
74)	Phenanthrene	10.63	178	1336863	89.26765	ppb		99
75)	Anthracene	10.69	178	1408486	89.03175	ppb		99
76)	Carbazol	10.89	167	1314585	90.23438	ppb		97
77)	Di-n-butylphthalate	11.26	149	1619389	88.76847	ppb		100
78)	Fluoranthene	12.02	202	1425227	91.01866	ppb		97
80)	Benzidine	12.19	184	300037	87.52618	ppb		98
81)	Pyrene	12.29	202	1457256	91.45468	ppb		99
83)	Butyl benzylphthalate	13.01	149	737088	91.38077	ppb		96
84)	3,3'-Dichlorobenzidine	13.66	252	343274	85.68751	ppb		99
85)	Benz (a) anthracene	13.68	228	1263351	89.66112	ppb		98
86)	Bis (2-ethylhexyl) phthala	13.66	149	1014608	87.82046	ppb		98
87)	Chrysene	13.73	228	1222782	90.00896	ppb		98
88)	Di-n-octylphthalate	14.42	149	1823445	91.53399	ppb		96
90)	Benzo (b) fluoranthene	15.05	252	1198995	94.95943	ppb		99
91)	Benzo (k) fluoranthene	15.05	252	1198995	94.95943	ppb		99
92)	Benzo (a) pyrene	15.47	252	1144046	90.97657	ppb		100
93)	Indeno (1,2,3-cd) pyrene	17.49	276	1234147	91.22249	ppb		97
94)	Dibenz (a,h) anthracene	17.52	278	1080909	91.12762	ppb		96
95)	Benzo (g,h,i) perylene	18.07	276	989000	91.60224	ppb		99

Acq On : 19 Mar 19 22:11 Operator: MA
Sample : 100ug/mL 8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:19 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 03/19/19
Instrument: Yoda
Initial Cal. Date: 03/19/19
Data File: 0319Y012.D

		Compound	MEAN	CCRF	%D		%Drift
1		1,4-Dioxane	0.2708	0.2758	1.8		
2	TM	n-Nitrosodimethylamine	0.5083	0.4536	11	TM	
3	TM	Pyridine	1.222	1.245	1.9	TM	
4	*TM	Phenol	2.163	2.182	0.89	*TM	
5	TM	Aniline	2.108	2.063	2.2	TM	
6	TM	Bis (2-chloroethyl) ether	0.9612	0.9227	4.0	TM	
7	TM	2-Chlorophenol	1.573	1.558	1.00	TM	
8	TM	1,3-DCB	1.652	1.633	1.2	TM	
9	*TM	1,4-DCB	1.698	1.688	0.62	*TM	
10	TM	Benzyl alcohol	0.9149	0.9011	1.5	TM	
11	TM	1,2-DCB	1.574	1.577	0.17	TM	
12	TM	2-Methylphenol	1.371	1.313	4.2	TM	
13	TM	Bis (2-chloroisopropyl) ether	1.416	1.347	4.8	TM	
14	TM	Acetophenone	2.099	2.045	2.6	TM	
15	TM	3&4-Methylphenol	1.645	1.624	1.3	TM	
16	**TM	n-Nitrosodi-n-propylamine	1.152	1.099	4.6	**TM	
17	TM	Hexachloroethane	0.6394	0.6376	0.27	TM	
18	TM	Nitrobenzene	0.4082	0.3946	3.3	TM	
19	TM	Isophorone	0.7099	0.7016	1.2	TM	
20	*TM	2-Nitrophenol	0.2069	0.2042	1.3	*TM	
21	TM	2,4-Dimethylphenol	0.3262	0.3125	4.2	TM	
22	TM	Benzoic acid	0.2229	0.2510	13	TM	
23	TM	Bis (2-chloroethoxy) methane	0.4337	0.4143	4.5	TM	
24	*TM	2,4-Dichlorophenol	0.2766	0.2784	0.65	*TM	
25	TM	1,2,4-Trichlorobenzene	0.3036	0.2987	1.6	TM	
26	TM	3,4-Dimethylphenol	0.4824	0.4656	3.5	TM	
27	TM	Naphthalene	1.082	1.057	2.3	TM	
28	TM	4-Chloroaniline	0.3990	0.3874	2.9	TM	
29	TM	2,6-Dichlorophenol	0.2781	0.2704	2.8	TM	
30	TM	Hexachloropropene	0.1687	0.1705	1.1	TM	
31	*TM	Hexachlorobutadiene	0.1489	0.1463	1.8	*TM	
32	TM	Caprolactum	0.1394	0.1341	3.8	TM	
33	*TM	4-Chloro-3-methylphenol	0.3353	0.3256	2.9	*TM	
34	TM	2-Methylnaphthalene	0.6902	0.6654	3.6	TM	
35	TM	1-Methylnaphthalene	0.7153	0.6853	4.2	TM	
36	**TMQ	Hexachlorocyclopentadiene	0.0924	0.0990	7.1	**TMQ	7.2
37	TM	1,2,4,5-Tetrachlorobenzene	0.5222	0.4998	4.3	TM	
38	*TM	2,4,6-Trichlorophenol	0.3358	0.3306	1.5	*TM	
39	TM	2,4,5-Trichlorophenol	0.3609	0.3495	3.2	TM	
40	TM	1,1'-Biphenyl	1.653	1.591	3.7	TM	
		Average			3.1		

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 03/19/19
Instrument: Yoda
Cal. Date: 03/19/19
Data File: 0319Y012.D

		Compound	MEAN	CCRF	%D		%Drift	
41	TM	2-Chloronaphthalene	1.244	1.232	0.90	TM		
42	TM	2-Nitroaniline	0.4076	0.3927	3.6	TM		
43	TM	Dimethyl phthalate	1.445	1.387	4.1	TM		
44	TM	2,6-DNT	0.3380	0.3438	1.7	TM		
45	TM	Acenaphthylene	1.968	1.931	1.9	TM		
46	TM	3-Nitroaniline	0.3715	0.3753	1.0	TM		
47	*TM	Acenaphthene	1.268	1.234	2.7	*TM		
48	**TML	2,4-Dinitrophenol	0.1285	0.1399	8.8	**TML	2.8	
49	**TMQ	4-Nitrophenol	0.1853	0.2146	16	**TMQ	1.4	
50	TM	Dibenzofuran	1.721	1.642	4.6	TM		
51	TM	2,4-DNT	0.4568	0.4638	1.5	TM		
52	TM	2,3,4,6-Tetrachlorophenol	0.2292	0.2538	11	TM		
53	TM	Diethyl phthalate	1.426	1.368	4.1	TM		
54	TM	4-Chlorophenyl phenyl ether	0.6575	0.6283	4.4	TM		
55	TM	Fluorene	1.435	1.405	2.1	TM		
56	TM	4-Nitroaniline	0.3758	0.3660	2.6	TM		
57	TM	4,6-Dinitro-2-methylphenol	0.1492	0.1589	6.5	TM		
58	TM	Diphenyl amine	0.6711	0.6712	0.01	TM		
59	*TM	n-Nitrosodiphenylamine	0.6711	0.6712	0.01	*TM		
60	TM	1,2-Diphenylhydrazine	0.9392	0.9000	4.2	TM		
61	TM	4-Bromophenyl phenyl ether	0.2094	0.2004	4.3	TM		
62	TM	Hexachlorobenzene	0.1945	0.1915	1.5	TM		
63	TM	Atrazine	0.2293	0.2249	1.9	TM		
64	*TML	Pentachlorophenol	0.0643	0.0638	0.80	*TML	8.4	
65	TM	Phenanthrene	1.222	1.192	2.5	TM		
66	TM	Anthracene	1.291	1.238	4.1	TM		
67	TM	Carbazol	1.189	1.175	1.2	TM		
68	TM	Di-n-butylphthalate	1.489	1.422	4.5	TM		
69	*TM	Fluoranthene	1.278	1.252	2.0	*TM		
70	TM	Benzidine	0.3087	0.4238	37	TM		*
71	TM	Pyrene	1.475	1.477	0.19	TM		
72	TM	Butyl benzylphthalate	0.7465	0.7432	0.45	TM		
73	TM	3,3'-Dichlorobenzidine	0.3708	0.4245	14	TM		
74	TM	Benz (a) anthracene	1.304	1.287	1.3	TM		
75	TM	Bis (2-ethylhexyl) phthalate	1.069	1.047	2.1	TM		
76	TM	Chrysene	1.257	1.249	0.66	TM		
77	*TM	Di-n-octylphthalate	1.844	1.830	0.75	*TM		
78	TM	Benzo (b) fluoranthene	1.190	1.224	2.8	TM		
79	TM	Benzo (k) fluoranthene	1.190	1.224	2.8	TM		
80	*TM	Benzo (a) pyrene	1.186	1.173	1.1	*TM		
		Average			4.2			

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 03/19/19
Instrument: Yoda
Cal. Date: 03/19/19
Data File: 0319Y012.D

		Compound	MEAN	CCRF	%D		%Drift
81	TM	Indeno (1,2,3-cd) pyrene	1.276	1.260	1.2	TM	
82	TM	Dibenz (a,h) anthracene	1.118	1.109	0.80	TM	
83	TM	Benzo (g,h,i) perylene	1.018	1.004	1.4	TM	
84							
85							
86							
87							
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90							
91							
92							
93							
94							
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111							
112							
113							
114							
115							
116							
117							
118							
119							
120							
		Average			1.1		

Data File : 19 Mar 19 22:39 Operator: MA
Sample : SS-8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:51 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Wed Mar 20 09:42:54 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.40	152	119662	40.00000	ppb		0.00
21) Napthalene-D8(IS)	6.84	136	503749	40.00000	ppb		0.00
41) Acenaphthene-D10(IS)	8.86	164	265971	40.00000	ppb		0.00
65) Phenanthrene-D10(IS)	10.59	188	441976	40.00000	ppb		0.00
79) Chrysene-D12(IS)	13.69	240	392951	40.00000	ppb		0.00
89) Perylene-D12(IS)	15.55	264	389935	40.00000	ppb		0.00
System Monitoring Compounds							
5) 2-Fluorophenol (S)	0.00	112	0	0.00000	ppb		
Spiked Amount 200.000			Recovery	=	0.000%		
6) Phenol-D6 (S)	0.00	99	0	0.00000	ppb		
Spiked Amount 200.000			Recovery	=	0.000%		
22) Nitrobenzene-D5(S)	5.96	82	20266	3.80782	ppb		-0.07
Spiked Amount 100.000			Recovery	=	3.808%		
46) 2-Fluorobiphenyl(S)	0.00	172	0	0.00000	ppb		
Spiked Amount 100.000			Recovery	=	0.000%		
64) 2,4,6-Tribromophenol(S)	0.00	330	0	0.00000	ppb		
Spiked Amount 200.000			Recovery	=	0.000%		
82) Terphenyl-D14(S)	12.46	244	154	0.01603	ppb		0.00
Spiked Amount 100.000			Recovery	=	0.016%		
Target Compounds							Qvalue
2) 1,4-Dioxane	1.71	58	4125	5.09198			81
3) n-Nitrosodimethylamine	1.94	42	67841	44.61317	ppb		100
4) Pyridine	1.95	79	186260	50.93082	ppb		99
7) Phenol	5.03	94	326371	50.44522	ppb		99
8) Aniline	5.03	93	308538	48.91811	ppb	#	95
9) Bis (2-chloroethyl) ether	5.11	63	138021	47.99852	ppb		100
10) 2-Chlorophenol	5.17	128	232989	49.50044	ppb		99
11) 1,3-DCB	5.33	146	244193	49.42211	ppb		99
12) 1,4-DCB	5.42	146	252474	49.69018	ppb		99
13) Benzyl alcohol	5.57	108	134784	49.24555	ppb		98
14) 1,2-DCB	5.59	146	235856	50.08606	ppb		99
15) 2-Methylphenol	5.70	107	196356	47.88735	ppb		99
16) Bis (2-chloroisopropyl) et	5.70	45	201555	47.58672	ppb		89
17) Acetophenone	5.87	105	305876	48.70976	ppb		91
18) 3&4-Methylphenol	5.88	107	485858	98.71116	ppb		100
19) n-Nitrosodi-n-propylamine	5.86	70	164419	47.70657	ppb		97
20) Hexachloroethane	5.96	117	95375	49.86438	ppb		97
23) Nitrobenzene	6.05	77	248485	48.33233	ppb		93
24) Isophorone	6.32	82	441766	49.41155	ppb		100
25) 2-Nitrophenol	6.41	139	128567	49.33168	ppb		97
26) 2,4-Dimethylphenol	6.46	122	196783	47.90065	ppb		98
27) Benzoic acid	6.61	105	158025	56.29546	ppb		98
28) Bis (2-chloroethoxy) metha	6.55	93	260894	47.76995	ppb		98
29) 2,4-Dichlorophenol	6.69	162	175316	50.32737	ppb		95
30) 1,2,4-Trichlorobenzene	6.77	180	188098	49.18901	ppb		96
31) 3,4-Dimethylphenol	6.80	107	293191	48.26136	ppb		97
32) Naphthalene	6.86	128	665697	48.83474	ppb		100
33) 4-Chloroaniline	6.93	127	243911	48.53563	ppb		100
34) 2,6-Dichlorophenol	6.94	162	170257	48.61086	ppb		98
35) Hexachloropropene	6.95	213	107365	50.53139	ppb		100
36) Hexachlorobutadiene	6.99	225	92116	49.10760	ppb		98
37) Caprolactum	7.37	55	84463	48.11944	ppb		95

(#) = qualifier out of range (m) = manual integration

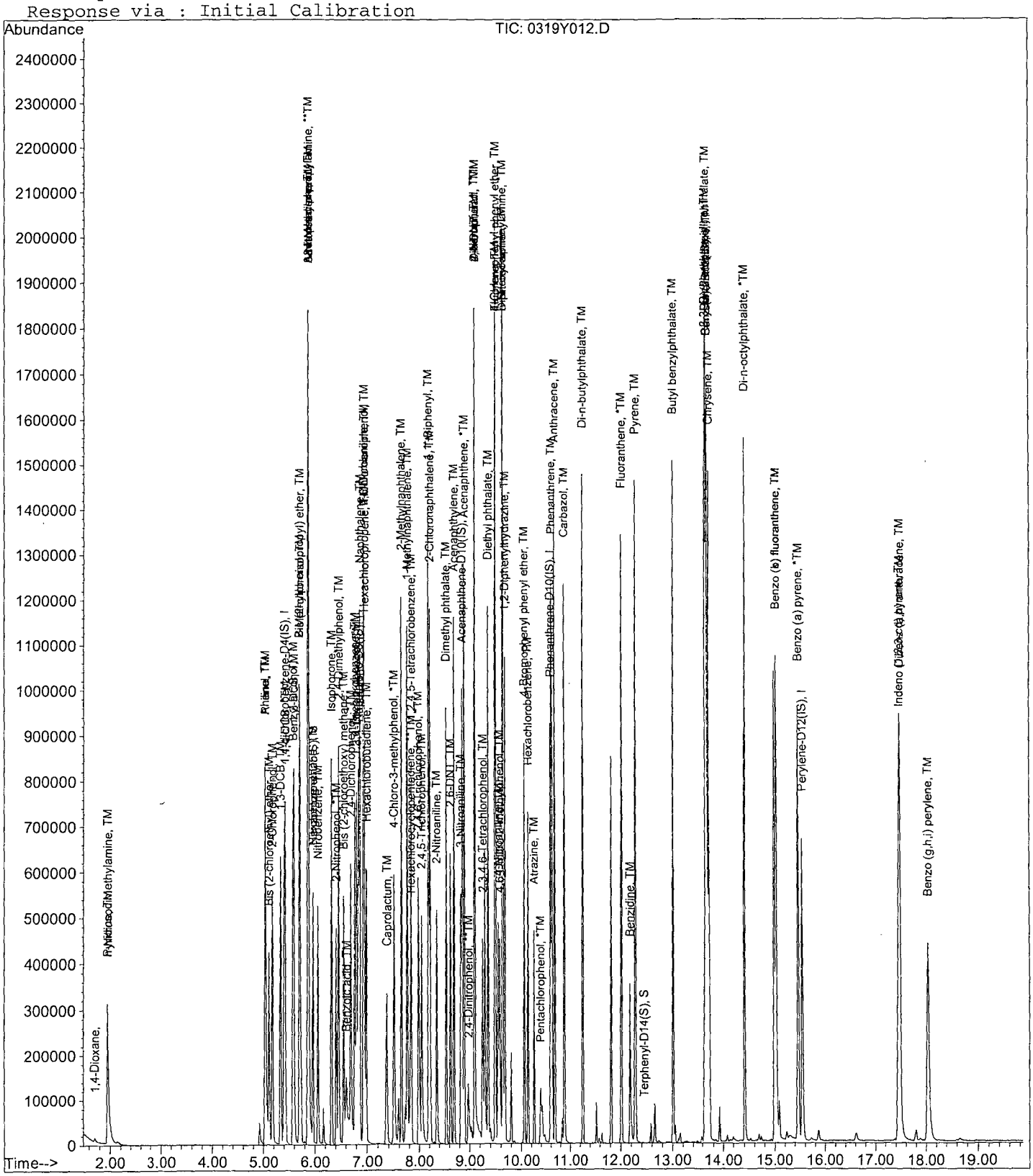
	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.50	107	205002	48.54881	ppb		95
39)	2-Methylnaphthalene	7.65	142	418993	48.20291	ppb		100
40)	1-Methylnaphthalene	7.77	142	431516	47.89996	ppb		99
42)	Hexachlorocyclopentadiene	7.83	237	32915	53.59927	ppb		97
43)	1,2,4,5-Tetrachlorobenzene	7.84	216	166181	47.85694	ppb		98
44)	2,4,6-Trichlorophenol	7.99	196	109924	49.22545	ppb		96
45)	2,4,5-Trichlorophenol	8.05	196	116191	48.41308	ppb		95
47)	1,1'-Biphenyl	8.19	154	529104	48.12603	ppb		99
48)	2-Chloronaphthalene	8.22	162	409749	49.55092	ppb		98
49)	2-Nitroaniline	8.34	65	130571	48.17926	ppb		89
50)	Dimethyl phthalate	8.54	163	461073	47.97371	ppb		100
51)	2,6-DNT	8.63	165	114309	50.86295	ppb		96
52)	Acenaphthylene	8.70	152	641976	49.05147	ppb		99
53)	3-Nitroaniline	8.83	138	124765	50.50507	ppb		89
54)	Acenaphthene	8.89	154	410164	48.65494	ppb		99
55)	2,4-Dinitrophenol	8.98	184	46512	48.57875	ppb		100
56)	4-Nitrophenol	9.10	65	71354	50.68015	ppb		100
57)	Dibenzofuran	9.10	168	545810	47.70829	ppb		98
58)	2,4-DNT	9.11	165	154197	50.76498	ppb		96
59)	2,3,4,6-Tetrachlorophenol	9.25	232	84375	55.36438	ppb		99
60)	Diethyl phthalate	9.36	149	454872	47.95908	ppb		99
61)	4-Chlorophenyl phenyl ethe	9.50	204	208880	47.77858	ppb		97
62)	Fluorene	9.50	166	467270	48.96296	ppb		97
63)	4-Nitroaniline	9.55	138	121690	48.69551	ppb		94
66)	4,6-Dinitro-2-methylphenol	9.58	198	87770	53.22786	ppb		97
67)	Diphenyl amine	9.64	169	741606	100.01462	ppb		98
68)	n-Nitrosodiphenylamine	9.64	169	741606	100.01462	ppb		98
69)	1,2-Diphenylhydrazine	9.68	77	497223	47.91327	ppb		99
70)	4-Bromophenyl phenyl ether	10.06	248	110718	47.85713	ppb		95
71)	Hexachlorobenzene	10.14	284	105782	49.23042	ppb		96
72)	Atrazine	10.26	200	62133	24.51996	ppb		98
73)	Pentachlorophenol	10.39	266	35240	45.78765	ppb		95
74)	Phenanthrene	10.63	178	658612	48.76883	ppb		100
75)	Anthracene	10.68	178	683995	47.94582	ppb		99
76)	Carbazol	10.88	167	649223	49.41773	ppb		98
77)	Di-n-butylphthalate	11.26	149	785841	47.76918	ppb		100
78)	Fluoranthene	12.01	202	691935	49.00238	ppb	#	94
80)	Benzidine	12.18	184	208143	68.64547	ppb		98
81)	Pyrene	12.28	202	725716	50.09405	ppb		99
83)	Butyl benzylphthalate	13.01	149	365037	49.77620	ppb		94
84)	3,3'-Dichlorobenzidine	13.65	252	208493	57.24235	ppb	#	94
85)	Benz (a) anthracene	13.68	228	632354	49.36166	ppb		99
86)	Bis (2-ethylhexyl) phthala	13.66	149	514327	48.96504	ppb		99
87)	Chrysene	13.72	228	613494	49.67026	ppb		99
88)	Di-n-octylphthalate	14.42	149	898831	49.62690	ppb		99
90)	Benzo (b) fluoranthene	15.03	252	596428	51.39316	ppb		97
91)	Benzo (k) fluoranthene	15.03	252	596428	51.39316	ppb		97
92)	Benzo (a) pyrene	15.47	252	571604	49.45474	ppb		99
93)	Indeno (1,2,3-cd) pyrene	17.46	276	613999	49.37752	ppb		99
94)	Dibenz (a,h) anthracene	17.49	278	540732	49.59861	ppb		98
95)	Benzo (g,h,i) perylene	18.04	276	489260	49.30331	ppb		98

#) = qualifier out of range (m) = manual integration

Acq On : 19 Mar 19 22:39 Operator: MA
Sample : SS-8270 03/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: Mar 20 9:51 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Mar 19 23:23:59 2019
Response via : Initial Calibration



Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 8 May 19 9:14
Instrument: Yoda
Initial Cal. Date: 03/19/19
Data File: 0411Y315.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	1,4-dichlorobenzene-D4(IS)	ISTD			I	
2		1,4-Dioxane	0.2708	0.2292	15		
3	TM	n-Nitrosodimethylamine	0.5083	0.5362	5.5	TM	
4	TM	Pyridine	1.222	1.150	6.0	TM	
5	S	2-Fluorophenol (S)	1.495	1.657	11	S	
6	S	Phenol-D6 (S)	1.955	2.270	16	S	
7	*TM	Phenol	2.163	2.366	9.4	*TM	
8	TM	Aniline	2.108	2.487	18	TM	
9	TM	Bis (2-chloroethyl) ether	0.9612	1.044	8.6	TM	
10	TM	2-Chlorophenol	1.573	1.690	7.4	TM	
11	TM	1,3-DCB	1.652	1.604	2.9	TM	
12	*TM	1,4-DCB	1.698	1.643	3.3	*TM	
13	TM	Benzyl alcohol	0.9149	1.063	16	TM	
14	TM	1,2-DCB	1.574	1.561	0.80	TM	
15	TM	2-Methylphenol	1.371	1.507	10.0	TM	
16	TM	Bis (2-chloroisopropyl) ether	1.416	1.513	6.8	TM	
17	TM	Acetophenone	2.099	2.290	9.1	TM	
18	TM	3&4-Methylphenol	1.645	1.821	11	TM	
19	**TM	n-Nitrosodi-n-propylamine	1.152	1.284	11	**TM	
20	TM	Hexachloroethane	0.6394	0.6399	0.09	TM	
21	I	Napthalene-D8(IS)	ISTD			I	
22	S	Nitrobenzene-D5(S)	0.4226	0.4474	5.9	S	
23	TM	Nitrobenzene	0.4082	0.4079	0.08	TM	
24	TM	Isophorone	0.7099	0.7211	1.6	TM	
25	*TM	2-Nitrophenol	0.2069	0.2085	0.76	*TM	
26	TM	2,4-Dimethylphenol	0.3262	0.3328	2.0	TM	
27	TM	Benzoic acid	0.2242	0.2537	13	TM	
28	TM	Bis (2-chloroethoxy) methane	0.4337	0.4335	0.05	TM	
29	*TM	2,4-Dichlorophenol	0.2766	0.2879	4.1	*TM	
30	TM	1,2,4-Trichlorobenzene	0.3036	0.2953	2.7	TM	
31	TM	3,4-Dimethylphenol	0.4824	0.4949	2.6	TM	
32	TM	Naphthalene	1.082	1.066	1.5	TM	
33	TM	4-Chloroaniline	0.3990	0.4365	9.4	TM	
34	TM	2,6-Dichlorophenol	0.2781	0.2805	0.87	TM	
35	TM	Hexachloropropene	0.1687	0.1740	3.2	TM	
36	*TM	Hexachlorobutadiene	0.1489	0.1473	1.1	*TM	
37	TM	Caprolactum	0.1394	0.1427	2.4	TM	
38	*TM	4-Chloro-3-methylphenol	0.3353	0.3528	5.2	*TM	
39	TM	2-Methylnaphthalene	0.6902	0.6892	0.15	TM	
40	TM	1-Methylnaphthalene	0.7153	0.7189	0.49	TM	
		Average			5.9		

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 8 May 19 9:14
Instrument: Yoda
Cal. Date: 03/19/19
Data File: 0411Y315.D

		Compound	MEAN	CCRF	%D		%Drift
41	I	Acenaphthene-D10(IS)	ISTD			I	
42	**TMQ	Hexachlorocyclopentadiene	0.0924	0.0730	21	**TMQ	9.6
43	TM	1,2,4,5-Tetrachlorobenzene	0.5222	0.5077	2.8	TM	
44	*TM	2,4,6-Trichlorophenol	0.3358	0.3370	0.33	*TM	
45	TM	2,4,5-Trichlorophenol	0.3609	0.3595	0.41	TM	
46	S	2-Fluorobiphenyl(S)	1.477	1.481	0.26	S	
47	TM	1,1'-Biphenyl	1.653	1.604	3.0	TM	
48	TM	2-Chloronaphthalene	1.244	1.216	2.2	TM	
49	TM	2-Nitroaniline	0.4076	0.4184	2.7	TM	
50	TM	Dimethyl phthalate	1.445	1.431	0.98	TM	
51	TM	2,6-DNT	0.3380	0.3383	0.10	TM	
52	TM	Acenaphthylene	1.968	1.920	2.5	TM	
53	TM	3-Nitroaniline	0.3715	0.3894	4.8	TM	
54	*TM	Acenaphthene	1.268	1.230	3.0	*TM	
55	**TML	2,4-Dinitrophenol	0.1301	0.1525	17	**TML	7.2
56	**TMQ	4-Nitrophenol	0.1853	0.2403	30	**TMQ	11
57	TM	Dibenzofuran	1.721	1.681	2.3	TM	
58	TM	2,4-DNT	0.4568	0.4636	1.5	TM	
59	TM	2,3,4,6-Tetrachlorophenol	0.2292	0.2585	13	TM	
60	TM	Diethyl phthalate	1.426	1.417	0.63	TM	
61	TM	4-Chlorophenyl phenyl ether	0.6575	0.6531	0.67	TM	
62	TM	Fluorene	1.435	1.424	0.77	TM	
63	TM	4-Nitroaniline	0.3758	0.3721	0.99	TM	
64	S	2,4,6-Tribromophenol(S)	0.1326	0.1454	9.7	S	
65	I	Phenanthrene-D10(IS)	ISTD			I	
66	TM	4,6-Dinitro-2-methylphenol	0.1492	0.1529	2.5	TM	
67	TM	Diphenyl amine	0.6711	0.6513	2.9	TM	
68	*TM	n-Nitrosodiphenylamine	0.6711	0.6513	2.9	*TM	
69	TM	1,2-Diphenylhydrazine	0.9392	0.8849	5.8	TM	
70	TM	4-Bromophenyl phenyl ether	0.2094	0.2014	3.8	TM	
71	TM	Hexachlorobenzene	0.1945	0.1881	3.3	TM	
72	TM	Atrazine	0.2293	0.2276	0.77	TM	
73	*TML	Pentachlorophenol	0.0578	0.0792	37	*TML	9.6
74	TM	Phenanthrene	1.222	1.185	3.0	TM	
75	TM	Anthracene	1.291	1.226	5.1	TM	
76	TM	Carbazol	1.189	1.149	3.4	TM	
77	TM	Di-n-butylphthalate	1.489	1.449	2.7	TM	
78	*TM	Fluoranthene	1.278	1.243	2.8	*TM	
79	I	Chrysene-D12(IS)	ISTD			I	
80	TM	Benzidine	0.3173	0.3443	8.5	TM	
		Average			5.5		

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 8 May 19 9:14
Instrument: Yoda
Cal. Date: 03/19/19
Data File: 0411Y315.D

		Compound	MEAN	CCRF	%D	%Drift	
81	TM	Pyrene	1.475	1.490	1.0	TM	
82	S	Terphenyl-D14(S)	0.9778	1.029	5.2	S	
83	TM	Butyl benzylphthalate	0.7465	0.7506	0.55	TM	
84	TM	3,3'-Dichlorobenzidine	0.3708	0.3891	4.9	TM	
85	TM	Benz (a) anthracene	1.304	1.289	1.2	TM	
86	TM	Bis (2-ethylhexyl) phthalate	1.069	1.066	0.30	TM	
87	TM	Chrysene	1.257	1.253	0.32	TM	
88	*TM	Di-n-octylphthalate	1.844	1.818	1.4	*TM	
89	I	Perylene-D12(IS)	ISTD			I	
90	TM	Benzo (b) fluoranthene	1.190	1.288	8.2	TM	
91	TM	Benzo (k) fluoranthene	1.190	1.186	0.42	TM	
92	*TM	Benzo (a) pyrene	1.186	1.170	1.4	*TM	
93	TM	Indeno (1,2,3-cd) pyrene	1.276	1.220	4.3	TM	
94	TM	Dibenz (a,h) anthracene	1.118	1.066	4.7	TM	
95	TM	Benzo (g,h,i) perylene	1.018	0.9638	5.3	TM	
96							
97							
98							
99							
100							
101							
102							
103							
104							
105							
106							
107							
108							
109							
110							
111							
112							
113							
114							
115							
116							
117							
118							
119							
120							
		Average			2.8		

Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y315.D Vial: 15
Acq On : 8 May 19 9:14 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: May 8 10:49 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.29	152	166984	40.00000 ppb		-0.04
21) Napthalene-D8(IS)	6.75	136	768893	40.00000 ppb		-0.02
41) Acenaphthene-D10(IS)	8.78	164	422405	40.00000 ppb		-0.01
65) Phenanthrene-D10(IS)	10.54	188	719429	40.00000 ppb		0.00
79) Chrysene-D12(IS)	13.65	240	619512	40.00000 ppb		0.02
89) Perylene-D12(IS)	15.49	264	591322	40.00000 ppb		0.03
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.69	112	691769	110.84055 ppb		-0.10
Spiked Amount 200.000			Recovery = 55.421%			
6) Phenol-D6 (S)	4.89	99	947654	116.14166 ppb		-0.05
Spiked Amount 200.000			Recovery = 58.071%			
22) Nitrobenzene-D5(S)	5.93	82	429971	52.92921 ppb		-0.04
Spiked Amount 100.000			Recovery = 52.929%			
46) 2-Fluorobiphenyl(S)	7.99	172	781859	50.13090 ppb		-0.03
Spiked Amount 100.000			Recovery = 50.131%			
64) 2,4,6-Tribromophenol(S)	9.72	330	153518	109.66221 ppb		0.00
Spiked Amount 200.000			Recovery = 54.831%			
82) Terphenyl-D14(S)	12.40	244	796752	52.61282 ppb		0.00
Spiked Amount 100.000			Recovery = 52.613%			
Target Compounds						Qvalue
3) n-Nitrosodimethylamine	1.86	42	111920	52.74241 ppb		88
4) Pyridine	1.87	79	239978	47.02339 ppb		97
7) Phenol	4.91	94	493909	54.70623 ppb		93
8) Aniline	4.92	93	519154	58.98460 ppb	#	87
9) Bis (2-chloroethyl) ether	4.99	63	217813	54.28101 ppb		95
10) 2-Chlorophenol	5.05	128	352652	53.69099 ppb		100
11) 1,3-DCB	5.22	146	334839	48.56300 ppb		99
12) 1,4-DCB	5.31	146	342869	48.35747 ppb		99
13) Benzyl alcohol	5.47	108	221909	58.10118 ppb		96
14) 1,2-DCB	5.48	146	325920	49.59779 ppb		97
15) 2-Methylphenol	5.60	107	314631	54.98693 ppb		98
16) Bis (2-chloroisopropyl) et	5.60	45	315734	53.41890 ppb		88
17) Acetophenone	5.76	105	477949	54.54231 ppb		96
18) 3&4-Methylphenol	5.77	107	760382	110.70573 ppb		99
19) n-Nitrosodi-n-propylamine	5.76	70	268037	55.73171 ppb		98
20) Hexachloroethane	5.85	117	133572	50.04407 ppb		90
23) Nitrobenzene	5.96	77	392031	49.95814 ppb		96
24) Isophorone	6.23	82	693083	50.78901 ppb		100
25) 2-Nitrophenol	6.32	139	200414	50.38169 ppb		99
26) 2,4-Dimethylphenol	6.37	122	319884	51.01462 ppb		99
27) Benzoic acid	6.55	105	243842m	56.59218 ppb		98
28) Bis (2-chloroethoxy) metha	6.47	93	416600	49.97563 ppb		98
29) 2,4-Dichlorophenol	6.60	162	276675	52.03564 ppb		97
30) 1,2,4-Trichlorobenzene	6.68	180	283863	48.63411 ppb		99
31) 3,4-Dimethylphenol	6.71	107	475661	51.29733 ppb		97
32) Naphthalene	6.77	128	1024995	49.26317 ppb		100
33) 4-Chloroaniline	6.85	127	419487	54.68851 ppb		98
34) 2,6-Dichlorophenol	6.85	162	269610	50.43274 ppb		98
35) Hexachloropropene	6.86	213	167272	51.57866 ppb		99
36) Hexachlorobutadiene	6.90	225	141584	49.45112 ppb		100
37) Caprolactum	7.29	55	137151	51.19191 ppb		98
38) 4-Chloro-3-methylphenol	7.42	107	339116	52.61591 ppb		94

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y315.D Vial: 15
Acq On : 8 May 19 9:14 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: May 8 10:49 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Compound	R.T.	QIon	Response	Conc Unit		Qvalue
39) 2-Methylnaphthalene	7.57	142	662386	49.92590 ppb		99
40) 1-Methylnaphthalene	7.69	142	690902	50.24617 ppb		98
42) Hexachlorocyclopentadiene	7.74	237	38550	45.21110 ppb		99
43) 1,2,4,5-Tetrachlorobenzene	7.76	216	268072	48.60940 ppb		99
44) 2,4,6-Trichlorophenol	7.91	196	177915	50.16663 ppb		98
45) 2,4,5-Trichlorophenol	7.96	196	189795	49.79436 ppb		94
47) 1,1'-Biphenyl	8.11	154	846735	48.49441 ppb		98
48) 2-Chloronaphthalene	8.14	162	642069	48.89008 ppb		96
49) 2-Nitroaniline	8.27	65	220938	51.33210 ppb		83
50) Dimethyl phthalate	8.48	163	755745	49.51242 ppb		99
51) 2,6-DNT	8.56	165	178643	50.05096 ppb		82
52) Acenaphthylene	8.62	152	1013606	48.76494 ppb		100
53) 3-Nitroaniline	8.76	138	205623	52.41060 ppb		92
54) Acenaphthene	8.82	154	649298	48.49743 ppb		99
55) 2,4-Dinitrophenol	8.91	184	80513m	46.37658 ppb		99
56) 4-Nitrophenol	9.00	65	126870	55.44297 ppb	#	67
57) Dibenzofuran	9.02	168	887329	48.83624 ppb		98
58) 2,4-DNT	9.04	165	244767	50.73953 ppb		96
59) 2,3,4,6-Tetrachlorophenol	9.18	232	136487	56.39144 ppb		96
60) Diethyl phthalate	9.30	149	748406	49.68486 ppb		98
61) 4-Chlorophenyl phenyl ethe	9.42	204	344830	49.66457 ppb		91
62) Fluorene	9.43	166	751980	49.61481 ppb		98
63) 4-Nitroaniline	9.50	138	196479	49.50572 ppb		88
66) 4,6-Dinitro-2-methylphenol	9.52	198	137500	51.22788 ppb		96
67) Diphenyl amine	9.58	169	1171455	97.05695 ppb		98
68) n-Nitrosodiphenylamine	9.58	169	1171455	97.05695 ppb		98
69) 1,2-Diphenylhydrazine	9.62	77	795782	47.10960 ppb		97
70) 4-Bromophenyl phenyl ether	10.00	248	181097	48.08952 ppb		97
71) Hexachlorobenzene	10.07	284	169165	48.36631 ppb		99
72) Atrazine	10.20	200	102322	24.80716 ppb		99
73) Pentachlorophenol	10.32	266	71183	54.80743 ppb		98
74) Phenanthrene	10.56	178	1065897	48.48849 ppb		100
75) Anthracene	10.62	178	1102338	47.47045 ppb		100
76) Carbazol	10.82	167	1032867	48.29965 ppb		98
77) Di-n-butylphthalate	11.20	149	1303081	48.66259 ppb		99
78) Fluoranthene	11.97	202	1117492	48.61912 ppb		99
80) Benzidine	12.13	184	266602	54.25810 ppb		98
81) Pyrene	12.23	202	1153838	50.51879 ppb		100
83) Butyl benzylphthalate	12.97	149	581271	50.27501 ppb		99
84) 3,3'-Dichlorobenzidine	13.60	252	301308	52.47173 ppb	#	96
85) Benz (a) anthracene	13.64	228	997914	49.40960 ppb		99
86) Bis (2-ethylhexyl) phthala	13.63	149	825521	49.84982 ppb	#	98
87) Chrysene	13.67	228	970532	49.84076 ppb		99
88) Di-n-octylphthalate	14.37	149	1407877	49.30518 ppb		96
90) Benzo (b) fluoranthene	14.95	252	952244	54.10828 ppb		100
91) Benzo (k) fluoranthene	14.98	252	876262	49.79084 ppb		99
92) Benzo (a) pyrene	15.41	252	864485	49.32173 ppb		100
93) Indeno (1,2,3-cd) pyrene	17.41	276	902078	47.83809 ppb		98
94) Dibenz (a,h) anthracene	17.42	278	787706	47.64527 ppb		98
95) Benzo (g,h,i) perylene	17.97	276	712397	47.33982 ppb		97

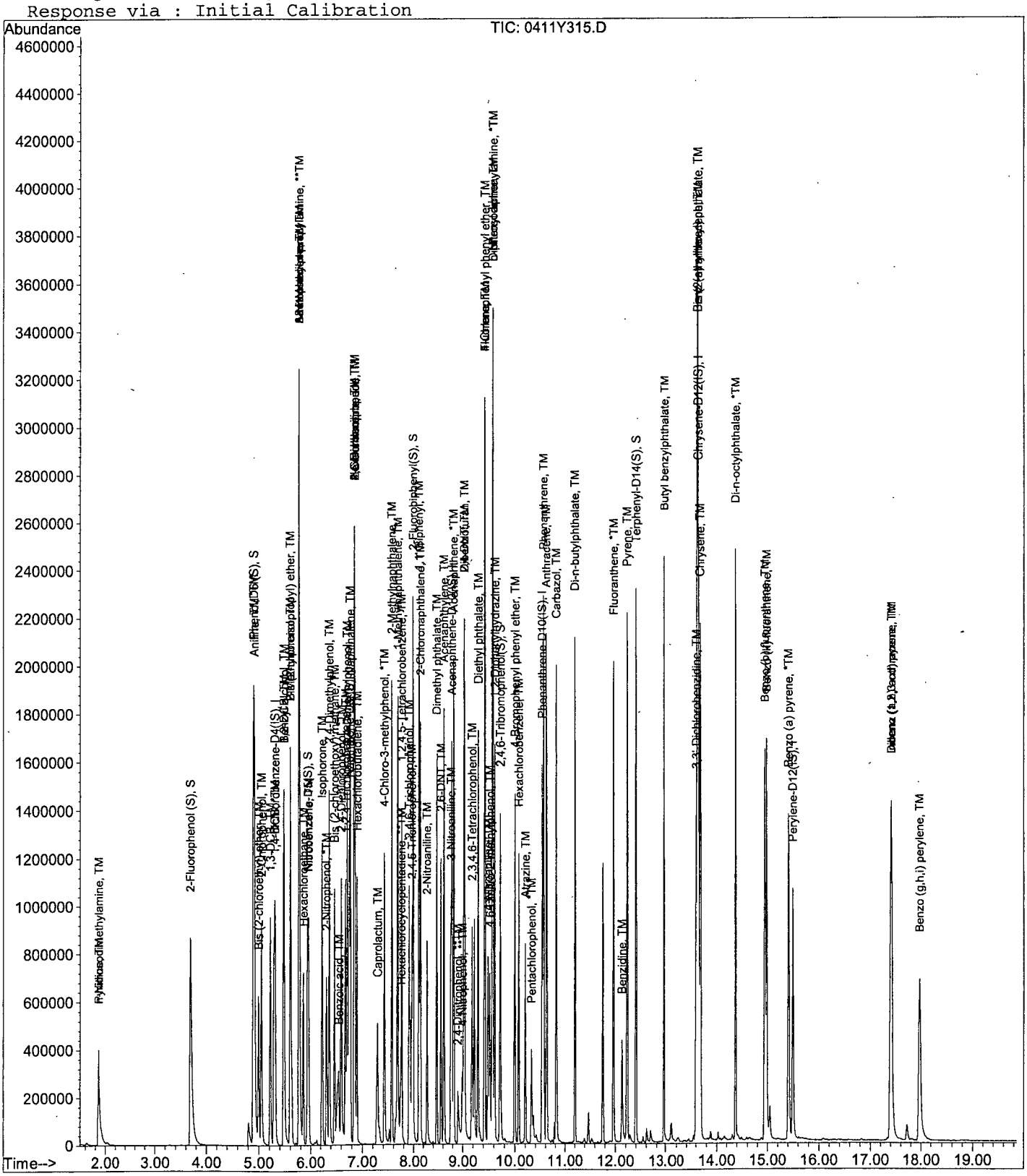
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y315.D Vial: 15
Acq On : 8 May 19 9:14 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: May 8 10:49 2019 Quant Results File: Y0319NC.RES

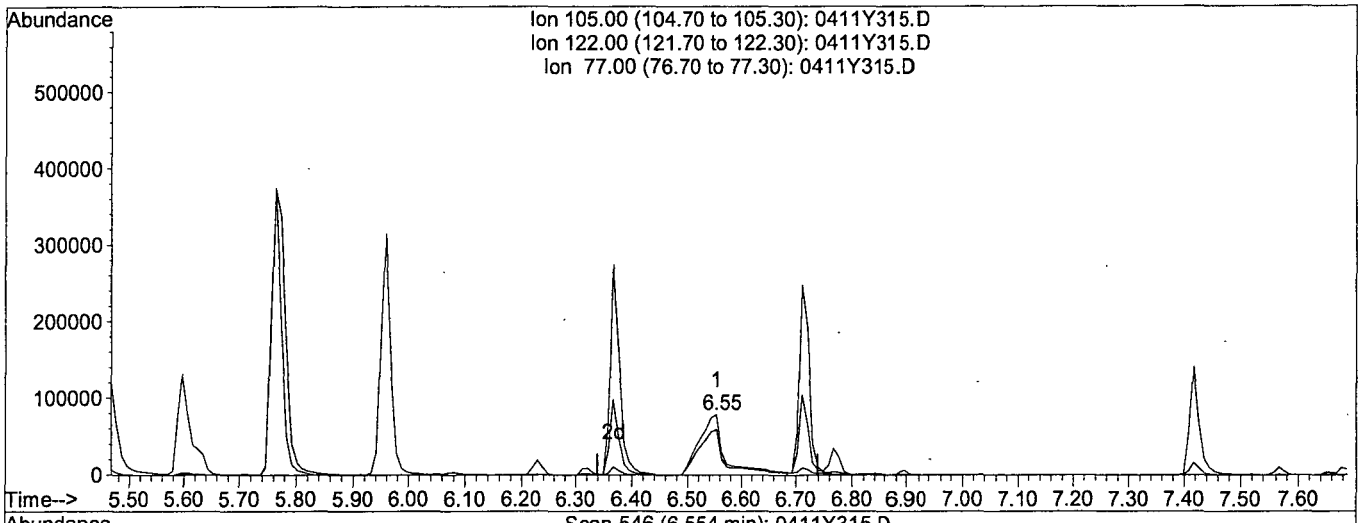
Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration

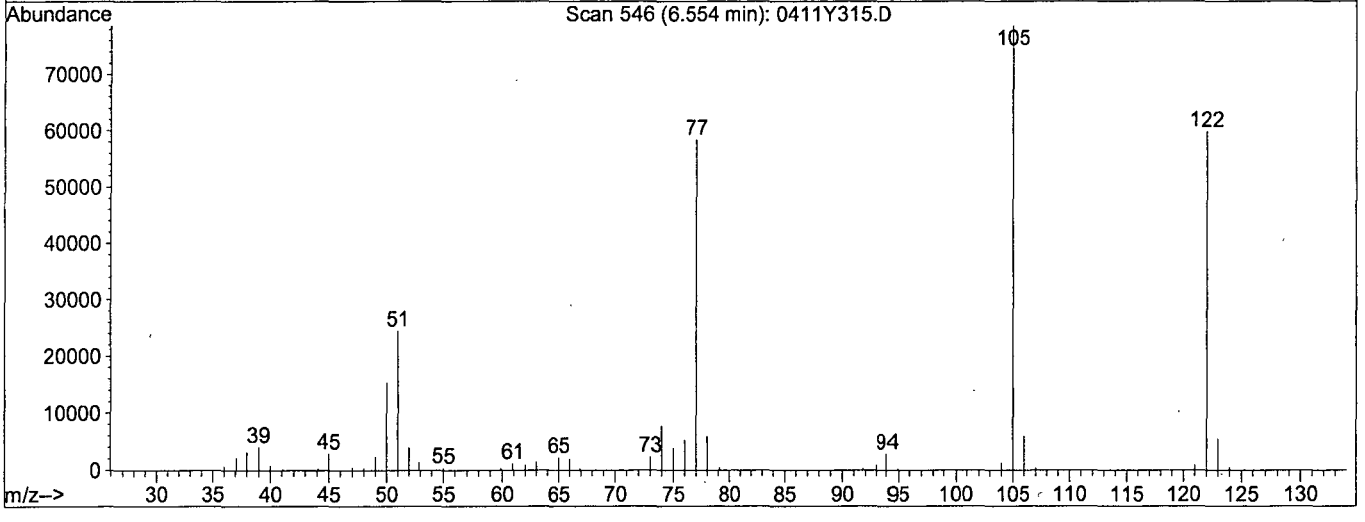


Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y315.D Vial: 15
Acq On : 8 May 19 9:14 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: May 8 9:23 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Multiple Level Calibration





TIC: 0411Y315.D

(27) Benzoic acid (TM)

6.55min 62.0044ppb

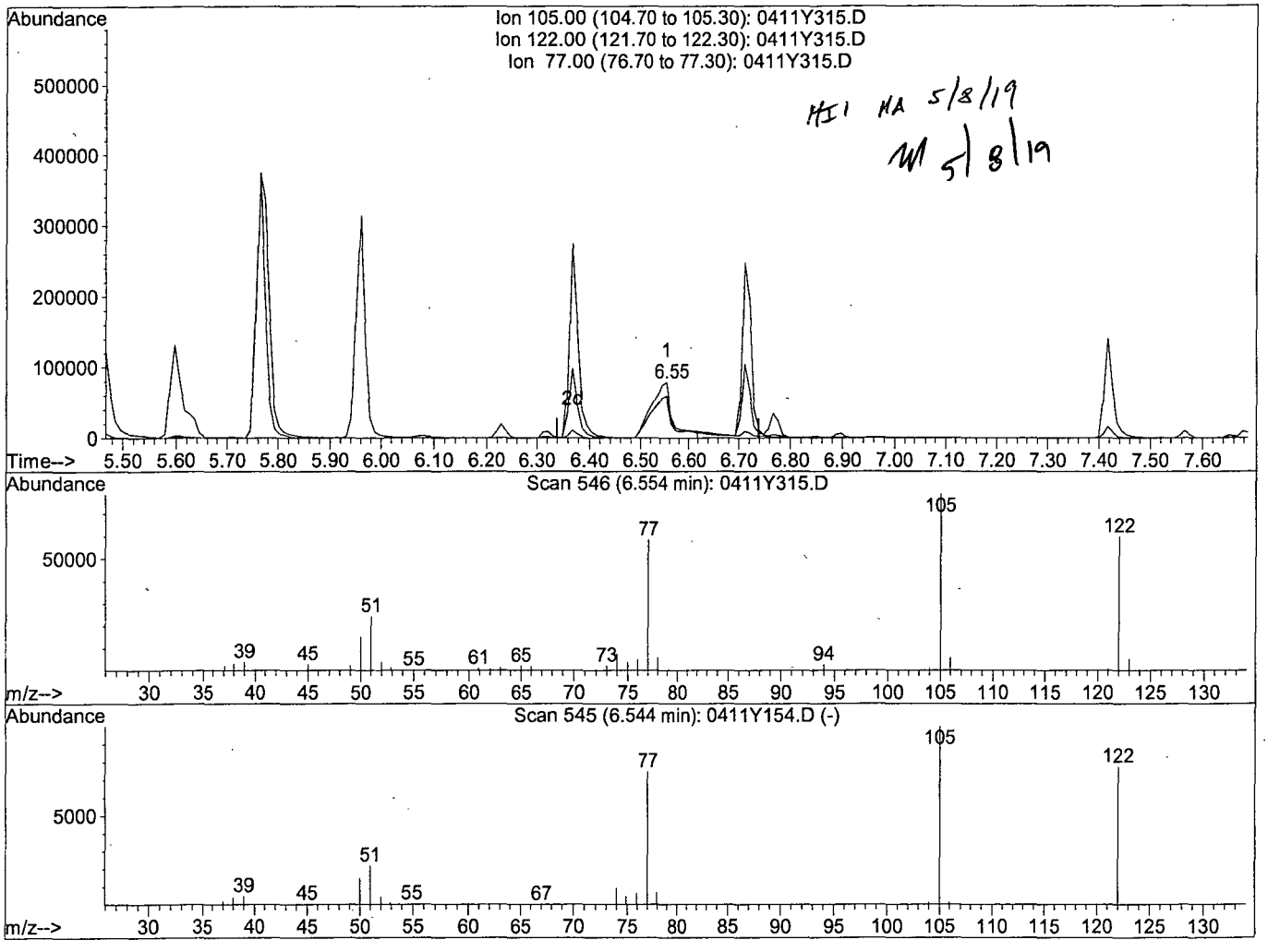
response 267162

Ion	Exp%	Act%
105.00	100	100
122.00	79.10	76.10
77.00	72.70	73.80
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y315.D Vial: 15
Acq On : 8 May 19 9:14 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: May 8 10:48 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Multiple Level Calibration



TIC: 0411Y315.D

(27) Benzoic acid (TM)

6.55min 56.5922ppb m

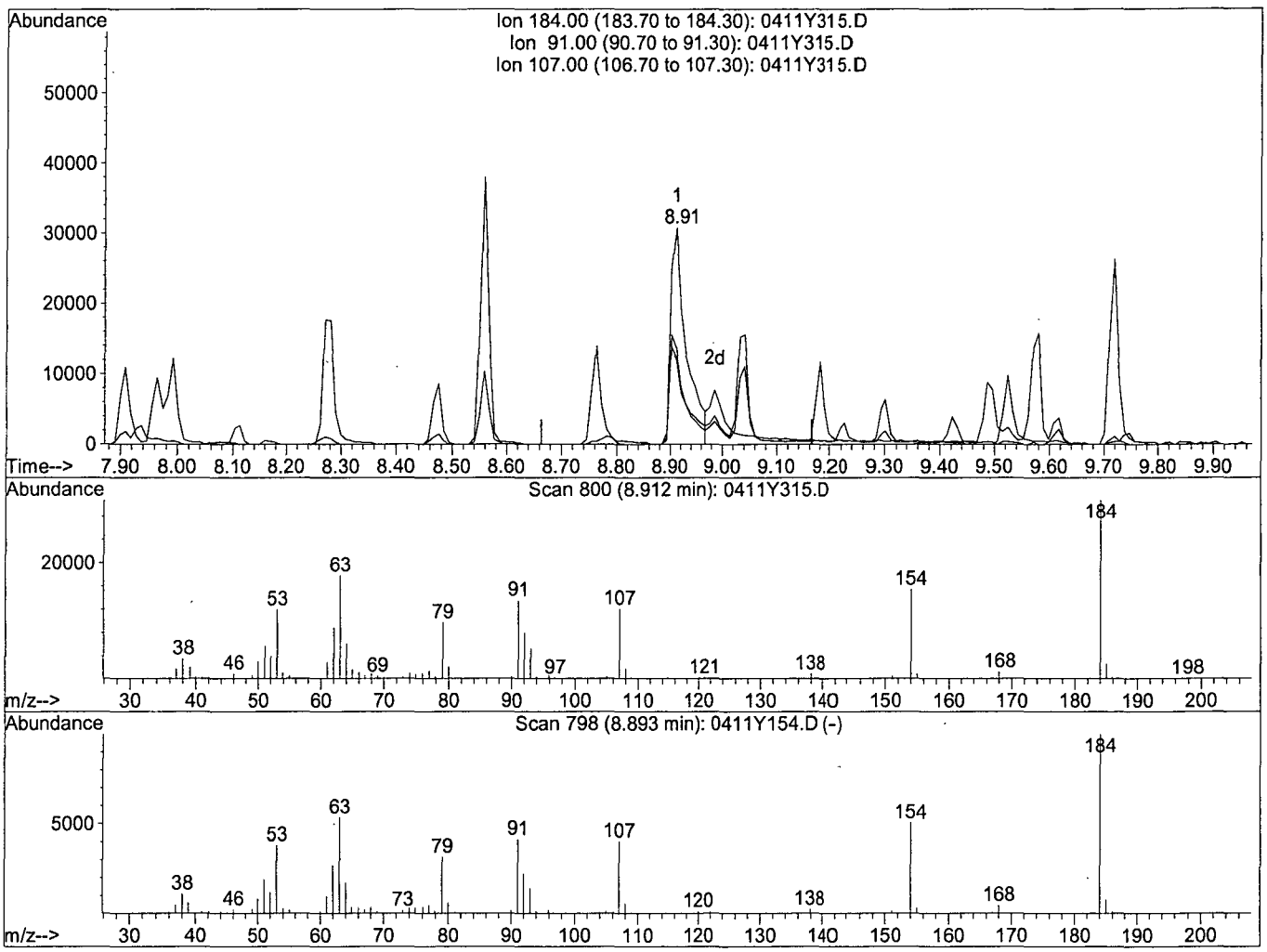
response 243842

Ion	Exp%	Act%
105.00	100	100
122.00	79.10	76.10
77.00	72.70	74.28
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y315.D Vial: 15
Acq On : 8 May 19 9:14 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: May 8 10:48 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Multiple Level Calibration



TIC: 0411Y315.D

(55) 2,4-Dinitrophenol (**TM)

8.91min 38.5822ppb

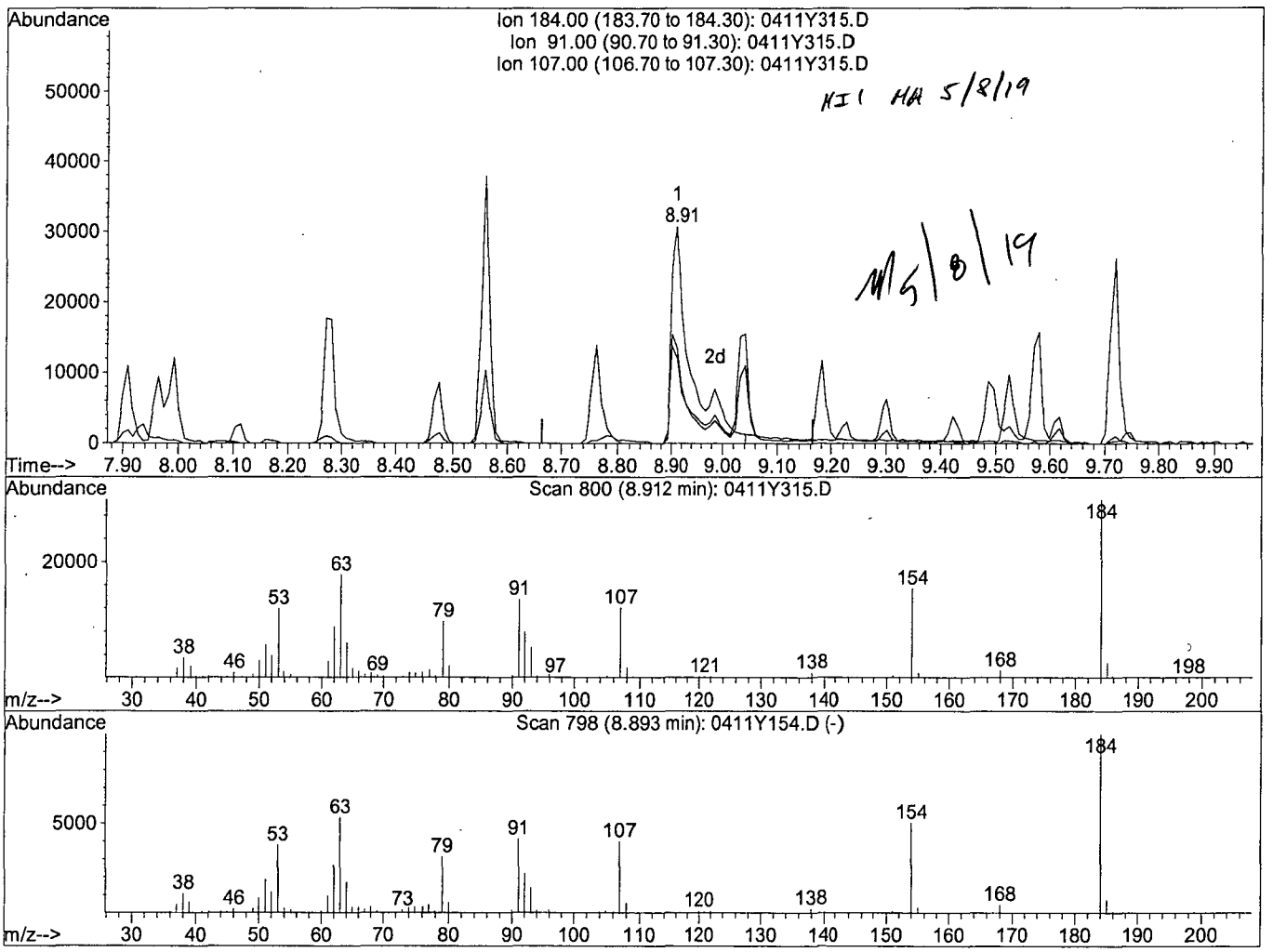
response 64557

Ion	Exp%	Act%
184.00	100	100
91.00	44.50	42.94
107.00	39.30	39.08
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y315.D Vial: 15
Acq On : 8 May 19 9:14 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: May 8 10:49 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Multiple Level Calibration



TIC: 0411Y315.D

(55) 2,4-Dinitrophenol (**TM)

8.91min 46.3766ppb m

response 80513

Ion	Exp%	Act%
184.00	100	100
91.00	44.50	43.95
107.00	39.30	39.35
0.00	0.00	0.00

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 8 May 19 13:51
Instrument: Yoda
Initial Cal. Date: 03/19/19
Data File: 0411Y325.D

		Compound	MEAN	CCRF	%D	%Drift	
1	I	1,4-dichlorobenzene-D4(IS)	ISTD			I	
2		1,4-Dioxane	0.2708	0.2667	1.5		
3	TM	n-Nitrosodimethylamine	0.5083	0.5126	0.84	TM	
4	TM	Pyridine	1.222	1.072	12	TM	
5	S	2-Fluorophenol (S)	1.495	1.535	2.7	S	
6	S	Phenol-D6 (S)	1.955	2.051	4.9	S	
7	*TM	Phenol	2.163	2.205	2.0	*TM	
8	TM	Aniline	2.108	2.309	9.5	TM	
9	TM	Bis (2-chloroethyl) ether	0.9612	0.9473	1.4	TM	
10	TM	2-Chlorophenol	1.573	1.589	1.0	TM	
11	TM	1,3-DCB	1.652	1.558	5.7	TM	
12	*TM	1,4-DCB	1.698	1.593	6.2	*TM	
13	TM	Benzyl alcohol	0.9149	0.9747	6.5	TM	
14	TM	1,2-DCB	1.574	1.496	4.9	TM	
15	TM	2-Methylphenol	1.371	1.355	1.1	TM	
16	TM	Bis (2-chloroisopropyl) ether	1.416	1.391	1.7	TM	
17	TM	Acetophenone	2.099	2.147	2.3	TM	
18	TM	3&4-Methylphenol	1.645	1.680	2.1	TM	
19	**TM	n-Nitrosodi-n-propylamine	1.152	1.180	2.4	**TM	
20	TM	Hexachloroethane	0.6394	0.6048	5.4	TM	
21	I	Napthalene-D8(IS)	ISTD			I	
22	S	Nitrobenzene-D5(S)	0.4226	0.4199	0.65	S	
23	TM	Nitrobenzene	0.4082	0.3888	4.8	TM	
24	TM	Isophorone	0.7099	0.6787	4.4	TM	
25	*TM	2-Nitrophenol	0.2069	0.2024	2.2	*TM	
26	TM	2,4-Dimethylphenol	0.3262	0.3227	1.1	TM	
27	TM	Benzoic acid	0.2242	0.2639	18	TM	
28	TM	Bis (2-chloroethoxy) methane	0.4337	0.4083	5.8	TM	
29	*TM	2,4-Dichlorophenol	0.2766	0.2666	3.6	*TM	
30	TM	1,2,4-Trichlorobenzene	0.3036	0.2879	5.2	TM	
31	TM	3,4-Dimethylphenol	0.4824	0.4700	2.6	TM	
32	TM	Naphthalene	1.082	1.018	6.0	TM	
33	TM	4-Chloroaniline	0.3990	0.4176	4.6	TM	
34	TM	2,6-Dichlorophenol	0.2781	0.2702	2.9	TM	
35	TM	Hexachloropropene	0.1687	0.1636	3.0	TM	
36	*TM	Hexachlorobutadiene	0.1489	0.1433	3.8	*TM	
37	TM	Caprolactum	0.1394	0.1352	3.0	TM	
38	*TM	4-Chloro-3-methylphenol	0.3353	0.3318	1.0	*TM	
39	TM	2-Methylnaphthalene	0.6902	0.6535	5.3	TM	
40	TM	1-Methylnaphthalene	0.7153	0.6794	5.0	TM	
		Average			4.1		

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 8 May 19 13:51
Instrument: Yoda
Cal. Date: 03/19/19
Data File: 0411Y325.D

		Compound	MEAN	CCRF	%D		%Drift
41	I	Acenaphthene-D10(IS)	ISTD			I	
42	**TMQ	Hexachlorocyclopentadiene	0.0924	0.0691	25	**TMQ	12
43	TM	1,2,4,5-Tetrachlorobenzene	0.5222	0.5323	1.9	TM	
44	*TM	2,4,6-Trichlorophenol	0.3358	0.3548	5.7	*TM	
45	TM	2,4,5-Trichlorophenol	0.3609	0.3713	2.9	TM	
46	S	2-Fluorobiphenyl(S)	1.477	1.534	3.9	S	
47	TM	1,1'-Biphenyl	1.653	1.681	1.7	TM	
48	TM	2-Chloronaphthalene	1.244	1.262	1.5	TM	
49	TM	2-Nitroaniline	0.4076	0.4396	7.9	TM	
50	TM	Dimethyl phthalate	1.445	1.466	1.4	TM	
51	TM	2,6-DNT	0.3380	0.3574	5.7	TM	
52	TM	Acenaphthylene	1.968	1.999	1.6	TM	
53	TM	3-Nitroaniline	0.3715	0.4095	10	TM	
54	*TM	Acenaphthene	1.268	1.283	1.2	*TM	
55	**TML	2,4-Dinitrophenol	0.1301	0.1331	2.3	**TML	17
56	**TMQ	4-Nitrophenol	0.1853	0.2562	38	**TMQ	17
57	TM	Dibenzofuran	1.721	1.765	2.6	TM	
58	TM	2,4-DNT	0.4568	0.4890	7.1	TM	
59	TM	2,3,4,6-Tetrachlorophenol	0.2292	0.2709	18	TM	
60	TM	Diethyl phthalate	1.426	1.449	1.6	TM	
61	TM	4-Chlorophenyl phenyl ether	0.6575	0.6719	2.2	TM	
62	TM	Fluorene	1.435	1.469	2.4	TM	
63	TM	4-Nitroaniline	0.3758	0.3907	4.0	TM	
64	S	2,4,6-Tribromophenol(S)	0.1326	0.1557	17	S	
65	I	Phenanthrene-D10(IS)	ISTD			I	
66	TM	4,6-Dinitro-2-methylphenol	0.1492	0.1522	2.0	TM	
67	TM	Diphenyl amine	0.6711	0.6521	2.8	TM	
68	*TM	n-Nitrosodiphenylamine	0.6711	0.6521	2.8	*TM	
69	TM	1,2-Diphenylhydrazine	0.9392	0.8570	8.8	TM	
70	TM	4-Bromophenyl phenyl ether	0.2094	0.2001	4.4	TM	
71	TM	Hexachlorobenzene	0.1945	0.1872	3.8	TM	
72	TM	Atrazine	0.2293	0.2142	6.6	TM	
73	*TML	Pentachlorophenol	0.0578	0.0750	30	*TML	4.6
74	TM	Phenanthrene	1.222	1.149	6.0	TM	
75	TM	Anthracene	1.291	1.196	7.4	TM	
76	TM	Carbazol	1.189	1.120	5.8	TM	
77	TM	Di-n-butylphthalate	1.489	1.400	6.0	TM	
78	*TM	Fluoranthene	1.278	1.213	5.1	*TM	
79	I	Chrysene-D12(IS)	ISTD			I	
80	TM	Benzidine	0.3173	0.4038	27	TM	
		Average			7.7		

Semi-Volatile Analysis by GC-MS
EPA 8270

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 8 May 19 13:51
Instrument: Yoda
Cal. Date: 03/19/19
Data File: 0411Y325.D

		Compound	MEAN	CCRF	%D		%Drift
81	TM	Pyrene	1.475	1.419	3.8	TM	
82	S	Terphenyl-D14(S)	0.9778	0.9942	1.7	S	
83	TM	Butyl benzylphthalate	0.7465	0.7074	5.2	TM	
84	TM	3,3'-Dichlorobenzidine	0.3708	0.4335	17	TM	
85	TM	Benz (a) anthracene	1.304	1.231	5.6	TM	
86	TM	Bis (2-ethylhexyl) phthalate	1.069	0.9825	8.1	TM	
87	TM	Chrysene	1.257	1.185	5.8	TM	
88	*TM	Di-n-octylphthalate	1.844	1.713	7.1	*TM	
89	I	Perylene-D12(IS)	ISTD			I	
90	TM	Benzo (b) fluoranthene	1.190	1.334	12	TM	
91	TM	Benzo (k) fluoranthene	1.190	1.116	6.3	TM	
92	*TM	Benzo (a) pyrene	1.186	1.150	3.0	*TM	
93	TM	Indeno (1,2,3-cd) pyrene	1.276	1.180	7.5	TM	
94	TM	Dibenz (a,h) anthracene	1.118	1.057	5.5	TM	
95	TM	Benzo (g,h,i) perylene	1.018	0.9757	4.2	TM	
96							
97							
98							
99							
100							
101							
102							
103							
104							
105							
106							
107							
108							
109							
110							
111							
112							
113							
114							
115							
116							
117							
118							
119							
120							
		Average			6.6		

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y325.D Vial: 25
Acq On : 8 May 19 13:51 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: May 8 14:08 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	176117	40.00000 ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	781817	40.00000 ppb	-0.03
41) Acenaphthene-D10(IS)	8.78	164	387954	40.00000 ppb	-0.01
65) Phenanthrene-D10(IS)	10.53	188	700744	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.64	240	626040	40.00000 ppb	0.01
89) Perylene-D12(IS)	15.49	264	575817	40.00000 ppb	0.02
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.68	112	675781	102.66375 ppb	-0.11
Spiked Amount 200.000			Recovery =	51.332%	
6) Phenol-D6 (S)	4.89	99	902922	104.92091 ppb	-0.06
Spiked Amount 200.000			Recovery =	52.461%	
22) Nitrobenzene-D5(S)	5.93	82	410320	49.67521 ppb	-0.04
Spiked Amount 100.000			Recovery =	49.675%	
46) 2-Fluorobiphenyl(S)	7.99	172	744109	51.94723 ppb	-0.03
Spiked Amount 100.000			Recovery =	51.947%	
64) 2,4,6-Tribromophenol(S)	9.72	330	151044	117.47622 ppb	0.00
Spiked Amount 200.000			Recovery =	58.738%	
82) Terphenyl-D14(S)	12.40	244	777975	50.83721 ppb	0.00
Spiked Amount 100.000			Recovery =	50.837%	
Target Compounds					Qvalue
2) 1,4-Dioxane	1.62	58	5872	4.92497	94
3) n-Nitrosodimethylamine	1.85	42	112839	50.41794 ppb	97
4) Pyridine	1.86	79	235897	43.82667 ppb	96
7) Phenol	4.91	94	485493	50.98547 ppb	100
8) Aniline	4.91	93	508274	54.75375 ppb	96
9) Bis (2-chloroethyl) ether	4.99	63	208541	49.27528 ppb	97
10) 2-Chlorophenol	5.05	128	349839	50.50064 ppb	95
11) 1,3-DCB	5.22	146	342937	47.15821 ppb	99
12) 1,4-DCB	5.30	146	350591	46.88238 ppb	98
13) Benzyl alcohol	5.47	108	214579	53.26854 ppb	92
14) 1,2-DCB	5.48	146	329408	47.52904 ppb	99
15) 2-Methylphenol	5.60	107	298316	49.43199 ppb	96
16) Bis (2-chloroisopropyl) et	5.60	45	306249	49.12719 ppb	98
17) Acetophenone	5.76	105	472666	51.14226 ppb	90
18) 3&4-Methylphenol	5.77	107	739837	102.12873 ppb	100
19) n-Nitrosodi-n-propylamine	5.75	70	259814	51.22049 ppb	94
20) Hexachloroethane	5.85	117	133136	47.29403 ppb	100
23) Nitrobenzene	5.96	77	380002	47.62473 ppb	99
24) Isophorone	6.23	82	663303	47.80323 ppb	99
25) 2-Nitrophenol	6.31	139	197834	48.91098 ppb	91
26) 2,4-Dimethylphenol	6.37	122	315410	49.46960 ppb	98
27) Benzoic acid	6.54	105	257857	58.85558 ppb	97
28) Bis (2-chloroethoxy) metha	6.47	93	399024	47.07592 ppb	99
29) 2,4-Dichlorophenol	6.60	162	260515	48.18640 ppb	96
30) 1,2,4-Trichlorobenzene	6.67	180	281348	47.40639 ppb	96
31) 3,4-Dimethylphenol	6.71	107	459287	48.71270 ppb	98
32) Naphthalene	6.77	128	994455	47.00526 ppb	100
33) 4-Chloroaniline	6.84	127	408102	52.32475 ppb	98
34) 2,6-Dichlorophenol	6.85	162	264035	48.57344 ppb	98
35) Hexachloropropene	6.86	213	159884	48.48558 ppb	98
36) Hexachlorobutadiene	6.90	225	140052	48.10742 ppb	99
37) Caprolactum	7.29	55	132117	48.49778 ppb	95

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y325.D Vial: 25
Acq On : 8 May 19 13:51 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: May 8 14:08 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.42	107	324304	49.48595	ppb		99
39)	2-Methylnaphthalene	7.56	142	638607	47.33793	ppb		99
40)	1-Methylnaphthalene	7.68	142	663948	47.48773	ppb		100
42)	Hexachlorocyclopentadiene	7.73	237	33509	43.87365	ppb		98
43)	1,2,4,5-Tetrachlorobenzene	7.76	216	258137	50.96451	ppb		99
44)	2,4,6-Trichlorophenol	7.91	196	172077	52.82920	ppb		99
45)	2,4,5-Trichlorophenol	7.96	196	180079	51.44075	ppb		95
47)	1,1'-Biphenyl	8.11	154	815347	50.84351	ppb		97
48)	2-Chloronaphthalene	8.14	162	612207	50.75586	ppb		95
49)	2-Nitroaniline	8.27	65	213180	53.92795	ppb		92
50)	Dimethyl phthalate	8.47	163	711046	50.72072	ppb		98
51)	2,6-DNT	8.56	165	173326	52.87360	ppb		93
52)	Acenaphthylene	8.61	152	969325	50.77579	ppb		99
53)	3-Nitroaniline	8.76	138	198592	55.11351	ppb		96
54)	Acenaphthene	8.82	154	622378	50.61482	ppb		99
55)	2,4-Dinitrophenol	8.90	184	64566	41.38738	ppb		92
56)	4-Nitrophenol	8.98	65	124232	58.49875	ppb	#	75
57)	Dibenzofuran	9.02	168	855837	51.28584	ppb		96
58)	2,4-DNT	9.03	165	237147	53.52541	ppb		81
59)	2,3,4,6-Tetrachlorophenol	9.18	232	131354	59.09000	ppb		99
60)	Diethyl phthalate	9.29	149	702455	50.77550	ppb		99
61)	4-Chlorophenyl phenyl ethe	9.42	204	325828	51.09505	ppb		97
62)	Fluorene	9.43	166	712618	51.19301	ppb		99
63)	4-Nitroaniline	9.49	138	189484	51.98291	ppb		97
66)	4,6-Dinitro-2-methylphenol	9.52	198	133350	51.00647	ppb		88
67)	Diphenyl amine	9.57	169	1142374	97.17127	ppb		99
68)	n-Nitrosodiphenylamine	9.57	169	1142374	97.17127	ppb		99
69)	1,2-Diphenylhydrazine	9.61	77	750681	45.62463	ppb		93
70)	4-Bromophenyl phenyl ether	10.00	248	175275	47.78457	ppb		89
71)	Hexachlorobenzene	10.07	284	163941	48.12255	ppb		88
72)	Atrazine	10.20	200	93823	23.35318	ppb		96
73)	Pentachlorophenol	10.32	266	65726	52.28477	ppb		98
74)	Phenanthrene	10.55	178	1006840	47.02323	ppb		99
75)	Anthracene	10.62	178	1047188	46.29796	ppb		100
76)	Carbazol	10.81	167	981157	47.10496	ppb		100
77)	Di-n-butylphthalate	11.20	149	1226525	47.02500	ppb		100
78)	Fluoranthene	11.96	202	1062408	47.45506	ppb	#	95
80)	Benzidine	12.12	184	315969	63.63460	ppb		99
81)	Pyrene	12.22	202	1110132	48.09837	ppb		100
83)	Butyl benzylphthalate	12.97	149	553576	47.38037	ppb		93
84)	3,3'-Dichlorobenzidine	13.60	252	339260	58.46487	ppb		97
85)	Benz (a) anthracene	13.63	228	963540	47.21017	ppb		99
86)	Bis (2-ethylhexyl) phthala	13.62	149	768823	45.94196	ppb		98
87)	Chrysene	13.67	228	927179	47.11791	ppb		99
88)	Di-n-octylphthalate	14.37	149	1340835	46.46766	ppb		98
90)	Benzo (b) fluoranthene	14.94	252	960218	56.03055	ppb		99
91)	Benzo (k) fluoranthene	14.98	252	803307	46.87449	ppb		97
92)	Benzo (a) pyrene	15.41	252	827566	48.48674	ppb		99
93)	Indeno (1,2,3-cd) pyrene	17.40	276	849061	46.23898	ppb		98
94)	Dibenz (a,h) anthracene	17.41	278	760993	47.26894	ppb		98
95)	Benzo (g,h,i) perylene	17.97	276	702276	47.92387	ppb		98

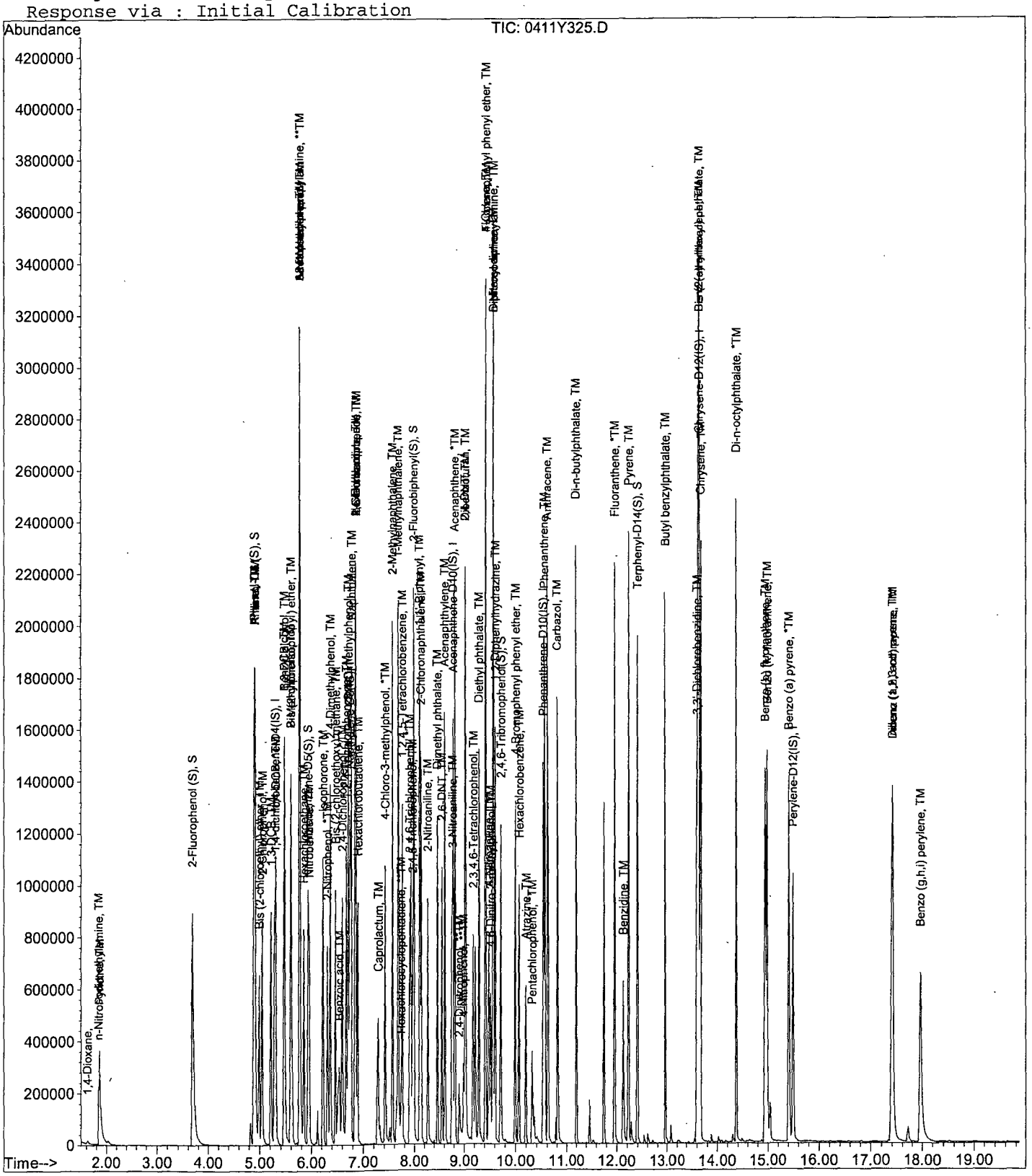
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y325.D Vial: 25
Acq On : 8 May 19 13:51 Operator: MA,SS
Sample : 50ug/ml 8270 3/13/19 Inst : Yoda
Misc : Multiplr: 1.00

Quant Time: May 8 14:08 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



ORGANICS
Raw Data

Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y321.D Vial: 21
Acq On : 8 May 19 11:59 Operator: MA,SS
Sample : AZ90447W07 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 12:41 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	167494	40.00000	ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	722698	40.00000	ppb	-0.03
41) Acenaphthene-D10(IS)	8.77	164	398529	40.00000	ppb	-0.02
65) Phenanthrene-D10(IS)	10.53	188	659114	40.00000	ppb	0.00
79) Chrysene-D12(IS)	13.64	240	562431	40.00000	ppb	0.00
89) Perylene-D12(IS)	15.49	264	529997	40.00000	ppb	0.02
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.70	112	1006932	201.05891	ppb	-0.09
Spiked Amount 250.000			Recovery =	80.424%		
6) Phenol-D6 (S)	4.89	99	1257392	192.04126	ppb	-0.05
Spiked Amount 250.000			Recovery =	76.816%		
22) Nitrobenzene-D5(S)	5.92	82	598630	98.00175	ppb	-0.05
Spiked Amount 125.000			Recovery =	78.402%		
46) 2-Fluorobiphenyl(S)	7.99	172	1083625	92.05242	ppb	-0.03
Spiked Amount 125.000			Recovery =	73.642%		
64) 2,4,6-Tribromophenol(S)	9.71	330	238778	225.98058	ppb	-0.01
Spiked Amount 250.000			Recovery =	90.392%		
82) Terphenyl-D14(S)	12.40	244	1106244	100.57958	ppb	0.00
Spiked Amount 125.000			Recovery =	80.464%		
Target Compounds						Qvalue
86) Bis (2-ethylhexyl) phthala	13.61	149	332286	27.62727	ppb	# 97

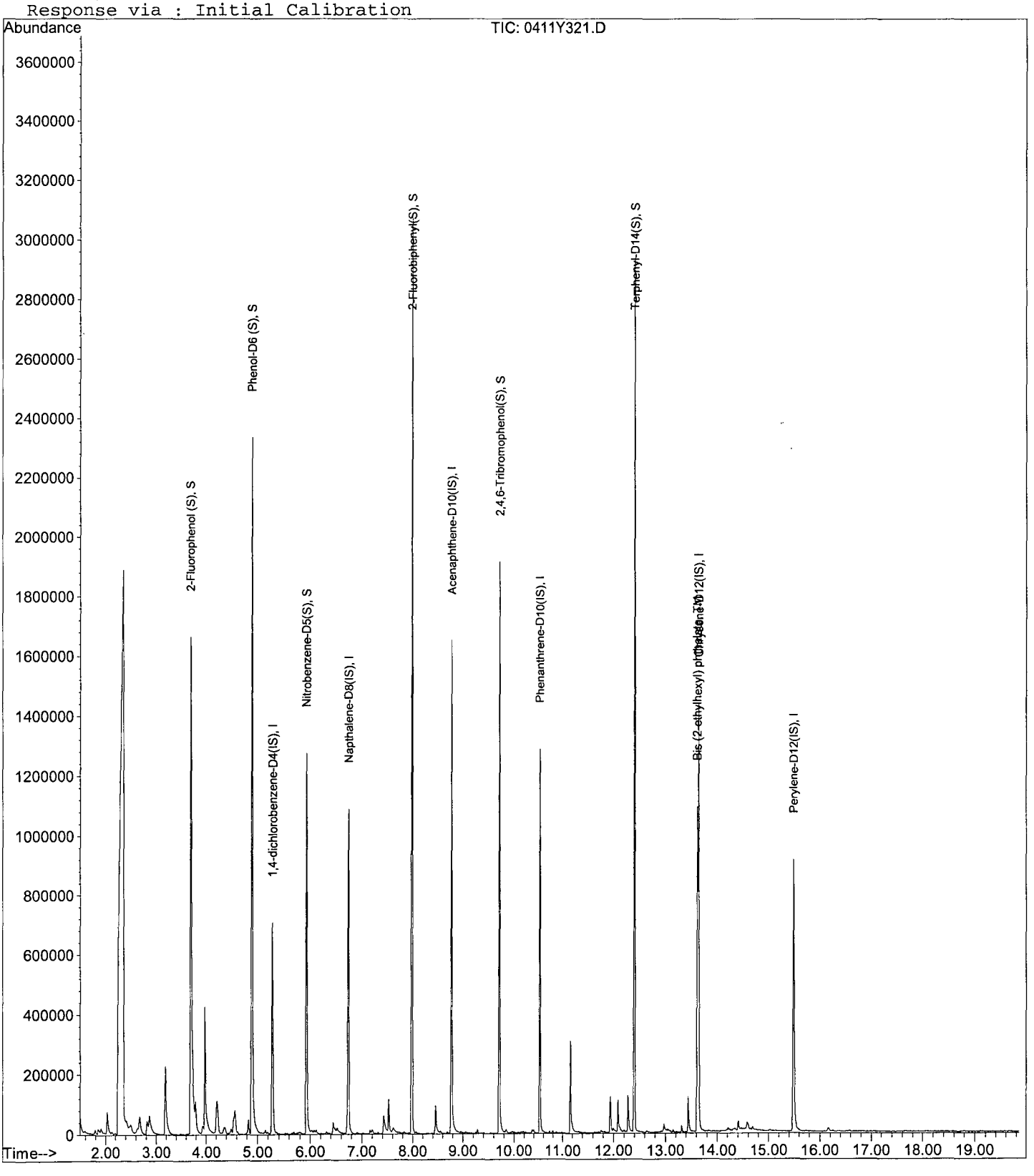
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y321.D Vial: 21
Acq On : 8 May 19 11:59 Operator: MA,SS
Sample : AZ90447W07 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 12:41 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y322.D Vial: 22
Acq On : 8 May 19 12:27 Operator: MA,SS
Sample : AZ90448W10 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 12:42 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	163412	40.00000 ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	706981	40.00000 ppb	-0.03
41) Acenaphthene-D10(IS)	8.77	164	385010	40.00000 ppb	-0.02
65) Phenanthrene-D10(IS)	10.53	188	640781	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.64	240	547421	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.49	264	520884	40.00000 ppb	0.02
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.69	112	923741	189.05524 ppb	-0.10
Spiked Amount 250.000			Recovery =	75.622%	
6) Phenol-D6 (S)	4.89	99	1159951	181.58452 ppb	-0.05
Spiked Amount 250.000			Recovery =	72.634%	
22) Nitrobenzene-D5(S)	5.92	82	601706	100.69520 ppb	-0.05
Spiked Amount 125.000			Recovery =	80.556%	
46) 2-Fluorobiphenyl(S)	7.99	172	1098004	96.54905 ppb	-0.03
Spiked Amount 125.000			Recovery =	77.239%	
64) 2,4,6-Tribromophenol(S)	9.71	330	236491	231.67510 ppb	-0.01
Spiked Amount 250.000			Recovery =	92.670%	
82) Terphenyl-D14(S)	12.39	244	1150393	107.46150 ppb	0.00
Spiked Amount 125.000			Recovery =	85.970%	
Target Compounds					Qvalue
86) Bis (2-ethylhexyl) phthala	13.62	149	795823	67.98142 ppb	100

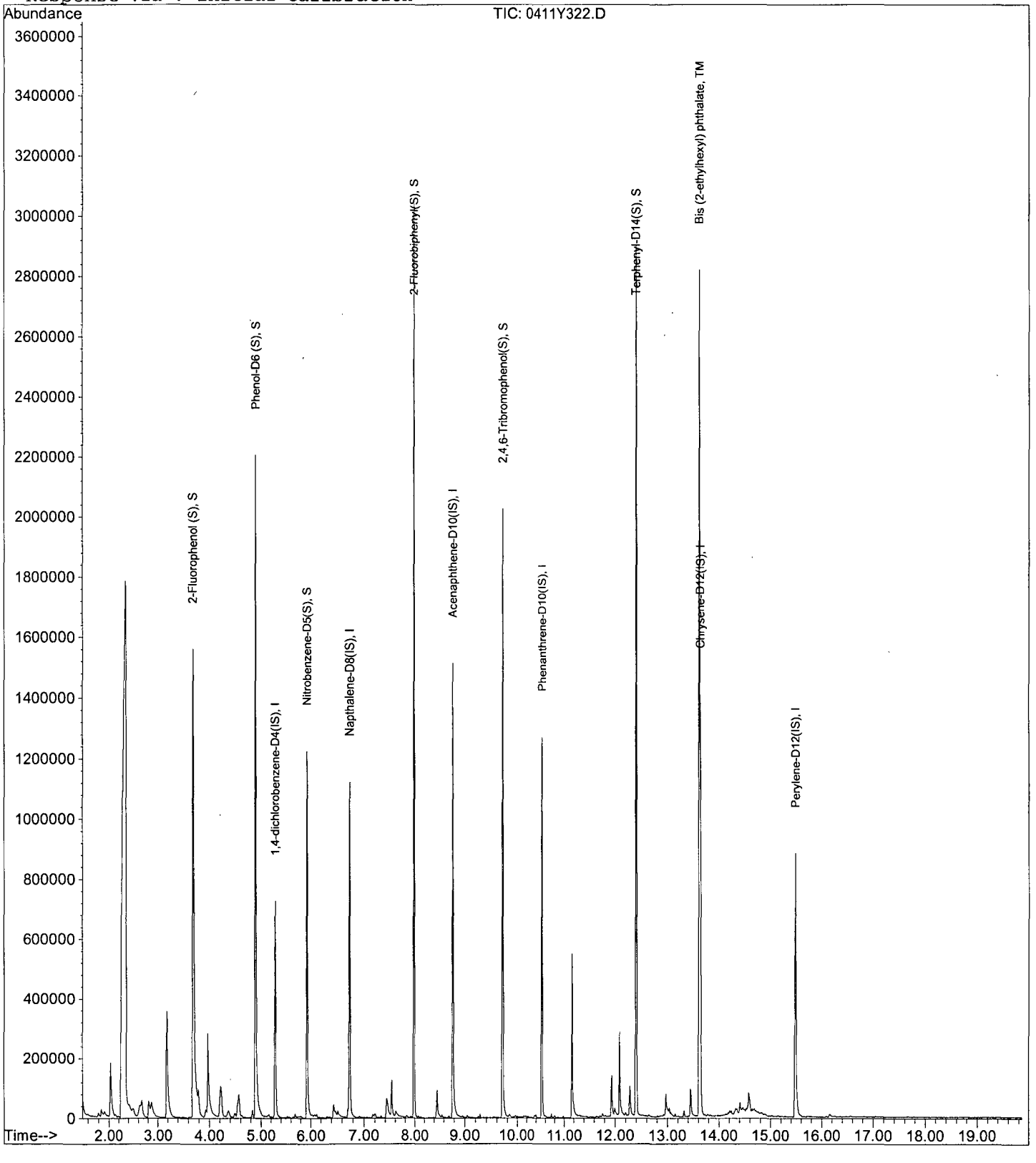
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y322.D Vial: 22
Acq On : 8 May 19 12:27 Operator: MA,SS
Sample : AZ90448W10 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 12:42 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y323.D Vial: 23
Acq On : 8 May 19 12:55 Operator: MA,SS
Sample : AZ90450W22 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 13:15 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	165254	40.00000 ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	711384	40.00000 ppb	-0.03
41) Acenaphthene-D10(IS)	8.77	164	389364	40.00000 ppb	-0.02
65) Phenanthrene-D10(IS)	10.53	188	641505	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.64	240	545059	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.49	264	518043	40.00000 ppb	0.02
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.70	112	1038202	210.11271 ppb	-0.10
Spiked Amount 250.000			Recovery =	84.045%	
6) Phenol-D6 (S)	4.89	99	1254340	194.17191 ppb	-0.05
Spiked Amount 250.000			Recovery =	77.669%	
22) Nitrobenzene-D5(S)	5.93	82	627626	104.38282 ppb	-0.04
Spiked Amount 125.000			Recovery =	83.506%	
46) 2-Fluorobiphenyl(S)	7.98	172	1127195	98.00751 ppb	-0.03
Spiked Amount 125.000			Recovery =	78.406%	
64) 2,4,6-Tribromophenol(S)	9.71	330	242445	234.85196 ppb	-0.01
Spiked Amount 250.000			Recovery =	93.941%	
82) Terphenyl-D14(S)	12.40	244	1135730	106.55154 ppb	0.00
Spiked Amount 125.000			Recovery =	85.242%	
Target Compounds					Qvalue
86) Bis (2-ethylhexyl) phthala	13.62	149	990332	84.96352 ppb	99

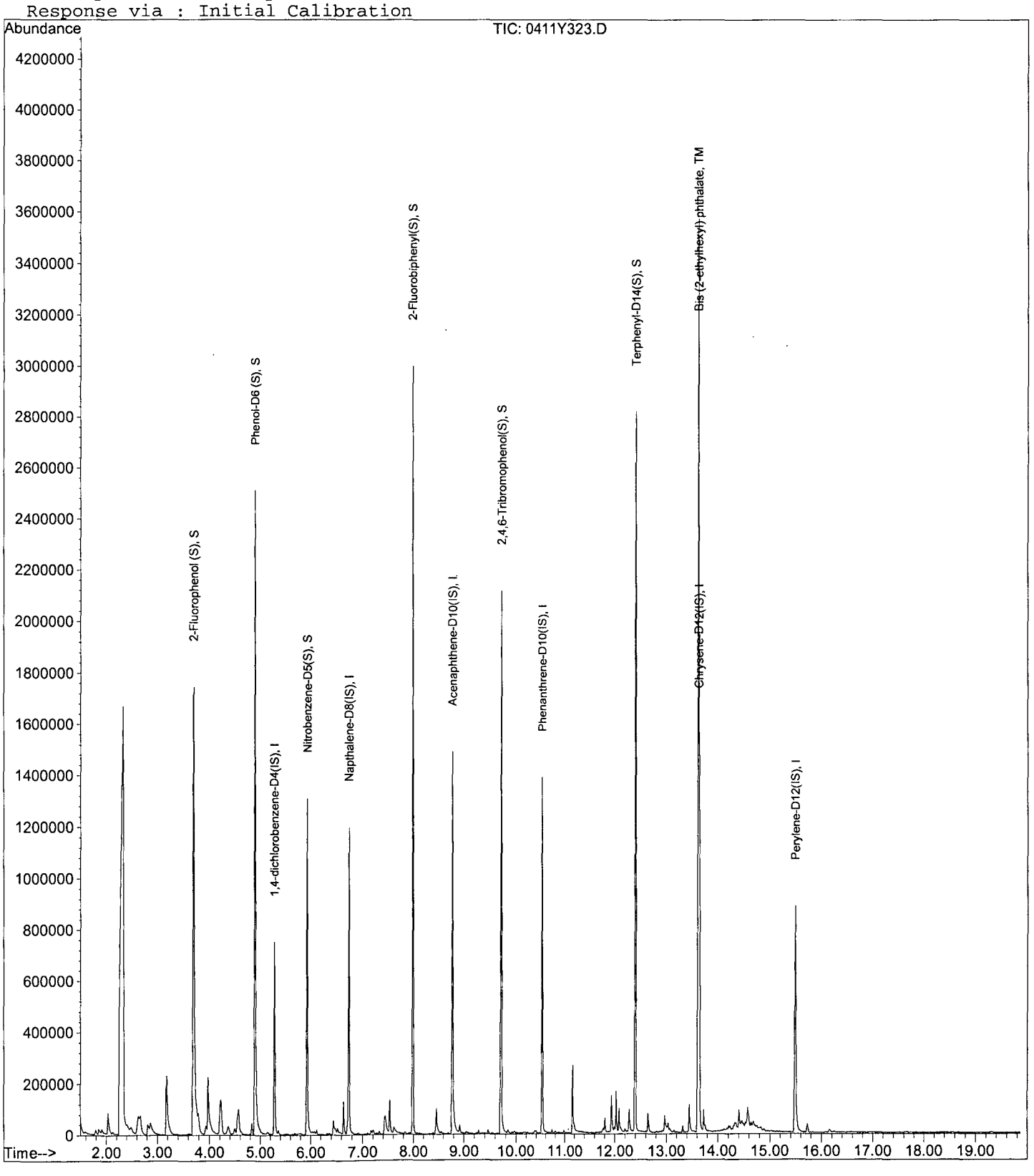
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y323.D Vial: 23
Acq On : 8 May 19 12:55 Operator: MA,SS
Sample : AZ90450W22 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 13:15 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y318.D Vial: 18
Acq On : 8 May 19 10:36 Operator: MA,SS
Sample : 190506A BLK 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 10:51 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	164984	40.00000 ppb	-0.05
21) Napthalene-D8(IS)	6.74	136	704479	40.00000 ppb	-0.03
41) Acenaphthene-D10(IS)	8.77	164	379264	40.00000 ppb	-0.02
65) Phenanthrene-D10(IS)	10.53	188	653354	40.00000 ppb	0.00
79) Chrysene-D12(IS)	13.64	240	545290	40.00000 ppb	0.00
89) Perylene-D12(IS)	15.48	264	520672	40.00000 ppb	0.02
System Monitoring Compounds					
5) 2-Fluorophenol (S)	3.69	112	998811	202.47151 ppb	-0.11
Spiked Amount 250.000			Recovery =	80.989%	
6) Phenol-D6 (S)	4.89	99	1232028	191.03013 ppb	-0.05
Spiked Amount 250.000			Recovery =	76.412%	
22) Nitrobenzene-D5(S)	5.92	82	603571	101.36605 ppb	-0.05
Spiked Amount 125.000			Recovery =	81.093%	
46) 2-Fluorobiphenyl(S)	7.98	172	1078133	96.23805 ppb	-0.04
Spiked Amount 125.000			Recovery =	76.990%	
64) 2,4,6-Tribromophenol(S)	9.71	330	236807	235.49932 ppb	-0.01
Spiked Amount 250.000			Recovery =	94.200%	
82) Terphenyl-D14(S)	12.40	244	1107263	103.83682 ppb	0.00
Spiked Amount 125.000			Recovery =	83.070%	

Target Compounds Qvalue

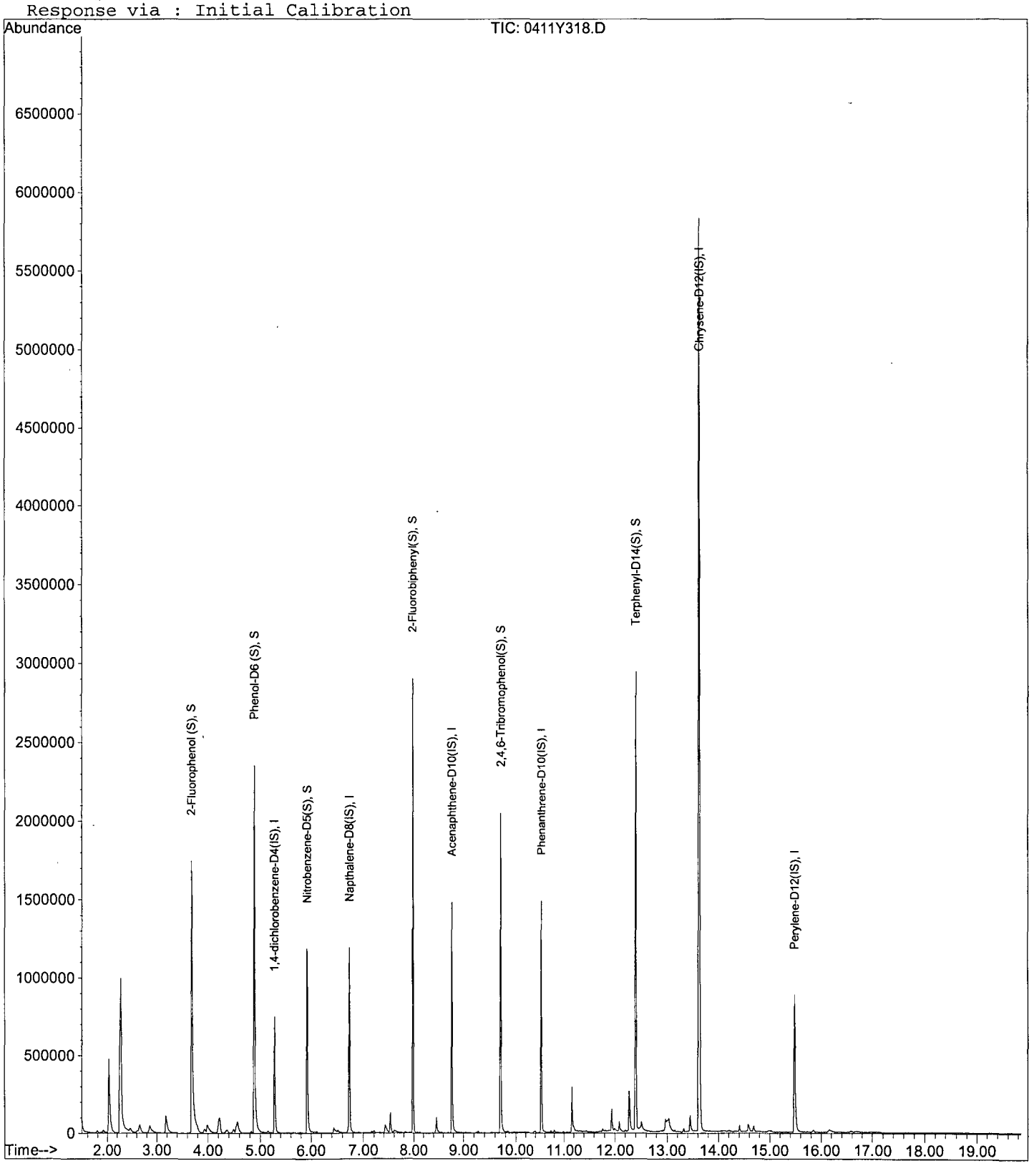
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y318.D Vial: 18
Acq On : 8 May 19 10:36 Operator: MA,SS
Sample : 190506A BLK 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 10:51 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y319.D Vial: 19
Acq On : 8 May 19 11:04 Operator: MA,SS
Sample : 190506A LCS-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 12:03 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	168710	40.00000 ppb		-0.05
21) Napthalene-D8(IS)	6.74	136	720597	40.00000 ppb		-0.03
41) Acenaphthene-D10(IS)	8.77	164	395924	40.00000 ppb		-0.02
65) Phenanthrene-D10(IS)	10.53	188	662510	40.00000 ppb		0.00
79) Chrysene-D12(IS)	13.65	240	571921	40.00000 ppb		0.02
89) Perylene-D12(IS)	15.49	264	544110	40.00000 ppb		0.02
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.69	112	1055549	209.24737 ppb		-0.10
Spiked Amount 250.000			Recovery = 83.699%			
6) Phenol-D6 (S)	4.89	99	1312367	198.99290 ppb		-0.05
Spiked Amount 250.000			Recovery = 79.597%			
22) Nitrobenzene-D5(S)	5.93	82	621304	102.01027 ppb		-0.04
Spiked Amount 125.000			Recovery = 81.608%			
46) 2-Fluorobiphenyl(S)	7.99	172	1110045	94.91719 ppb		-0.02
Spiked Amount 125.000			Recovery = 75.934%			
64) 2,4,6-Tribromophenol(S)	9.72	330	246688	235.00275 ppb		0.00
Spiked Amount 250.000			Recovery = 94.001%			
82) Terphenyl-D14(S)	12.40	244	1154068	103.18664 ppb		0.00
Spiked Amount 125.000			Recovery = 82.550%			
Target Compounds						Qvalue
2) 1,4-Dioxane	1.62	58	7205	7.88537		61
3) n-Nitrosodimethylamine	1.85	42	101805	59.35611 ppb		98
4) Pyridine	1.87	79	131609	31.90598 ppb		97
7) Phenol	4.91	94	420111	57.57023 ppb	#	75
8) Aniline	4.92	93	216518	30.43550 ppb		89
9) Bis (2-chloroethyl) ether	4.99	63	188216	58.03162 ppb		95
10) 2-Chlorophenol	5.05	128	309670	58.33084 ppb		96
11) 1,3-DCB	5.21	146	260326	46.71228 ppb		100
12) 1,4-DCB	5.30	146	271233	47.32841 ppb		99
13) Benzyl alcohol	5.46	108	185560	60.10885 ppb		98
14) 1,2-DCB	5.47	146	261396	49.21464 ppb		98
15) 2-Methylphenol	5.59	107	267578	57.85654 ppb		96
16) Bis (2-chloroisopropyl) et	5.60	45	270892	56.70402 ppb		98
17) Acetophenone	5.76	105	416494	58.80371 ppb		89
18) 3&4-Methylphenol	5.78	107	669866	120.66193 ppb		97
19) n-Nitrosodi-n-propylamine	5.76	70	227633	58.55809 ppb		97
20) Hexachloroethane	5.85	117	92044	42.66549 ppb		95
23) Nitrobenzene	5.95	77	345844	58.78270 ppb		93
24) Isophorone	6.22	82	604646	59.09751 ppb		99
25) 2-Nitrophenol	6.31	139	177193	59.41207 ppb		95
26) 2,4-Dimethylphenol	6.36	122	275886	58.68340 ppb		98
27) Benzoic acid	6.55	105	248911	77.05050 ppb		97
28) Bis (2-chloroethoxy) metha	6.46	93	364389	58.30258 ppb		98
29) 2,4-Dichlorophenol	6.59	162	242432	60.81412 ppb		98
30) 1,2,4-Trichlorobenzene	6.68	180	221587	50.63607 ppb		99
31) 3,4-Dimethylphenol	6.71	107	412012	59.26394 ppb		97
32) Naphthalene	6.77	128	845216	54.18159 ppb		100
33) 4-Chloroaniline	6.84	127	86123	14.97546 ppb		99
34) 2,6-Dichlorophenol	6.84	162	233022	58.13759 ppb		97
35) Hexachloropropene	6.85	213	101196	41.61919 ppb		98
36) Hexachlorobutadiene	6.89	225	98023	45.66394 ppb		99
37) Caprolactum	7.28	55	114210	56.85778 ppb		94

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y319.D Vial: 19
Acq On : 8 May 19 11:04 Operator: MA,SS
Sample : 190506A LCS-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 12:03 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.42	107	297772	61.62205	ppb		98
39)	2-Methylnaphthalene	7.57	142	539934	54.27988	ppb		99
40)	1-Methylnaphthalene	7.68	142	561209	54.43705	ppb		100
42)	Hexachlorocyclopentadiene	7.73	237	1025	19.94794	ppb	#	89
43)	1,2,4,5-Tetrachlorobenzene	7.75	216	218638	52.87150	ppb		98
44)	2,4,6-Trichlorophenol	7.90	196	165599	62.27121	ppb		99
45)	2,4,5-Trichlorophenol	7.96	196	174497	61.05351	ppb		98
47)	1,1'-Biphenyl	8.11	154	704960	53.84382	ppb		98
48)	2-Chloronaphthalene	8.13	162	538395	54.67230	ppb		97
49)	2-Nitroaniline	8.27	65	183308	56.79725	ppb		98
50)	Dimethyl phthalate	8.47	163	692358	60.49184	ppb		100
51)	2,6-DNT	8.55	165	155906	58.25275	ppb	#	76
52)	Acenaphthylene	8.62	152	840587	53.93223	ppb		100
53)	3-Nitroaniline	8.76	138	43764	14.87619	ppb		93
54)	Acenaphthene	8.82	154	549513	54.73686	ppb		99
55)	2,4-Dinitrophenol	8.89	184	82514	62.56249	ppb		94
56)	4-Nitrophenol	8.99	65	134250	76.85033	ppb	#	71
57)	Dibenzofuran	9.02	168	752118	55.20403	ppb		94
58)	2,4-DNT	9.03	165	210557	58.20905	ppb		97
59)	2,3,4,6-Tetrachlorophenol	9.17	232	121504	66.94832	ppb		96
60)	Diethyl phthalate	9.29	149	652720	57.78844	ppb		99
61)	4-Chlorophenyl phenyl ethe	9.41	204	292418	56.16593	ppb		87
62)	Fluorene	9.42	166	636311	55.98887	ppb		100
63)	4-Nitroaniline	9.48	138	125421	42.14410	ppb		93
66)	4,6-Dinitro-2-methylphenol	9.52	198	121600	61.49542	ppb		94
67)	Diphenyl amine	9.57	169	742782	83.53489	ppb		99
68)	n-Nitrosodiphenylamine	9.57	169	742782	83.53489	ppb		99
69)	1,2-Diphenylhydrazine	9.61	77	649293	52.17489	ppb		98
70)	4-Bromophenyl phenyl ether	10.00	248	155137	55.91909	ppb	#	81
71)	Hexachlorobenzene	10.06	284	145659	56.52952	ppb		98
72)	Atrazine	10.19	200	59654	19.63149	ppb		98
73)	Pentachlorophenol	10.31	266	72005	74.47490	ppb		97
74)	Phenanthrene	10.56	178	894264	55.21978	ppb		99
75)	Anthracene	10.62	178	922091	53.89989	ppb		100
76)	Carbazol	10.82	167	879480	55.82531	ppb		99
77)	Di-n-butylphthalate	11.21	149	1136263	57.59811	ppb		99
78)	Fluoranthene	11.96	202	957059	56.52062	ppb		98
80)	Benzidine	12.13	184	16270	4.48345	ppb	#	88
81)	Pyrene	12.23	202	982696	58.25739	ppb		99
83)	Butyl benzylphthalate	12.96	149	523850	61.34853	ppb		95
84)	3,3'-Dichlorobenzidine	13.60	252	58932	13.89599	ppb		96
85)	Benz (a) anthracene	13.63	228	833165	55.85639	ppb		99
86)	Bis (2-ethylhexyl) phthala	13.62	149	762507	62.34520	ppb		100
87)	Chrysene	13.68	228	820212	57.03279	ppb		99
88)	Di-n-octylphthalate	14.37	149	1257314	59.62045	ppb		97
90)	Benzo (b) fluoranthene	14.94	252	793143	61.22296	ppb		99
91)	Benzo (k) fluoranthene	14.98	252	758392	58.54052	ppb		99
92)	Benzo (a) pyrene	15.41	252	708627	54.92194	ppb		97
93)	Indeno (1,2,3-cd) pyrene	17.39	276	748664	53.93418	ppb		98
94)	Dibenz (a,h) anthracene	17.41	278	671979	55.21521	ppb		99
95)	Benzo (g,h,i) perylene	17.96	276	614772	55.49655	ppb		98

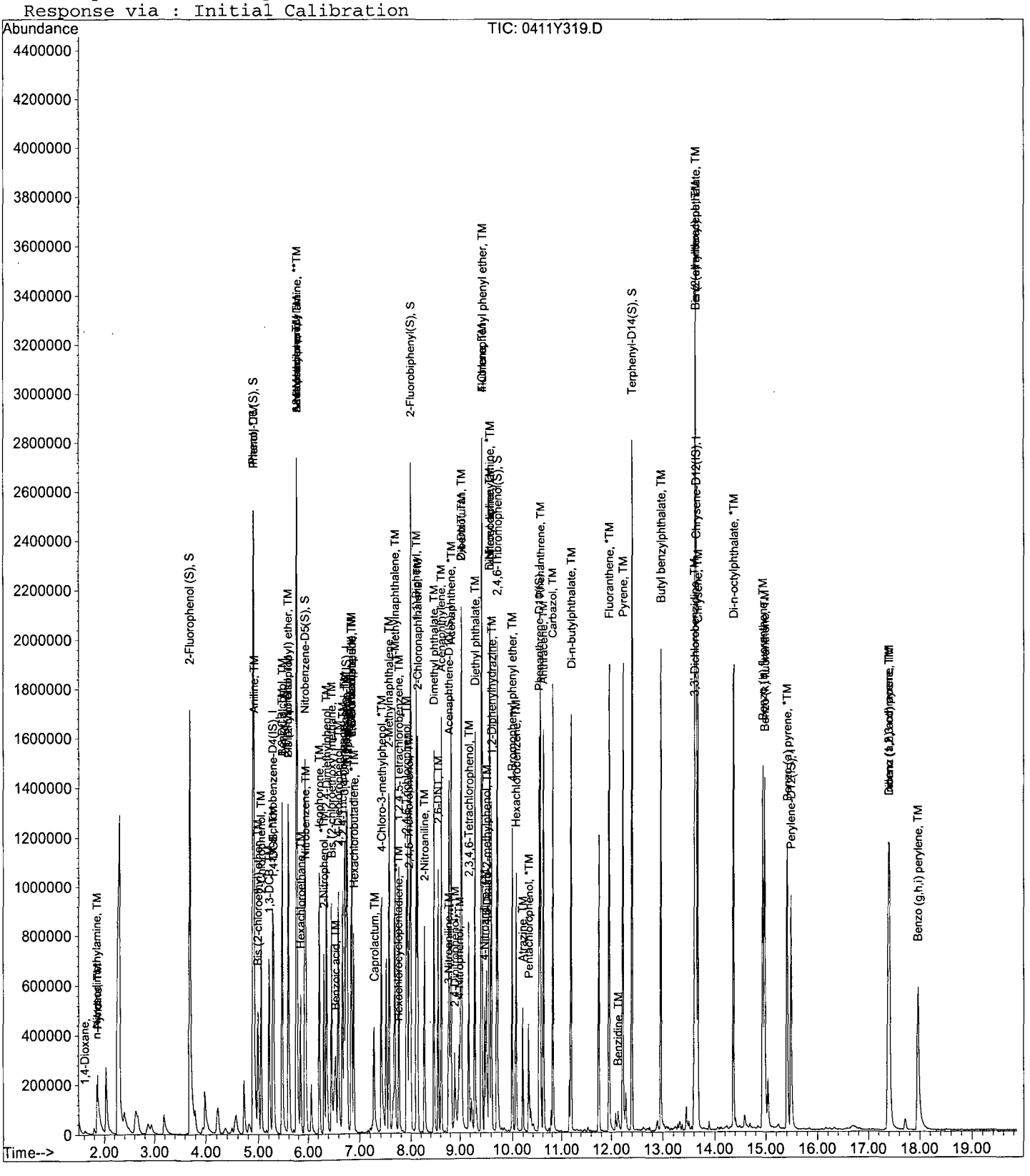
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y319.D Vial: 19
Acq On : 8 May 19 11:04 Operator: MA,SS
Sample : 190506A LCS-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 12:03 2019 Quant Results File: Y0319NC.RES

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y320.D Vial: 20
Acq On : 8 May 19 11:32 Operator: MA,SS
Sample : 190506A LCSD-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 12:03 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.28	152	158913	40.00000 ppb		-0.05
21) Napthalene-D8(IS)	6.74	136	673513	40.00000 ppb		-0.03
41) Acenaphthene-D10(IS)	8.78	164	367411	40.00000 ppb		-0.01
65) Phenanthrene-D10(IS)	10.53	188	611960	40.00000 ppb		0.00
79) Chrysene-D12(IS)	13.65	240	537860	40.00000 ppb		0.02
89) Perylene-D12(IS)	15.49	264	518530	40.00000 ppb		0.03
System Monitoring Compounds						
5) 2-Fluorophenol (S)	3.69	112	992101	208.79443 ppb		-0.10
Spiked Amount 250.000			Recovery = 83.518%			
6) Phenol-D6 (S)	4.89	99	1234733	198.76355 ppb		-0.05
Spiked Amount 250.000			Recovery = 79.506%			
22) Nitrobenzene-D5(S)	5.93	82	580784	102.02365 ppb		-0.04
Spiked Amount 125.000			Recovery = 81.619%			
46) 2-Fluorobiphenyl(S)	7.99	172	1050428	96.78995 ppb		-0.03
Spiked Amount 125.000			Recovery = 77.432%			
64) 2,4,6-Tribromophenol(S)	9.72	330	231146	237.28538 ppb		0.00
Spiked Amount 250.000			Recovery = 94.914%			
82) Terphenyl-D14(S)	12.40	244	1099368	104.52062 ppb		0.00
Spiked Amount 125.000			Recovery = 83.617%			
Target Compounds						Qvalue
2) 1,4-Dioxane	1.62	58	4421	5.13677		95
3) n-Nitrosodimethylamine	1.86	42	93365	57.79121 ppb		91
4) Pyridine	1.87	79	188944	48.62964 ppb		97
7) Phenol	4.91	94	399601	58.13556 ppb		78
8) Aniline	4.91	93	252532	37.68637 ppb	#	47
9) Bis (2-chloroethyl) ether	4.99	63	172998	56.62792 ppb		97
10) 2-Chlorophenol	5.05	128	293401	58.67351 ppb		97
11) 1,3-DCB	5.22	146	243919	46.46656 ppb		99
12) 1,4-DCB	5.30	146	255279	47.29071 ppb		100
13) Benzyl alcohol	5.47	108	178500	61.38661 ppb		91
14) 1,2-DCB	5.48	146	246841	49.33942 ppb		100
15) 2-Methylphenol	5.60	107	247302	56.76898 ppb		96
16) Bis (2-chloroisopropyl) et	5.60	45	252124	56.02905 ppb		93
17) Acetophenone	5.75	105	389894	58.44185 ppb		86
18) 3&4-Methylphenol	5.77	107	617715	118.12774 ppb		99
19) n-Nitrosodi-n-propylamine	5.75	70	212228	57.96098 ppb		95
20) Hexachloroethane	5.85	117	87848	43.23093 ppb		95
23) Nitrobenzene	5.95	77	319106	58.02975 ppb		92
24) Isophorone	6.22	82	557815	58.33170 ppb		99
25) 2-Nitrophenol	6.31	139	163495	58.65149 ppb		91
26) 2,4-Dimethylphenol	6.37	122	236656	53.85792 ppb		97
27) Benzoic acid	6.54	105	228488	75.67305 ppb		99
28) Bis (2-chloroethoxy) metha	6.46	93	337636	57.79865 ppb		97
29) 2,4-Dichlorophenol	6.60	162	226306	60.73751 ppb		94
30) 1,2,4-Trichlorobenzene	6.67	180	207470	50.72446 ppb		96
31) 3,4-Dimethylphenol	6.71	107	381298	58.68021 ppb		99
32) Naphthalene	6.77	128	797031	54.66454 ppb		99
33) 4-Chloroaniline	6.84	127	127439	23.70882 ppb		98
34) 2,6-Dichlorophenol	6.84	162	219564	58.60945 ppb		96
35) Hexachloropropene	6.85	213	96863	42.62208 ppb		98
36) Hexachlorobutadiene	6.89	225	91185	45.44805 ppb		97
37) Caprolactum	7.27	55	110666	58.94493 ppb		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190411\0411Y320.D Vial: 20
Acq On : 8 May 19 11:32 Operator: MA,SS
Sample : 190506A LCSD-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 12:03 2019 Quant Results File: Y0319NC.RES

Quant Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration
DataAcq Meth : SVOC416

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
38)	4-Chloro-3-methylphenol	7.42	107	278682	61.70320 ppb		100
39)	2-Methylnaphthalene	7.57	142	504982	54.31510 ppb		99
40)	1-Methylnaphthalene	7.68	142	527467	54.74088 ppb		98
42)	Hexachlorocyclopentadiene	7.73	237	1527	20.76710 ppb	#	88
43)	1,2,4,5-Tetrachlorobenzene	7.76	216	203382	52.99906 ppb		97
44)	2,4,6-Trichlorophenol	7.91	196	152033	61.60659 ppb		99
45)	2,4,5-Trichlorophenol	7.96	196	162993	61.45416 ppb		91
47)	1,1'-Biphenyl	8.10	154	659536	54.28372 ppb		98
48)	2-Chloronaphthalene	8.13	162	501649	54.89413 ppb		98
49)	2-Nitroaniline	8.27	65	175804	58.69949 ppb		96
50)	Dimethyl phthalate	8.47	163	658684	62.01588 ppb		100
51)	2,6-DNT	8.55	165	147909	59.55358 ppb	#	73
52)	Acenaphthylene	8.61	152	786556	54.38198 ppb		100
53)	3-Nitroaniline	8.75	138	126321	46.27111 ppb		90
54)	Acenaphthene	8.82	154	512995	55.06488 ppb		100
55)	2,4-Dinitrophenol	8.90	184	68444	56.85676 ppb		95
56)	4-Nitrophenol	8.99	65	123456	76.23758 ppb	#	71
57)	Dibenzofuran	9.02	168	700944	55.44058 ppb		94
58)	2,4-DNT	9.03	165	195240	58.16333 ppb		93
59)	2,3,4,6-Tetrachlorophenol	9.17	232	112806	66.97936 ppb		91
60)	Diethyl phthalate	9.29	149	610882	58.28155 ppb		100
61)	4-Chlorophenyl phenyl ethe	9.42	204	271424	56.17936 ppb		98
62)	Fluorene	9.42	166	595903	56.50248 ppb		99
63)	4-Nitroaniline	9.49	138	145834	52.80620 ppb		92
66)	4,6-Dinitro-2-methylphenol	9.51	198	118254	64.74324 ppb		98
67)	Diphenyl amine	9.57	169	893436	108.77758 ppb		99
68)	n-Nitrosodiphenylamine	9.57	169	893436	108.77758 ppb		99
69)	1,2-Diphenylhydrazine	9.61	77	734499	63.89715 ppb		99
70)	4-Bromophenyl phenyl ether	10.00	248	143416	55.96438 ppb	#	82
71)	Hexachlorobenzene	10.06	284	133764	56.20134 ppb		93
72)	Atrazine	10.19	200	76961	27.41913 ppb		98
73)	Pentachlorophenol	10.31	266	67919	75.88395 ppb		98
74)	Phenanthrene	10.55	178	840975	56.21878 ppb		99
75)	Anthracene	10.62	178	865142	54.74834 ppb		99
76)	Carbazol	10.81	167	817698	56.19109 ppb		100
77)	Di-n-butylphthalate	11.20	149	1054034	57.84334 ppb		99
78)	Fluoranthene	11.96	202	896335	57.30703 ppb		97
80)	Benzidine	12.15	184	6150	1.80205 ppb	#	91
81)	Pyrene	12.23	202	911937	57.48618 ppb		100
83)	Butyl benzylphthalate	12.97	149	507860	63.24235 ppb		85
84)	3,3'-Dichlorobenzidine	13.60	252	150764	37.80096 ppb		98
85)	Benz (a) anthracene	13.63	228	809383	57.69827 ppb		98
86)	Bis (2-ethylhexyl) phthala	13.62	149	1188409	103.32178 ppb		96
87)	Chrysene	13.67	228	765786	56.62037 ppb		99
88)	Di-n-octylphthalate	14.37	149	1179724	59.48380 ppb		100
90)	Benzo (b) fluoranthene	14.94	252	725835	58.79136 ppb		98
91)	Benzo (k) fluoranthene	14.97	252	763433	61.83673 ppb		97
92)	Benzo (a) pyrene	15.41	252	672422	54.68685 ppb		99
93)	Indeno (1,2,3-cd) pyrene	17.40	276	723701	54.70778 ppb		99
94)	Dibenz (a,h) anthracene	17.41	278	648251	55.89320 ppb		98
95)	Benzo (g,h,i) perylene	17.97	276	595590	56.41727 ppb		100

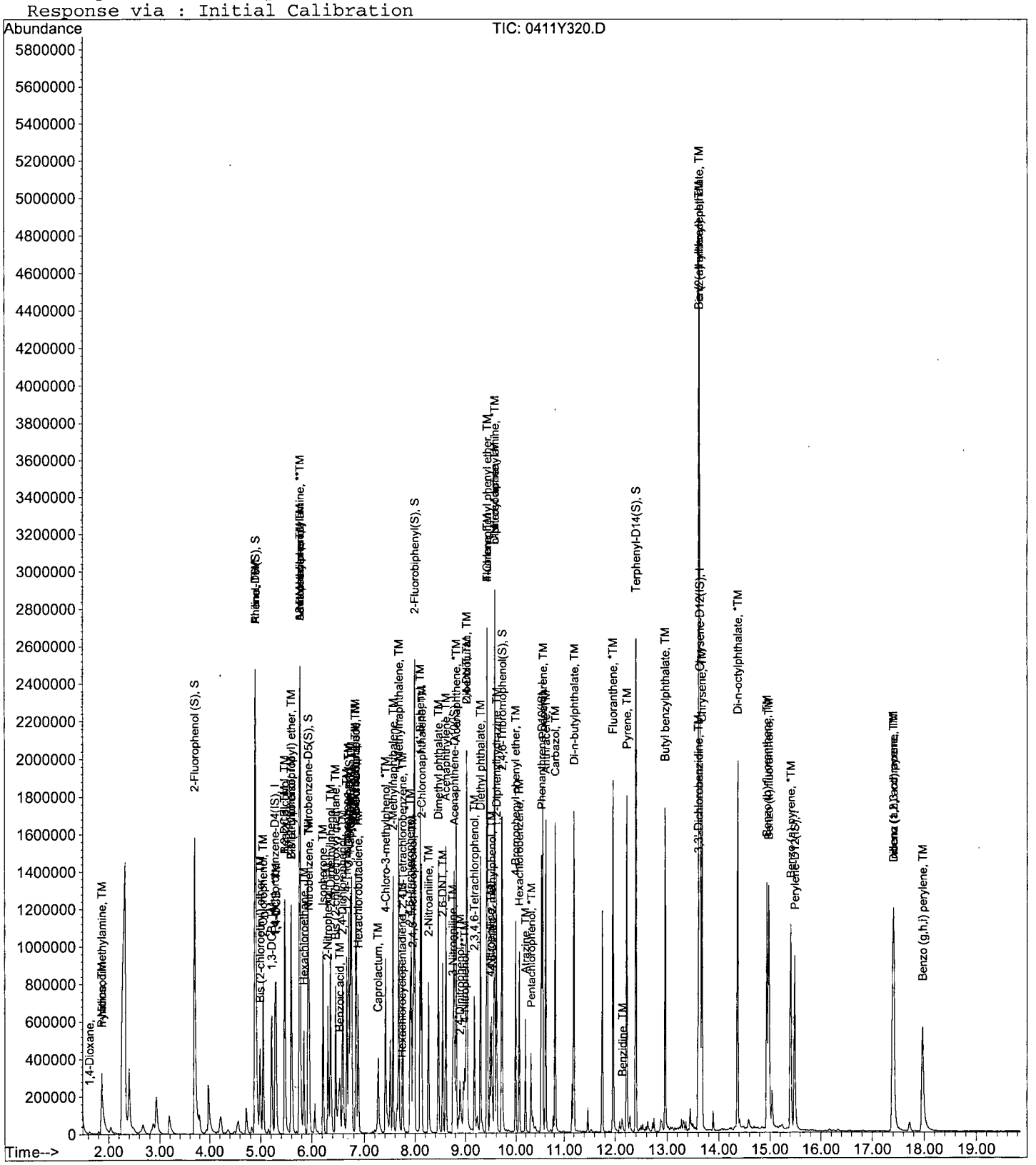
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y320.D Vial: 20
Acq On : 8 May 19 11:32 Operator: MA,SS
Sample : 190506A LCSD-1 1/800 Inst : Yoda
Misc : Multiplr: 1.25

Quant Time: May 8 12:03 2019 Quant Results File: Y0319NC.RES

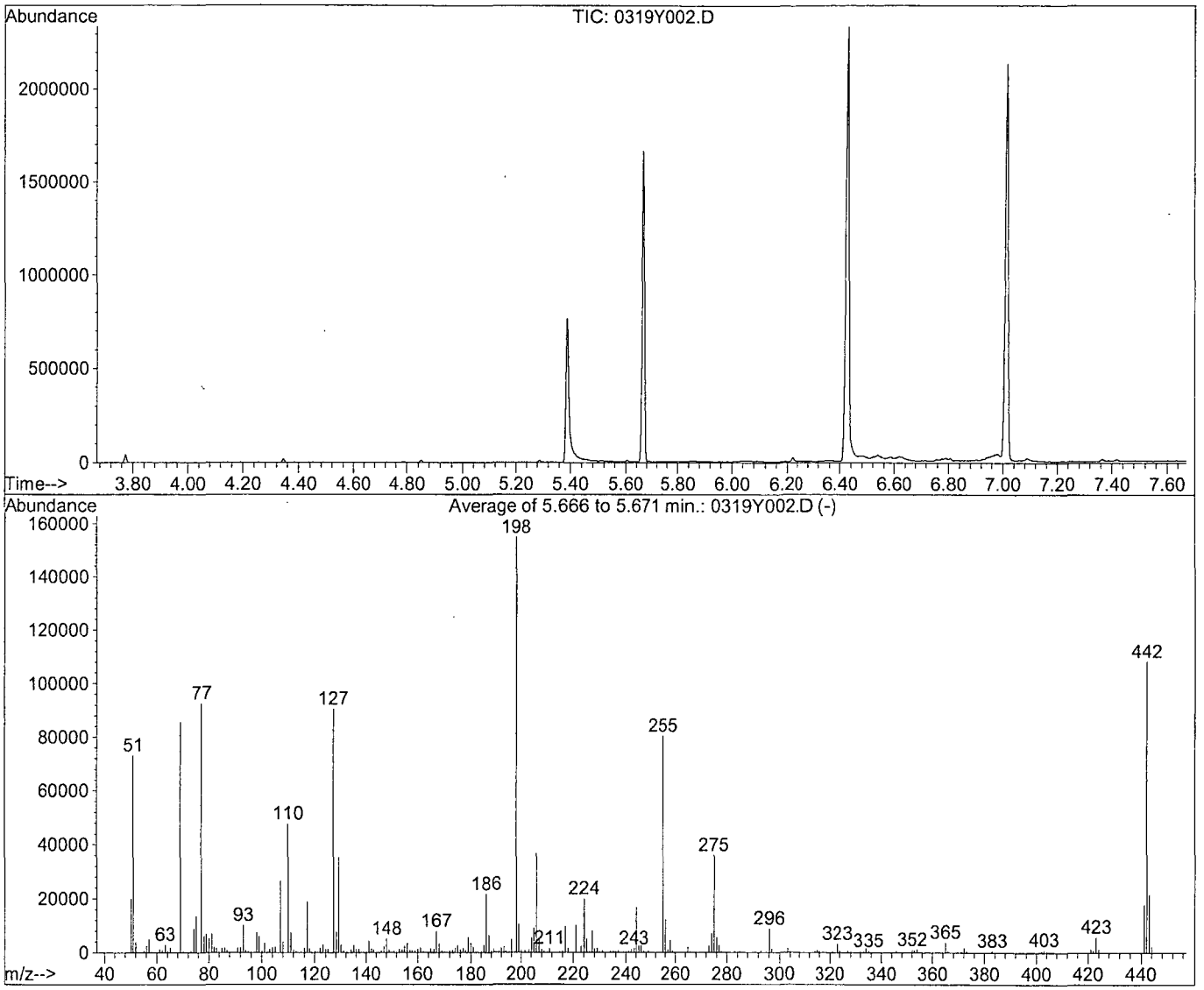
Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C
Last Update : Mon May 06 14:42:09 2019
Response via : Initial Calibration



DFTPP

Data File : M:\YODA\DATA\Y190319\0319Y002.D Vial: 2
Acq On : 19 Mar 19 18:15 Operator: MA
Sample : SV Tune 11/10/18 Inst : Yoda
Misc : Multiplr: 1.00

Method : M:\YODA\DATA\Y190319\Y0319NC.M (RTE Integrator)
Title : EPA 8270C



AutoFind: Scans 833, 834, 835; Background Corrected with Scan 824

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	47.2	73142	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.6	492	PASS
127	198	10	80	58.4	90499	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	154987	PASS
199	198	5	9	6.7	10387	PASS
275	198	10	60	23.1	35872	PASS
365	198	1	100	2.4	3731	PASS
441	442	0.01	24	16.3	17617	PASS
442	198	50	150	69.9	108320	PASS
443	442	15	24	19.7	21288	PASS

Data File Name:	**0319Y002.D**
Data File Path:	**M:\YODA\DATA\Y190319**
Operator:	**MA**
Date Acquired:	**19 Mar 2019 18:15**
Method File:	**DFTPP2.M**
Sample Name:	**SV Tune 11/10/18**
Vial Number:	**2**
Instrument Name:	**Yoda**

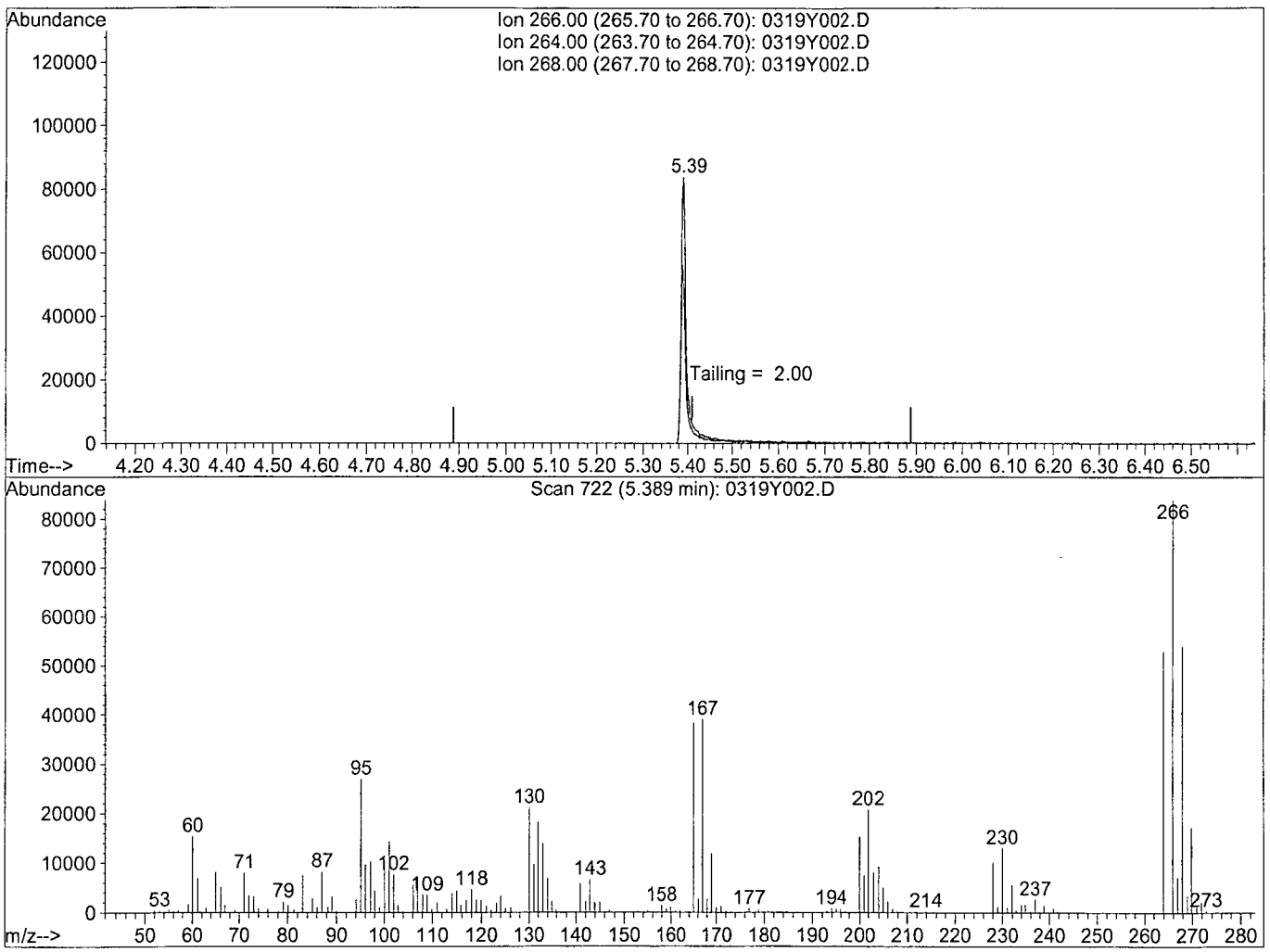
#	Name	Ret Time	Target Response
1)	DDT	7.01	15502300
2)	DDD	6.80	149561
3)	DDE	6.95	46466

Breakdown **1.25**

Quantitation Report

Data File : M:\YODA\DATA\Y190319\0319Y002.D Vial: 2
Acq On : 19 Mar 19 18:15 Operator: MA
Sample : SV Tune 11/10/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: Mar 19 19:13 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190319\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Wed Mar 20 00:14:48 2019
Response via : Single Level Calibration



TIC: 0319Y002.D

(5) Pentachlorophenol

5.39min 0.0000

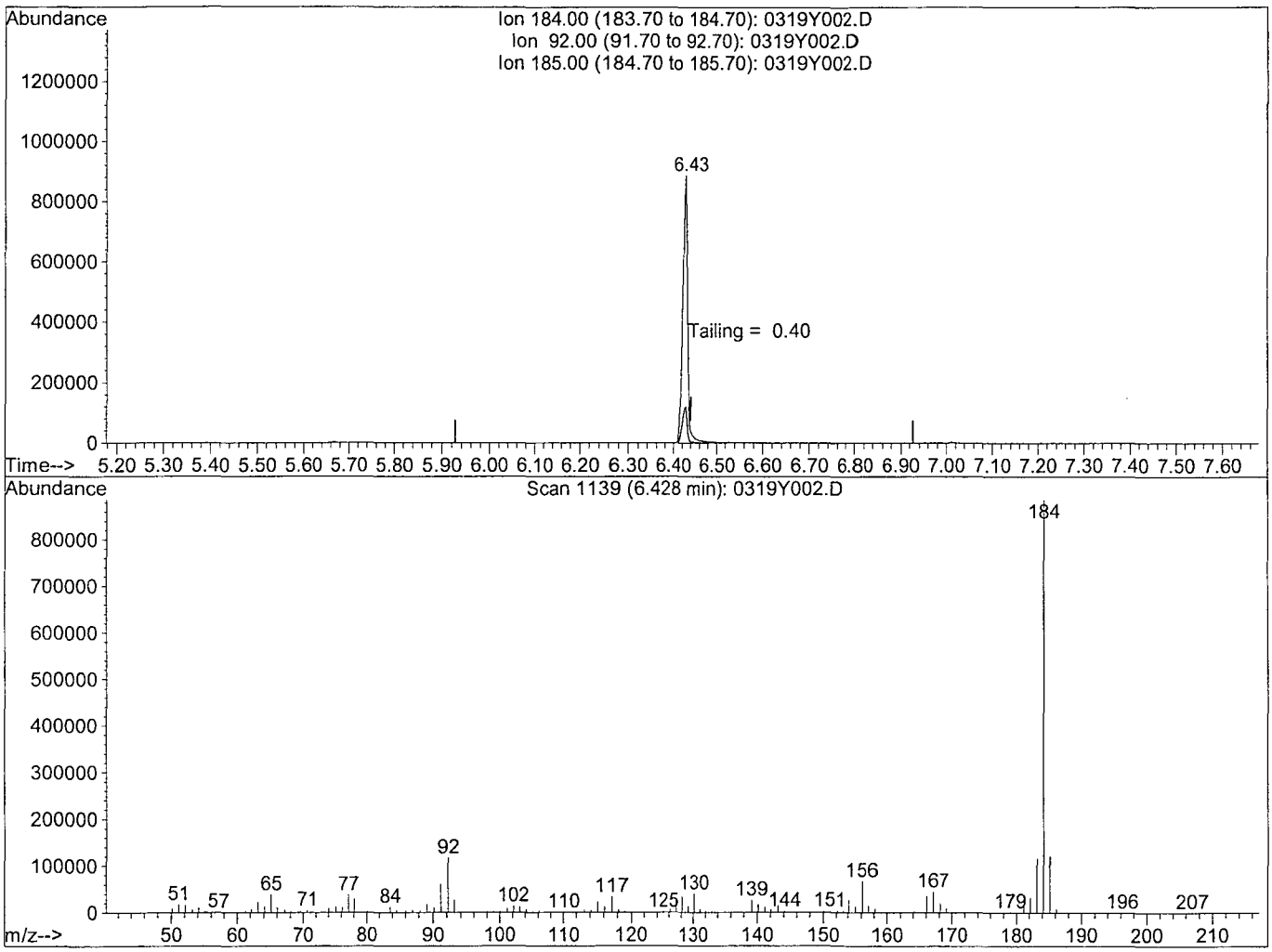
response 676097

Ion	Exp%	Act%
266.00	100	100
264.00	63.10	59.85
268.00	64.40	64.59
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190319\0319Y002.D Vial: 2
Acq On : 19 Mar 19 18:15 Operator: MA
Sample : SV Tune 11/10/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: Mar 19 19:13 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190319\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Wed Mar 20 00:14:48 2019
Response via : Single Level Calibration



TIC: 0319Y002.D

(6) Benzidine

6.43min 0.0000

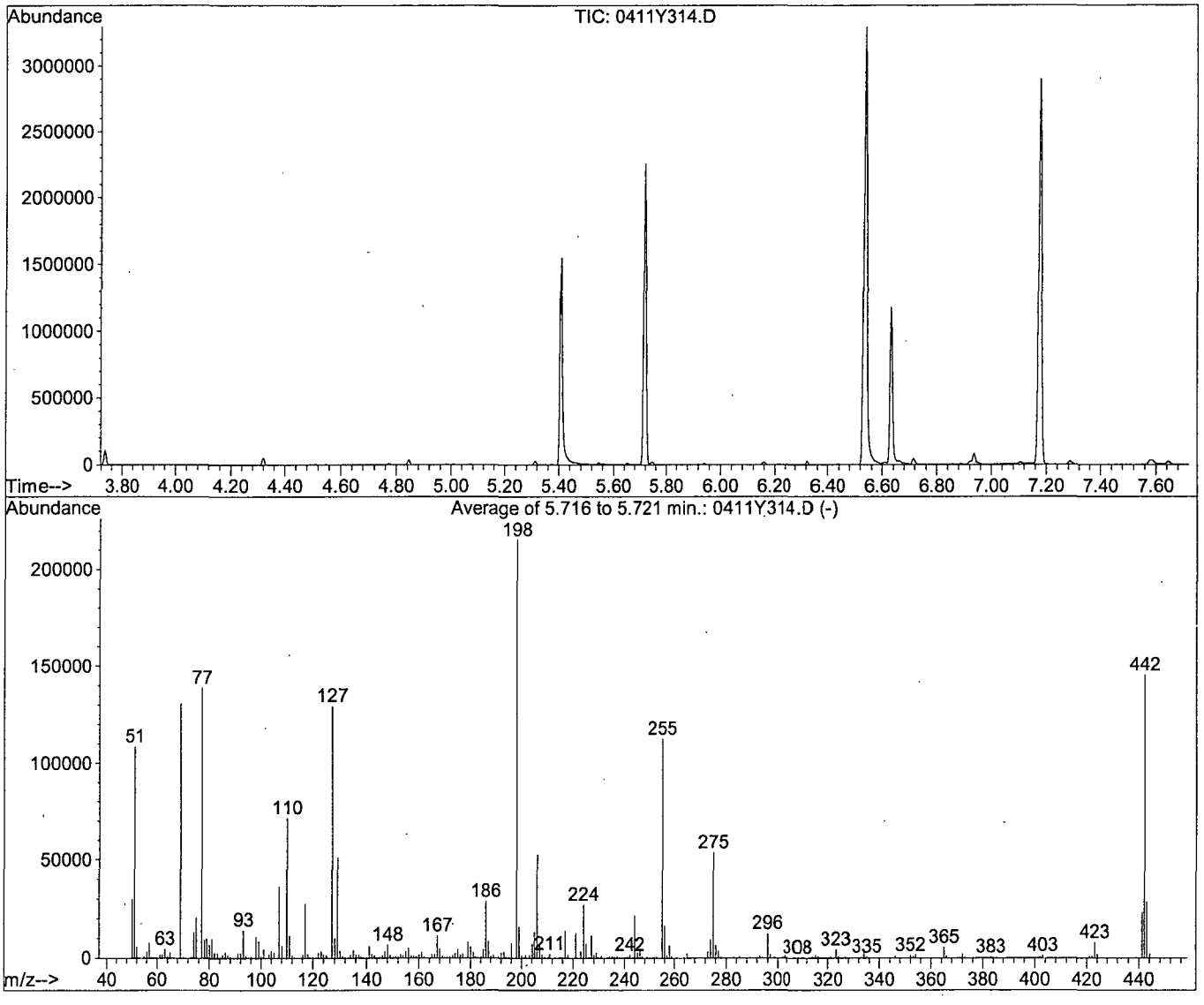
response 6732623

Ion	Exp%	Act%
184.00	100	100
92.00	13.20	13.26
185.00	13.60	13.98
0.00	0.00	0.00

DFTPP

Data File : M:\YODA\DATA\Y190411\0411Y314.D Vial: 14
Acq On : 8 May 19 8:53 Operator: MA,SS
Sample : SV TUNE 10/11/18 Inst : Yoda
Misc : Multiplr: 1.00

Method : M:\YODA\DATA\Y190411\Y0319NC.M (RTE Integrator)
Title : EPA 8270C



AutoFind: Scans 852, 853, 854; Background Corrected with Scan 844

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	50.4	108555	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.2	299	PASS
127	198	10	80	60.1	129512	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	215509	PASS
199	198	5	9	7.4	15879	PASS
275	198	10	60	24.9	53712	PASS
365	198	1	100	2.5	5440	PASS
441	442	0.01	24	15.8	23035	PASS
442	198	50	150	67.5	145395	PASS
443	442	15	24	19.7	28701	PASS

Data File Name:	**0411Y314.D**
Data File Path:	**M:\YODA\DATA\Y190411**
Operator:	**MA,SS**
Date Acquired:	**8 May 19 8:53**
Method File:	**DFTPP2.M**
Sample Name:	**SV TUNE 10/11/18**
Vial Number:	**14**
Instrument Name:	**Yoda**

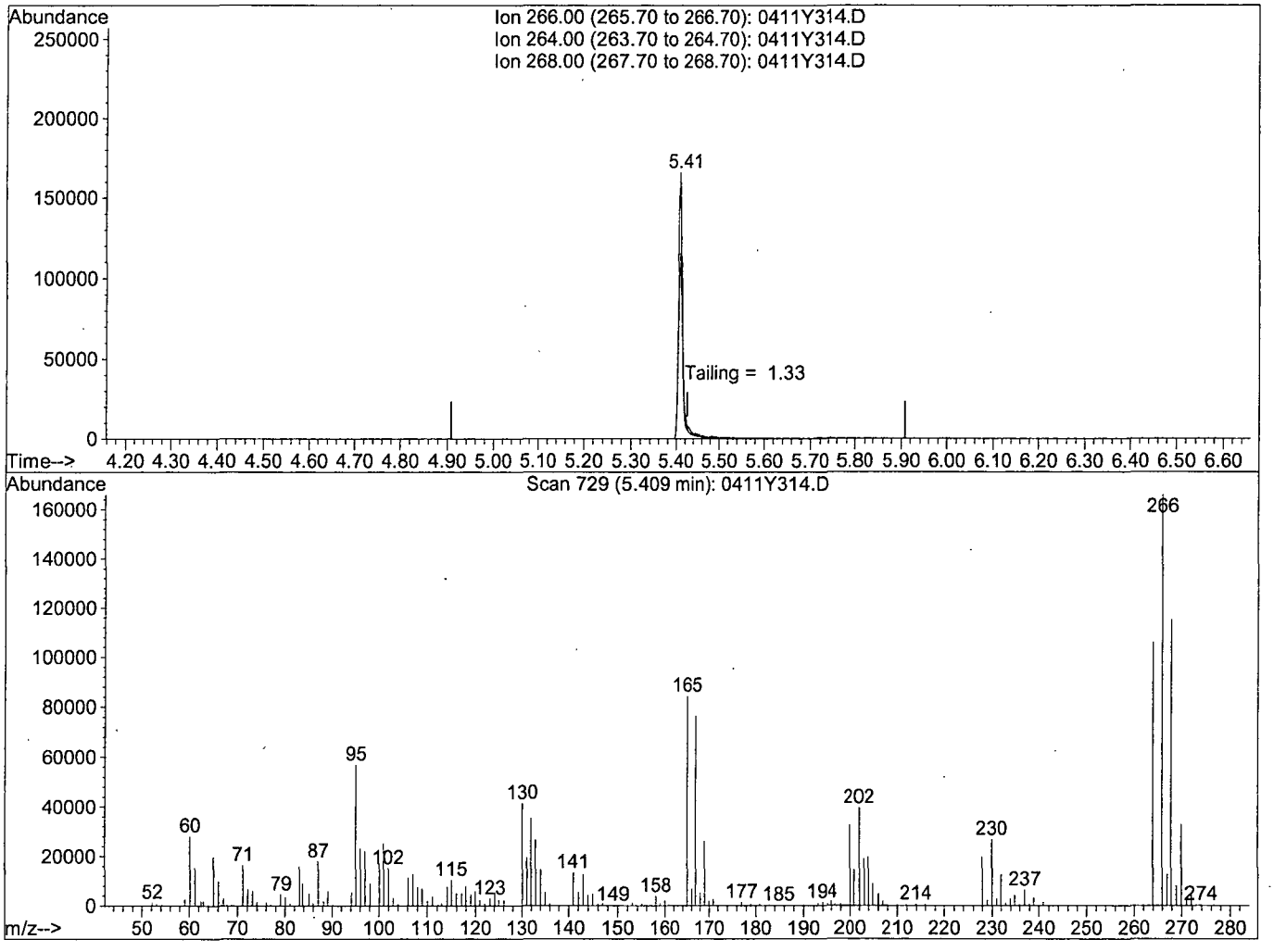
#	Name	Ret Time	Target Response
1)	DDT	7.18	22063400
2)	DDD	6.94	882060
3)	DDE	7.09	0

Breakdown **3.84**

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y314.D Vial: 14
Acq On : 8 May 19 8:53 Operator: MA,SS
Sample : SV TUNE 10/11/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: May 8 8:55 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190411\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Wed May 08 08:55:00 2019
Response via : Single Level Calibration



TIC: 0411Y314.D

(5) Pentachlorophenol

5.41min 0.0000

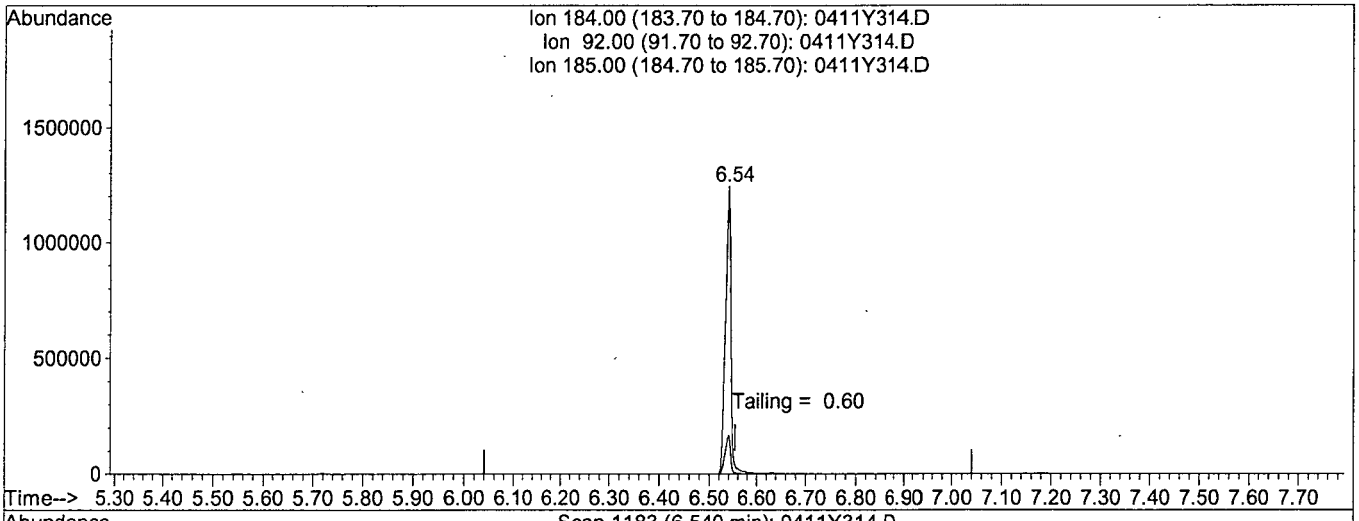
response 1064882

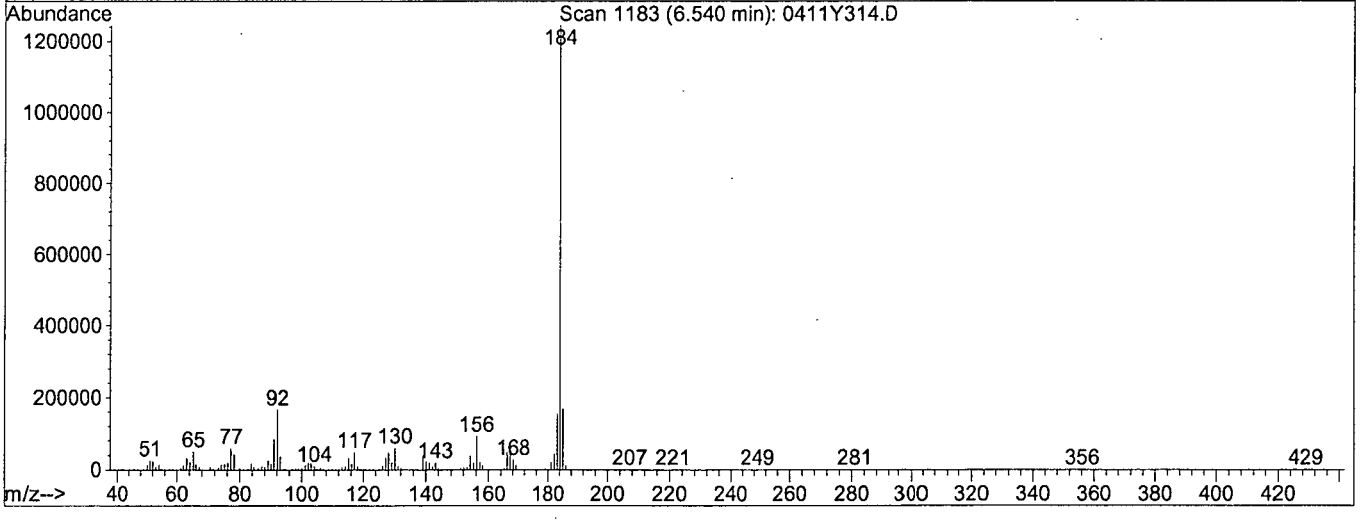
Ion	Exp%	Act%
266.00	100	100
264.00	63.90	67.48
268.00	69.50	67.60
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190411\0411Y314.D Vial: 14
Acq On : 8 May 19 8:53 Operator: MA,SS
Sample : SV TUNE 10/11/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: May 8 8:55 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190411\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Wed May 08 08:55:00 2019
Response via : Single Level Calibration





TIC: 0411Y314.D

(6) Benzidine

6.54min 0.0000

response 9629096

Ion	Exp%	Act%
184.00	100	100
92.00	13.30	13.55
185.00	13.60	13.87
0.00	0.00	0.00

Name of Final Standard 8270 Full Scan Standard Curve **Prep'd By (Initials)** GA

Prep Date 03/13/19

Exp Date 09/13/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
8270 Stock	APPL	8270 Stock	200 ug/mL	03/05/19	10/20/19	4 uL	200uL	MC 56258 192uL	4 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	10/17/18	09/27/19	4 uL	"	"	"
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	02/09/19	02/09/20	4 uL	"	"	"
8270 Stock	APPL	8270 Stock	200 ug/mL	03/05/19	10/20/19	5 uL	200uL	MC 56258 190uL	5 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	10/17/18	09/27/19	5 uL	"	"	"
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	02/09/19	02/09/20	4 uL	"	"	"
8270 Stock	APPL	8270 Stock	200 ug/mL	03/05/19	10/20/19	5 uL	100uL	MC 56258 90uL	10 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	10/17/18	09/27/19	5 uL	"	"	"
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	02/09/19	02/09/20	2 uL	"	"	"
8270 Stock	APPL	8270 Stock	200 ug/mL	03/05/19	10/20/19	10 uL	100uL	MC 56258 80uL	20 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	10/17/18	09/27/19	10 uL	"	"	"
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	02/09/19	02/09/20	2 uL	"	"	"
8270 Stock	APPL	8270 Stock	200 ug/mL	03/05/19	10/20/19	20 uL	100uL	MC 56258 60uL	40 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	10/17/18	09/27/19	20 uL	"	"	"
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	02/09/19	02/09/20	2 uL	"	"	"
8270 Stock	APPL	8270 Stock	200 ug/mL	03/05/19	10/20/19	50 uL	200 uL	MC 56258 100uL	50 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	10/17/18	09/27/19	50 uL	"	"	"
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	02/09/19	02/09/20	4 uL	"	"	"
8270 Stock	APPL	8270 Stock	200 ug/mL	03/05/19	10/20/19	30 uL	100uL	MC 56258 40uL	60 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	10/17/18	09/27/19	30 uL	"	"	"
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	02/09/19	02/09/20	2 uL	"	"	"
8270 Stock	APPL	8270 Stock	200 ug/mL	03/05/19	10/20/19	40 uL	100uL	MC 56258 20uL	80 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	10/17/18	09/27/19	40 uL	"	"	"
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	02/09/19	02/09/20	2 uL	"	"	"
8270 Stock	APPL	8270 Stock	200 ug/mL	03/05/19	10/20/19	50 uL	100uL	na	100 ug/mL
8270 Surrogate	APPL	8270 Surrogate	200/400 ug/mL	10/17/18	09/27/19	50 uL	"	"	"
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	02/09/19	02/09/20	2 uL	"	"	"

Name of Final Standard 8270 Full Scan Second Source **Prep'd By (Initials)** GA

Prep Date 03/13/19

Exp Date 09/13/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
8270 SS Stock	o2si	8270 SS Stock	200 ug/mL	**03/05/19**	**01/08/20**	50 uL	200uL	**MC 56258 150uL**	50 ug/mL
SV Internal Standard	APPL	SV Internal Standard	2000 ug/mL	**01/16/19**	**01/16/20**	4 uL	*	*	*

Name of Final Standard	8270 Full Scan Spike	Prep'd By (Initials)	GA
Prep Date	03/05/19		
Exp Date	10/20/19		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
10001	Absolute	10001	2000	051018-39827 051018-39828	03/05/20	2.0 mL	20 mL	NA	200 ug/mL
10002	Absolute	10002	2000	051018-39832 051018-39833	03/05/20	2.0 mL	*	*	200 ug/mL
10004	Absolute	10004	2000	031618-39836 031618-39839	01/30/20	2.0 mL	*	*	200 ug/mL
10005	Absolute	10005	2000	032018-40011 032018-40012	01/30/20	2.0 mL	*	*	200 ug/mL
10006	Absolute	10006	2000	071318-39842 071318-39843	01/30/20	2.0 mL	*	*	200 ug/mL
10007	Absolute	10007	2000	080116-40016 080116-40017	01/30/20	2.0 mL	*	*	200 ug/mL
10018	Absolute	10018	2000	062718-39847 062718-39848	01/30/20	2.0 mL	*	*	200 ug/mL
70023	Absolute	70023	1000	091217-39852 091217-39853	01/30/20	2.0 mL	*	*	100 ug/mL
82705	Absolute	82705	2000	081418-40020 081418-40021	01/30/20	2.0 mL	*	*	200 ug/mL
94552	Absolute	94552	various	102017-40026 102017-40027	10/20/19	2.0 mL	*	*	various

Name of Final Standard	8270 SS STOCK	Prep'd By (Initials)	GA
Prep Date	03/05/19		
Exp Date	01/08/20		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
10001	Absolute	10001	2000	031618-39202	03/05/20	1.0 mL	10 mL	NA	200 ug/mL
10002	Absolute	10002	2000	G34-020217-38182	02/02/20	1.0 mL	*	*	200 ug/mL
10004	Absolute	10004	2000	010815-38625	01/08/20	1.0 mL	*	*	200 ug/mL
10005	Absolute	10005	2000	041317-37804	03/05/20	1.0 mL	*	*	200 ug/mL
10006	Absolute	10006	2000	011718-38827	03/05/20	1.0 mL	*	*	200 ug/mL
10007	Absolute	10007	2000	020515-38627	02/05/20	1.0 mL	*	*	200 ug/mL
10018	Absolute	10018	2000	G34-030216-38195	03/05/20	1.0 mL	*	*	200 ug/mL
70023	Absolute	70023	1000	013118-38830	03/05/20	1.0 mL	*	*	100 ug/mL
82705	Absolute	82705	2000	090617-38832	03/05/20	1.0 mL	*	*	200 ug/mL
94552	Absolute	94552	various	013118-40453	01/31/20	1.0 mL	*	*	various

Name of Final Standard	8270 Internal Standard (Ampule)	**Prep'd By (Initials)**	**GA**
Prep Date	**02/09/19**		
Exp Date	**02/09/20**		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc.(range)
Semivolatile Internal Standard	Restek	31206	2mg/mL	**A0138585-39540**	**01/16/20**	1 mL	1 mL	**NA**	2mg/mL

Name of Final Standard	**8270 Surrogate 200/400 ppm**
Prep Date	**10/17/18**
Exp Date	**09/27/19**

Prep'd By (Initials) **GA**

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc. (range)
8270 Acid Surrogate Mix	Restek	33029	10,000 ug/mL	**A0136352-39395**	**10/17/19**	200 uL	5 mL	**MC 56258**	400 ug/mL
8270 B/N Surrogate Mix	Restek	31086	5000 ug/mL	**A0135243-39166**	**09/27/19**	200 uL	"	"	200 ug/mL

Name of Final Standard	8270 Full Scan Spike	Prep'd By (Initials)	GA
Prep Date	01/30/19		
Exp Date	10/20/19		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
10001	Absolute	10001	2000	051018-39825 051018-39826	01/30/20	2.0 mL	20 mL	NA	200 ug/mL
10002	Absolute	10002	2000	051018-39830 051018-39831	01/30/20	2.0 mL	"	"	200 ug/mL
10004	Absolute	10004	2000	031618-39834 031618-39835	01/30/20	2.0 mL	"	"	200 ug/mL
10005	Absolute	10005	2000	032018-39611 032018-40010	01/30/20	2.0 mL	"	"	200 ug/mL
10006	Absolute	10006	2000	071318-39840 071318-39841	01/30/20	2.0 mL	"	"	200 ug/mL
10007	Absolute	10007	2000	080116-39616 080116-40015	01/30/20	2.0 mL	"	"	200 ug/mL
10018	Absolute	10018	2000	062718-39845 062718-39846	01/30/20	2.0 mL	"	"	200 ug/mL
70023	Absolute	70023	1000	091217-39850 091217-39851	01/30/20	2.0 mL	"	"	100 ug/mL
82705	Absolute	82705	2000	081418-39620 081418-39621	01/30/20	2.0 mL	"	"	200 ug/mL
94552	Absolute	94552	various	102017-40025 102017-40225	10/20/19	2.0 mL	"	"	various

Name of Final Standard	8270 Surrogate 100/200 ppm	Prep'd By (Initials)	GA
Prep Date	01/30/19		
Exp Date	12/06/19		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
8270 Acid Surrogate Mix	Restek	33029	10,000 ug/mL	A0132399 -39396	01/30/20	5.0 mL	250 mL	Acetone #101717I	200 ug/mL
8270 B/N Surrogate Mix	Restek	31086	5000 ug/mL	A0140132 - 39546 & 39547	12/06/19 01/30/20	5.0 mL	250 mL	"	100 ug/mL

Name of Final Standard	8270 Full Scan Spike	Prep'd By (Initials)	GA
Prep Date	04/12/19		
Exp Date	10/20/19		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	+ Lot# (or APPL Prep Date)	Final Standa Conc (range
10001	Absolute	10001	2000	020119-40371 020119-40372	04/12/20	2.0 mL	20 mL	NA	200 ug/mL
10002	Absolute	10002	2000	051018-40376 051018-40377	04/12/20	2.0 mL	*	*	200 ug/mL
10004	Absolute	10004	2000	031618-40382 031618-40383	04/12/20	2.0 mL	*	*	200 ug/mL
10005	Absolute	10005	2000	032018-40014 032018-40512	04/12/20	2.0 mL	*	*	200 ug/mL
10006	Absolute	10006	2000	110618-40387 110618-40388	04/12/20	2.0 mL	*	*	200 ug/mL
10007	Absolute	10007	2000	080116-40019 080116-40517	04/12/20	2.0 mL	*	*	200 ug/mL
10018	Absolute	10018	2000	120518-40392 120518-40393	04/12/20	2.0 mL	*	*	200 ug/mL
70023	Absolute	70023	1000	091217-40397 091217-40398	04/12/20	2.0 mL	*	*	100 ug/mL
82705	Absolute	82705	2000	081418-40023 081418-40024	04/12/20	2.0 mL	*	*	200 ug/mL
94552	Absolute	94552	various	102017-40029 102017-40528	10/20/19	2.0 mL	*	*	various

Organic Extraction Worksheet

Method	Continuous Liquid/Liquid SVOC 3520C	Extraction Set	190506A	Extraction Method	LIQ003	Units	mL

Spiked ID 1	8270T Spike 4-12-19 EXP 10-20-19		Surrogate ID 1	8270 Surrogate 4-10-19 EXP 3-15-20	
Spiked ID 2	Sim Spike 3-20-19 EXP 3-20-20		Surrogate ID 2	SIM Surrogate 5-1-19 EXP 5-1-20	
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	no	
Spiked ID 7			Ext. Start Time:	05/06/19 11:00, 05/07/19 08:35	
Spiked ID 8			Ext. End Time:	05/07/19 6:30, 05/08/19 05:20, 9:50	
			GC Requires Extract By:	05/02/19 0:00	

pH1	2	5/06/19 10:00:00 AM	Water Bath Temp Criteria	75 °C
pH2	14	05/07/19 8:30:00 AM		
pH3				

Spiked By: DL **Date** 05/06/19 **Witnessed By:** KY **Date** 05/06/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
1	190506A Blk				1,0.050	1,2	800	1	2/1	05/06/19 9:50	
						equip	E-HP51 E-WB6				
2	190506A LCS-1		0.250	1	1	1	800	1	2/1	05/06/19 9:50	
						equip	E-HP50 E-WB6				
3	190506A LCS-2		0.0250	2	0.050	2	800	1	2/1	05/06/19 9:50	
						equip	E-HP48 E-WB6				
4	190506A LCSD-1		0.250	1	1	1	800	1	2/1	05/06/19 9:50	
						equip	E-HP49 E-WB6				
5	190506A LCSD-2		0.0250	2	0.050	2	800	1	2/1	05/06/19 9:50	
						equip	E-HP47 E-WB6				
6	AZ90215	AZ90215W19			1,0.050	1,2	800	1	2/1	05/06/19 9:50	88736 RE-EXTRACT
						equip	E-HP25 E-WB6				
7	AZ90447	AZ90447W07			1,0.050	1,2	800	1	2/1	05/06/19 9:50	88764
						equip	E-HP26 E-WB6				
8	AZ90448	AZ90448W10			1,0.050	1,2	800	1	2/1	05/06/19 9:50	88764
						equip	E-HP27 E-WB6				
9	AZ90450	AZ90450W22			1,0.050	1,2	800	1	2/1	05/06/19 9:50	88764
						equip	E-HP28 E-WB6				

Ky 5/8/19

Solvent and Lot#	
PH Strips	HC 857466
Dichloromethane (DCM)	58240
1+1 H2SO4	4-22-19
10N NaOH	4-22-19
Filter Paper	400148
Acidified Na2SO4	2-28-19
B.Na2SO4	18D105205

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	MA
Date	5/8/19
Time	0950
Refrigerator	GC-C

	Technician's Initials
Scanned By	DL
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	05/08/19 8:42:43 AM

Reviewed By: Ky **Date** 5/8/19

Injection Log

Directory: M:\YODA\DATA\Y190319\

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	2	0319Y002.D	1	SV Tune 11/10/18		19 Mar 19 18:15
2	3	0319Y003.D	1	50ug/mL 8270 03/13/19		19 Mar 19 18:31
3	4	0319Y004.D	1	4ug/mL 8270 03/13/19		19 Mar 19 18:58
4	5	0319Y005.D	1	5ug/mL 8270 03/13/19		19 Mar 19 19:26
5	6	0319Y006.D	1	10ug/mL 8270 03/13/19		19 Mar 19 19:54
6	7	0319Y007.D	1	20ug/mL 8270 03/13/19		19 Mar 19 20:22
7	8	0319Y008.D	1	40ug/mL 8270 03/13/19		19 Mar 19 20:49
8	9	0319Y009.D	1	60ug/mL 8270 03/13/19		19 Mar 19 21:17
9	10	0319Y010.D	1	80ug/mL 8270 03/13/19		19 Mar 19 21:44
10	11	0319Y011.D	1	100ug/mL 8270 03/13/19		19 Mar 19 22:11
11	12	0319Y012.D	1	SS-8270 03/13/19		19 Mar 19 22:39
12	14	0411Y314.D	1	SV TUNE 10/11/18		8 May 19 8:53
13	15	0411Y315.D	1	50ug/ml 8270 3/13/19		8 May 19 9:14
14	18	0411Y318.D	1.25	190506A BLK 1/800		8 May 19 10:36
15	19	0411Y319.D	1.25	190506A LCS-1 1/800		8 May 19 11:04
16	20	0411Y320.D	1.25	190506A LCSD-1 1/800		8 May 19 11:32
17	21	0411Y321.D	1.25	AZ90447W07 1/800		8 May 19 11:59
18	22	0411Y322.D	1.25	AZ90448W10 1/800		8 May 19 12:27
19	23	0411Y323.D	1.25	AZ90450W22 1/800		8 May 19 12:55
20	25	0411Y325.D	1	50ug/ml 8270 3/13/19		8 May 19 13:51

ORGANICS
Calibration Data

2MEE
EPA 8270

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 04/30/19
Matrix: Instrument: Yoda
Initials: MA/LP

		Compound	1	2	3	4	5	6	7	8			Avg	%RSD	Type	r^2	Q	MRF
			0430Y003.D	0430Y004.D	0430Y005.D	0430Y006.D	0430Y007.D	0430Y008.D	0430Y009.D	0430Y010.D								
1	I	1,4-dichlorobenzene-D4(IS)																
2	TML	2-(2-Methoxyethoxy)ethanol	0.0855	0.1071	0.1202	0.1690	0.1716	0.1510	0.1681	0.1572			0.14	23	TML	0.992		
3	I	Napthalene-D8(IS)																
4	I	Acenaphthene-D10(IS)																
5	I	Phenanthrene-D10(IS)																
6	I	Chrysene-D12(IS)																
7	I	Perylene-D12(IS)																
8																		
9																		
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11																		
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Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y003.D Vial: 3
Acq On : 30 Apr 19 9:27 Operator: MA
Sample : 50ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 12:16 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	184530	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	792854	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	436769	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	740242	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	652884	40.00000	ppb	0.01
7) Perylene-D12(IS)	15.14	264	661360	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.31	45	19721	51.20047	ppb	92

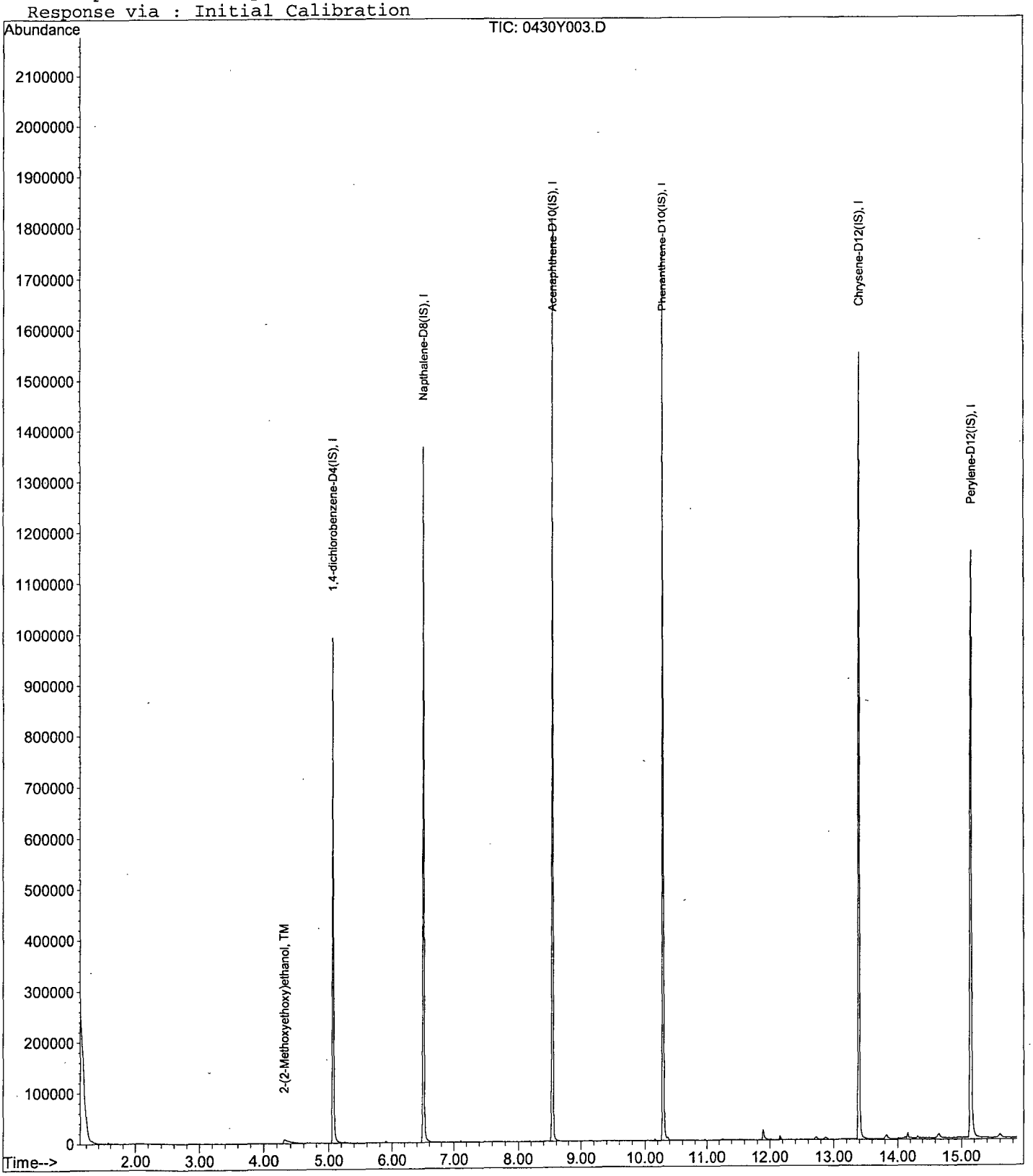
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y003.D Vial: 3
Acq On : 30 Apr 19 9:27 Operator: MA
Sample : 50ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 12:16 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y004.D Vial: 4
Acq On : 30 Apr 19 9:50 Operator: MA
Sample : 100ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:44:52 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	187806	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	863865	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	468856	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	791427	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	668649	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	626815	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.27	45	50283	84.61640	ppb	97

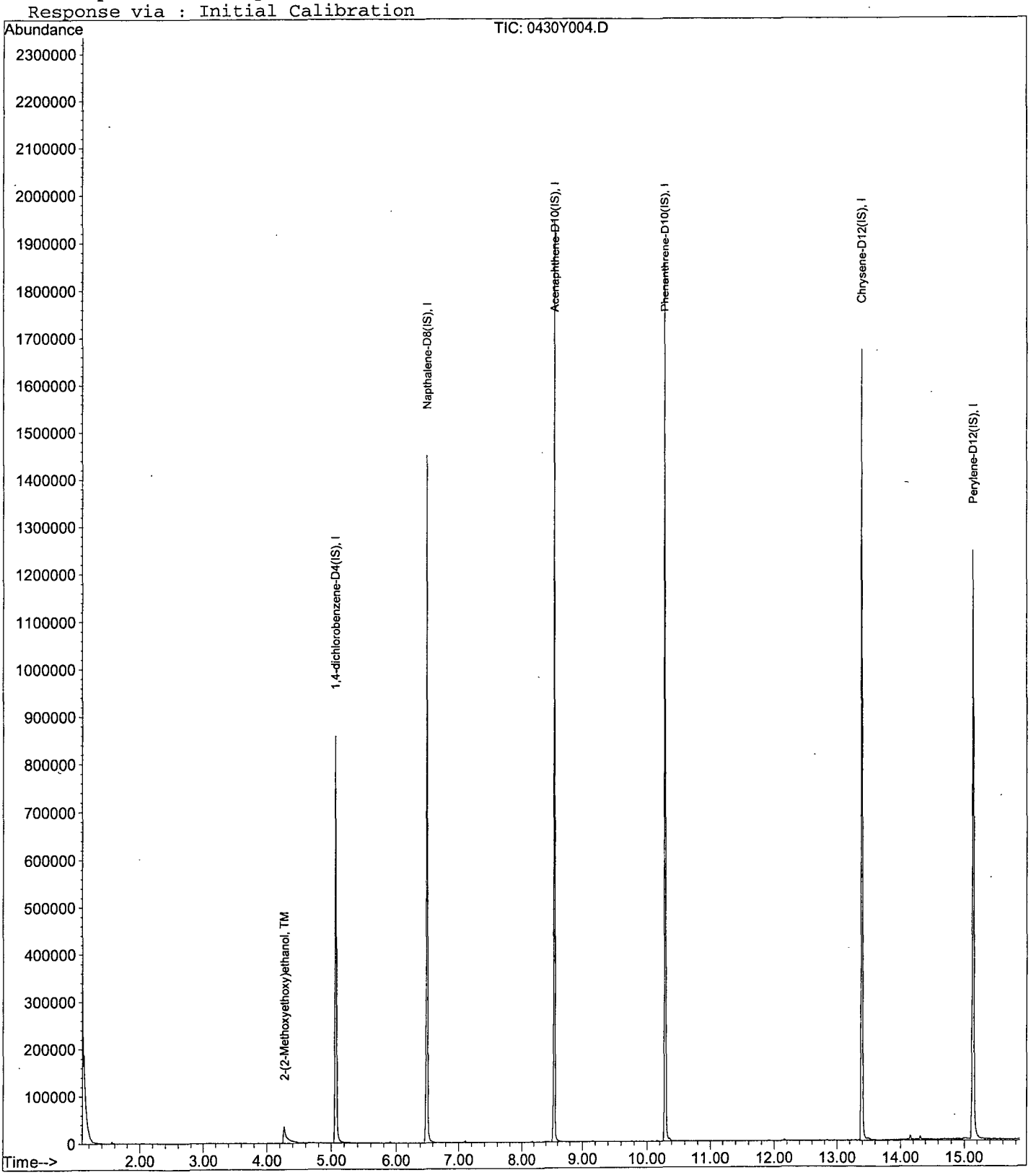
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y004.D Vial: 4
Acq On : 30 Apr 19 9:50 Operator: MA
Sample : 100ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y005.D Vial: 5
Acq On : 30 Apr 19 10:13 Operator: MA
Sample : 200ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:44:52 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	198152	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	841205	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	466203	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	786056	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	706531	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	682388	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.25	45	119065	189.90155	ppb	99

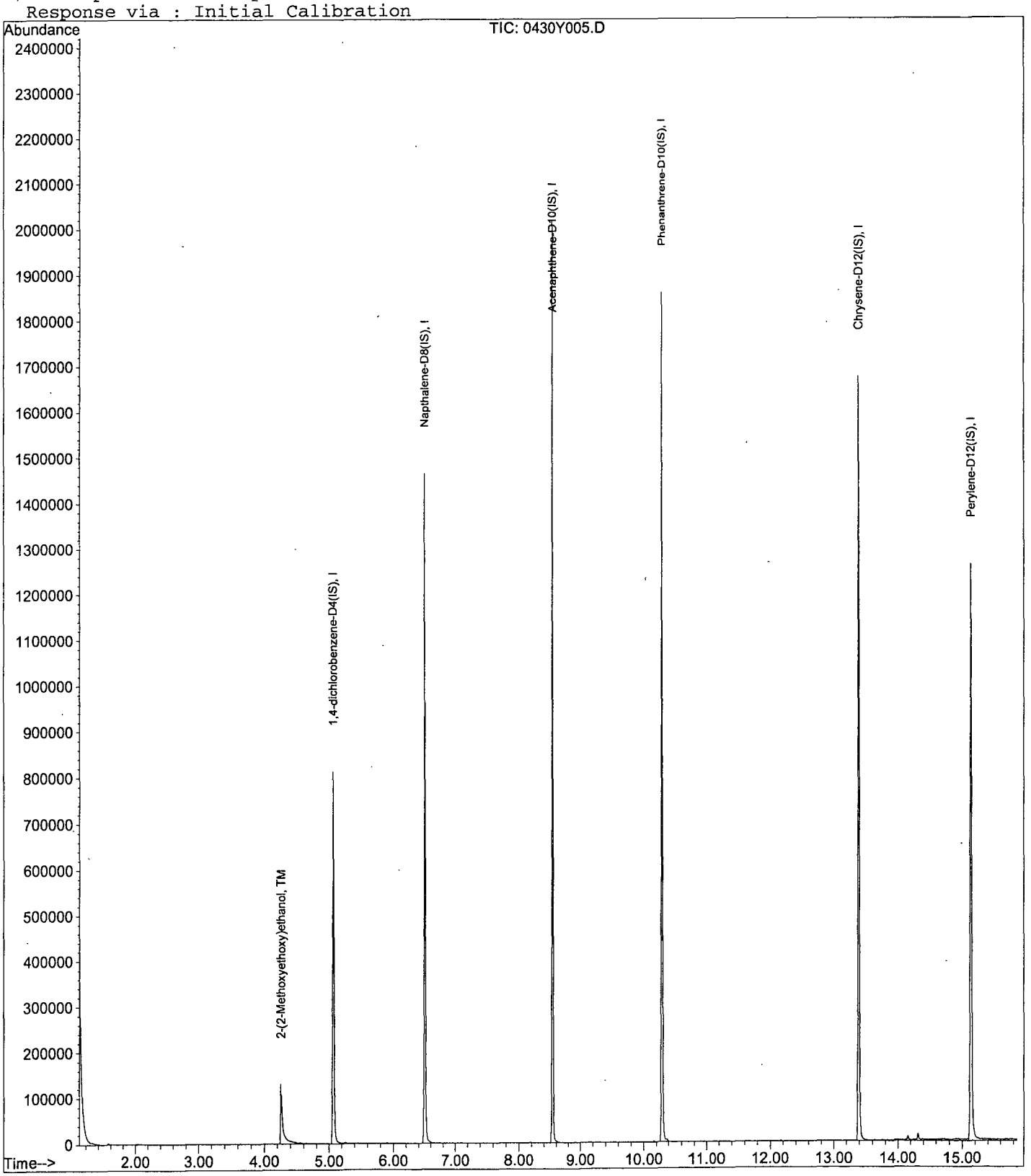
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y005.D Vial: 5
Acq On : 30 Apr 19 10:13 Operator: MA
Sample : 200ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y006.D Vial: 6
Acq On : 30 Apr 19 10:37 Operator: MA
Sample : 400ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:44:52 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	181654	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	797784	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	446801	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	742976	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	658989	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	628149	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.25	45	307070	534.23860	ppb	99

(#) = qualifier out of range (m) = manual integration

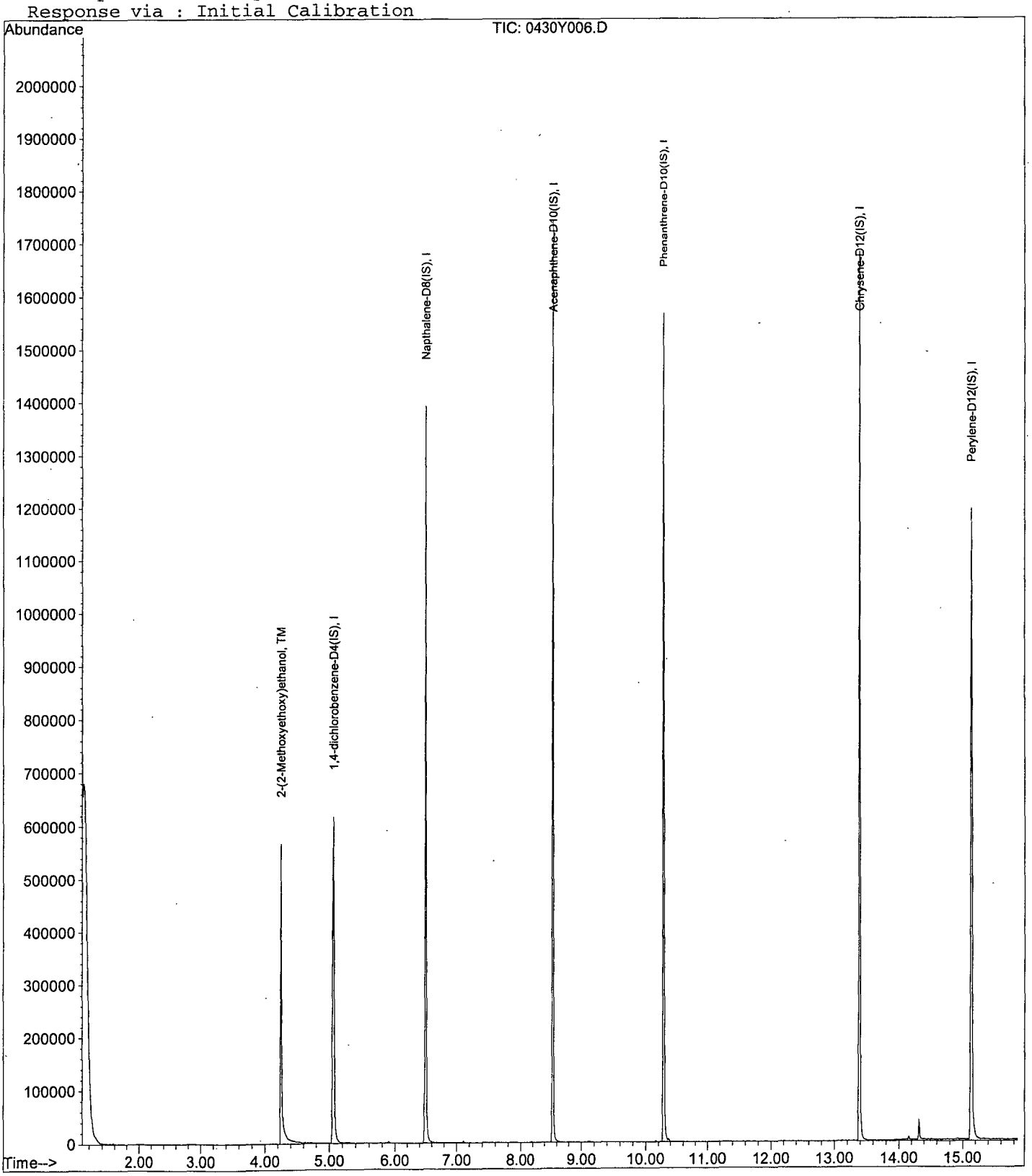
Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y006.D
Acq On : 30 Apr 19 10:37
Sample : 400ug/ml MEE 04/30/19
Misc : soil

Vial: 6
Operator: MA
Inst : Yoda
Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y007.D Vial: 7
Acq On : 30 Apr 19 11:00 Operator: MA
Sample : 500ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:44:52 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	165959	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	714594	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	398927	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	678369	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	607331	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.14	264	593257	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.25	45	356062	678.05928	ppb	100

(#) = qualifier out of range (m) = manual integration

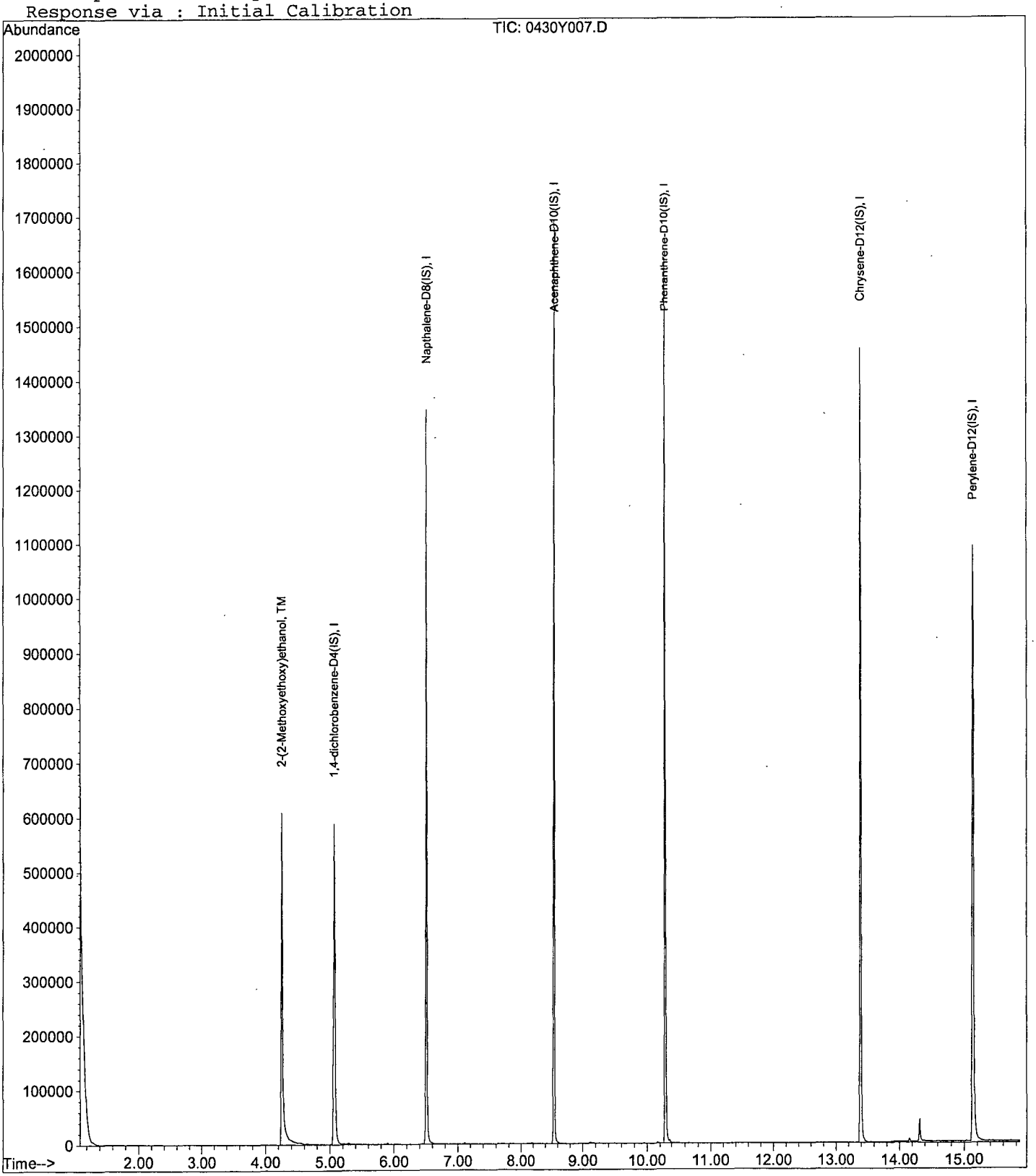
Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y007.D
Acq On : 30 Apr 19 11:00
Sample : 500ug/ml MEE 04/30/19
Misc : soil

Vial: 7
Operator: MA
Inst : Yoda
Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y008.D Vial: 8
Acq On : 30 Apr 19 11:23 Operator: MA
Sample : 600ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:44:52 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	192050	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	832030	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	456909	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	771492	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	686371	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	672431	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.26	45	435053	715.93023	ppb	98

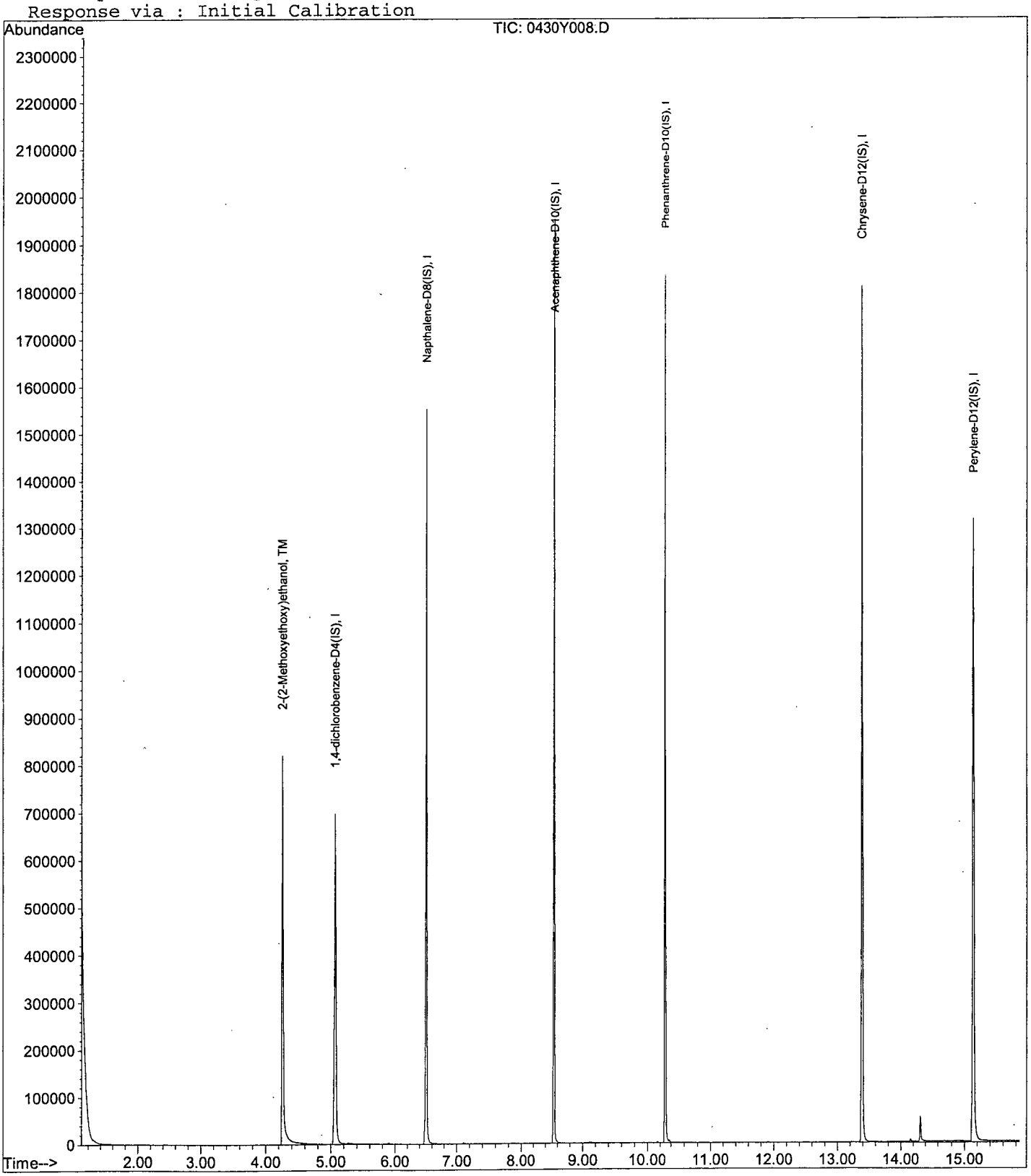
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y008.D Vial: 8
Acq On : 30 Apr 19 11:23 Operator: MA
Sample : 600ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:47 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y009.D Vial: 9
Acq On : 30 Apr 19 11:47 Operator: MA
Sample : 800ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:48 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:44:52 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	177494	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	809241	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	446680	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	765580	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	677822	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	648459	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.26	45	596711	1062.48599	ppb	99

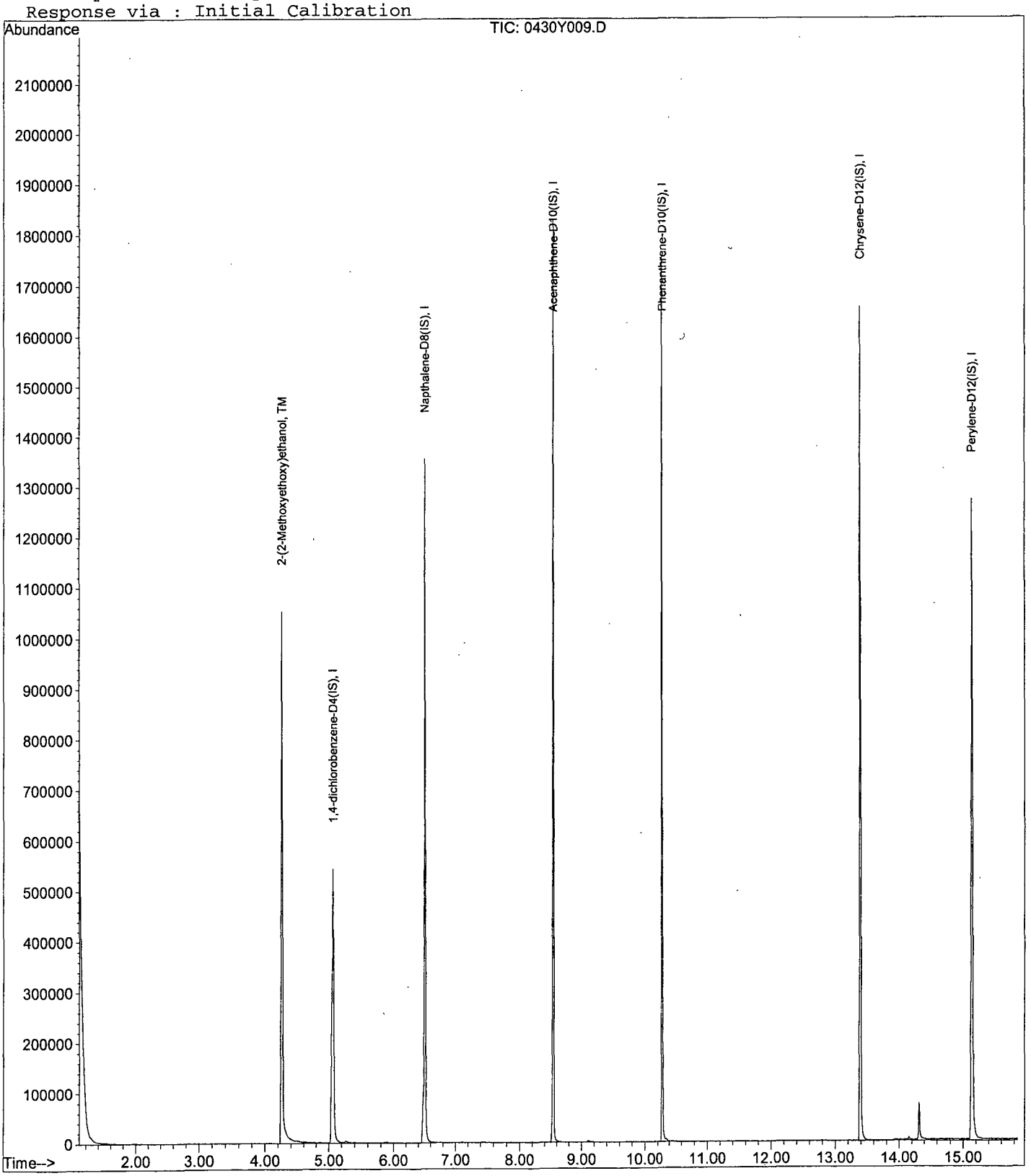
(#) = qualifier out of range (m) = manual integration
0430Y009.D YMEE0430.M Wed May 01 09:22:39 2019 Page 1

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y009.D Vial: 9
Acq On : 30 Apr 19 11:47 Operator: MA
Sample : 800ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 11:48 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y010.D Vial: 10
Acq On : 30 Apr 19 12:10 Operator: MA
Sample : 1000ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 12:15 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 11:49:24 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	194543	40.00000	ppb	0.01
3) Napthalene-D8(IS)	6.51	136	824746	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	455154	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.29	188	763926	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	675051	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	668405	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.29	45	764768	949.70790	ppb	98

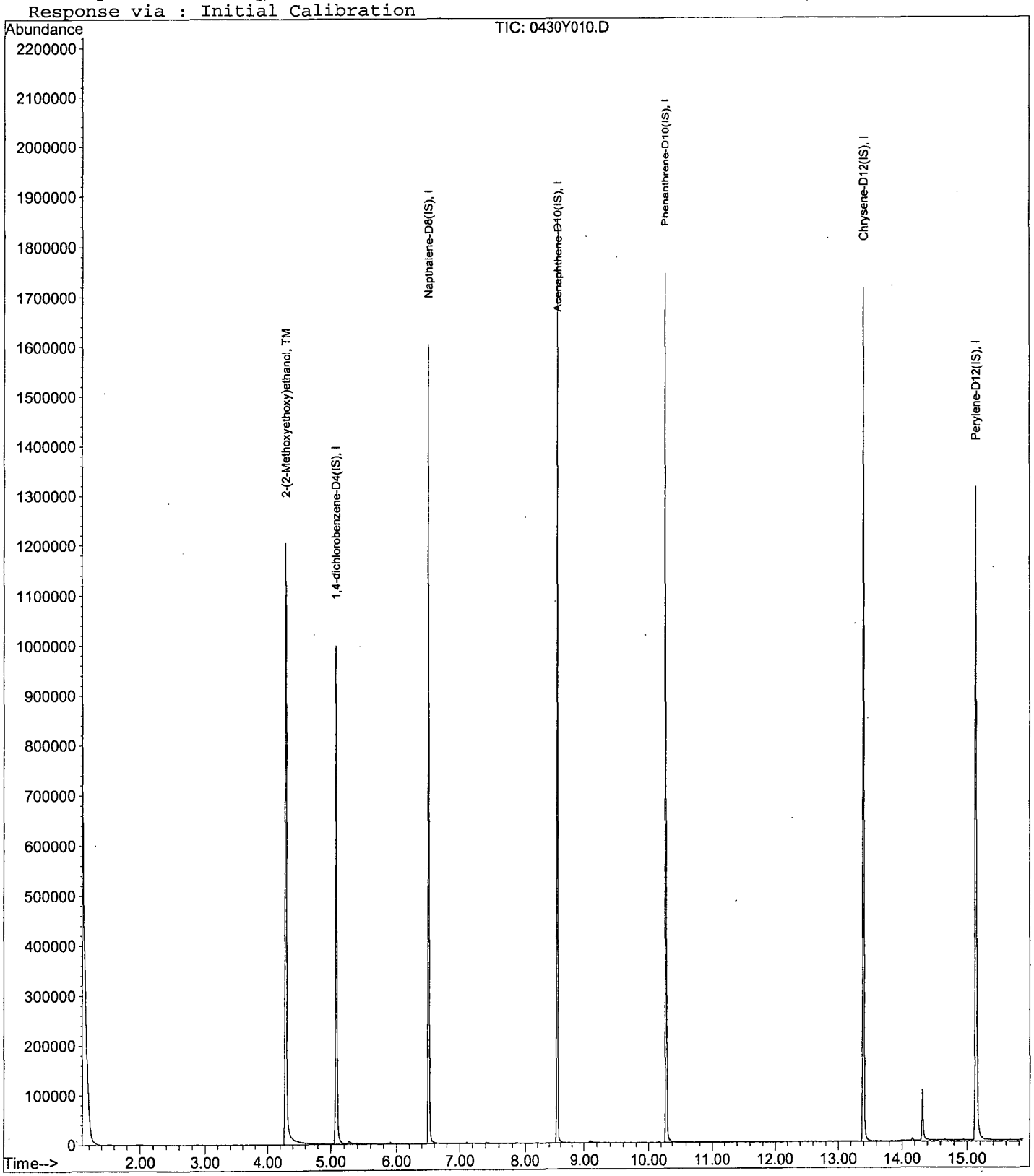
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y010.D Vial: 10
Acq On : 30 Apr 19 12:10 Operator: MA
Sample : 1000ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 12:15 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



2MEE
EPA 8270

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 04/30/19
Instrument: Yoda
Initial Cal. Date: 04/30/19
Data File: 0430Y011.D

		Compound	MEAN	CCRF	%D	%Drift	
1	TML	2-(2-Methoxyethoxy)ethanol	0.1412	0.1842	30	TML	16
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			30.0		

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y011.D Vial: 11
Acq On : 30 Apr 19 13:30 Operator: MA
Sample : SS ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 13:31 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	176322	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	756659	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	427777	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	702800	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	636036	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.14	264	617157	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.26	45	406011	577.68332	ppb	99

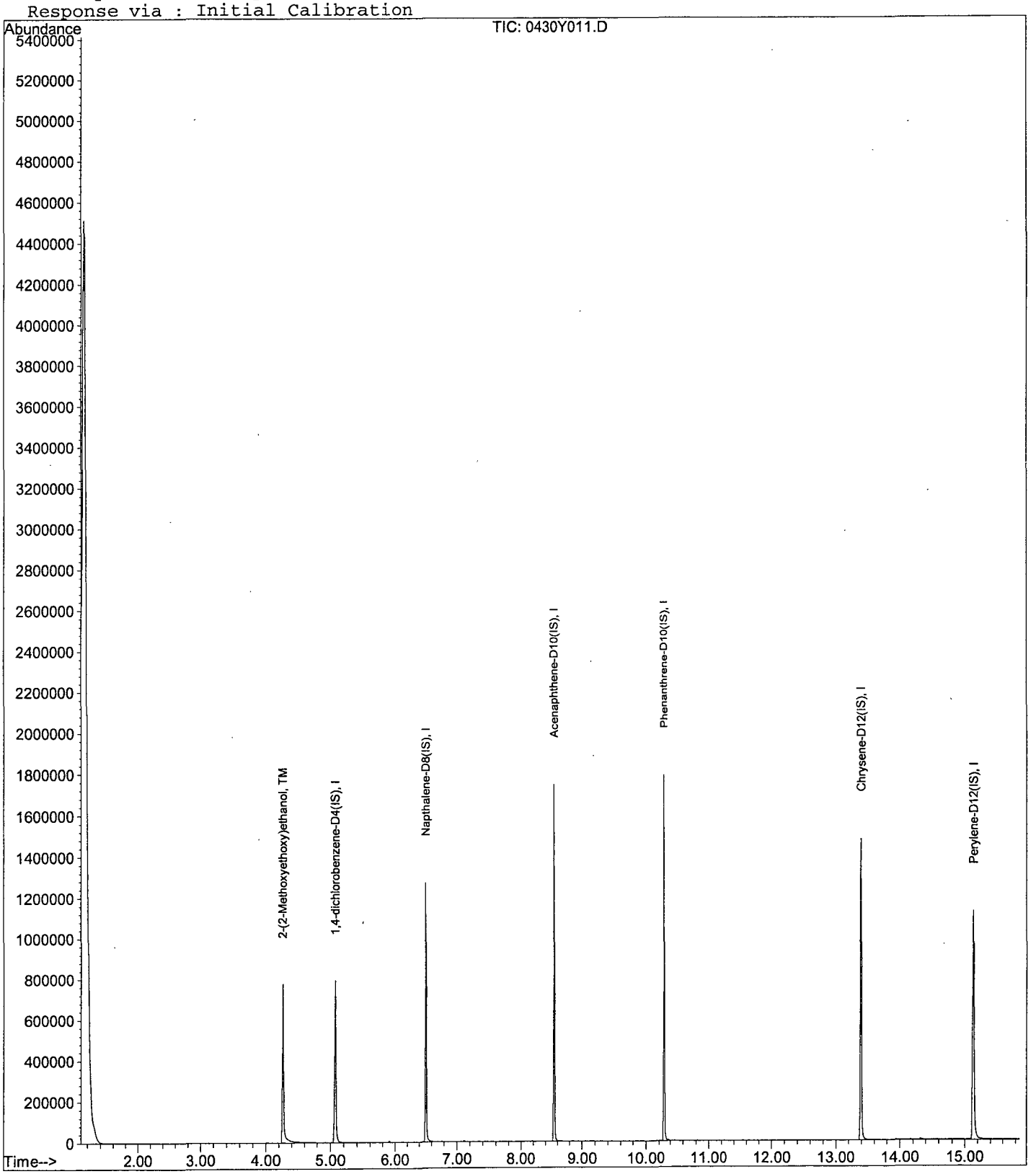
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y011.D Vial: 11
Acq On : 30 Apr 19 13:30 Operator: MA
Sample : SS ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: Apr 30 13:31 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



2MEE
EPA 8270

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 6 May 19 10:45
Instrument: Yoda
Initial Cal. Date: 04/30/19
Data File: 0430Y043.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	1,4-dichlorobenzene-D4(IS)	ISTD			I	
2	TML	2-(2-Methoxyethoxy)ethanol	0.1412	0.1862	32	TML	17
3	I	Napthalene-D8(IS)	ISTD			I	
4	I	Acenaphthene-D10(IS)	ISTD			I	
5	I	Phenanthrene-D10(IS)	ISTD			I	
6	I	Chrysene-D12(IS)	ISTD			I	
7	I	Perylene-D12(IS)	ISTD			I	
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
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27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			32.0		

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y043.D Vial: 43
Acq On : 6 May 19 10:45 Operator: MA
Sample : 500ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 6 11:18 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	161529	40.00000	ppb	0.02
3) Napthalene-D8(IS)	6.51	136	693883	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	377797	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	627869	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	538714	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.14	264	495553	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.28	45	376052	583.77571	ppb	98

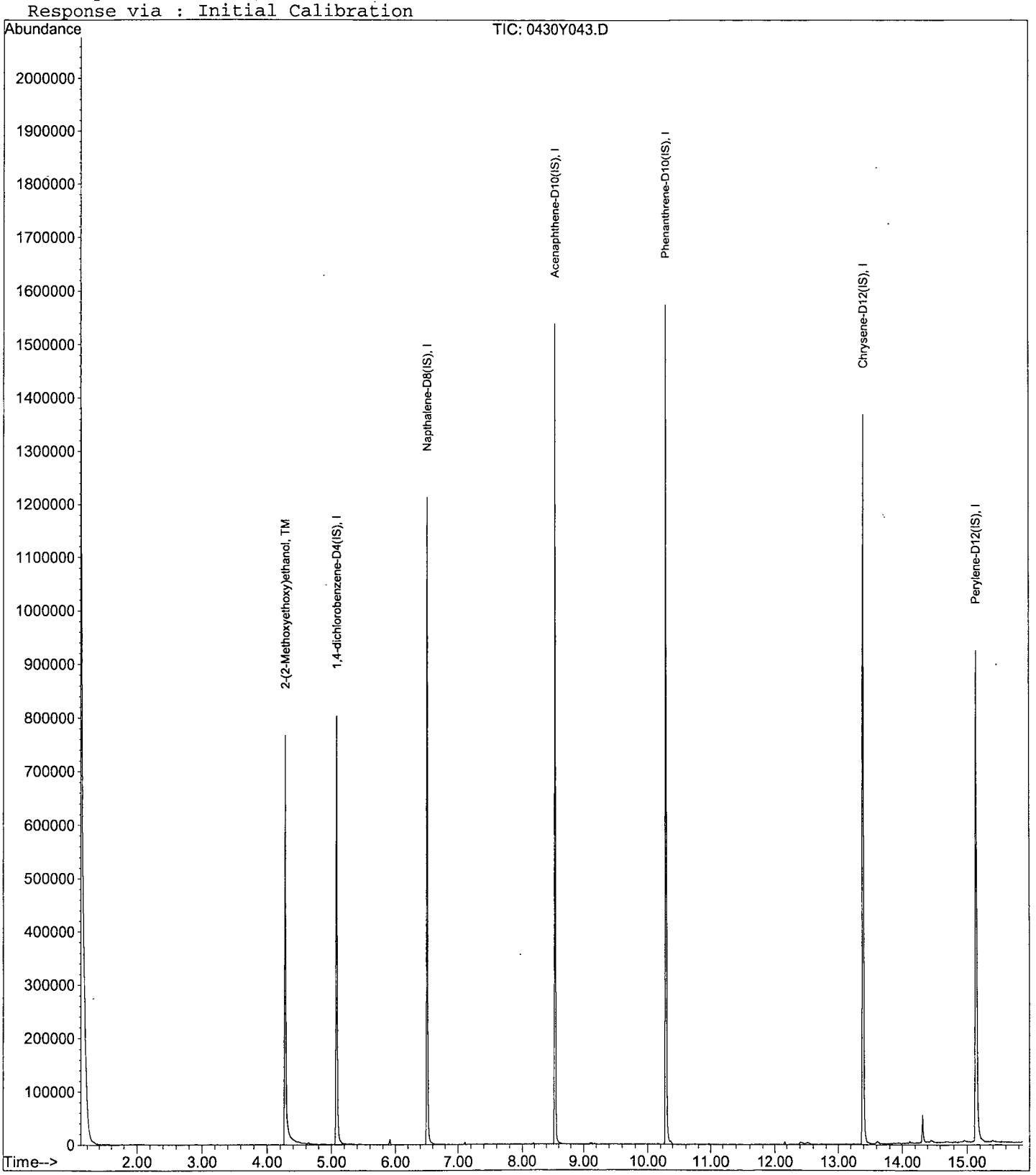
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y043.D Vial: 43
Acq On : 6 May 19 10:45 Operator: MA
Sample : 500ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 6 11:18 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



2MEE
EPA 8270

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 6 May 19 17:21
Instrument: Yoda
Initial Cal. Date: 04/30/19
Data File: 0430Y050.D

		Compound	MEAN	CCRF	%D	%Drift	
1	I	1,4-dichlorobenzene-D4(IS)	ISTD			I	
2	TML	2-(2-Methoxyethoxy)ethanol	0.1412	0.1937	37	TML	21
3	I	Napthalene-D8(IS)	ISTD			I	
4	I	Acenaphthene-D10(IS)	ISTD			I	
5	I	Phenanthrene-D10(IS)	ISTD			I	
6	I	Chrysene-D12(IS)	ISTD			I	
7	I	Perylene-D12(IS)	ISTD			I	
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
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26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			37.0		

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y050.D Vial: 50
Acq On : 6 May 19 17:21 Operator: MA,SS
Sample : 500ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 7 8:53 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.07	152	167390	40.00000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	761688	40.00000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	424847	40.00000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	706848	40.00000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	607016	40.00000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	573124	40.00000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.26	45	405341	606.18429	ppb	97

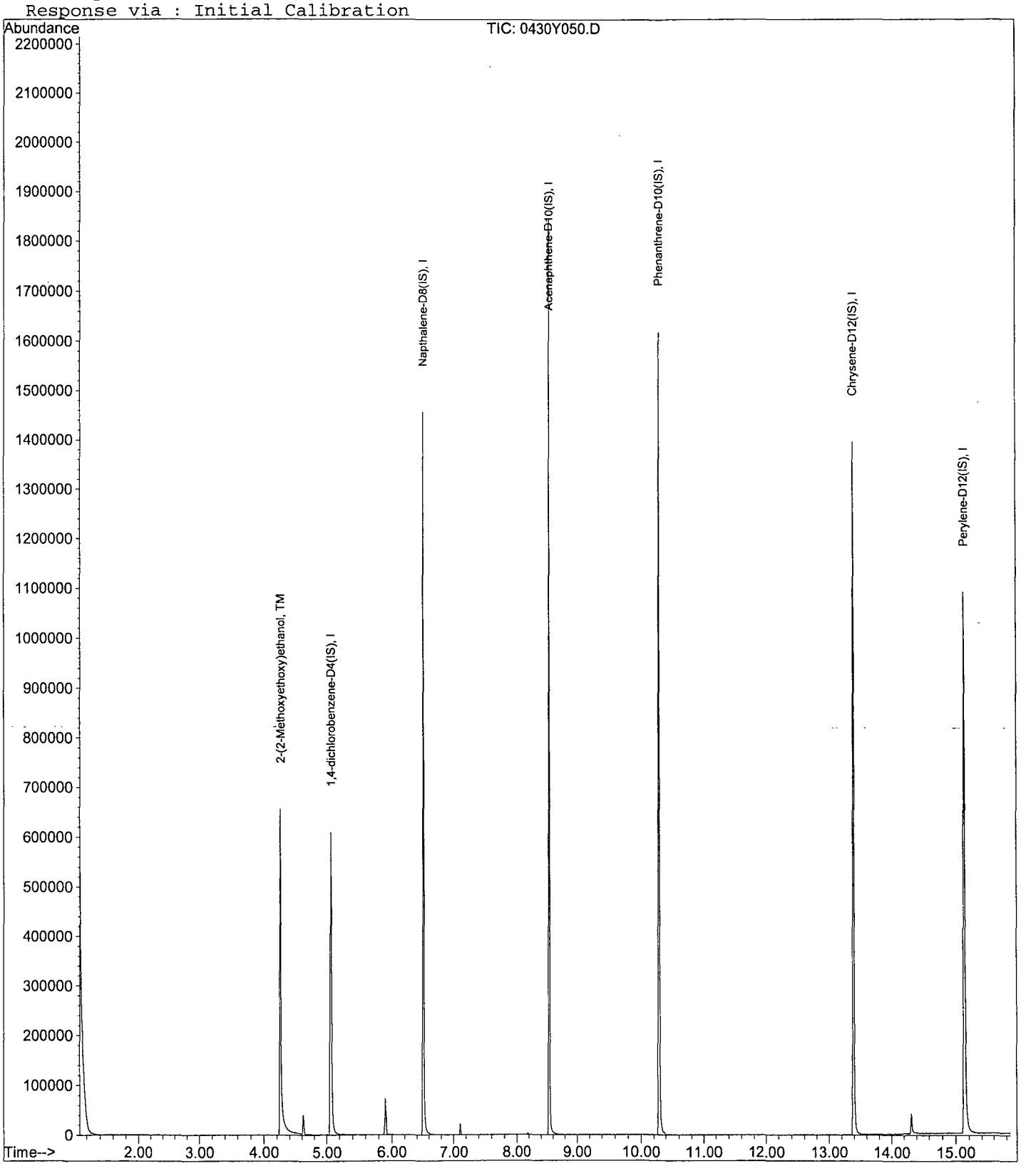
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y050.D Vial: 50
Acq On : 6 May 19 17:21 Operator: MA,SS
Sample : 500ug/ml MEE 04/30/19 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 7 8:53 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



ORGANICS
Raw Data

Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y047.D Vial: 47
Acq On : 6 May 19 16:09 Operator: MA,SS
Sample : AZ90447W05 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 6 16:39 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	159149	40.0000	ppb	0.01
3) Napthalene-D8(IS)	6.51	136	712595	40.0000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	428691	40.0000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	716584	40.0000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	604342	40.0000	ppb	0.01
7) Perylene-D12(IS)	15.13	264	567825	40.0000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

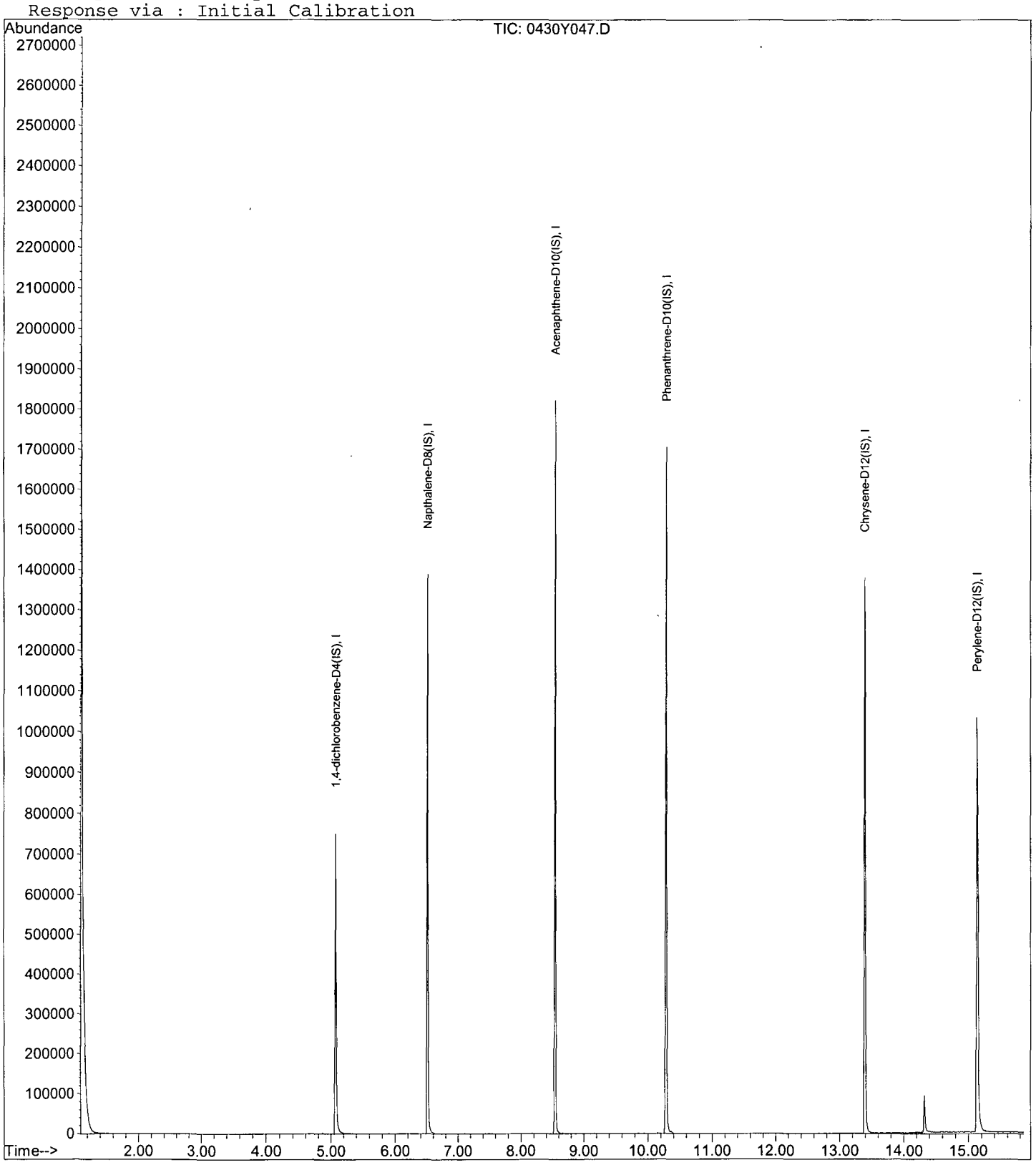
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y047.D Vial: 47
Acq On : 6 May 19 16:09 Operator: MA,SS
Sample : AZ90447W05 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 6 16:39 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y048.D Vial: 48
Acq On : 6 May 19 16:33 Operator: MA,SS
Sample : AZ90448W05 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 6 16:39 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	166171	40.0000	ppb	0.00
3) Napthalene-D8(IS)	6.51	136	736365	40.0000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	434592	40.0000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	716487	40.0000	ppb	0.00
6) Chrysene-D12(IS)	13.38	240	621846	40.0000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	590208	40.0000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

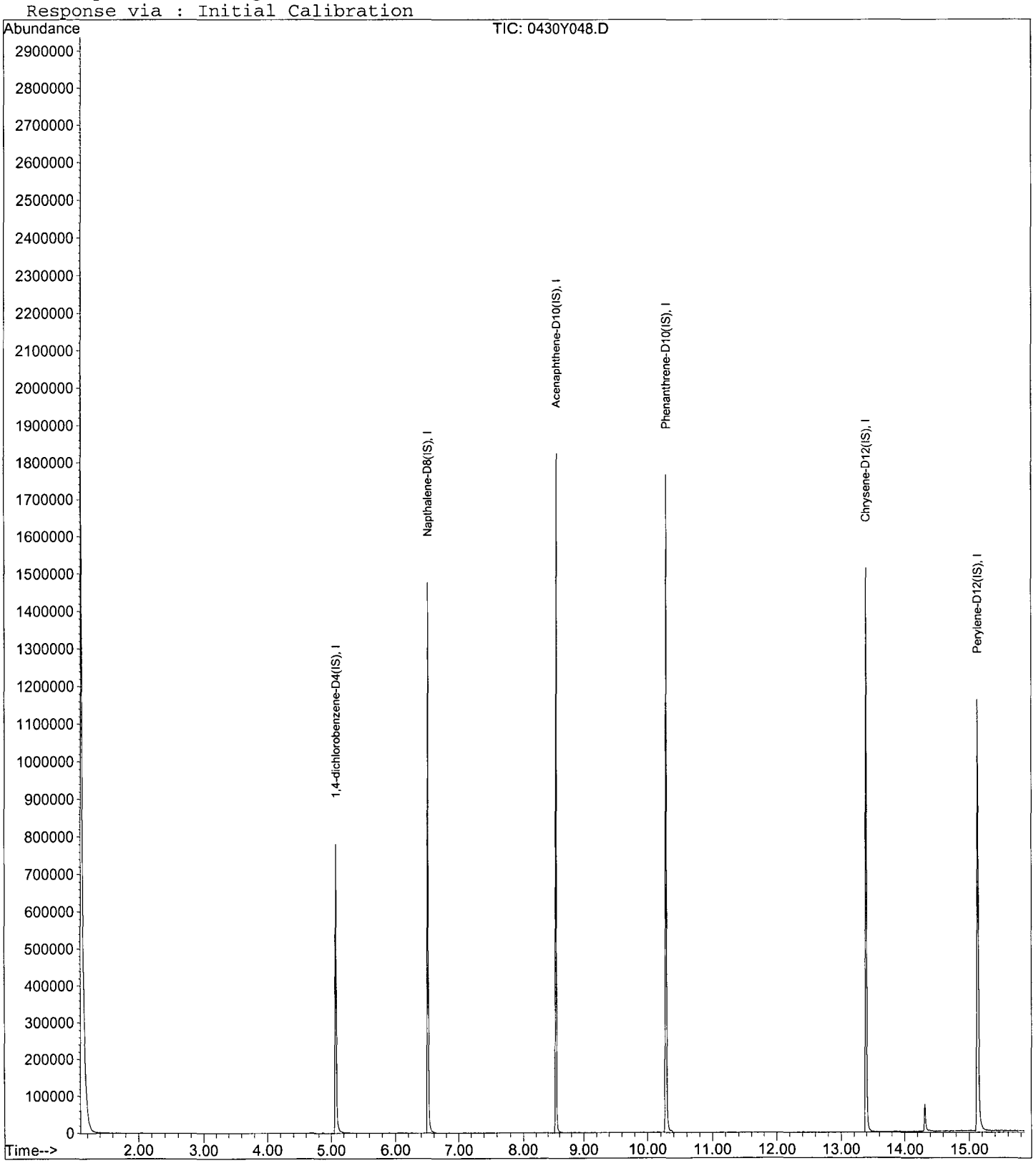
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y048.D Vial: 48
Acq On : 6 May 19 16:33 Operator: MA,SS
Sample : AZ90448W05 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 6 16:39 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y049.D Vial: 49
Acq On : 6 May 19 16:57 Operator: MA,SS
Sample : AZ90450W16 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 6 17:09 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	147794	40.0000 ppb	0.00
3) Napthalene-D8(IS)	6.51	136	694141	40.0000 ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	433509	40.0000 ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	728233	40.0000 ppb	0.00
6) Chrysene-D12(IS)	13.39	240	615103	40.0000 ppb	0.00
7) Perylene-D12(IS)	15.13	264	554806	40.0000 ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

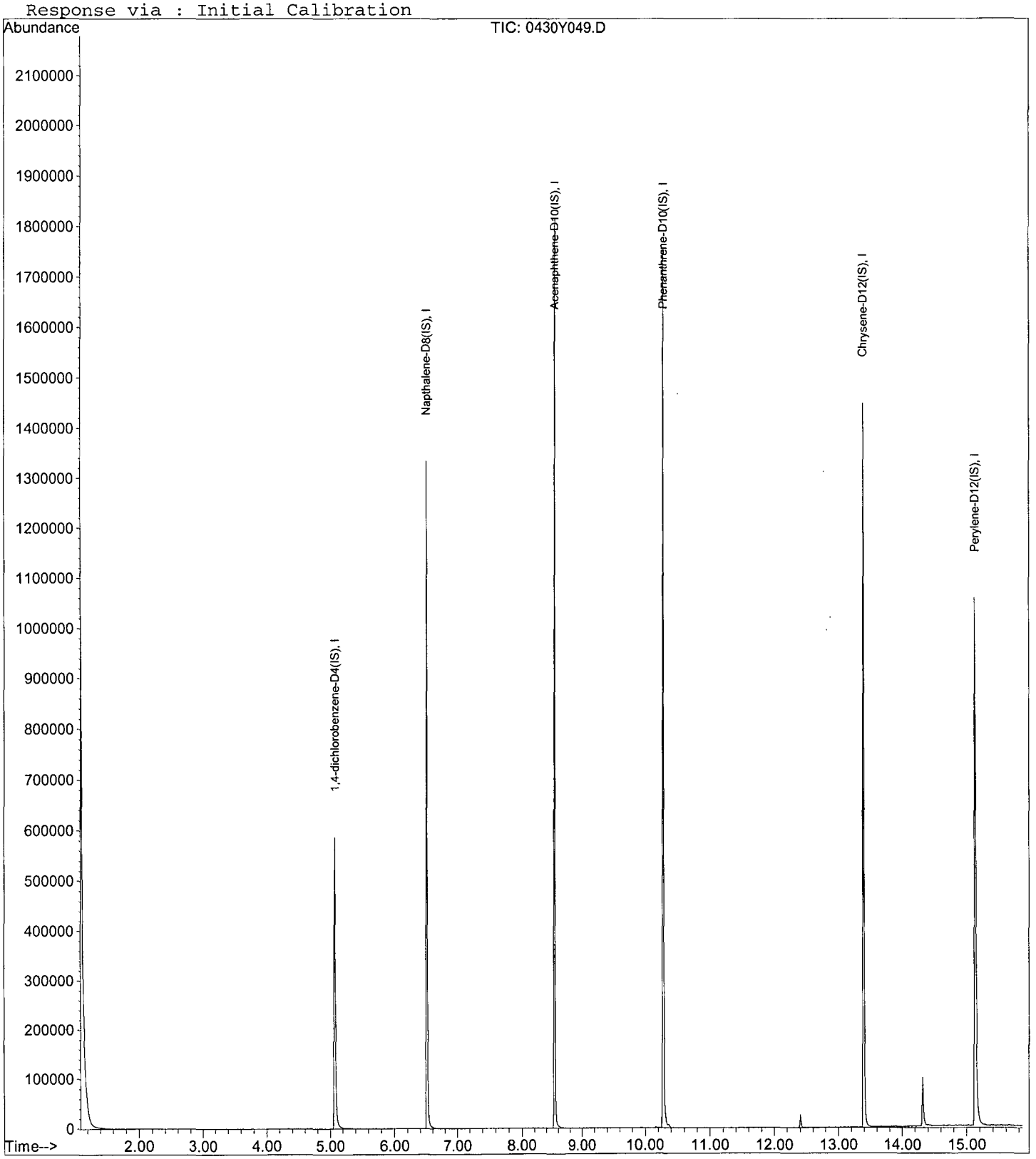
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y049.D Vial: 49
Acq On : 6 May 19 16:57 Operator: MA,SS
Sample : AZ90450W16 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 6 17:09 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y044.D Vial: 44
Acq On : 6 May 19 14:58 Operator: MA,SS
Sample : 190506A BLK 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 6 16:38 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.09	152	167963	40.0000	ppb	0.02
3) Napthalene-D8(IS)	6.52	136	767542	40.0000	ppb	0.01
4) Acenaphthene-D10(IS)	8.55	164	490676	40.0000	ppb	0.01
5) Phenanthrene-D10(IS)	10.28	188	824501	40.0000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	758171	40.0000	ppb	0.01
7) Perylene-D12(IS)	15.14	264	678334	40.0000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

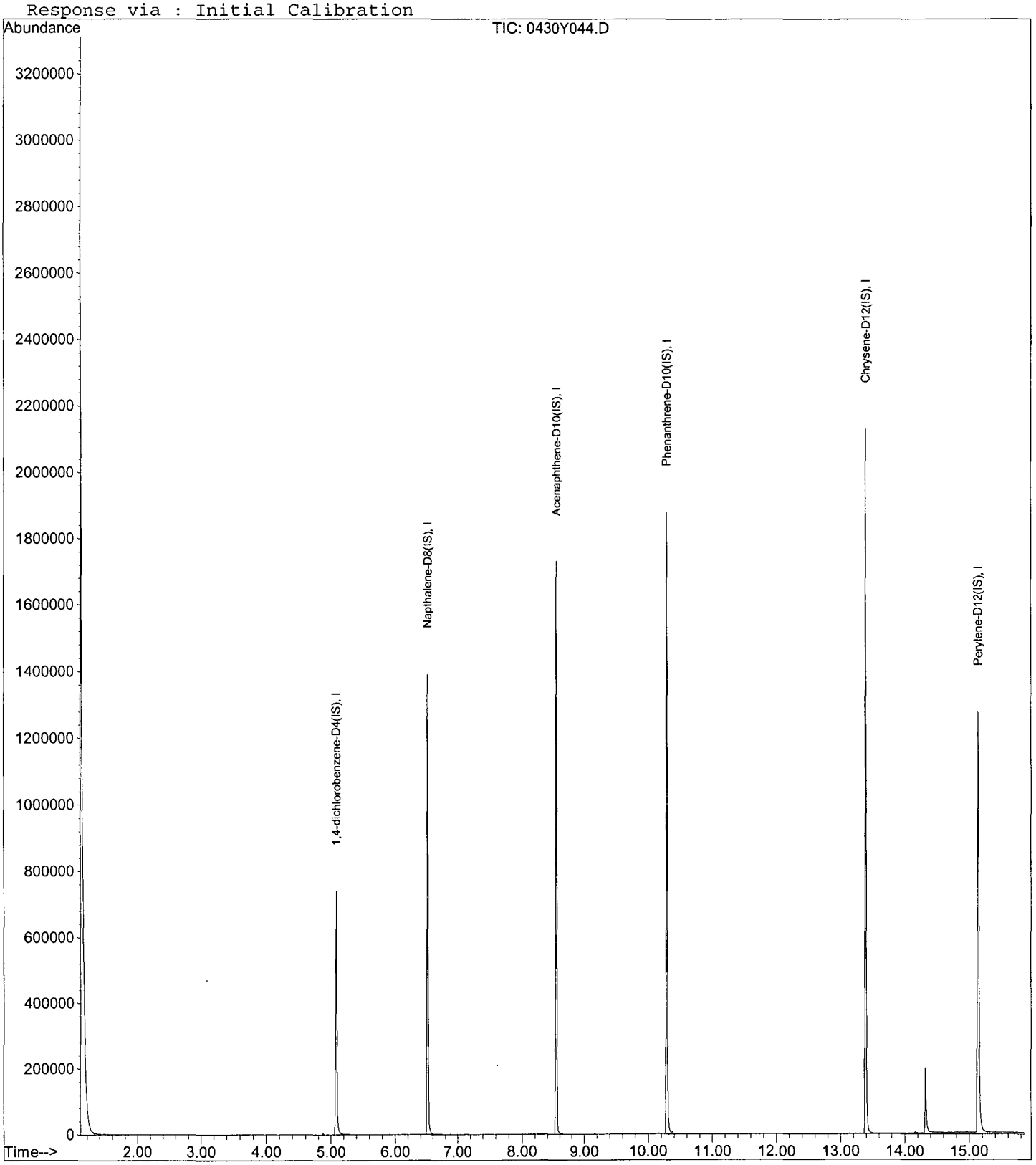
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y044.D Vial: 44
Acq On : 6 May 19 14:58 Operator: MA,SS
Sample : 190506A BLK 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 6 16:38 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y045.D Vial: 45
Acq On : 6 May 19 15:22 Operator: MA,SS
Sample : 190506A LCS-1 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 6 16:39 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	133486	40.0000	ppb	0.01
3) Napthalene-D8(IS)	6.51	136	597071	40.0000	ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	349823	40.0000	ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	594793	40.0000	ppb	0.00
6) Chrysene-D12(IS)	13.39	240	508435	40.0000	ppb	0.00
7) Perylene-D12(IS)	15.13	264	484451	40.0000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.33	45	27354	74.7095	ppb	94

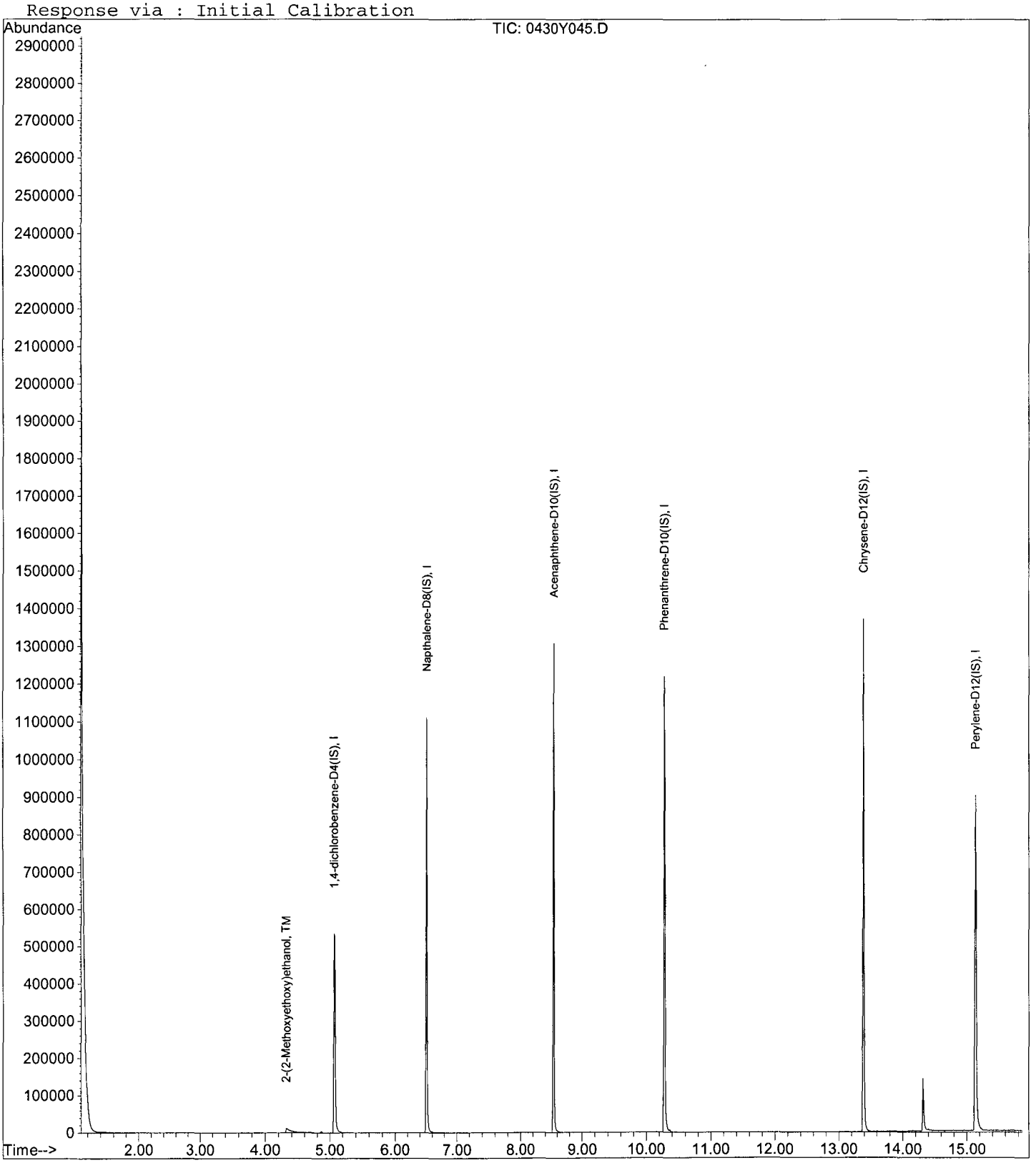
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y045.D Vial: 45
Acq On : 6 May 19 15:22 Operator: MA,SS
Sample : 190506A LCS-1 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 6 16:39 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\YODA\DATA\Y190430M\0430Y046.D Vial: 46
Acq On : 6 May 19 15:46 Operator: MA,SS
Sample : 190506A LCSD-1 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

Quant Time: May 6 16:39 2019 Quant Results File: YMEE0430.RES

Quant Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration
DataAcq Meth : GED

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-dichlorobenzene-D4(IS)	5.08	152	147692	40.0000 ppb	0.00
3) Napthalene-D8(IS)	6.51	136	681301	40.0000 ppb	0.00
4) Acenaphthene-D10(IS)	8.54	164	424922	40.0000 ppb	0.00
5) Phenanthrene-D10(IS)	10.28	188	708358	40.0000 ppb	0.00
6) Chrysene-D12(IS)	13.38	240	599762	40.0000 ppb	0.00
7) Perylene-D12(IS)	15.13	264	564478	40.0000 ppb	0.00

System Monitoring Compounds

Target Compounds					Qvalue
2) 2-(2-Methoxyethoxy)ethanol	4.31	45	30677	75.3782 ppb	98

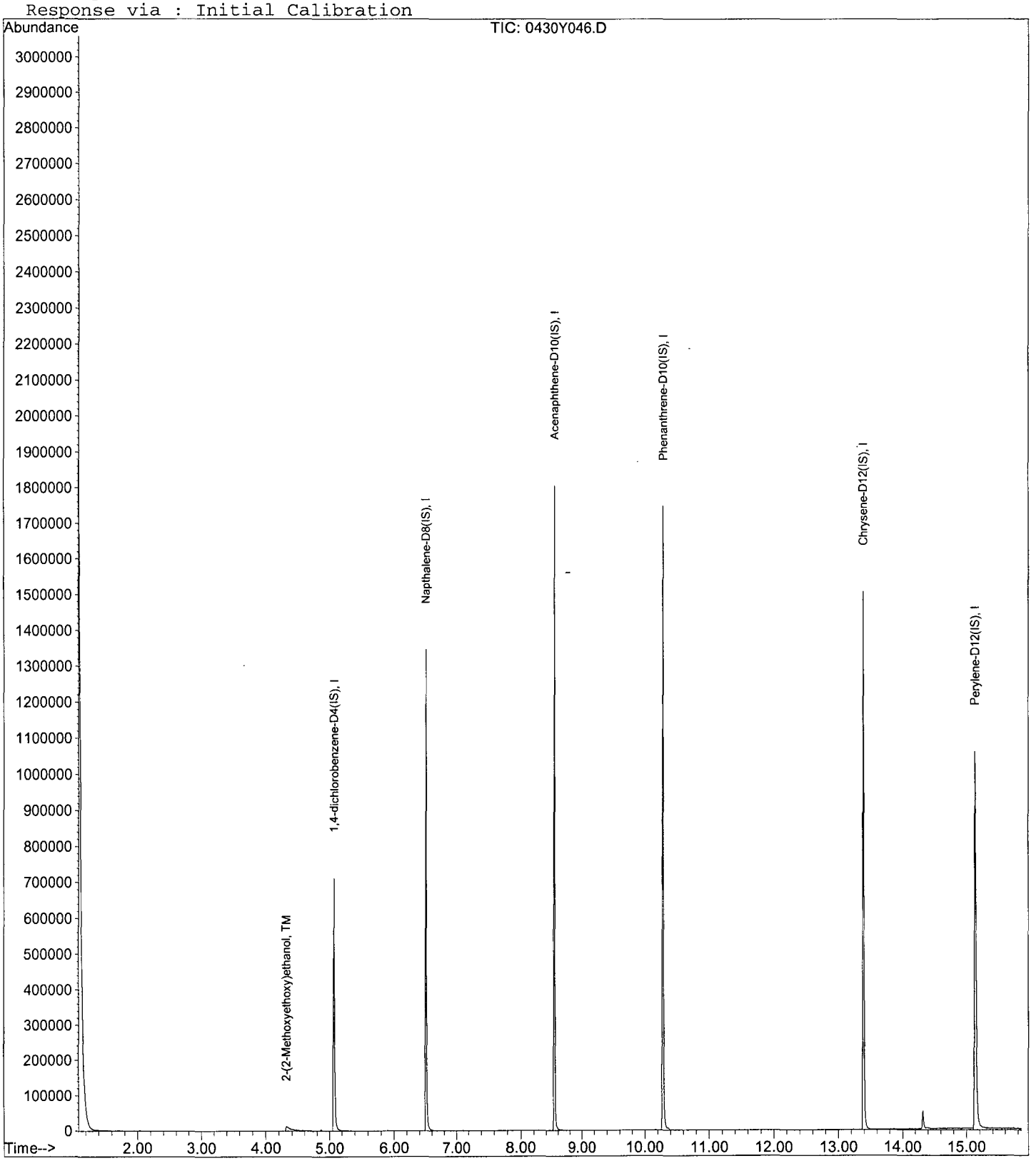
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y046.D Vial: 46
Acq On : 6 May 19 15:46 Operator: MA,SS
Sample : 190506A LCSD-1 2/500 Inst : Yoda
Misc : soil Multiplr: 1.00

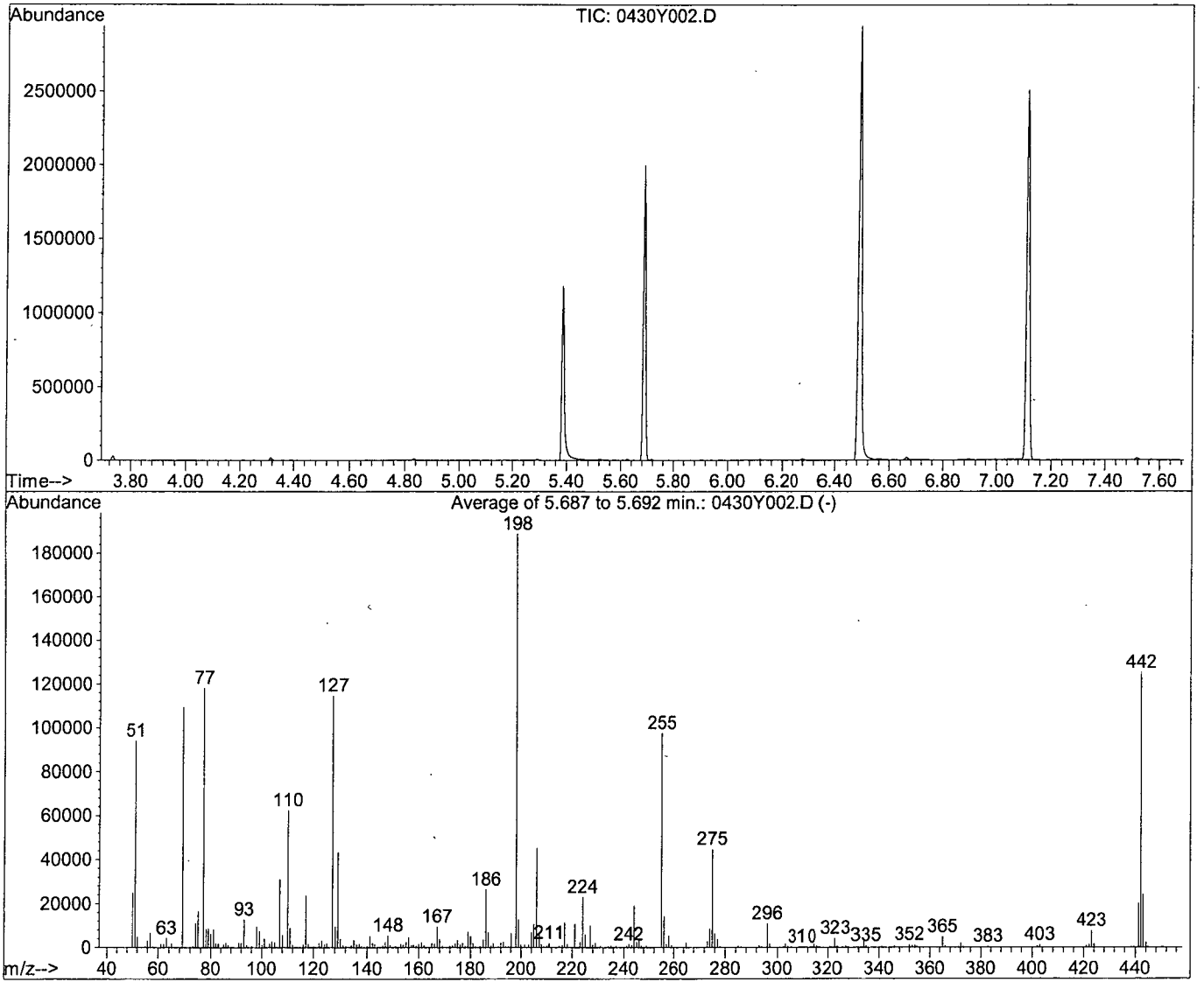
Quant Time: May 6 16:39 2019 Quant Results File: YMEE0430.RES

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C
Last Update : Tue Apr 30 12:16:17 2019
Response via : Initial Calibration



Data File : M:\YODA\DATA\Y190430M\0430Y002.D Vial: 2
Acq On : 30 Apr 19 9:12 Operator: MA
Sample : SV Tune 03/07/18 Inst : Yoda
Misc : Multiplr: 1.00

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C



AutoFind: Scans 841, 842, 843; Background Corrected with Scan 833

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	49.7	93941	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.3	275	PASS
127	198	10	80	60.7	114675	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	189013	PASS
199	198	5	9	6.7	12705	PASS
275	198	10	60	23.7	44776	PASS
365	198	1	100	2.5	4785	PASS
441	442	0.01	24	16.0	20059	PASS
442	198	50	150	66.3	125365	PASS
443	442	15	24	19.3	24168	PASS

Data File Name:	**0430Y002.D**
Data File Path:	**M:\YODA\DATA\Y190430M**
Operator:	**MA**
Date Acquired:	**30 Apr 2019 09:12**
Method File:	**DFTPP2.M**
Sample Name:	**SV Tune 03/07/18**
Vial Number:	**2**
Instrument Name:	**Yoda**

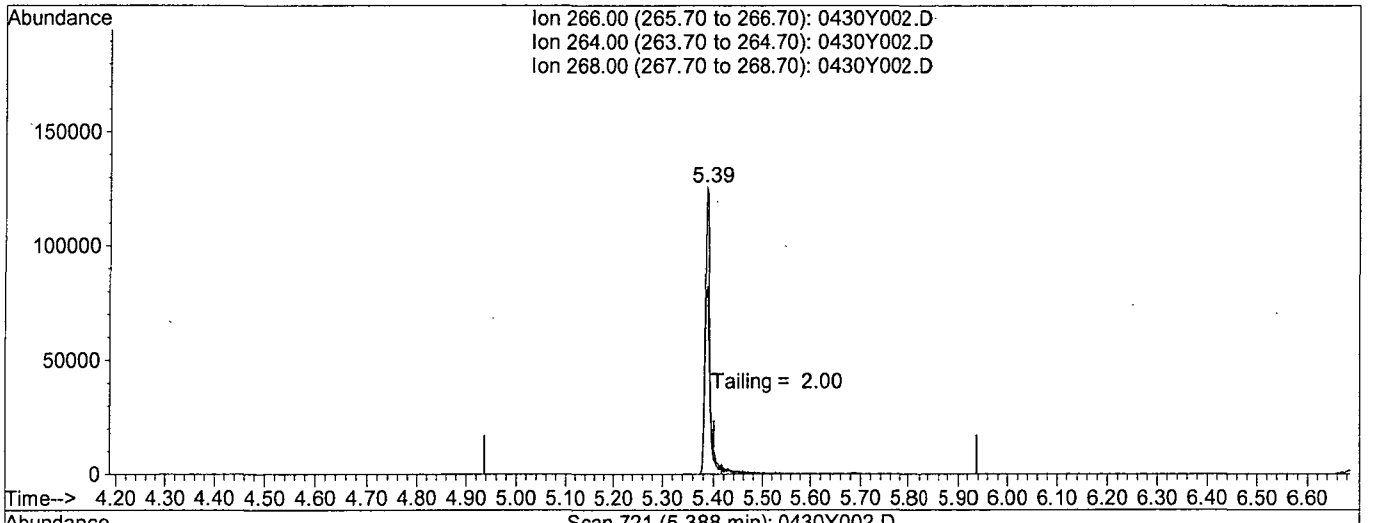
#	Name	Ret Time	Target Response
1)	DDT	7.08	19086100
2)	DDD	6.75	104656
3)	DDE	6.86	0

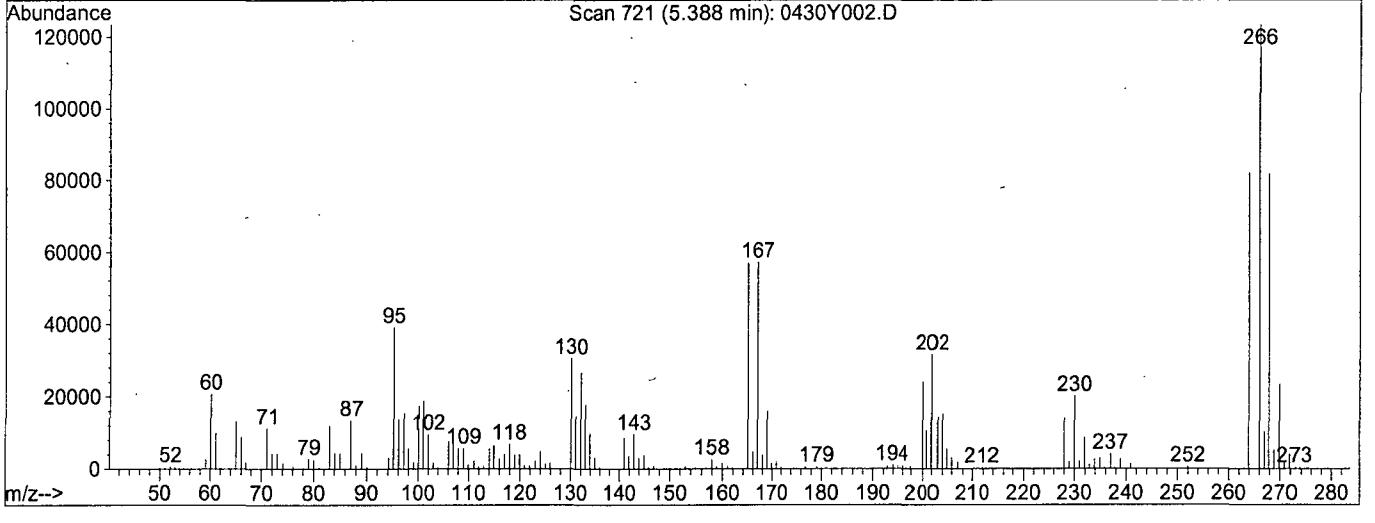
Breakdown **0.55**

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y002.D Vial: 2
Acq On : 30 Apr 19 9:12 Operator: MA
Sample : SV Tune 03/07/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: Apr 30 9:33 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190430M\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Mon Apr 22 13:05:57 2019
Response via : Single Level Calibration





TIC: 0430Y002.D

(5) Pentachlorophenol

5.39min 0.0000

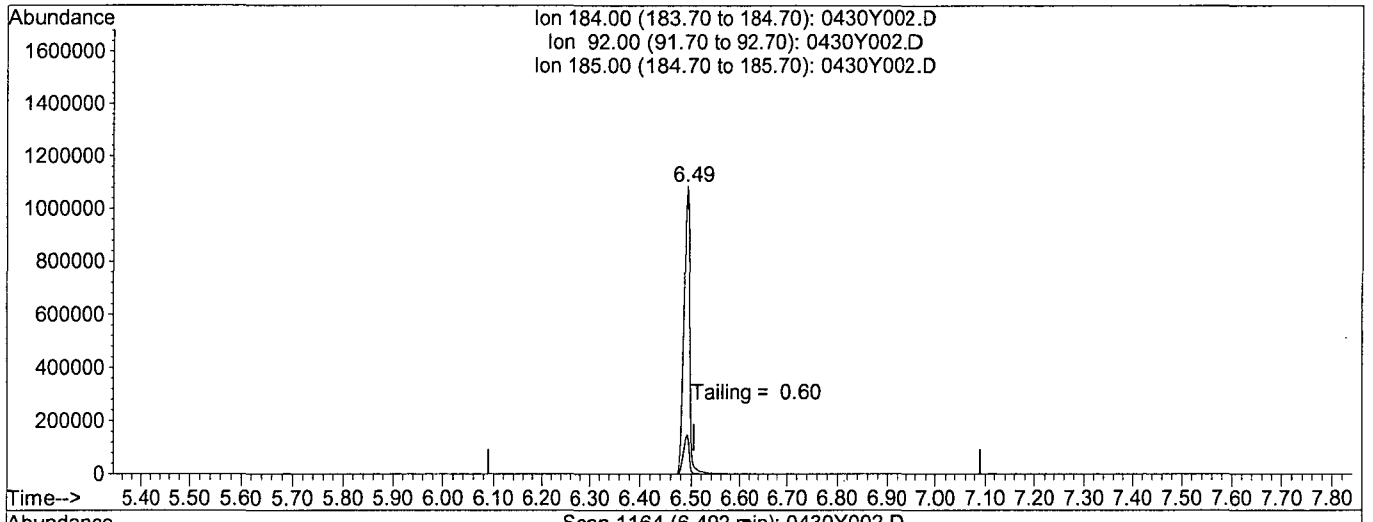
response 830307

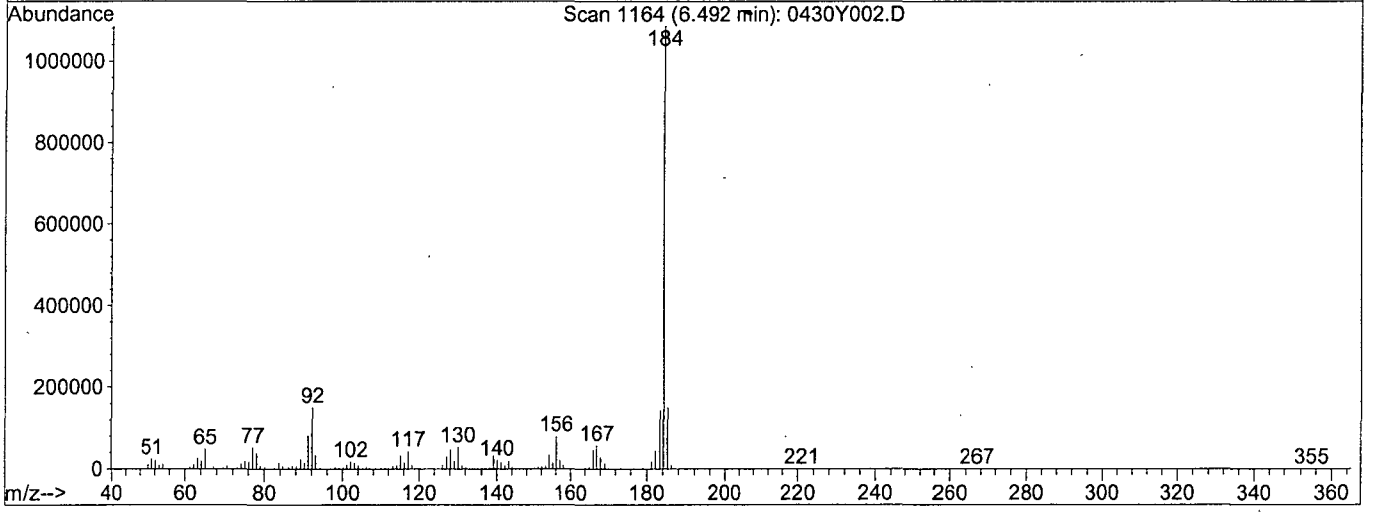
Ion	Exp%	Act%
266.00	100	100
264.00	61.20	61.48
268.00	65.20	62.81
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y002.D Vial: 2
Acq On : 30 Apr 19 9:12 Operator: MA
Sample : SV Tune 03/07/18 Inst : Yoda
Misc : Multiplr: 1.00
Quant Time: Apr 30 9:33 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190430M\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Mon Apr 22 13:05:57 2019
Response via : Single Level Calibration





TIC: 0430Y002.D

(6) Benzidine

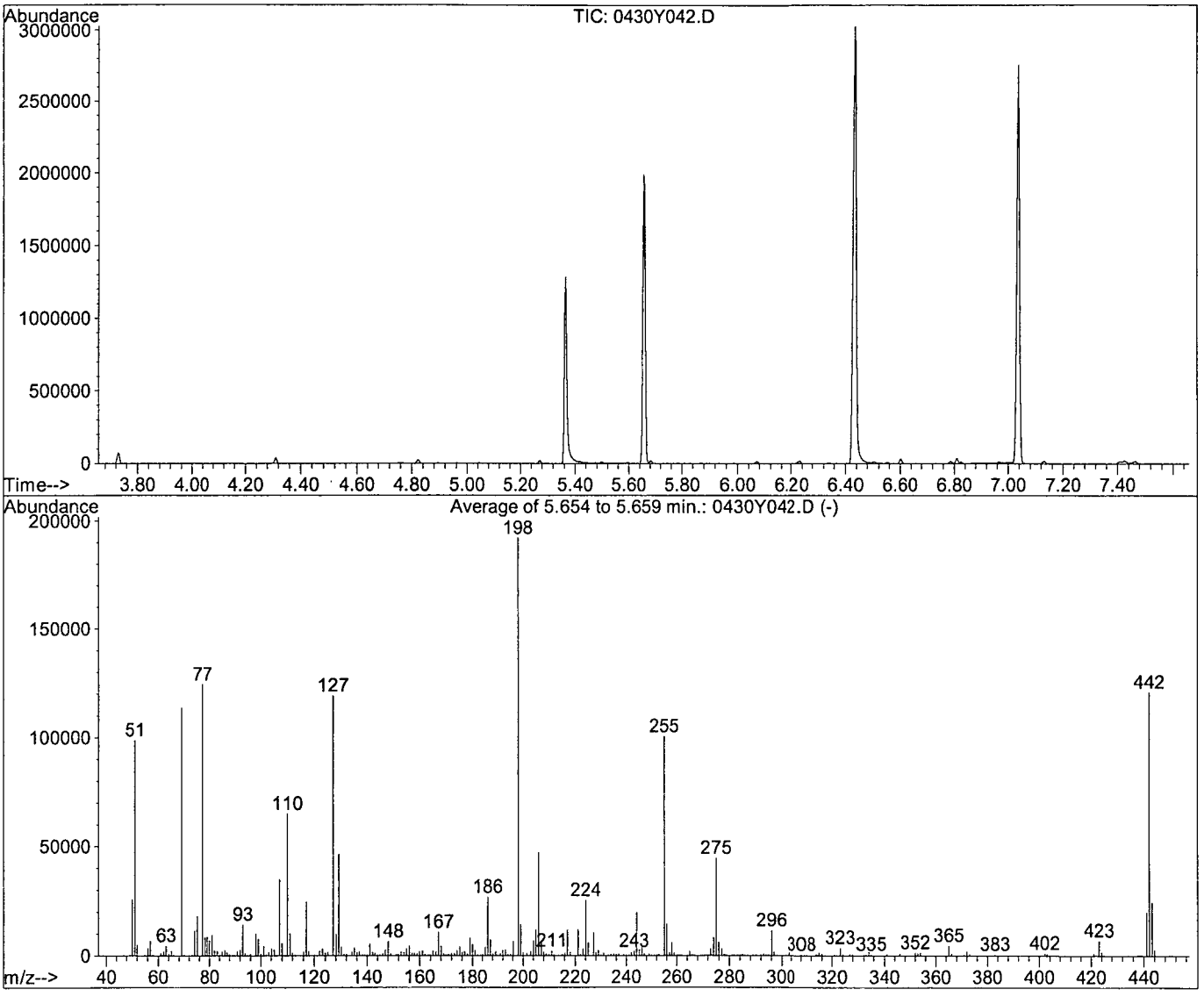
6.49min 0.0000

response 8412205

Ion	Exp%	Act%
184.00	100	100
92.00	13.60	13.24
185.00	14.10	13.47
0.00	0.00	0.00

Data File : M:\YODA\DATA\Y190430M\0430Y042.D Vial: 42
Acq On : 6 May 19 10:23 Operator: MA
Sample : SV Tune 10/11/18 Inst : Yoda
Misc : soil Multiplr: 1.00

Method : M:\YODA\DATA\Y190430M\YMEE0430.M (RTE Integrator)
Title : EPA 8270C



AutoFind: Scans 827, 828, 829; Background Corrected with Scan 819

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	51.4	98712	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.2	216	PASS
127	198	10	80	61.9	119029	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	192171	PASS
199	198	5	9	7.3	14124	PASS
275	198	10	60	23.2	44512	PASS
365	198	1	100	2.4	4528	PASS
441	442	0.01	24	16.4	19850	PASS
442	198	50	150	62.8	120755	PASS
443	442	15	24	20.1	24239	PASS

Data File Name:	**0430Y042.D**
Data File Path:	**M:\YODA\DATA\Y190430M**
Operator:	**MA**
Date Acquired:	**6 May 19 10:23**
Method File:	**DFTPP2.M**
Sample Name:	**SV Tune 10/11/18**
Vial Number:	**42**
Instrument Name:	**Yoda**

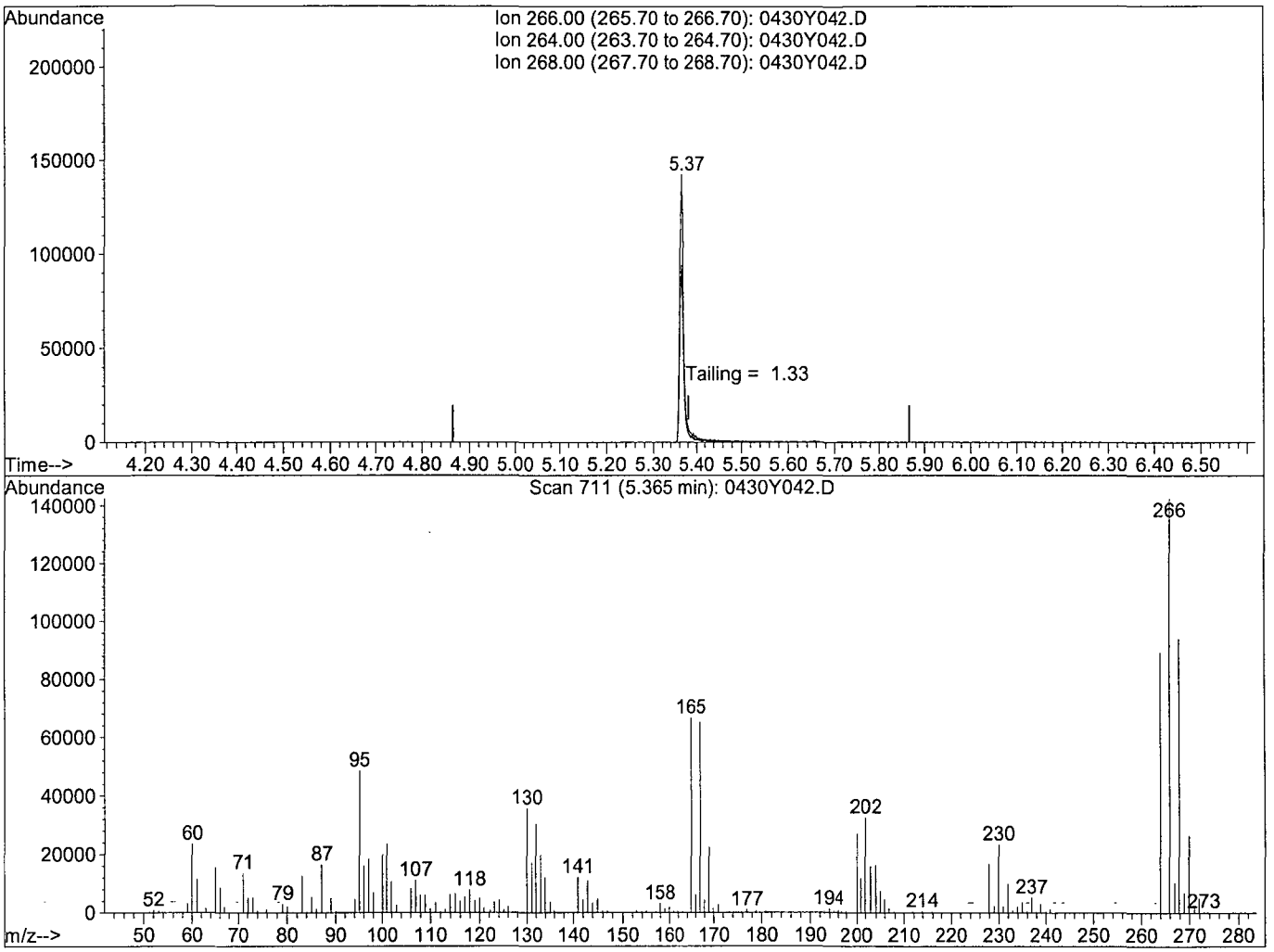
#	Name	Ret Time	Target Response
1)	DDT	7.04	19301700
2)	DDD	6.81	174526
3)	DDE	6.92	0

Breakdown **0.90**

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y042.D Vial: 42
Acq On : 6 May 19 10:23 Operator: MA
Sample : SV Tune 10/11/18 Inst : Yoda
Misc : soil Multiplr: 1.00
Quant Time: May 6 10:24 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190430M\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Mon May 06 10:23:55 2019
Response via : Single Level Calibration



TIC: 0430Y042.D

(5) Pentachlorophenol

5.37min 0.0000

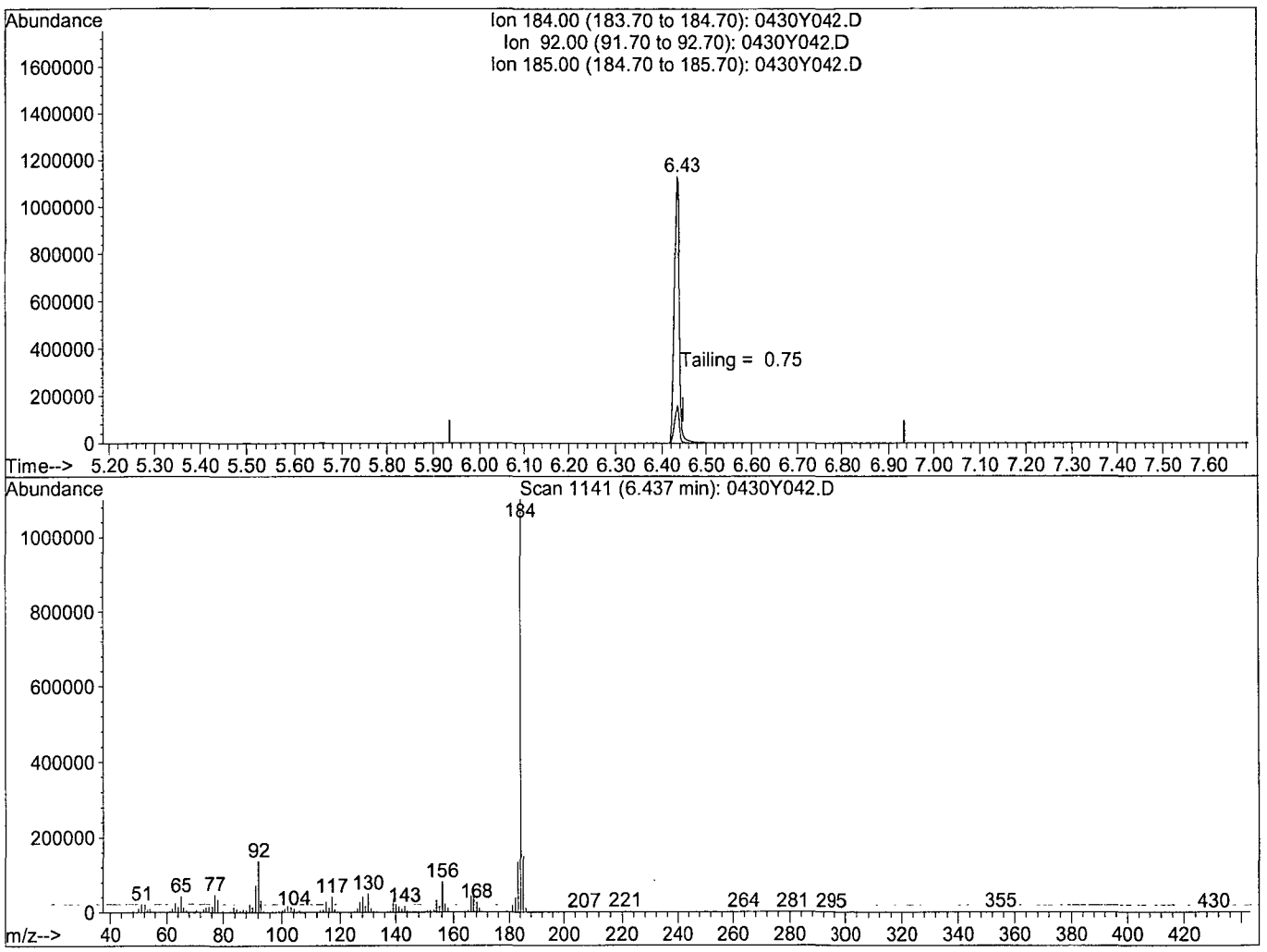
response 926019

Ion	Exp%	Act%
266.00	100	100
264.00	62.70	62.55
268.00	66.00	64.40
0.00	0.00	0.00

Quantitation Report

Data File : M:\YODA\DATA\Y190430M\0430Y042.D Vial: 42
Acq On : 6 May 19 10:23 Operator: MA
Sample : SV Tune 10/11/18 Inst : Yoda
Misc : soil Multiplr: 1.00
Quant Time: May 6 10:24 2019 Quant Results File: temp.res

Method : M:\YODA\DATA\Y190430M\DFTPP2.M (Chemstation Integrator)
Title :
Last Update : Mon May 06 10:23:55 2019
Response via : Single Level Calibration



TIC: 0430Y042.D

(6) Benzidine

6.44min 0.0000

response 8461838

Ion	Exp%	Act%
184.00	100	100
92.00	13.10	13.33
185.00	14.30	14.10
0.00	0.00	0.00

Name of Final Standard Diethylene Glycol **Prep'd By (Initials)** GA

Prep Date 01/31/19

Exp Date 01/31/20

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Diethylene glycol methyl ether	AccuStandard	S-72273	2000 ug/mL	**218101558-39888 39889**	**01/31/20**	2.0 mL	4 mL	**Methanol #042317C**	1000 ug/mL

Given to Extraction to do **MEE M STD Stock** (used for ICAL) Final concentration 2000ug/L

Name of Final Standard 2MEE Second Source Stock

Prep'd By (Initials) GA

Prep Date 08/03/18

Exp Date 08/03/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Methoxyethanol-Neat	Chem Service	N-12404-1G	Neat 99.5%	**7079100 - 39417**	**08/03/19**	0.1035g	10 mL	**MC #56258**	10320 ug/mL

Given to Extraction to do **MEE SS** (used for ICAL SS)

0.097ml were spiked in 500ml of water and extracted on 04/29/19 . Final concentration is 2000ug/L

Name of Final Standard MEE Curve
Prep Date 04/30/19
Exp Date 10/30/19

Prep'd By (Initials) SS

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	5 uL	200uL	Methanol 195uL Lot# 208858	50 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	4 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	5 uL	100uL	Methanol 95uL Lot# 208858	100 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	2 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	10 uL	100uL	Methanol 90uL Lot# 208858	200 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	2 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	20 uL	100uL	Methanol 80 uL Lot# 208858	400 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	2 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	50 uL	200uL	Methanol 150 uL	500 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	4 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	30 uL	100uL	Methanol 70 uL Lot# 208858	600 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	2 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	40 uL	100uL	Methanol 60 uL Lot# 208858	800 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	2 uL	"	"	"
MEE M STD Stock	APPL		2000 ug/mL	04/29/19	01/31/20	50 uL	100uL	Methanol 50uL Lot# 208858	1000 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	2 uL	"	"	"

Name of Final Standard MEE Second Source
Prep Date 04/30/19
Exp Date 08/03/19

Prep'd By (Initials) SS

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from container Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
MEE SS	APPL		2000 ug/mL	04/29/19	08/03/19	50 uL	200uL	Methanol 150uL Lot# 208858	500 ug/mL
SV Internal Standard	APPL	8270 I.S.	2000 ug/mL	03/12/19	03/12/20	4 uL	"	"	"

Organic Extraction Worksheet

Method	Solid Phase Extraction of 2MEE in Water	Extraction Set	190506A	Extraction Method	MWE2MEE	Units	mL

Spiked ID 1	Diethylene Glycol 1-31-19 EXP 1-31-20		Surrogate ID 1		
Spiked ID 2	2MEE SS 10320ug/mL 8-3-18 exp 8-3-19		Surrogate ID 2		
Spiked ID 3			Surrogate ID 3		
Spiked ID 4			Surrogate ID 4		
Spiked ID 5			Surrogate ID 5		
Spiked ID 6			Sufficient Vol for Matrix QC:	NO	
Spiked ID 7			Ext. Start Time:	05/06/19 14:29	
Spiked ID 8			Ext. End Time:	05/06/19 13:55	
			GC Requires Extract By:	05/08/19 0:00	

pH1			Water Bath Temp Criteria	
pH2				
pH3				

Spiked By: DL **Date** 05/06/19 **Witnessed By:** FM **Date** 05/06/19

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
1	190506A Blk				NA	NA equip	500	2	7	05/06/19 14:29	
2	190506A LCS-1		0.040	1	NA	NA equip	500	2	7	05/06/19 14:29	
3	190506A LCSD-1		0.040	1	NA	NA equip	500	2	7	05/06/19 14:29	
4	AZ90447	AZ90447W05			NA	NA equip	500	2	7	05/06/19 14:29	88764
5	AZ90448	AZ90448W05			NA	NA equip	500	2	7	05/06/19 14:29	88764
6	AZ90450	AZ90450W16			NA	NA equip	500	2	7	05/06/19 14:29	88764
7	SS		0.097	2	NA	NA equip	500	2	7	05/06/19 14:29	

5/7/19

Solvent and Lot#	
ENVI-Carb Plus 400MG/1ML	.
Reverible Tube Lot:	1125702
PH Strip	HC 857466
Di Water	5-6-19
Dichloromethane	58240
Methanol	58179

Extraction COC Transfer	
Extraction lab employee Initials	KY
GC analyst's initials	SS
Date	5/6/19 14:25
Time	5/6/19
Refrigerator	Hibart

	Technician's Initials
Scanned By	DL
Sample Preparation	DL
Extraction	DL
Concentration	DL

Modified	05/07/19 2:04:58 PM

Reviewed By: [signature] **Date** 5/7/19

Injection Log

Directory: M:\YODA\DATA\Y190430M\

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	2	0430Y002.D	1	SV Tune 03/07/18		30 Apr 19 9:12
2	3	0430Y003.D	1	50ug/ml MEE 04/30/19	soil	30 Apr 19 9:27
3	4	0430Y004.D	1	100ug/ml MEE 04/30/19	soil	30 Apr 19 9:50
4	5	0430Y005.D	1	200ug/ml MEE 04/30/19	soil	30 Apr 19 10:13
5	6	0430Y006.D	1	400ug/ml MEE 04/30/19	soil	30 Apr 19 10:37
6	7	0430Y007.D	1	500ug/ml MEE 04/30/19	soil	30 Apr 19 11:00
7	8	0430Y008.D	1	600ug/ml MEE 04/30/19	soil	30 Apr 19 11:23
8	9	0430Y009.D	1	800ug/ml MEE 04/30/19	soil	30 Apr 19 11:47
9	10	0430Y010.D	1	1000ug/ml MEE 04/30/19	soil	30 Apr 19 12:10
10	11	0430Y011.D	1	SS ug/ml MEE 04/30/19	soil	30 Apr 19 13:30
11	42	0430Y042.D	1	SV Tune 10/11/18	soil	6 May 19 10:23
12	43	0430Y043.D	1	500ug/ml MEE 04/30/19	soil	6 May 19 10:45
13	44	0430Y044.D	1	190506A BLK 2/500	soil	6 May 19 14:58
14	45	0430Y045.D	1	190506A LCS-1 2/500	soil	6 May 19 15:22
15	46	0430Y046.D	1	190506A LCSD-1 2/500	soil	6 May 19 15:46
16	47	0430Y047.D	1	AZ90447W05 2/500	soil	6 May 19 16:09
17	48	0430Y048.D	1	AZ90448W05 2/500	soil	6 May 19 16:33
18	49	0430Y049.D	1	AZ90450W16 2/500	soil	6 May 19 16:57
19	50	0430Y050.D	1	500ug/ml MEE 04/30/19	soil	6 May 19 17:21

ORGANICS
Calibration Data

VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 05/06/19
Matrix: Instrument: Loki
Initials: DP/LP

		Compound	0506L06.D 1	0506L07.D 2	0506L08.D 3	0506L09.D 4	0506L10.D 5	0506L11.D 6	0506L12.D 7	0506L13 D 8	0506L14.D 9		Avg	%RSD	Type	r^2	Q	MRF
1	I	Fluorobenzene (IS)																
2	TM	Chlorotrifluoroethene													TM			
3	TM	Dichlorodifluoromethane		0.3553	0.3164	0.2927	0.2259	0.2614	0.2671	0.2616	0.2404		0.28	15	TM			
4	TM	Freon 114		0.2238	0.2331	0.2040	0.1705	0.1865	0.2053	0.1992	0.1882		0.20	10	TM			
5	TM**L	Chloromethane		0.6330	0.4282	0.3360	0.2813	0.2951	0.2852	0.2642	0.2401		0.35	38	TM**L	0.998		
6	TM*	Vinyl chloride		0.2901	0.3465	0.2438	0.2348	0.2598	0.2716	0.2630	0.2350		0.27	14	TM*			
7	TM	2-Chloro-1,1,1-trifluoroethane													TM			
8	TML	Bromomethane		0.2615	0.2247	0.1919	0.1641	0.1843	0.2079	0.1924	0.1740		0.20	16	TML	0.997		
9	TM	Chloroethane		0.1137	0.1714	0.1433	0.1200	0.1299	0.1292	0.1305	0.1514		0.14	14	TM			
10	TM	Dichlorofluoromethane		0.4915	0.4140	0.4086	0.3263	0.3503	0.3760	0.3749	0.3427		0.39	14	TM			
11	TM	Trichlorofluoromethane		0.3673	0.4283	0.3842	0.3304	0.3931	0.3841	0.3742	0.3640		0.38	7.4	TM			
12	TML	Diethyl ether		0.1523	0.1798	0.1211	0.1029	0.1222	0.1257	0.1254	0.1182		0.13	18	TML	0.999		
13	TM	Acrolein		0.0392	0.0393	0.0345	0.0321	0.0352	0.0299	0.0273			0.03	13	TM			
14	TML	Acetone				0.2726	0.1291	0.0860	0.0958	0.0810	0.0762		0.12	61	TML	0.990		
15	TM	Freon-113		0.2149	0.2423	0.1744	0.1617	0.1676	0.1910	0.1829	0.1747		0.19	14	TM			
16	TM*	1,1-DCE		0.2230	0.2356	0.1954	0.1713	0.1947	0.1921	0.1949	0.1784		0.20	11	TM*			
17	TM	t-Butanol	0.0116	0.0115	0.0111	0.0097	0.0085	0.0093					0.01	13	TM			
18	TM	2-Propanol													TM			
19	TMQ	Acetonitrile		0.0445	0.0408	0.0342	0.0310	0.0321	0.0299				0.04	17	TMQ	0.992		
20	TML	Methyl Acetate		0.3283	0.2720	0.2311	0.1712	0.1636	0.1696	0.1608	0.1613		0.21	31	TML	1.000		
21	TML	Iodomethane		0.2075	0.1828	0.1253	0.1012	0.1175	0.1654	0.2265	0.2432		0.17	31	TML	0.995		
22	TML	Acrylonitrile		0.1558	0.1380	0.0970	0.0672	0.0763	0.0782	0.0686	0.0667		0.09	37	TML	0.999		
23	TML	Methylene chloride		0.4322	0.3375	0.2772	0.2135	0.2103	0.2372	0.2271	0.2050		0.27	30	TML	0.998		
24	TML	Carbon disulfide		0.7861	0.7769	0.6092	0.5234	0.5549	0.5841	0.5620	0.5314		0.62	17	TML	0.999		
25	TM	Methyl t-butyl ether (MtBE)		0.6630	0.5870	0.5790	0.4600	0.5130	0.5410	0.5215	0.5055		0.55	11	TM			
26	TML	Trans-1,2-DCE		0.3065	0.2640	0.2406	0.1714	0.2008	0.2118	0.2111	0.1970		0.23	19	TML	0.999		
27	TM	Diisopropyl Ether		0.6896	0.6686	0.5129	0.4463	0.4992	0.5359	0.5360	0.5205		0.55	15	TM			
28	TM**	2,2-Dichloro-1,1,1-trifluoroethane													TM**			
29	TM**	1,1-DCA		0.4300	0.4492	0.3696	0.3272	0.3634	0.3742	0.3695	0.3472		0.38	11	TM**			
30	TML	Vinyl Acetate		0.8052	0.7527	0.6221	0.5349	0.5409	0.6031	0.5828	0.5968		0.63	16	TML	1.000		
31	TM	Ethyl tert Butyl Ether		0.5829	0.5401	0.4359	0.3894	0.4355	0.4596	0.4575	0.4735		0.47	13	TM			
32	TML	MEK (2-Butanone)		0.2419	0.2070	0.1045	0.1088	0.1155	0.1093	0.0979	0.1017		0.14	41	TML	0.997		
33	TM	Cis-1,2-DCE		0.2682	0.2825	0.2379	0.2013	0.2196	0.2322	0.2353	0.2219		0.24	11	TM			
34	TML	2,2-Dichloropropane		0.4092	0.3750	0.2808	0.2543	0.2699	0.2822	0.2733	0.2643		0.30	19	TML	1.000		
35	TM	2-Methylpentane													TM			

VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 05/06/19
Matrix: Instrument: Loki Initials: DP

		Compound	1	2	3	4	5	6	7	8	9		Avg	%RSD	Type		Q	MRF
36	TM	3-Methylpentane		0.1338	0.1571	0.1273	0.1063	0.1187	0.1186	0.1089	0.1098		0.12	14	TM			
37	TM*	Chloroform		0.4957	0.4831	0.4059	0.3641	0.3957	0.4008	0.3897	0.3658		0.41	12	TM*			
38	TM	Bromochloromethane		0.1494	0.1681	0.1436	0.1164	0.1145	0.1294	0.1259	0.1120		0.13	15	TM			
39	S	Dibromofluoromethane(S)	0.5648	0.5190	0.5045	0.4083	0.4585	0.4430	0.4609	0.4604	0.4186		0.47	11	S			
40	TM	1,1,1-TCA		0.3831	0.3456	0.3327	0.2826	0.3309	0.3396	0.3300	0.3117		0.33	8.6	TM			
41	TML	Cyclohexane		0.1958	0.2425	0.1690	0.1414	0.1455	0.1580	0.1562	0.1558		0.17	20	TML	1.000		
42	TM	1,1-Dichloropropene		0.2735	0.3053	0.2270	0.2129	0.2507	0.2526	0.2540	0.2485		0.25	11	TM			
43	TM	2,2,4-Trimethylpentane		0.5107	0.5156	0.4366	0.3842	0.4230	0.4753	0.4658	0.4826		0.46	9.7	TM			
44	S	1,2-DCA-D4(S)	0.6264	0.5849	0.5736	0.4710	0.5124	0.5177	0.5166	0.5041	0.4624		0.53	10	S			
45	TM	Carbon Tetrachloride		0.1926	0.3258	0.3045	0.2518	0.2883	0.3056	0.2982	0.2907		0.28	15	TM			
46	TM	Tert Amyl Methyl Ether		0.4303	0.5243	0.3908	0.3568	0.4129	0.4380	0.4356	0.4520		0.43	11	TM			
47	TML	Methylcyclopentane		0.0802	0.0729	0.0294	0.0332	0.0405	0.0358	0.0334	0.0328		0.04	45	TML	0.999		
48	TM	1,2-DCA		0.3082	0.4417	0.3212	0.2953	0.3237	0.3279	0.3202	0.2944		0.33	14	TM			
49	TM	Benzene		0.8436	0.9132	0.7743	0.6721	0.7432	0.8123	0.7987	0.7697		0.79	9.0	TM			
50	TM	TCE		0.2310	0.2924	0.2113	0.1953	0.2189	0.2265	0.2275	0.2154		0.23	13	TM			
51	TM	2-Pentanone		0.1565	0.1619	0.1428	0.1331	0.1428	0.1323	0.1189	0.1046		0.14	14	TM			
52	TM*	1,2-Dichloropropane		0.2060	0.2211	0.2058	0.1788	0.2043	0.2044	0.2013	0.1919		0.20	6.1	TM*			
53	TM	Bromodichloromethane		0.2854	0.3560	0.2911	0.2684	0.2981	0.3131	0.3011	0.2862		0.30	8.7	TM			
54	TM	Methyl Cyclohexane		0.2725	0.2555	0.2081	0.1993	0.2232	0.2458	0.2541	0.2636		0.24	11	TM			
55	TM	Dibromomethane		0.1499	0.1860	0.1623	0.1341	0.1474	0.1560	0.1526	0.1469		0.15	9.8	TM			
56	TML	2-Chloroethyl vinyl ether		0.0032	0.0362	0.0404	0.0296	0.0273	0.0320	0.0278	0.0352		0.03	39	TML	0.993		
57	TML	MIBK (methyl isobutyl ketone)		0.2715	0.2129	0.1905	0.1592	0.2039	0.1896	0.1928	0.1989		0.20	16	TML	0.998		
58	TM	1-Bromo-2-chloroethane		0.2853	0.3506	0.2754	0.2454	0.2712	0.2714	0.2644	0.2597		0.28	11	TM			
59	TM	Cis-1,3-Dichloropropene		0.3496	0.3224	0.2726	0.2610	0.2826	0.2955	0.3052	0.3016		0.30	9.4	TM			
60	TM*	Toluene		0.8132	0.8721	0.7480	0.7129	0.7892	0.8749	0.8621	0.8424		0.81	7.4	TM*			
61	TM	Trans-1,3-Dichloropropene		0.2869	0.3250	0.2573	0.2247	0.2494	0.2684	0.2667	0.2742		0.27	11	TM			
62	TM	1,1,2-TCA		0.1817	0.2190	0.1639	0.1471	0.1634	0.1714	0.1629	0.1541		0.17	13	TM			
63	TML	2-Hexanone		0.1273	0.1588	0.1217	0.0959	0.1068	0.1296	0.1145	0.1371		0.12	16	TML	0.990		
64	I	Chlorobenzene-D5 (IS)																
65	S	Toluene-D8(S)	1.885	1.726	1.638	1.476	1.705	1.638	1.820	1.755	1.784		1.7	7.0	S			
66	TM	1,2-EDB		0.1868	0.2420	0.2369	0.2145	0.2226	0.2432	0.2220	0.2316		0.22	8.2	TM			
67	TM	Tetrachloroethene		0.3454	0.3621	0.2923	0.2803	0.2774	0.3023	0.2778	0.2863		0.30	11	TM			
68	TM	1-Chlorohexane		0.2751	0.2632	0.2265	0.1945	0.2230	0.2507	0.2459	0.2844		0.25	12	TM			
69	TM	1,1,1,2-Tetrachloroethane		0.2518	0.2887	0.2443	0.2261	0.2370	0.2536	0.2412	0.2510		0.25	7.4	TM			
70	TM	m&p-Xylene		0.5805	0.6653	0.6554	0.6065	0.6871	0.7913	0.8085	0.8736		0.71	15	TM			

VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 05/06/19
Matrix: Instrument: Loki Initials: DP

		Compound	1	2	3	4	5	6	7	8	9		Avg	%RSD	Type		Q	MRF
71	TM	o-Xylene		0.3775	0.3700	0.3222	0.2959	0.3178	0.3687	0.3816	0.4154		0.36	11	TM			
72	TM	Styrene		0.5649	0.5378	0.5222	0.5014	0.5437	0.6455	0.6863	0.7362		0.59	15	TM			
73	S	4-Bromofluorobenzene(S)	0.5824	0.5492	0.5233	0.4948	0.5695	0.5569	0.6253	0.6168	0.6457		0.57	8.6	S			
74	TM	1,3-Dichloropropane		0.4643	0.4186	0.3597	0.3369	0.3816	0.3986	0.3760	0.3847		0.39	9.9	TM			
75	TM	Dibromochloromethane		0.2858	0.3330	0.2910	0.2333	0.2599	0.2807	0.2637	0.2765		0.28	10	TM			
76	TM**	Chlorobenzene		0.7466	0.7437	0.6494	0.5935	0.6330	0.6665	0.6349	0.6727		0.67	8.0	TM**			
77	TM*	Ethylbenzene		0.9610	0.9889	0.9050	0.8168	0.8946	1.032	1.024	1.110		0.97	9.6	TM*			
78	TM**L	Bromoform		0.1220	0.1445	0.1780	0.1636	0.1755	0.2005	0.1869	0.2077		0.17	17	TM**L	0.999		
79	I	1,4-Dichlorobenzene-D (IS)																
80	TM	Isopropylbenzene		1.816	1.915	1.509	1.557	1.565	1.695	1.751	1.580		1.7	8.6	TM			
81	TM**L	1,1,2,2-Tetrachloroethane		0.9436	0.7607	0.6919	0.5718	0.5664	0.5925	0.5404	0.5161		0.65	22	TM**L	0.999		
82	TML	1,2,3-Trichloropropane		0.2493	0.2706	0.2349	0.1886	0.1926	0.1908	0.1722	0.1636		0.21	19	TML	0.999		
83	TML	t-1,4-Dichloro-2-Butene		0.0924	0.1252	0.0687	0.0527	0.0595	0.0633	0.0533	0.0542		0.07	36	TML	0.999		
84	TM	Bromobenzene		0.5959	0.5233	0.5427	0.4893	0.5170	0.5339	0.5153	0.4450		0.52	8.3	TM			
85	TM	n-Propylbenzene		2.207	2.369	1.939	1.819	1.878	2.107	2.128	1.922		2.0	9.2	TM			
86	TM	4-Ethyltoluene		1.646	1.686	1.507	1.372	1.508	1.674	1.737	1.587		1.6	7.6	TM			
87	TM	2-Chlorotoluene		1.309	1.420	1.195	1.188	1.209	1.300	1.263			1.3	6.5	TM			
88	TM	1,3,5-Trimethylbenzene		1.375	1.496	1.373	1.252	1.402	1.555	1.614	1.459		1.4	8.0	TM			
89	TM	4-Chlorotoluene		1.404	1.434	1.316	1.343	1.410	1.500	1.525	1.377		1.4	5.1	TM			
90	TM	Tert-Butylbenzene		1.496	1.171	1.269	1.088	1.314	1.266	1.470	1.382		1.3	11	TM			
91	TM	1,2,4-Trimethylbenzene		1.402	1.445	1.338	1.234	1.327	1.530	1.559	1.474		1.4	7.8	TM			
92	TM	Sec-Butylbenzene		1.666	1.835	1.637	1.579	1.704	1.882	1.929	1.818		1.8	7.2	TM			
93	TM	p-Isopropyltoluene		1.597	1.590	1.505	1.459	1.502	1.664	1.703	1.630		1.6	5.4	TM			
94	TM	Benzyl Chloride		0.6397	0.7282	0.5917	0.4784	0.5147	0.5322	0.5354	0.6334		0.58	14	TM			
95	TM	1,3-DCB		0.9166	1.248	0.9498	0.8757	0.9172	0.9874	0.9645	0.9094		0.97	12	TM			
96	TM	1,4-DCB		1.304	1.244	1.083	0.9364	0.9560	1.001	0.9924	0.9605		1.1	13	TM			
97	TM	n-Butylbenzene		1.398	1.474	1.282	1.138	1.273	1.421	1.507	1.483		1.4	9.4	TM			
98	TM	1,2-DCB		1.163	1.137	0.9806	0.8777	0.8774	0.9388	0.9192	0.9195		0.98	11	TM			
99	TM	Hexachloroethane		0.1874	0.1652	0.1562	0.1438	0.1443	0.1557	0.1491	0.1513		0.16	9.1	TM			
100	TML	1,2-Dibromo-3-chloropropane		0.0847	0.1417	0.1293	0.1103	0.1100	0.1046	0.1057	0.1012		0.11	16	TML	0.998		
101	TML	1,2,4-Trichlorobenzene		0.5481	0.6565	0.5715	0.5168	0.5437	0.5789	0.6111	0.6215		0.58	7.9	TML	1.000		
102	TML	Hexachlorobutadiene		0.4544	0.3543	0.3357	0.2697	0.2958	0.3192	0.3053	0.3008		0.33	17	TML	1.000		
103	TML	Naphthalene		1.132	1.315	1.081	1.038	1.190	1.352	1.414	1.562		1.3	14	TML	0.998		
104	TML	1,2,3-Trichlorobenzene		0.6186	0.6278	0.5228	0.5308	0.5561	0.6265	0.6340	0.6230		0.59	8.0	TML	1.000		
105																		

Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0506L06.D Vial: 2
Acq On : 6 May 19 17:12 Operator: LP,DG,CMM,PC
Sample : 0.3ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 7 14:09 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	295808	25.0000 ppb	0.00
64) Chlorobenzene-D5 (IS)	9.32	117	250112	25.0000 ppb	0.00
79) 1,4-Dichlorobenzene-D (IS)	11.87	152	111512	25.0000 ppb	0.00
System Monitoring Compounds					
39) Dibromofluoromethane(S)	4.92	111	33417	5.9975 ppb	0.00
Spiked Amount 25.000			Recovery =	23.992%	
44) 1,2-DCA-D4(S)	5.36	65	37057	5.9102 ppb	0.00
Spiked Amount 25.000			Recovery =	23.640%	
65) Toluene-D8(S)	7.72	98	94272	5.4975 ppb	0.00
Spiked Amount 25.000			Recovery =	21.988%	
73) 4-Bromofluorobenzene(S)	10.62	95	29133	5.0752 ppb	0.00
Spiked Amount 25.000			Recovery =	20.300%	
Target Compounds					Qvalue
17) t-Butanol	2.70	59	1377	11.3141 ppb	# 81

(#) = qualifier out of range (m) = manual integration

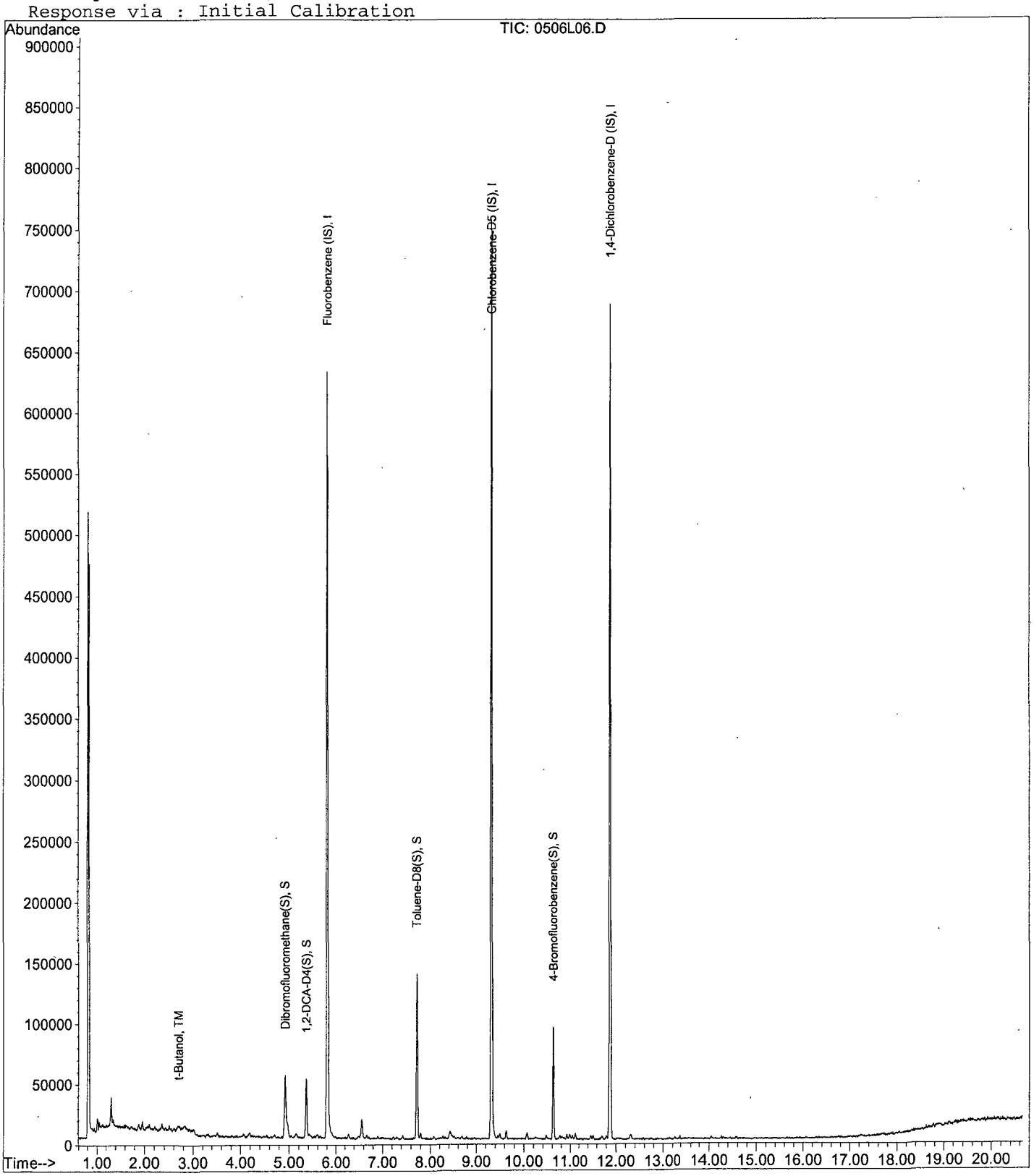
Quantitation Report

Data File : M:\LOKI\DATA\190506\0506L06.D
Acq On : 6 May 19 17:12
Sample : 0.3ug/L VOC STD 05/06/19
Misc : ISS 3/5/19, 2/11/19

Vial: 2
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 7 14:09 2019 Quant Results File: L0506W.RES

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:04:49 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0506L07.D Vial: 3
Acq On : 6 May 19 17:41 Operator: LP,DG,CMM,PC
Sample : 0.5ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.81	96	298496	25.0000 ppb		0.00
64) Chlorobenzene-D5 (IS)	9.32	117	256960	25.0000 ppb		0.00
79) 1,4-Dichlorobenzene-D (IS)	11.87	152	116304	25.0000 ppb		0.00
System Monitoring Compounds						
39) Dibromofluoromethane(S)	4.92	111	30985	5.5109 ppb		0.00
Spiked Amount 25.000			Recovery =	22.044%		
44) 1,2-DCA-D4(S)	5.36	65	34918	5.5189 ppb		0.00
Spiked Amount 25.000			Recovery =	22.076%		
65) Toluene-D8(S)	7.72	98	88702	5.0348 ppb		0.00
Spiked Amount 25.000			Recovery =	20.140%		
73) 4-Bromofluorobenzene(S)	10.62	95	28222	4.7854 ppb		0.00
Spiked Amount 25.000			Recovery =	19.140%		
Target Compounds						Qvalue
3) Dichlorodifluoromethane	0.93	85	2121	0.6399 ppb	#	88
4) Freon 114	1.02	85	1336	0.5558 ppb		91
5) Chloromethane	1.05	50	3779	-0.4366 ppb		99
6) Vinyl chloride	1.13	62	1732	0.5411 ppb		87
8) Bromomethane	1.35	96	1517	-0.2826 ppb		88
9) Chloroethane	1.43	64	679	0.4176 ppb	#	83
10) Dichlorofluoromethane	1.59	67	2934	0.6374 ppb		85
11) Trichlorofluoromethane	1.63	101	2193	0.4857 ppb		92
12) Diethyl ether	1.86	74	909	0.2195 ppb	#	73
13) Acrolein	1.96	56	11708	28.8952 ppb	#	94
14) Acetone	2.10	43	4781	0.7106 ppb		95
15) Freon-113	2.06	101	1283	0.5695 ppb	#	76
16) 1,1-DCE	2.04	96	1331	0.5625 ppb	#	90
17) t-Butanol	2.70	59	3423	27.8717 ppb		98
19) Acetonitrile	2.36	41	13855	24.4368 ppb	#	82
20) Methyl Acetate	2.44	43	2168	0.5475 ppb		85
21) Iodomethane	2.16	142	1239	2.9952 ppb	#	88
22) Acrylonitrile	2.78	52	930	-0.0991 ppb	#	67
23) Methylene chloride	2.51	84	2580	-0.1117 ppb		77
25) Methyl t-butyl ether (MtBE	2.83	73	3958	0.6069 ppb	#	88
26) Trans-1,2-DCE	2.81	96	1830	0.2472 ppb		86
27) Diisopropyl Ether	3.51	45	4117	0.6257 ppb	#	85
29) 1,1-DCA	3.32	63	2567	0.5676 ppb	#	82
30) Vinyl Acetate	3.50	43	4807	0.8620 ppb	#	96
31) Ethyl tert Butyl Ether	4.07	59	3480	0.6178 ppb		93
32) MEK (2-Butanone)	4.30	43	1444	0.4780 ppb	#	53
33) Cis-1,2-DCE	4.19	96	1601	0.5649 ppb		80
34) 2,2-Dichloropropane	4.17	77	2443	0.3403 ppb	#	87
36) 3-Methylpentane	2.84	57	799	0.5460 ppb	#	57
37) Chloroform	4.70	83	2959	0.6007 ppb		91
38) Bromochloromethane	4.53	128	892	0.5642 ppb	#	52
40) 1,1,1-TCA	4.92	97	2287	0.5769 ppb		92
41) Cyclohexane	4.99	41	1169	0.6120 ppb	#	46
42) 1,1-Dichloropropene	5.15	75	1633	0.5404 ppb	#	81
43) 2,2,4-Trimethylpentane	5.60	57	3049	0.5530 ppb	#	70
45) Carbon Tetrachloride	5.14	117	1150	0.3413 ppb		98
46) Tert Amyl Methyl Ether	5.65	73	2569	0.5003 ppb		98
47) Methylcyclopentane	4.07	56	479	0.2311 ppb		100
48) 1,2-DCA	5.45	62	1840	0.4683 ppb		99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0506L07.D
Acq On : 6 May 19 17:41
Sample : 0.5ug/L VOC STD 05/06/19
Misc : ISS 3/5/19, 2/11/19

Vial: 3
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
49)	Benzene	5.42	78	5036	0.5333	ppb		94
50)	TCE	6.28	130	1379	0.5082	ppb	#	84
51)	2-Pentanone	6.56	43	46717	28.6396	ppb		97
52)	1,2-Dichloropropane	6.53	63	1230	0.5107	ppb	#	86
53)	Bromodichloromethane	6.89	83	1704	0.4758	ppb	#	92
54)	Methyl Cyclohexane	6.50	83	1627	0.5671	ppb		99
55)	Dibromomethane	6.67	93	895	0.4855	ppb		93
56)	2-Chloroethyl vinyl ether	7.28	63	19	1.4641	ppb	#	43
57)	MIBK (methyl isobutyl ket	7.66	43	1621	0.6193	ppb	#	75
58)	1-Bromo-2-chloroethane	7.23	63	1703	0.5132	ppb	#	82
59)	Cis-1,3-Dichloropropene	7.43	75	2087	0.5850	ppb		94
60)	Toluene	7.80	91	4855	0.4993	ppb		98
61)	Trans-1,3-Dichloropropene	8.08	75	1713	0.5332	ppb		91
62)	1,1,2-TCA	8.27	83	1085	0.5332	ppb		87
63)	2-Hexanone	8.59	43	760	0.5706	ppb	#	63
66)	1,2-EDB	8.80	107	960	0.4152	ppb		96
67)	Tetrachloroethene	8.42	166	1775	0.5700	ppb	#	83
68)	1-Chlorohexane	9.38	91	1414	0.5606	ppb	#	76
69)	1,1,1,2-Tetrachloroethane	9.46	131	1294	0.5052	ppb		94
70)	m&p-Xylene	9.64	91	5967	0.8194	ppb	#	73
71)	o-Xylene	10.06	106	1940	0.5300	ppb		80
72)	Styrene	10.08	104	2903	0.4769	ppb		84
74)	1,3-Dichloropropane	8.45	76	2386	0.5951	ppb		100
75)	Dibromochloromethane	8.69	129	1469	0.5142	ppb		86
76)	Chlorobenzene	9.35	112	3837	0.5592	ppb		89
77)	Ethylbenzene	9.50	91	4939	0.4971	ppb		95
78)	Bromoform	10.25	173	627	1.2677	ppb	#	67
80)	Isopropylbenzene	10.47	105	4225	0.5427	ppb		99
81)	1,1,2,2-Tetrachloroethane	10.81	83	2195	-0.1535	ppb	#	93
82)	1,2,3-Trichloropropane	10.82	110	580	-0.5795	ppb		81
84)	Bromobenzene	10.77	156	1386	0.5726	ppb		93
85)	n-Propylbenzene	10.92	91	5134	0.5394	ppb	#	83
86)	4-Ethyltoluene	11.05	105	3829	0.5178	ppb		87
87)	2-Chlorotoluene	10.99	91	3046	0.5223	ppb		83
88)	1,3,5-Trimethylbenzene	11.12	105	3198	0.4771	ppb		96
89)	4-Chlorotoluene	11.11	91	3265	0.4965	ppb		90
90)	Tert-Butylbenzene	11.47	119	3479	0.5721	ppb	#	78
91)	1,2,4-Trimethylbenzene	11.52	105	3260	0.4957	ppb	#	74
92)	Sec-Butylbenzene	11.71	105	3876	0.4744	ppb		95
93)	p-Isopropyltoluene	11.88	119	3714	0.5049	ppb	#	85
94)	Benzyl Chloride	12.05	91	1488	0.5498	ppb	#	70
95)	1,3-DCB	11.80	146	2132	0.4719	ppb		94
96)	1,4-DCB	11.90	146	3033	0.6153	ppb		97
97)	n-Butylbenzene	12.31	91	3251	0.5093	ppb		96
98)	1,2-DCB	12.29	146	2705	0.5953	ppb		98
99)	Hexachloroethane	12.58	117	436	0.5984	ppb	#	78
100)	1,2-Dibromo-3-chloropropan	13.14	75	197	0.2542	ppb	#	50
101)	1,2,4-Trichlorobenzene	14.05	180	1275	1.0421	ppb	#	72
102)	Hexachlorobutadiene	14.25	225	1057	0.5435	ppb		82
103)	Naphthalene	14.30	128	2633	1.8358	ppb	#	84
104)	1,2,3-Trichlorobenzene	14.57	180	1439	0.7788	ppb	#	76

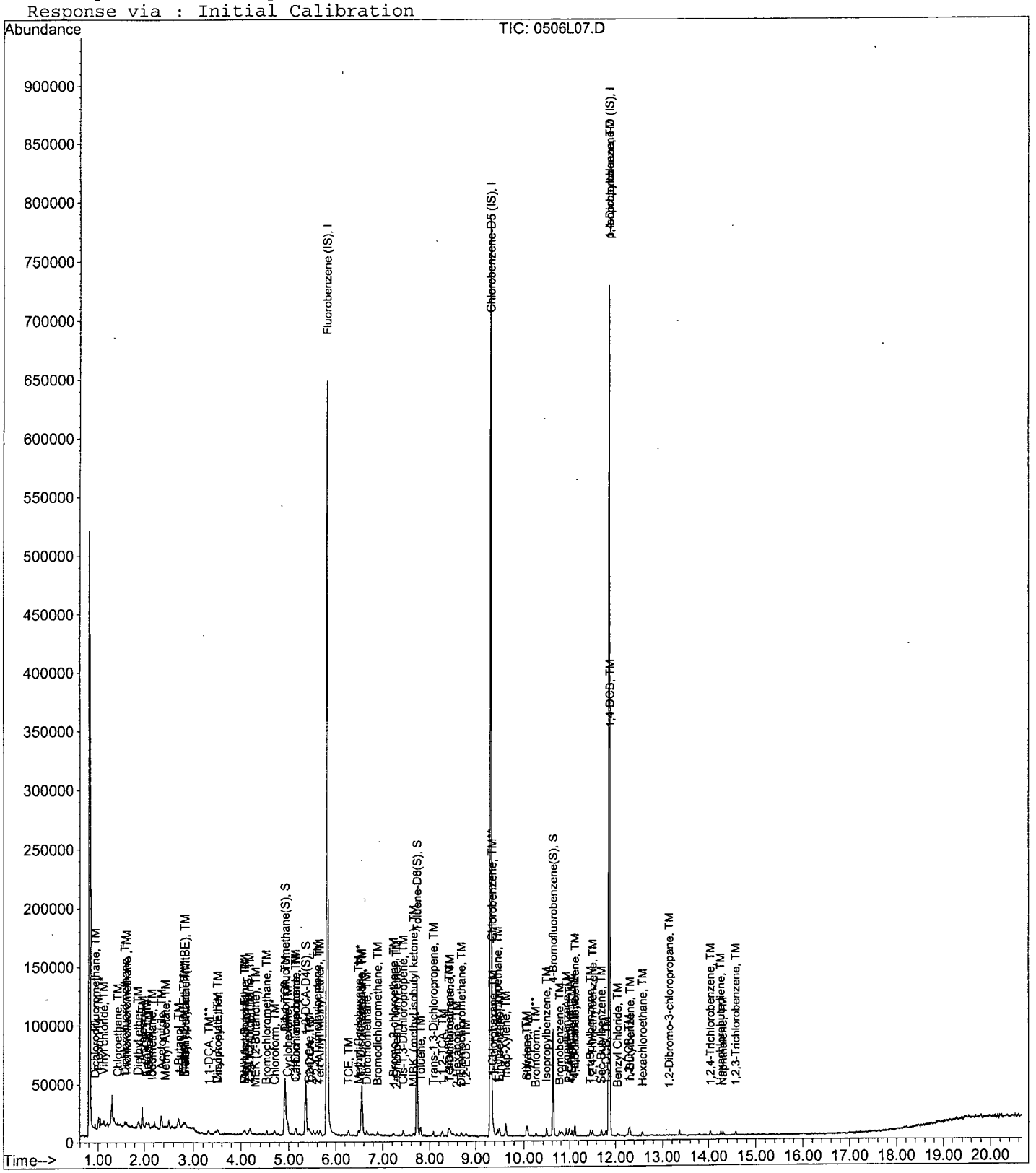
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0506L07.D Vial: 3
Acq On : 6 May 19 17:41 Operator: LP,DG,CMM,PC
Sample : 0.5ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:04:49 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0506L08.D Vial: 4
Acq On : 6 May 19 18:09 Operator: LP,DG,CMM,PC
Sample : 1.0ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.81	96	280704	25.0000 ppb		0.00
64) Chlorobenzene-D5 (IS)	9.32	117	248896	25.0000 ppb		0.00
79) 1,4-Dichlorobenzene-D (IS)	11.87	152	110784	25.0000 ppb		0.00
System Monitoring Compounds						
39) Dibromofluoromethane(S)	4.92	111	56648	10.7139 ppb		0.00
Spiked Amount 25.000			Recovery = 42.856%			
44) 1,2-DCA-D4(S)	5.36	65	64410	10.8255 ppb		0.00
Spiked Amount 25.000			Recovery = 43.304%			
65) Toluene-D8(S)	7.72	98	163053	9.5549 ppb		0.00
Spiked Amount 25.000			Recovery = 38.220%			
73) 4-Bromofluorobenzene(S)	10.62	95	52103	9.1211 ppb		0.00
Spiked Amount 25.000			Recovery = 36.484%			
Target Compounds						Qvalue
3) Dichlorodifluoromethane	0.93	85	3553	1.1398 ppb		97
4) Freon 114	1.02	85	2617	1.1577 ppb		99
6) Vinyl chloride	1.13	62	3890	1.2924 ppb		87
8) Bromomethane	1.35	96	2523	0.2752 ppb	#	51
9) Chloroethane	1.43	64	1925	1.2589 ppb		86
10) Dichlorofluoromethane	1.58	67	4648	1.0738 ppb		87
11) Trichlorofluoromethane	1.62	101	4809	1.1325 ppb	#	68
12) Diethyl ether	1.86	74	2019	1.0930 ppb	#	86
13) Acrolein	1.96	56	22054	57.8790 ppb	#	90
14) Acetone	2.10	43	2276	-2.0378 ppb		91
15) Freon-113	2.07	101	2721	1.2843 ppb	#	82
16) 1,1-DCE	2.04	96	2645	1.1888 ppb		93
17) t-Butanol	2.70	59	6249	54.1075 ppb		93
19) Acetonitrile	2.36	41	22952	55.2214 ppb		91
20) Methyl Acetate	2.43	43	3054	1.1120 ppb	#	80
21) Iodomethane	2.16	142	2053	3.3161 ppb		87
22) Acrylonitrile	2.77	52	1549	0.8088 ppb		89
23) Methylene chloride	2.50	84	3790	0.4791 ppb		99
24) Carbon disulfide	2.21	76	8723	0.7850 ppb	#	92
25) Methyl t-butyl ether (MtBE	2.84	73	6591	1.0746 ppb		92
26) Trans-1,2-DCE	2.81	96	2964	0.8070 ppb		97
27) Diisopropyl Ether	3.51	45	7507	1.2131 ppb	#	74
29) 1,1-DCA	3.31	63	5044	1.1860 ppb		90
30) Vinyl Acetate	3.46	43	8451	1.4491 ppb	#	96
31) Ethyl tert Butyl Ether	4.06	59	6064	1.1447 ppb	#	85
32) MEK (2-Butanone)	4.28	43	2324	1.3352 ppb	#	85
33) Cis-1,2-DCE	4.19	96	3172	1.1902 ppb		94
34) 2,2-Dichloropropane	4.17	77	4210	0.9845 ppb		93
36) 3-Methylpentane	2.84	57	1764	1.2819 ppb	#	84
37) Chloroform	4.70	83	5424	1.1708 ppb		86
38) Bromochloromethane	4.54	128	1887	1.2692 ppb	#	55
40) 1,1,1-TCA	4.91	97	3881	1.0410 ppb		83
41) Cyclohexane	4.98	41	2723	1.5402 ppb	#	66
42) 1,1-Dichloropropene	5.15	75	3428	1.2063 ppb	#	78
43) 2,2,4-Trimethylpentane	5.59	57	5789	1.1166 ppb	#	82
45) Carbon Tetrachloride	5.14	117	3658	1.1545 ppb		72
46) Tert Amyl Methyl Ether	5.66	73	5887	1.2191 ppb		94
47) Methylcyclopentane	4.07	56	818	1.2364 ppb		100
48) 1,2-DCA	5.46	62	4960	1.3424 ppb		94

(#) = qualifier out of range (m) = manual integration

Data File : M:\LOKI\DATA\190506\0506L08.D
Acq On : 6 May 19 18:09
Sample : 1.0ug/L VOC STD 05/06/19
Misc : ISS 3/5/19, 2/11/19

Vial: 4
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
49)	Benzene	5.41	78	10253	1.1546 ppb	#	91
50)	TCE	6.27	130	3283	1.2865 ppb		91
51)	2-Pentanone	6.56	43	91118	59.4000 ppb		100
52)	1,2-Dichloropropane	6.54	63	2483	1.0963 ppb	#	86
53)	Bromodichloromethane	6.89	83	3997	1.1869 ppb	#	89
54)	Methyl Cyclohexane	6.50	83	2869	1.0634 ppb		84
55)	Dibromomethane	6.67	93	2088	1.2044 ppb		94
56)	2-Chloroethyl vinyl ether	7.30	63	406	2.4589 ppb	#	43
57)	MIBK (methyl isobutyl ket	7.64	43	2391	1.0147 ppb	#	87
58)	1-Bromo-2-chloroethane	7.22	63	3937	1.2616 ppb		92
59)	Cis-1,3-Dichloropropene	7.43	75	3620	1.0790 ppb		94
60)	Toluene	7.80	91	9792	1.0709 ppb		86
61)	Trans-1,3-Dichloropropene	8.08	75	3649	1.2078 ppb	#	70
62)	1,1,2-TCA	8.27	83	2459	1.2850 ppb		95
63)	2-Hexanone	8.59	43	1783	1.3097 ppb	#	75
66)	1,2-EDB	8.79	107	2409	1.0757 ppb	#	78
67)	Tetrachloroethene	8.41	166	3605	1.1951 ppb		91
68)	1-Chlorohexane	9.38	91	2620	1.0724 ppb		93
69)	1,1,1,2-Tetrachloroethane	9.46	131	2874	1.1583 ppb		98
70)	m&p-Xylene	9.63	91	13248	1.8781 ppb		93
71)	o-Xylene	10.06	106	3684	1.0390 ppb		71
72)	Styrene	10.08	104	5354	0.9080 ppb		96
74)	1,3-Dichloropropane	8.45	76	4168	1.0733 ppb		95
75)	Dibromochloromethane	8.69	129	3315	1.1979 ppb		77
76)	Chlorobenzene	9.35	112	7404	1.1141 ppb		93
77)	Ethylbenzene	9.50	91	9845	1.0230 ppb		91
78)	Bromoform	10.25	173	1439	1.6707 ppb		100
80)	Isopropylbenzene	10.47	105	8484	1.1440 ppb		96
81)	1,1,2,2-Tetrachloroethane	10.80	83	3371	0.4082 ppb	#	84
82)	1,2,3-Trichloropropane	10.82	110	1199	0.3173 ppb		98
83)	t-1,4-Dichloro-2-Butene	10.86	53	555	1.4061 ppb	#	62
84)	Bromobenzene	10.77	156	2319	1.0058 ppb		79
85)	n-Propylbenzene	10.92	91	10496	1.1576 ppb		91
86)	4-Ethyltoluene	11.05	105	7470	1.0605 ppb		92
87)	2-Chlorotoluene	10.99	91	6294	1.1330 ppb		94
88)	1,3,5-Trimethylbenzene	11.12	105	6631	1.0386 ppb		93
89)	4-Chlorotoluene	11.12	91	6354	1.0143 ppb		95
90)	Tert-Butylbenzene	11.47	119	5191	0.8961 ppb		96
91)	1,2,4-Trimethylbenzene	11.52	105	6405	1.0225 ppb		89
92)	Sec-Butylbenzene	11.71	105	8132	1.0450 ppb		95
93)	p-Isopropyltoluene	11.88	119	7046	1.0056 ppb		97
94)	Benzyl Chloride	12.05	91	3227	1.2518 ppb	#	89
95)	1,3-DCB	11.80	146	5530	1.2851 ppb		82
96)	1,4-DCB	11.90	146	5512	1.1739 ppb		89
97)	n-Butylbenzene	12.31	91	6533	1.0745 ppb		88
98)	1,2-DCB	12.29	146	5039	1.1643 ppb		95
99)	Hexachloroethane	12.57	117	732	1.0547 ppb		80
100)	1,2-Dibromo-3-chloropropan	13.14	75	628	1.2181 ppb		88
101)	1,2,4-Trichlorobenzene	14.04	180	2909	1.6556 ppb		76
102)	Hexachlorobutadiene	14.25	225	1570	0.9657 ppb		91
103)	Naphthalene	14.30	128	5827	2.3143 ppb		96
104)	1,2,3-Trichlorobenzene	14.57	180	2782	1.2872 ppb		97

(#) = qualifier out of range (m) = manual integration

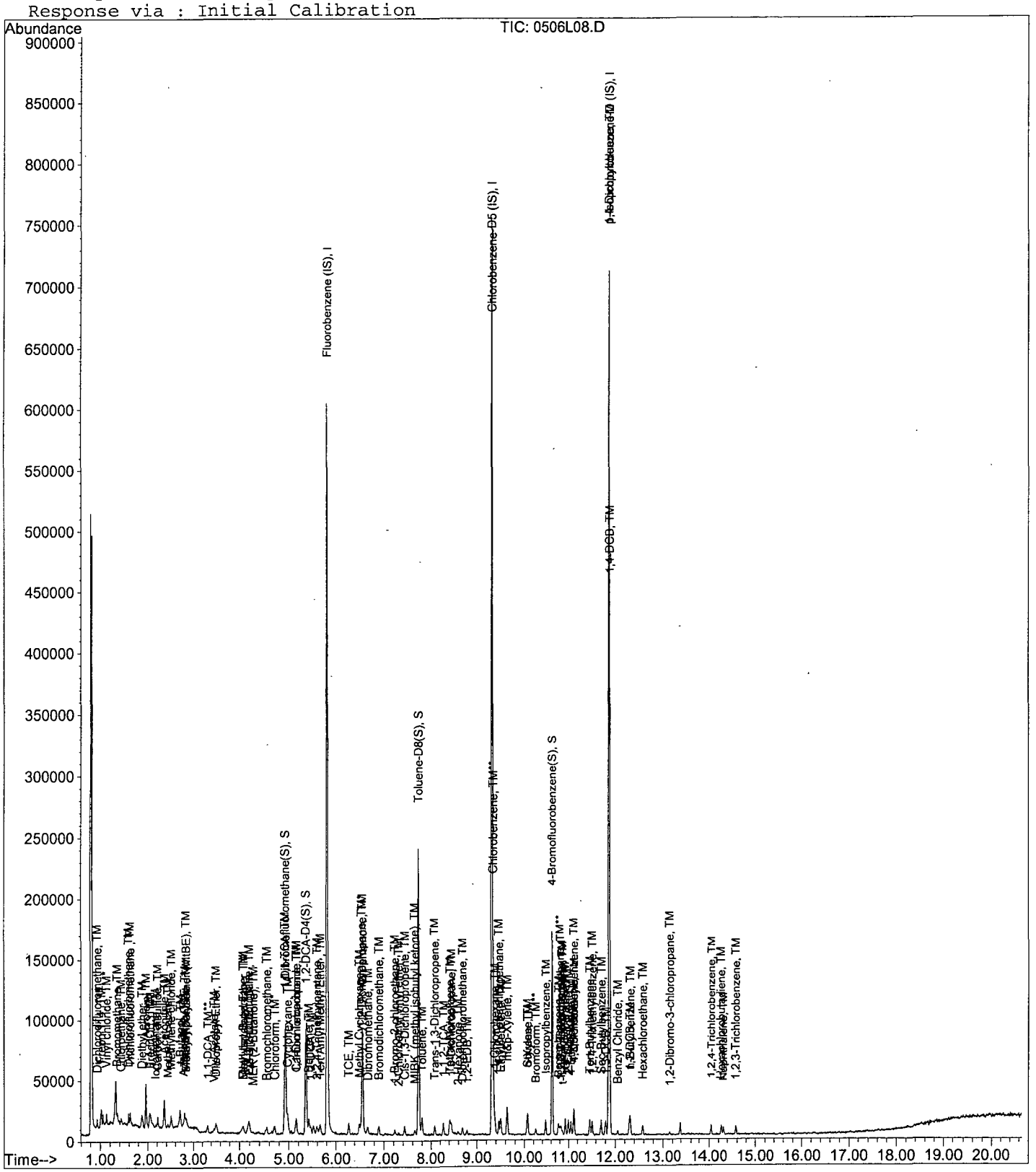
Quantitation Report

Data File : M:\LOKI\DATA\190506\0506L08.D
Acq On : 6 May 19 18:09
Sample : 1.0ug/L VOC STD 05/06/19
Misc : ISS 3/5/19, 2/11/19

Vial: 4
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:04:49 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0506L09.D Vial: 5
Acq On : 6 May 19 18:38 Operator: LP,DG,CMM,PC
Sample : 2.0ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.81	96	334080	25.0000 ppb		0.00
64) Chlorobenzene-D5 (IS)	9.32	117	274496	25.0000 ppb		0.00
79) 1,4-Dichlorobenzene-D (IS)	11.88	152	134848	25.0000 ppb		0.00
System Monitoring Compounds						
39) Dibromofluoromethane(S)	4.92	111	54560	8.6704 ppb		0.00
Spiked Amount 25.000			Recovery	= 34.680%		
44) 1,2-DCA-D4(S)	5.36	65	62941	8.8885 ppb		0.00
Spiked Amount 25.000			Recovery	= 35.552%		
65) Toluene-D8(S)	7.72	98	162061	8.6111 ppb		0.00
Spiked Amount 25.000			Recovery	= 34.444%		
73) 4-Bromofluorobenzene(S)	10.62	95	54332	8.6242 ppb		0.00
Spiked Amount 25.000			Recovery	= 34.496%		
Target Compounds						Qvalue
3) Dichlorodifluoromethane	0.93	85	7824	2.1090 ppb		96
4) Freon 114	1.02	85	5452	2.0265 ppb		92
5) Chloromethane	1.05	50	8980	1.0501 ppb		92
6) Vinyl chloride	1.13	62	6516	1.8190 ppb		91
8) Bromomethane	1.35	96	5010	1.1332 ppb		88
9) Chloroethane	1.43	64	3829	2.1040 ppb		89
10) Dichlorofluoromethane	1.58	67	10921	2.1199 ppb		93
11) Trichlorofluoromethane	1.62	101	10267	2.0315 ppb		96
12) Diethyl ether	1.87	74	3237	1.6188 ppb		93
13) Acrolein	1.96	56	34581	76.2552 ppb	#	95
14) Acetone	2.09	43	7594	3.0438 ppb		98
15) Freon-113	2.06	101	4662	1.8489 ppb		88
16) 1,1-DCE	2.04	96	5223	1.9724 ppb		88
17) t-Butanol	2.70	59	9696	70.5403 ppb		100
19) Acetonitrile	2.35	41	34685	75.2142 ppb	#	91
20) Methyl Acetate	2.42	43	6039	2.2353 ppb		95
21) Iodomethane	2.16	142	3348	3.5909 ppb	#	92
22) Acrylonitrile	2.78	52	2593	1.6565 ppb		94
23) Methylene chloride	2.51	84	7409	1.5341 ppb		98
24) Carbon disulfide	2.21	76	16281	1.6147 ppb		95
25) Methyl t-butyl ether (MtBE	2.84	73	15474	2.1198 ppb		95
26) Trans-1,2-DCE	2.81	96	6430	1.9051 ppb		81
27) Diisopropyl Ether	3.50	45	13707	1.8612 ppb		94
29) 1,1-DCA	3.32	63	9877	1.9513 ppb		95
30) Vinyl Acetate	3.46	43	16626	2.2734 ppb	#	83
31) Ethyl tert Butyl Ether	4.06	59	11651	1.8480 ppb	#	83
32) MEK (2-Butanone)	4.29	43	2793	1.3554 ppb		93
33) Cis-1,2-DCE	4.19	96	6359	2.0048 ppb		94
34) 2,2-Dichloropropane	4.18	77	7504	1.6902 ppb	#	91
36) 3-Methylpentane	2.84	57	3401	2.0766 ppb	#	80
37) Chloroform	4.70	83	10847	1.9673 ppb		82
38) Bromochloromethane	4.54	128	3839	2.1696 ppb		70
40) 1,1,1-TCA	4.91	97	8891	2.0039 ppb		90
41) Cyclohexane	4.97	41	4517	2.1532 ppb		87
42) 1,1-Dichloropropene	5.15	75	6068	1.7942 ppb		96
43) 2,2,4-Trimethylpentane	5.59	57	11669	1.8911 ppb	#	58
45) Carbon Tetrachloride	5.14	117	8137	2.1578 ppb		94
46) Tert Amyl Methyl Ether	5.66	73	10444	1.8172 ppb	#	85
47) Methylcyclopentane	4.08	56	786	0.8054 ppb	#	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0506L09.D
Acq On : 6 May 19 18:38
Sample : 2.0ug/L VOC STD 05/06/19
Misc : ISS 3/5/19, 2/11/19

Vial: 5
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
48)	1,2-DCA	5.45	62	8584	1.9521	ppb	#	85
49)	Benzene	5.42	78	20693	1.9580	ppb		92
50)	TCE	6.27	130	5646	1.8590	ppb		87
51)	2-Pentanone	6.56	43	143106	78.3859	ppb		100
52)	1,2-Dichloropropane	6.54	63	5500	2.0404	ppb	#	86
53)	Bromodichloromethane	6.89	83	7780	1.9411	ppb		96
54)	Methyl Cyclohexane	6.49	83	5561	1.7319	ppb	#	73
55)	Dibromomethane	6.67	93	4337	2.1020	ppb		93
56)	2-Chloroethyl vinyl ether	7.30	63	1080	3.7440	ppb	#	81
57)	MIBK (methyl isobutyl ket	7.65	43	5092	1.8758	ppb	#	80
58)	1-Bromo-2-chloroethane	7.22	63	7360	1.9817	ppb		92
59)	Cis-1,3-Dichloropropene	7.43	75	7285	1.8244	ppb		90
60)	Toluene	7.80	91	19990	1.8369	ppb		99
61)	Trans-1,3-Dichloropropene	8.08	75	6876	1.9123	ppb	#	74
62)	1,1,2-TCA	8.27	83	4381	1.9236	ppb		91
63)	2-Hexanone	8.59	43	3253	1.9672	ppb		91
66)	1,2-EDB	8.79	107	5202	2.1062	ppb		82
67)	Tetrachloroethene	8.41	166	6418	1.9292	ppb		97
68)	1-Chlorohexane	9.37	91	4973	1.8456	ppb		83
69)	1,1,1,2-Tetrachloroethane	9.45	131	5365	1.9607	ppb		99
70)	m&p-Xylene	9.63	91	28784	3.7000	ppb		99
71)	o-Xylene	10.06	106	7075	1.8093	ppb		100
72)	Styrene	10.08	104	11468	1.7635	ppb		88
74)	1,3-Dichloropropane	8.44	76	7898	1.8441	ppb	#	80
75)	Dibromochloromethane	8.69	129	6390	2.0936	ppb		98
76)	Chlorobenzene	9.35	112	14260	1.9456	ppb		98
77)	Ethylbenzene	9.50	91	19873	1.8725	ppb		96
78)	Bromoform	10.25	173	3908	2.6906	ppb		100
80)	Isopropylbenzene	10.47	105	16283	1.8038	ppb		100
81)	1,1,2,2-Tetrachloroethane	10.80	83	7464	1.6196	ppb	#	91
82)	1,2,3-Trichloropropane	10.83	110	2534	1.5418	ppb		86
83)	t-1,4-Dichloro-2-Butene	10.86	53	741	1.6319	ppb		93
84)	Bromobenzene	10.76	156	5855	2.0863	ppb		92
85)	n-Propylbenzene	10.92	91	20913	1.8949	ppb		99
86)	4-Ethyltoluene	11.05	105	16261	1.8965	ppb		89
87)	2-Chlorotoluene	10.99	91	12894	1.9069	ppb		95
88)	1,3,5-Trimethylbenzene	11.12	105	14814	1.9063	ppb		89
89)	4-Chlorotoluene	11.12	91	14199	1.8622	ppb		96
90)	Tert-Butylbenzene	11.47	119	13693	1.9420	ppb		98
91)	1,2,4-Trimethylbenzene	11.52	105	14431	1.8927	ppb		95
92)	Sec-Butylbenzene	11.71	105	17656	1.8639	ppb		88
93)	p-Isopropyltoluene	11.87	119	16235	1.9035	ppb	#	91
94)	Benzyl Chloride	12.05	91	6383	2.0343	ppb	#	89
95)	1,3-DCB	11.80	146	10246	1.9562	ppb		97
96)	1,4-DCB	11.90	146	11684	2.0442	ppb		99
97)	n-Butylbenzene	12.31	91	13827	1.8683	ppb		98
98)	1,2-DCB	12.30	146	10579	2.0082	ppb		95
99)	Hexachloroethane	12.58	117	1685	1.9946	ppb		97
100)	1,2-Dibromo-3-chloropropan	13.14	75	1395	2.3522	ppb		88
101)	1,2,4-Trichlorobenzene	14.05	180	6165	2.4360	ppb		93
102)	Hexachlorobutadiene	14.26	225	3622	2.0194	ppb		91
103)	Naphthalene	14.31	128	11658	2.8550	ppb		91
104)	1,2,3-Trichlorobenzene	14.57	180	5640	1.9542	ppb		89

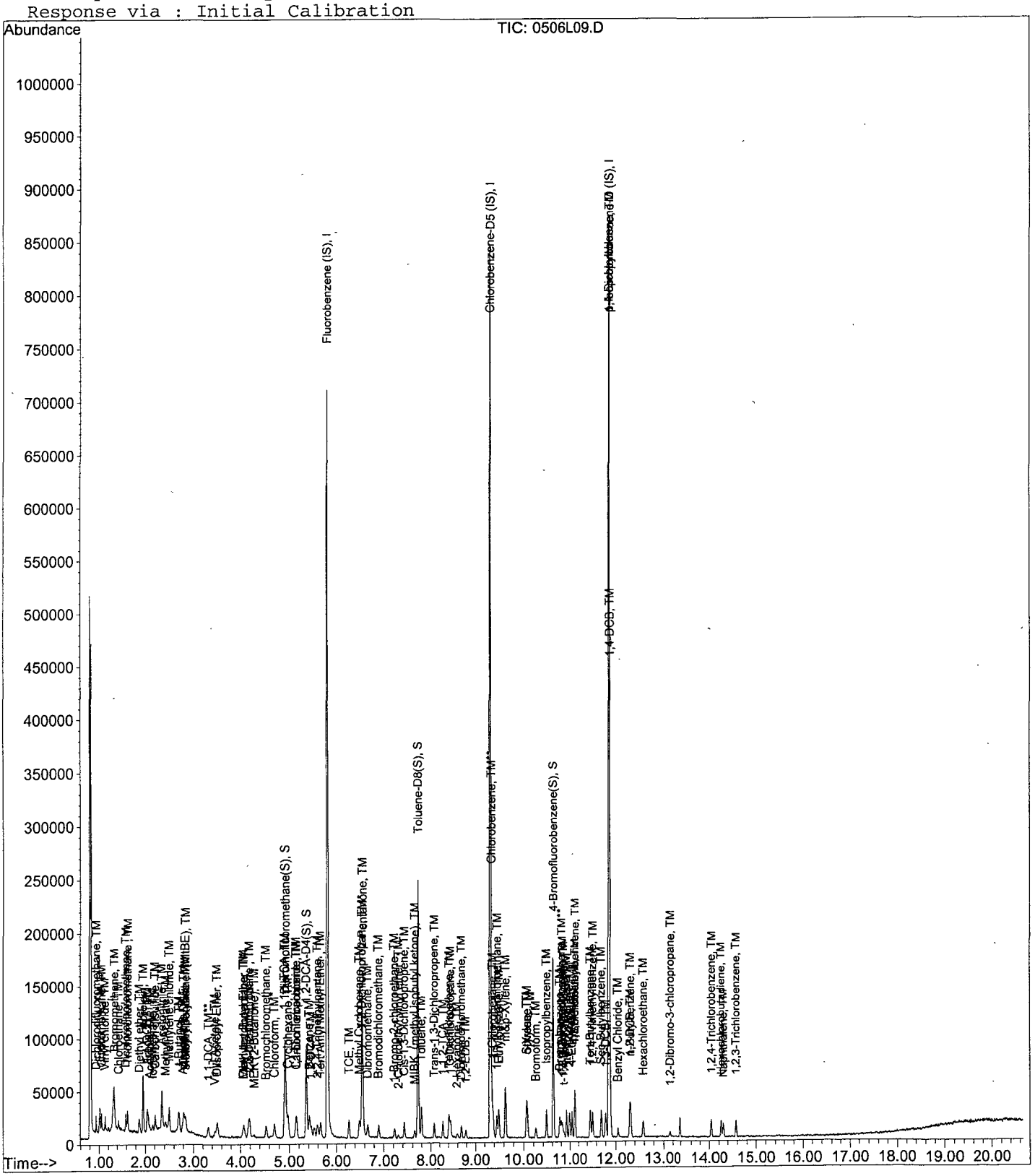
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0506L09.D Vial: 5
Acq On : 6 May 19 18:38 Operator: LP,DG,CMM,PC
Sample : 2.0ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:04:49 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0506L10.D Vial: 6
Acq On : 6 May 19 19:07 Operator: LP,DG,CMM,PC
Sample : 5.0ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.81	96	336768	25.0000 ppb		0.00
64) Chlorobenzene-D5 (IS)	9.32	117	277248	25.0000 ppb		0.00
79) 1,4-Dichlorobenzene-D (IS)	11.87	152	139648	25.0000 ppb		0.00
System Monitoring Compounds						
39) Dibromofluoromethane(S)	4.93	111	154421	24.3438 ppb		0.00
Spiked Amount 25.000			Recovery =	97.376%		
44) 1,2-DCA-D4(S)	5.36	65	172551	24.1731 ppb		0.00
Spiked Amount 25.000			Recovery =	96.692%		
65) Toluene-D8(S)	7.72	98	472798	24.8726 ppb		0.00
Spiked Amount 25.000			Recovery =	99.492%		
73) 4-Bromofluorobenzene(S)	10.62	95	157896	24.8143 ppb		0.00
Spiked Amount 25.000			Recovery =	99.256%		
Target Compounds						Qvalue
3) Dichlorodifluoromethane	0.93	85	15214	4.0682 ppb		100
4) Freon 114	1.02	85	11483	4.2342 ppb		98
5) Chloromethane	1.05	50	18944	4.1210 ppb		97
6) Vinyl chloride	1.13	62	15812	4.3788 ppb		99
8) Bromomethane	1.35	96	10970	3.6435 ppb		93
9) Chloroethane	1.43	64	8065	4.3962 ppb		95
10) Dichlorofluoromethane	1.58	67	21977	4.2319 ppb		98
11) Trichlorofluoromethane	1.62	101	22254	4.3682 ppb		93
12) Diethyl ether	1.87	74	6928	3.9108 ppb		91
13) Acrolein	1.96	56	43225	94.5554 ppb	#	96
14) Acetone	2.10	43	8761	4.1849 ppb		99
15) Freon-113	2.06	101	10892	4.2851 ppb		92
16) 1,1-DCE	2.04	96	11535	4.3212 ppb		90
17) t-Butanol	2.71	59	11433	82.5135 ppb		93
19) Acetonitrile	2.36	41	41548	93.4982 ppb		98
20) Methyl Acetate	2.43	43	11679	4.8267 ppb		93
21) Iodomethane	2.16	142	6819	4.6287 ppb		92
22) Acrylonitrile	2.77	52	4527	3.8032 ppb		96
23) Methylene chloride	2.51	84	14381	4.0300 ppb		89
24) Carbon disulfide	2.21	76	35255	4.2435 ppb	#	93
25) Methyl t-butyl ether (MtBE	2.84	73	30981	4.2103 ppb		95
26) Trans-1,2-DCE	2.81	96	11542	3.8045 ppb		87
27) Diisopropyl Ether	3.51	45	30060	4.0490 ppb		97
29) 1,1-DCA	3.32	63	22035	4.3185 ppb		96
30) Vinyl Acetate	3.46	43	36029	4.6726 ppb	#	76
31) Ethyl tert Butyl Ether	4.07	59	26227	4.1267 ppb		93
32) MEK (2-Butanone)	4.27	43	7329	4.6933 ppb		99
33) Cis-1,2-DCE	4.19	96	13556	4.2396 ppb		94
34) 2,2-Dichloropropane	4.18	77	17128	4.3752 ppb	#	91
36) 3-Methylpentane	2.83	57	7157	4.3351 ppb	#	87
37) Chloroform	4.70	83	24526	4.4128 ppb		99
38) Bromochloromethane	4.53	128	7839	4.3949 ppb		71
40) 1,1,1-TCA	4.91	97	19033	4.2555 ppb	#	79
41) Cyclohexane	4.98	41	9521	4.5201 ppb		84
42) 1,1-Dichloropropene	5.16	75	14340	4.2061 ppb		96
43) 2,2,4-Trimethylpentane	5.59	57	25880	4.1607 ppb	#	77
45) Carbon Tetrachloride	5.14	117	16960	4.4615 ppb		88
46) Tert Amyl Methyl Ether	5.66	73	24029	4.1476 ppb		99
47) Methylcyclopentane	4.07	56	2234	4.0921 ppb		100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0506L10.D Vial: 6
Acq On : 6 May 19 19:07 Operator: LP,DG,CMM,PC
Sample : 5.0ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
48)	1,2-DCA	5.46	62	19887	4.4863	ppb		96
49)	Benzene	5.42	78	45269	4.2492	ppb		97
50)	TCE	6.28	130	13153	4.2961	ppb		98
51)	2-Pentanone	6.56	43	179210	97.3783	ppb		99
52)	1,2-Dichloropropane	6.54	63	12046	4.4331	ppb	#	93
53)	Bromodichloromethane	6.90	83	18079	4.4746	ppb		95
54)	Methyl Cyclohexane	6.50	83	13425	4.1477	ppb		94
55)	Dibromomethane	6.67	93	9033	4.3431	ppb		90
56)	2-Chloroethyl vinyl ether	7.31	63	1997	5.6844	ppb		96
57)	MIBK (methyl isobutyl ket	7.65	43	10724	4.0021	ppb		95
58)	1-Bromo-2-chloroethane	7.22	63	16528	4.4147	ppb		95
59)	Cis-1,3-Dichloropropene	7.43	75	17580	4.3675	ppb		93
60)	Toluene	7.80	91	48017	4.3772	ppb		95
61)	Trans-1,3-Dichloropropene	8.08	75	15133	4.1750	ppb		89
62)	1,1,2-TCA	8.27	83	9905	4.3144	ppb		87
63)	2-Hexanone	8.60	43	6457	3.7998	ppb	#	86
66)	1,2-EDB	8.79	107	11893	4.7675	ppb		96
67)	Tetrachloroethene	8.41	166	15540	4.6248	ppb		95
68)	1-Chlorohexane	9.38	91	10783	3.9621	ppb		90
69)	1,1,1,2-Tetrachloroethane	9.46	131	12538	4.5366	ppb		97
70)	m&p-Xylene	9.63	91	67262	8.5602	ppb		97
71)	o-Xylene	10.06	106	16405	4.1536	ppb		98
72)	Styrene	10.08	104	27802	4.2329	ppb		96
74)	1,3-Dichloropropane	8.44	76	18683	4.3191	ppb		89
75)	Dibromochloromethane	8.69	129	12935	4.1960	ppb		92
76)	Chlorobenzene	9.35	112	32907	4.4452	ppb		99
77)	Ethylbenzene	9.50	91	45289	4.2249	ppb		93
78)	Bromoform	10.25	173	9071	4.9197	ppb		99
80)	Isopropylbenzene	10.47	105	43499	4.6532	ppb		96
81)	1,1,2,2-Tetrachloroethane	10.80	83	15969	4.4875	ppb		99
82)	1,2,3-Trichloropropane	10.83	110	5267	4.4498	ppb		98
83)	t-1,4-Dichloro-2-Butene	10.87	53	1472	3.9793	ppb		99
84)	Bromobenzene	10.76	156	13665	4.7018	ppb		89
85)	n-Propylbenzene	10.92	91	50790	4.4438	ppb		95
86)	4-Ethyltoluene	11.05	105	38323	4.3160	ppb		99
87)	2-Chlorotoluene	10.99	91	32950	4.7054	ppb		99
88)	1,3,5-Trimethylbenzene	11.12	105	34976	4.3460	ppb		97
89)	4-Chlorotoluene	11.11	91	37511	4.7504	ppb		97
90)	Tert-Butylbenzene	11.47	119	30387	4.1615	ppb		93
91)	1,2,4-Trimethylbenzene	11.52	105	34460	4.3642	ppb		97
92)	Sec-Butylbenzene	11.71	105	44089	4.4944	ppb		96
93)	p-Isopropyltoluene	11.87	119	40743	4.6127	ppb		97
94)	Benzyl Chloride	12.05	91	13361	4.1118	ppb		94
95)	1,3-DCB	11.80	146	24457	4.5088	ppb		96
96)	1,4-DCB	11.90	146	26152	4.4183	ppb		99
97)	n-Butylbenzene	12.32	91	31796	4.1486	ppb		96
98)	1,2-DCB	12.30	146	24514	4.4934	ppb		95
99)	Hexachloroethane	12.57	117	4016	4.5905	ppb	#	83
100)	1,2-Dibromo-3-chloropropan	13.13	75	3081	5.1940	ppb		90
101)	1,2,4-Trichlorobenzene	14.05	180	14435	4.7481	ppb		97
102)	Hexachlorobutadiene	14.25	225	7532	4.2681	ppb		90
103)	Naphthalene	14.31	128	28984	4.7891	ppb		100
104)	1,2,3-Trichlorobenzene	14.57	180	14826	4.5220	ppb		85

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0506L11.D Vial: 7
Acq On : 6 May 19 19:36 Operator: LP,DG,CMM,PC
Sample : 10ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	333632	25.0000 ppb	0.00
64) Chlorobenzene-D5 (IS)	9.32	117	286272	25.0000 ppb	0.00
79) 1,4-Dichlorobenzene-D (IS)	11.87	152	149824	25.0000 ppb	0.00
System Monitoring Compounds					
39) Dibromofluoromethane(S)	4.92	111	147794	23.5181 ppb	0.00
Spiked Amount 25.000			Recovery	= 94.072%	
44) 1,2-DCA-D4(S)	5.36	65	172716	24.4236 ppb	0.00
Spiked Amount 25.000			Recovery	= 97.696%	
65) Toluene-D8(S)	7.72	98	468975	23.8938 ppb	0.00
Spiked Amount 25.000			Recovery	= 95.576%	
73) 4-Bromofluorobenzene(S)	10.62	95	159420	24.2641 ppb	0.00
Spiked Amount 25.000			Recovery	= 97.056%	
Target Compounds					Qvalue
3) Dichlorodifluoromethane	0.93	85	34886	9.4162 ppb	100
4) Freon 114	1.02	85	24893	9.2653 ppb	100
5) Chloromethane	1.05	50	39381	10.5806 ppb	100
6) Vinyl chloride	1.13	62	34669	9.6910 ppb	100
8) Bromomethane	1.35	96	24519	9.4868 ppb	100
9) Chloroethane	1.43	64	17341	9.5413 ppb	100
10) Dichlorofluoromethane	1.58	67	46742	9.0852 ppb	100
11) Trichlorofluoromethane	1.62	101	52456	10.3933 ppb	100
12) Diethyl ether	1.87	74	16310	9.8741 ppb	100
13) Acrolein	1.96	56	58723	129.6650 ppb	100
14) Acetone	2.10	43	11480	7.1020 ppb	100
15) Freon-113	2.06	101	22362	8.8802 ppb	100
16) 1,1-DCE	2.04	96	25988	9.8270 ppb	100
17) t-Butanol	2.71	59	15544	113.2376 ppb	100
19) Acetonitrile	2.36	41	53291	129.0922 ppb	100
20) Methyl Acetate	2.43	43	21831	9.6269 ppb	99
21) Iodomethane	2.16	142	15678	7.3426 ppb	100
22) Acrylonitrile	2.78	52	10184	10.2582 ppb	100
23) Methylene chloride	2.51	84	28068	9.0674 ppb	100
24) Carbon disulfide	2.21	76	74049	9.7530 ppb	100
25) Methyl t-butyl ether (MtBE	2.84	73	68458	9.3909 ppb	100
26) Trans-1,2-DCE	2.81	96	26792	9.6230 ppb	100
27) Diisopropyl Ether	3.51	45	66623	9.0583 ppb	100
29) 1,1-DCA	3.32	63	48495	9.5936 ppb	100
30) Vinyl Acetate	3.51	43	71547	9.1785 ppb	100
31) Ethyl tert Butyl Ether	4.07	59	58121	9.2310 ppb	100
32) MEK (2-Butanone)	4.28	43	15326	10.7139 ppb	100
33) Cis-1,2-DCE	4.19	96	29307	9.2519 ppb	100
34) 2,2-Dichloropropane	4.17	77	36016	9.7731 ppb	100
36) 3-Methylpentane	2.84	57	15837	9.6828 ppb	100
37) Chloroform	4.71	83	52811	9.5913 ppb	100
38) Bromochloromethane	4.54	128	15280	8.6472 ppb	100
40) 1,1,1-TCA	4.91	97	44153	9.9647 ppb	100
41) Cyclohexane	4.98	41	19209	9.2223 ppb	100
42) 1,1-Dichloropropene	5.15	75	33463	9.9075 ppb	100
43) 2,2,4-Trimethylpentane	5.59	57	56457	9.1619 ppb	100
45) Carbon Tetrachloride	5.14	117	38480	10.2178 ppb	100
46) Tert Amyl Methyl Ether	5.66	73	55105	9.6009 ppb	100
47) Methylcyclopentane	4.07	56	5406	11.4394 ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0506L11.D Vial: 7
Acq On : 6 May 19 19:36 Operator: LP,DG,CMM,PC
Sample : 10ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
48)	1,2-DCA	5.45	62	43204	9.8380	ppb	100
49)	Benzene	5.42	78	99176	9.3967	ppb	100
50)	TCE	6.27	130	29215	9.6320	ppb	100
51)	2-Pentanone	6.56	43	238418	130.7682	ppb	100
52)	1,2-Dichloropropane	6.54	63	27262	10.1272	ppb	100
53)	Bromodichloromethane	6.90	83	39785	9.9395	ppb	100
54)	Methyl Cyclohexane	6.50	83	29783	9.2881	ppb	100
55)	Dibromomethane	6.67	93	19667	9.5450	ppb	100
56)	2-Chloroethyl vinyl ether	7.30	63	4077	10.2095	ppb	100
57)	MIBK (methyl isobutyl ket	7.65	43	27206	10.3675	ppb	100
58)	1-Bromo-2-chloroethane	7.22	63	36192	9.7579	ppb	100
59)	Cis-1,3-Dichloropropene	7.43	75	37716	9.4582	ppb	100
60)	Toluene	7.80	91	105318	9.6910	ppb	100
61)	Trans-1,3-Dichloropropene	8.08	75	33284	9.2689	ppb	100
62)	1,1,2-TCA	8.27	83	21807	9.5879	ppb	100
63)	2-Hexanone	8.59	43	14249	8.3705	ppb	100
66)	1,2-EDB	8.79	107	25487	9.8949	ppb	100
67)	Tetrachloroethene	8.41	166	31770	9.1569	ppb	100
68)	1-Chlorohexane	9.38	91	25536	9.0872	ppb	100
69)	1,1,1,2-Tetrachloroethane	9.45	131	27143	9.5114	ppb	100
70)	m&p-Xylene	9.63	91	157354	19.3947	ppb	100
71)	o-Xylene	10.06	106	36389	8.9230	ppb	100
72)	Styrene	10.08	104	62257	9.1800	ppb	100
74)	1,3-Dichloropropane	8.45	76	43691	9.7819	ppb	100
75)	Dibromochloromethane	8.69	129	29759	9.3493	ppb	100
76)	Chlorobenzene	9.35	112	72485	9.4829	ppb	100
77)	Ethylbenzene	9.50	91	102436	9.2548	ppb	100
78)	Bromoform	10.25	173	20094	9.4396	ppb	100
80)	Isopropylbenzene	10.47	105	93766	9.3491	ppb	100
81)	1,1,2,2-Tetrachloroethane	10.80	83	33943	9.9413	ppb	100
82)	1,2,3-Trichloropropane	10.83	110	11542	10.4918	ppb	100
83)	t-1,4-Dichloro-2-Butene	10.86	53	3566	10.1483	ppb	100
84)	Bromobenzene	10.76	156	30983	9.9365	ppb	100
85)	n-Propylbenzene	10.92	91	112572	9.1804	ppb	100
86)	4-Ethyltoluene	11.05	105	90358	9.4850	ppb	100
87)	2-Chlorotoluene	10.99	91	72236	9.6150	ppb	100
88)	1,3,5-Trimethylbenzene	11.12	105	84042	9.7336	ppb	100
89)	4-Chlorotoluene	11.11	91	84485	9.9725	ppb	100
90)	Tert-Butylbenzene	11.47	119	78762	10.0537	ppb	100
91)	1,2,4-Trimethylbenzene	11.52	105	79532	9.3883	ppb	100
92)	Sec-Butylbenzene	11.71	105	102098	9.7009	ppb	100
93)	p-Isopropyltoluene	11.87	119	90044	9.5020	ppb	100
94)	Benzyl Chloride	12.05	91	30844	8.8475	ppb	100
95)	1,3-DCB	11.80	146	54969	9.4457	ppb	100
96)	1,4-DCB	11.90	146	57290	9.0215	ppb	100
97)	n-Butylbenzene	12.32	91	76296	9.2787	ppb	100
98)	1,2-DCB	12.29	146	52585	8.9842	ppb	100
99)	Hexachloroethane	12.58	117	8648	9.2137	ppb	100
100)	1,2-Dibromo-3-chloropropan	13.14	75	6591	10.5122	ppb	100
101)	1,2,4-Trichlorobenzene	14.05	180	32583	9.3245	ppb	100
102)	Hexachlorobutadiene	14.25	225	17728	9.6159	ppb	100
103)	Naphthalene	14.31	128	71316	9.0765	ppb	100
104)	1,2,3-Trichlorobenzene	14.57	180	33325	9.1619	ppb	100

(#) = qualifier out of range (m) = manual integration

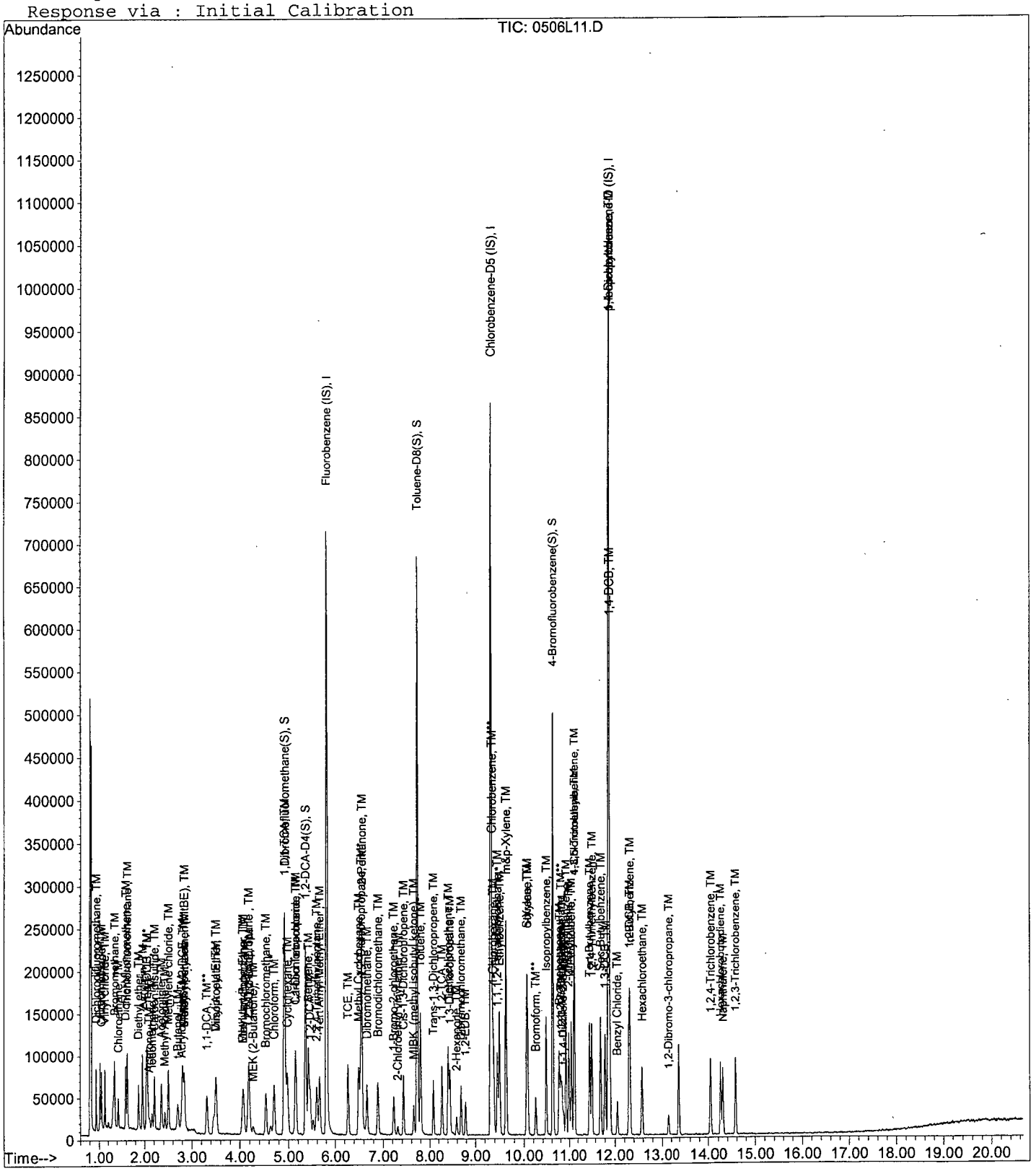
Quantitation Report

Data File : M:\LOKI\DATA\190506\0506L11.D
Acq On : 6 May 19 19:36
Sample : 10ug/L VOC STD 05/06/19
Misc : ISS 3/5/19, 2/11/19

Vial: 7
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:04:49 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0506L12.D Vial: 8
Acq On : 6 May 19 20:05 Operator: LP,DG,CMM,PC
Sample : 20ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene (IS)	5.81	96	326592	25.0000	ppb		0.00
64) Chlorobenzene-D5 (IS)	9.32	117	273280	25.0000	ppb		0.00
79) 1,4-Dichlorobenzene-D (IS)	11.87	152	150848	25.0000	ppb		0.00
System Monitoring Compounds							
39) Dibromofluoromethane(S)	4.92	111	301031	48.9349	ppb		0.00
Spiked Amount 25.000			Recovery = 195.740%				
44) 1,2-DCA-D4(S)	5.36	65	337439	48.7455	ppb		0.00
Spiked Amount 25.000			Recovery = 194.984%				
65) Toluene-D8(S)	7.72	98	994495	53.0773	ppb		0.00
Spiked Amount 25.000			Recovery = 212.308%				
73) 4-Bromofluorobenzene(S)	10.62	95	341787	54.4939	ppb		0.00
Spiked Amount 25.000			Recovery = 217.976%				
Target Compounds							Qvalue
3) Dichlorodifluoromethane	0.93	85	69789	19.2431	ppb		91
4) Freon 114	1.02	85	53627	20.3905	ppb		98
5) Chloromethane	1.05	50	74528	22.0981	ppb		98
6) Vinyl chloride	1.13	62	70963	20.2639	ppb		97
8) Bromomethane	1.34	96	54252	22.7144	ppb		96
9) Chloroethane	1.42	64	33729	18.9583	ppb		99
10) Dichlorofluoromethane	1.58	67	98226	19.5036	ppb		97
11) Trichlorofluoromethane	1.62	101	100345	20.3103	ppb		97
12) Diethyl ether	1.87	74	32833	20.7513	ppb		99
13) Acrolein	1.96	56	58687	132.3789	ppb	#	99
14) Acetone	2.10	43	25012	21.7584	ppb		98
15) Freon-113	2.06	101	49904	20.2446	ppb		93
16) 1,1-DCE	2.04	96	50181	19.3843	ppb	#	86
17) t-Butanol	2.71	59	15473	115.1501	ppb		98
19) Acetonitrile	2.36	41	58499	149.0373	ppb		99
20) Methyl Acetate	2.43	43	44319	20.5941	ppb		95
21) Iodomethane	2.16	142	43214	16.0013	ppb		97
22) Acrylonitrile	2.78	52	20440	22.3734	ppb		92
23) Methylene chloride	2.51	84	61965	21.9090	ppb		96
24) Carbon disulfide	2.21	76	152599	21.2781	ppb		96
25) Methyl t-butyl ether (MtBE	2.84	73	141349	19.8078	ppb		98
26) Trans-1,2-DCE	2.81	96	55342	20.8919	ppb		98
27) Diisopropyl Ether	3.51	45	140123	19.4623	ppb		99
29) 1,1-DCA	3.32	63	97756	19.7555	ppb		94
30) Vinyl Acetate	3.46	43	154718	20.0502	ppb	#	79
31) Ethyl tert Butyl Ether	4.07	59	120080	19.4827	ppb		95
32) MEK (2-Butanone)	4.28	43	28565	21.0564	ppb		95
33) Cis-1,2-DCE	4.19	96	60680	19.5690	ppb		93
34) 2,2-Dichloropropane	4.18	77	73724	20.9095	ppb		98
36) 3-Methylpentane	2.84	57	30994	19.3584	ppb		98
37) Chloroform	4.70	83	104719	19.4286	ppb		95
38) Bromochloromethane	4.54	128	33802	19.5415	ppb		88
40) 1,1,1-TCA	4.91	97	88738	20.4586	ppb		97
41) Cyclohexane	4.97	41	40733	19.9966	ppb		89
42) 1,1-Dichloropropene	5.15	75	65996	19.9608	ppb		90
43) 2,2,4-Trimethylpentane	5.59	57	124190	20.5881	ppb		97
45) Carbon Tetrachloride	5.14	117	79852	21.6605	ppb		95
46) Tert Amyl Methyl Ether	5.66	73	114435	20.3678	ppb		98
47) Methylcyclopentane	4.07	56	9349	20.9768	ppb		100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0506L12.D Vial: 8
Acq On : 6 May 19 20:05 Operator: LP,DG,CMM,PC
Sample : 20ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
48)	1,2-DCA	5.45	62	85667	19.9278 ppb		99
49)	Benzene	5.42	78	212232	20.5420 ppb		98
50)	TCE	6.27	130	59174	19.9299 ppb		91
51)	2-Pentanone	6.56	43	258411	144.7892 ppb		99
52)	1,2-Dichloropropane	6.54	63	53397	20.2634 ppb		99
53)	Bromodichloromethane	6.90	83	81802	20.8772 ppb		97
54)	Methyl Cyclohexane	6.49	83	64229	20.4622 ppb		96
55)	Dibromomethane	6.67	93	40770	20.2134 ppb		92
56)	2-Chloroethyl vinyl ether	7.31	63	8777	20.7520 ppb		99
57)	MIBK (methyl isobutyl ket	7.65	43	49533	19.3482 ppb	#	88
58)	1-Bromo-2-chloroethane	7.22	63	70912	19.5311 ppb		97
59)	Cis-1,3-Dichloropropene	7.43	75	77207	19.7788 ppb		96
60)	Toluene	7.80	91	228596	21.4881 ppb		99
61)	Trans-1,3-Dichloropropene	8.08	75	70136	19.9524 ppb		95
62)	1,1,2-TCA	8.27	83	44772	20.1093 ppb		90
63)	2-Hexanone	8.59	43	33871	20.2176 ppb		95
66)	1,2-EDB	8.79	107	53175	21.6258 ppb		100
67)	Tetrachloroethene	8.41	166	66093	19.9553 ppb		96
68)	1-Chlorohexane	9.38	91	54802	20.4290 ppb		99
69)	1,1,1,2-Tetrachloroethane	9.46	131	55441	20.3512 ppb		95
70)	m&p-Xylene	9.63	91	345973	44.6702 ppb		99
71)	o-Xylene	10.06	106	80609	20.7060 ppb		97
72)	Styrene	10.08	104	141128	21.7990 ppb		99
74)	1,3-Dichloropropane	8.45	76	87147	20.4388 ppb		95
75)	Dibromochloromethane	8.69	129	61360	20.1937 ppb		96
76)	Chlorobenzene	9.35	112	145720	19.9703 ppb		97
77)	Ethylbenzene	9.50	91	225579	21.3492 ppb		99
78)	Bromoform	10.25	173	43827	20.3169 ppb		90
80)	Isopropylbenzene	10.47	105	204498	20.2515 ppb		99
81)	1,1,2,2-Tetrachloroethane	10.80	83	71500	21.9686 ppb		96
82)	1,2,3-Trichloropropane	10.83	110	23021	22.1045 ppb		94
83)	t-1,4-Dichloro-2-Butene	10.86	53	7640	22.6374 ppb		97
84)	Bromobenzene	10.77	156	64429	20.5226 ppb		100
85)	n-Propylbenzene	10.92	91	254302	20.5978 ppb		99
86)	4-Ethyltoluene	11.05	105	201981	21.0583 ppb		96
87)	2-Chlorotoluene	10.99	91	156830	20.7333 ppb		100
88)	1,3,5-Trimethylbenzene	11.12	105	187599	21.5798 ppb		99
89)	4-Chlorotoluene	11.11	91	181038	21.2245 ppb		92
90)	Tert-Butylbenzene	11.47	119	152821	19.3747 ppb		98
91)	1,2,4-Trimethylbenzene	11.52	105	184602	21.6434 ppb		95
92)	Sec-Butylbenzene	11.71	105	227112	21.4327 ppb		98
93)	p-Isopropyltoluene	11.87	119	200807	21.0465 ppb		97
94)	Benzyl Chloride	12.05	91	64225	18.2976 ppb		96
95)	1,3-DCB	11.80	146	119160	20.3370 ppb		97
96)	1,4-DCB	11.90	146	120809	18.8948 ppb		98
97)	n-Butylbenzene	12.31	91	171470	20.7117 ppb		98
98)	1,2-DCB	12.30	146	113290	19.2242 ppb		96
99)	Hexachloroethane	12.58	117	18784	19.8770 ppb		94
100)	1,2-Dibromo-3-chloropropan	13.14	75	12617	20.1279 ppb	#	83
101)	1,2,4-Trichlorobenzene	14.05	180	69858	19.1756 ppb		96
102)	Hexachlorobutadiene	14.26	225	38526	21.0000 ppb		93
103)	Naphthalene	14.31	128	163130	18.7456 ppb		97
104)	1,2,3-Trichlorobenzene	14.57	180	75604	20.2872 ppb		91

(#) = qualifier out of range (m) = manual integration

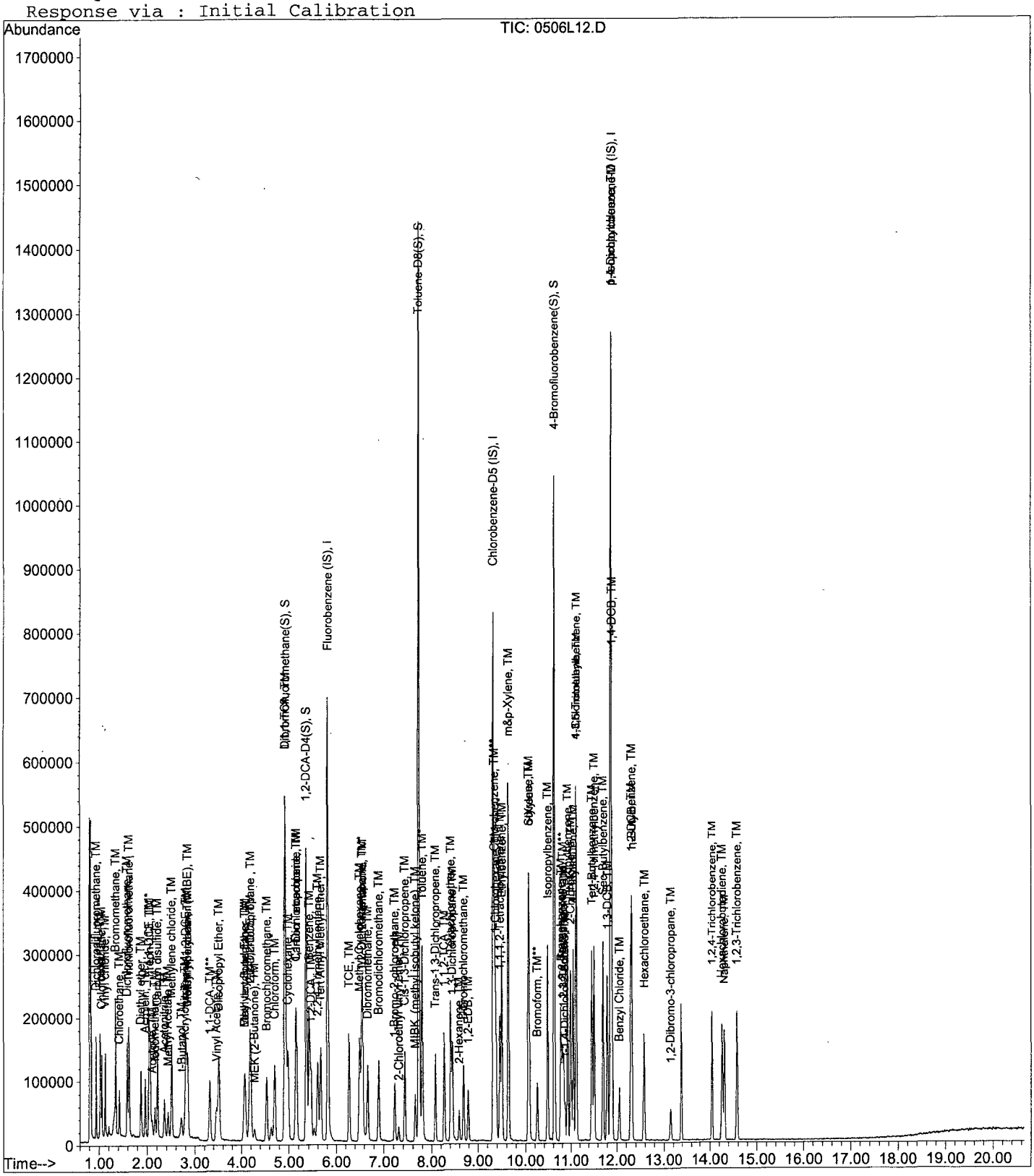
Quantitation Report

Data File : M:\LOKI\DATA\190506\0506L12.D
Acq On : 6 May 19 20:05
Sample : 20ug/L VOC STD 05/06/19
Misc : ISS 3/5/19, 2/11/19

Vial: 8
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:04:49 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0506L13.D Vial: 9
Acq On : 6 May 19 20:34 Operator: LP,DG,CMM,PC
Sample : 40ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.81	96	339968	25.0000 ppb		0.00
64) Chlorobenzene-D5 (IS)	9.32	117	298304	25.0000 ppb		0.00
79) 1,4-Dichlorobenzene-D (IS)	11.87	152	166272	25.0000 ppb		0.00
System Monitoring Compounds						
39) Dibromofluoromethane(S)	4.92	111	313030	48.8834 ppb		0.00
Spiked Amount 25.000			Recovery = 195.532%			
44) 1,2-DCA-D4(S)	5.35	65	342765	47.5667 ppb		0.00
Spiked Amount 25.000			Recovery = 190.268%			
65) Toluene-D8(S)	7.72	98	1047065	51.1951 ppb		0.00
Spiked Amount 25.000			Recovery = 204.780%			
73) 4-Bromofluorobenzene(S)	10.62	95	367999	53.7511 ppb		0.00
Spiked Amount 25.000			Recovery = 215.004%			
Target Compounds						Qvalue
3) Dichlorodifluoromethane	0.93	85	142318	37.6977 ppb		96
4) Freon 114	1.02	85	108365	39.5823 ppb		98
5) Chloromethane	1.05	50	143686	42.4275 ppb		96
6) Vinyl chloride	1.13	62	143059	39.2441 ppb		98
8) Bromomethane	1.34	96	104463	42.8729 ppb		94
9) Chloroethane	1.42	64	70992	38.3331 ppb		93
10) Dichlorofluoromethane	1.58	67	203912	38.8955 ppb		93
11) Trichlorofluoromethane	1.62	101	203564	39.5812 ppb		99
12) Diethyl ether	1.87	74	68229	41.8462 ppb		96
13) Acrolein	1.96	56	64969	140.7831 ppb	#	98
14) Acetone	2.10	43	44073	40.1950 ppb		94
15) Freon-113	2.06	101	99492	38.7731 ppb		97
16) 1,1-DCE	2.04	96	105966	39.3227 ppb		94
17) t-Butanol	2.71	59	17760	126.9698 ppb		99
19) Acetonitrile	2.35	41	61271	150.1977 ppb		95
20) Methyl Acetate	2.43	43	87485	39.5783 ppb		95
21) Iodomethane	2.16	142	123198	39.3476 ppb		96
22) Acrylonitrile	2.78	52	37327	40.2129 ppb		96
23) Methylene chloride	2.51	84	123536	43.0242 ppb		100
24) Carbon disulfide	2.21	76	305692	41.5720 ppb		98
25) Methyl t-butyl ether (MtBE	2.84	73	283719	38.1945 ppb		98
26) Trans-1,2-DCE	2.81	96	114815	42.1620 ppb		95
27) Diisopropyl Ether	3.51	45	291789	38.9333 ppb		97
29) 1,1-DCA	3.32	63	201012	39.0242 ppb		96
30) Vinyl Acetate	3.46	43	316183	39.1827 ppb	#	74
31) Ethyl tert Butyl Ether	4.07	59	248895	38.7937 ppb		98
32) MEK (2-Butanone)	4.27	43	53228	38.2669 ppb		87
33) Cis-1,2-DCE	4.19	96	127996	39.6540 ppb		95
34) 2,2-Dichloropropane	4.18	77	148672	40.9135 ppb		93
36) 3-Methylpentane	2.84	57	59256	35.5543 ppb	#	88
37) Chloroform	4.70	83	211972	37.7799 ppb		99
38) Bromochloromethane	4.54	128	68489	38.0369 ppb		87
40) 1,1,1-TCA	4.91	97	179529	39.7621 ppb		94
41) Cyclohexane	4.98	41	84908	40.0594 ppb		94
42) 1,1-Dichloropropene	5.15	75	138189	40.1514 ppb		96
43) 2,2,4-Trimethylpentane	5.59	57	253375	40.3517 ppb		96
45) Carbon Tetrachloride	5.14	117	162194	42.2654 ppb		98
46) Tert Amyl Methyl Ether	5.66	73	236945	40.5135 ppb		97
47) Methylcyclopentane	4.06	56	18148	39.9830 ppb		100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0506L13.D
Acq On : 6 May 19 20:34
Sample : 40ug/L VOC STD 05/06/19
Misc : ISS 3/5/19, 2/11/19

Vial: 9
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
48)	1,2-DCA	5.45	62	174149	38.9166	ppb	94
49)	Benzene	5.42	78	434440	40.3952	ppb	98
50)	TCE	6.27	130	123749	40.0389	ppb	93
51)	2-Pentanone	6.56	43	282509	152.0635	ppb	98
52)	1,2-Dichloropropane	6.54	63	109513	39.9234	ppb	100
53)	Bromodichloromethane	6.90	83	163778	40.1542	ppb	99
54)	Methyl Cyclohexane	6.50	83	138236	42.3068	ppb	97
55)	Dibromomethane	6.67	93	83026	39.5439	ppb	98
56)	2-Chloroethyl vinyl ether	7.30	63	15278	33.7481	ppb	99
57)	MIBK (methyl isobutyl ket	7.65	43	104889	39.4377	ppb	94
58)	1-Bromo-2-chloroethane	7.23	63	143840	38.0587	ppb	95
59)	Cis-1,3-Dichloropropene	7.43	75	166017	40.8567	ppb	99
60)	Toluene	7.80	91	468912	42.3436	ppb	99
61)	Trans-1,3-Dichloropropene	8.08	75	145069	39.6458	ppb	99
62)	1,1,2-TCA	8.27	83	88593	38.2260	ppb	86
63)	2-Hexanone	8.59	43	62292	35.6608	ppb	95
66)	1,2-EDB	8.79	107	105936	39.4690	ppb	98
67)	Tetrachloroethene	8.41	166	132598	36.6766	ppb	97
68)	1-Chlorohexane	9.38	91	117386	40.0881	ppb	93
69)	1,1,1,2-Tetrachloroethane	9.45	131	115128	38.7159	ppb	99
70)	m&p-Xylene	9.63	91	771776	91.2883	ppb	97
71)	o-Xylene	10.06	106	182150	42.8639	ppb	96
72)	Styrene	10.08	104	327571	46.3531	ppb	98
74)	1,3-Dichloropropane	8.45	76	179475	38.5617	ppb	96
75)	Dibromochloromethane	8.69	129	125852	37.9436	ppb	99
76)	Chlorobenzene	9.35	112	303007	38.0423	ppb	96
77)	Ethylbenzene	9.50	91	488914	42.3901	ppb	98
78)	Bromoform	10.25	173	89193	37.0374	ppb	93
80)	Isopropylbenzene	10.47	105	465789	41.8483	ppb	100
81)	1,1,2,2-Tetrachloroethane	10.80	83	143761	40.9561	ppb	99
82)	1,2,3-Trichloropropane	10.83	110	45813	40.9925	ppb	98
83)	t-1,4-Dichloro-2-Butene	10.86	53	14178	38.7445	ppb	92
84)	Bromobenzene	10.77	156	137093	39.6175	ppb	100
85)	n-Propylbenzene	10.92	91	566115	41.6003	ppb	98
86)	4-Ethyltoluene	11.05	105	462012	43.7005	ppb	96
87)	2-Chlorotoluene	10.99	91	335969	40.2957	ppb	98
88)	1,3,5-Trimethylbenzene	11.12	105	429259	44.7979	ppb	96
89)	4-Chlorotoluene	11.11	91	405651	43.1459	ppb	98
90)	Tert-Butylbenzene	11.47	119	391184	44.9939	ppb	98
91)	1,2,4-Trimethylbenzene	11.52	105	414698	44.1104	ppb	94
92)	Sec-Butylbenzene	11.71	105	513095	43.9294	ppb	100
93)	p-Isopropyltoluene	11.88	119	453175	43.0910	ppb	94
94)	Benzyl Chloride	12.05	91	142443	36.8172	ppb	97
95)	1,3-DCB	11.80	146	256591	39.7299	ppb	99
96)	1,4-DCB	11.90	146	264001	37.4601	ppb	99
97)	n-Butylbenzene	12.32	91	400914	43.9339	ppb	97
98)	1,2-DCB	12.30	146	244536	37.6462	ppb	98
99)	Hexachloroethane	12.58	117	39656	38.0708	ppb	96
100)	1,2-Dibromo-3-chloropropan	13.14	75	28107	40.8396	ppb	86
101)	1,2,4-Trichlorobenzene	14.05	180	162583	39.8186	ppb	94
102)	Hexachlorobutadiene	14.26	225	81213	40.3545	ppb	88
103)	Naphthalene	14.31	128	376218	37.6113	ppb	95
104)	1,2,3-Trichlorobenzene	14.57	180	168670	40.7698	ppb	95

(#) = qualifier out of range (m) = manual integration

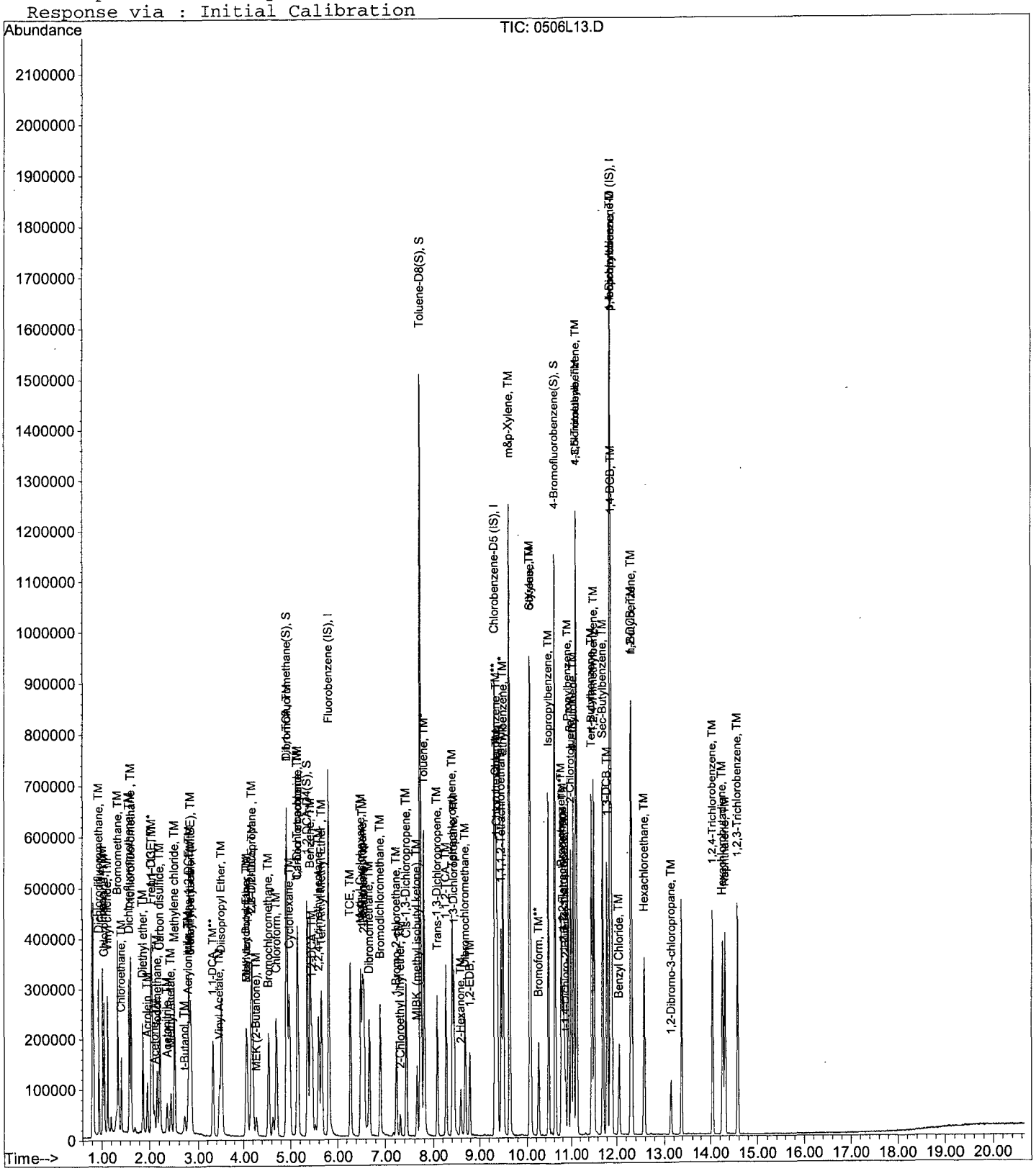
Quantitation Report

Data File : M:\LOKI\DATA\190506\0506L13.D
Acq On : 6 May 19 20:34
Sample : 40ug/L VOC STD 05/06/19
Misc : ISS 3/5/19, 2/11/19

Vial: 9
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:04:49 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0506L14.D Vial: 10
Acq On : 6 May 19 21:02 Operator: LP,DG,CMM,PC
Sample : 100ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.81	96	371520	25.0000 ppb		0.00
64) Chlorobenzene-D5 (IS)	9.32	117	300096	25.0000 ppb		0.00
79) 1,4-Dichlorobenzene-D (IS)	11.88	152	204224	25.0000 ppb		0.00
System Monitoring Compounds						
39) Dibromofluoromethane(S)	4.92	111	622137	88.9032 ppb		0.00
Spiked Amount 25.000			Recovery = 355.612%			
44) 1,2-DCA-D4(S)	5.36	65	687191	87.2650 ppb		0.00
Spiked Amount 25.000			Recovery = 349.060%			
65) Toluene-D8(S)	7.72	98	2141598	104.0858 ppb		0.00
Spiked Amount 25.000			Recovery = 416.344%			
73) 4-Bromofluorobenzene(S)	10.62	95	775055	112.5311 ppb		0.00
Spiked Amount 25.000			Recovery = 450.124%			
Target Compounds						Qvalue
3) Dichlorodifluoromethane	0.93	85	357304	86.6062 ppb		95
4) Freon 114	1.02	85	279716	93.4944 ppb		100
5) Chloromethane	1.05	50	356733	98.6287 ppb		96
6) Vinyl chloride	1.13	62	349241	87.6678 ppb		99
8) Bromomethane	1.34	96	258228	98.2521 ppb		93
9) Chloroethane	1.41	64	224984	111.1659 ppb		95
10) Dichlorofluoromethane	1.58	67	509279	88.8931 ppb		93
11) Trichlorofluoromethane	1.61	101	540917	96.2441 ppb		99
12) Diethyl ether	1.87	74	175710	99.1864 ppb		98
13) Acrolein	1.96	56	77209	153.0975 ppb	#	98
14) Acetone	2.11	43	113253	101.0778 ppb		97
15) Freon-113	2.06	101	259600	92.5769 ppb		97
16) 1,1-DCE	2.04	96	265841	90.2724 ppb		92
19) Acetonitrile	2.36	41	76375	177.5087 ppb		98
20) Methyl Acetate	2.43	43	239648	100.0925 ppb		99
21) Iodomethane	2.16	142	360860	101.1401 ppb		96
22) Acrylonitrile	2.78	52	99097	99.5165 ppb		98
23) Methylene chloride	2.51	84	304700	98.5679 ppb		97
24) Carbon disulfide	2.21	76	789609	99.1823 ppb		97
25) Methyl t-butyl ether (MtBE	2.84	73	751320	92.5535 ppb		97
26) Trans-1,2-DCE	2.80	96	292700	99.0594 ppb		97
27) Diisopropyl Ether	3.51	45	773592	94.4540 ppb		99
29) 1,1-DCA	3.32	63	516038	91.6747 ppb		94
30) Vinyl Acetate	3.46	43	884483	100.0087 ppb	#	76
31) Ethyl tert Butyl Ether	4.07	59	703717	100.3689 ppb		98
32) MEK (2-Butanone)	4.28	43	149462	99.4671 ppb		91
33) Cis-1,2-DCE	4.19	96	329697	93.4677 ppb		97
34) 2,2-Dichloropropane	4.17	77	392736	99.5138 ppb		94
36) 3-Methylpentane	2.84	57	163135	89.5701 ppb	#	99
37) Chloroform	4.71	83	543592	88.6567 ppb		100
38) Bromochloromethane	4.54	128	166425	84.5782 ppb		84
40) 1,1,1-TCA	4.91	97	463148	93.8664 ppb		97
41) Cyclohexane	4.97	41	231525	99.9808 ppb		92
42) 1,1-Dichloropropene	5.15	75	369350	98.2022 ppb		96
43) 2,2,4-Trimethylpentane	5.59	57	717244	104.5250 ppb		94
45) Carbon Tetrachloride	5.14	117	432067	103.0285 ppb		95
46) Tert Amyl Methyl Ether	5.66	73	671667	105.0901 ppb		94
47) Methylcyclopentane	4.06	56	48747	99.7358 ppb		100
48) 1,2-DCA	5.45	62	437465	89.4568 ppb		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0506L14.D Vial: 10
Acq On : 6 May 19 21:02 Operator: LP,DG,CMM,PC
Sample : 100ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
49)	Benzene	5.42	78	1143855	97.3255 ppb		99
50)	TCE	6.27	130	320136	94.7832 ppb		94
51)	2-Pentanone	6.57	43	350595	172.6848 ppb		95
52)	1,2-Dichloropropane	6.54	63	285228	95.1503 ppb		99
53)	Bromodichloromethane	6.90	83	425389	95.4371 ppb		99
54)	Methyl Cyclohexane	6.50	83	391787	109.7223 ppb		99
55)	Dibromomethane	6.67	93	218237	95.1151 ppb		95
56)	2-Chloroethyl vinyl ether	7.31	63	53821	105.6366 ppb		98
57)	MIBK (methyl isobutyl ket	7.65	43	295627	101.8347 ppb	#	91
58)	1-Bromo-2-chloroethane	7.22	63	385910	93.4364 ppb		97
59)	Cis-1,3-Dichloropropene	7.43	75	448135	100.9196 ppb		98
60)	Toluene	7.80	91	1251813	103.4408 ppb		100
61)	Trans-1,3-Dichloropropene	8.08	75	407501	101.9076 ppb		97
62)	1,1,2-TCA	8.27	83	228955	90.3993 ppb		87
63)	2-Hexanone	8.60	43	203974	106.7016 ppb		98
66)	1,2-EDB	8.79	107	278044	102.9734 ppb		96
67)	Tetrachloroethene	8.41	166	343726	94.5068 ppb		96
68)	1-Chlorohexane	9.38	91	341377	115.8862 ppb		97
69)	1,1,1,2-Tetrachloroethane	9.46	131	301273	100.7087 ppb		96
70)	m&p-Xylene	9.63	91	2097337	246.5989 ppb		97
71)	o-Xylene	10.06	106	498659	116.6446 ppb		97
72)	Styrene	10.08	104	883753	124.3090 ppb		99
74)	1,3-Dichloropropane	8.45	76	461841	98.6378 ppb		96
75)	Dibromochloromethane	8.69	129	331880	99.4622 ppb		100
76)	Chlorobenzene	9.35	112	807453	100.7699 ppb		99
77)	Ethylbenzene	9.50	91	1332958	114.8808 ppb		97
78)	Bromoform	10.25	173	249262	101.1573 ppb		95
80)	Isopropylbenzene	10.47	105	1291056	94.4378 ppb		97
81)	1,1,2,2-Tetrachloroethane	10.80	83	421588	99.2721 ppb		98
82)	1,2,3-Trichloropropane	10.83	110	133607	99.1818 ppb		100
83)	t-1,4-Dichloro-2-Butene	10.86	53	44312	100.0171 ppb		99
84)	Bromobenzene	10.77	156	363502	85.5246 ppb		99
85)	n-Propylbenzene	10.92	91	1570448	93.9566 ppb		99
86)	4-Ethyltoluene	11.05	105	1296728	99.8607 ppb		97
87)	2-Chlorotoluene	10.99	91	934987	91.3015 ppb		99
88)	1,3,5-Trimethylbenzene	11.12	105	1191596	101.2464 ppb		97
89)	4-Chlorotoluene	11.11	91	1125273	97.4445 ppb		97
90)	Tert-Butylbenzene	11.47	119	1129260	105.7496 ppb		97
91)	1,2,4-Trimethylbenzene	11.52	105	1204430	104.3046 ppb		94
92)	Sec-Butylbenzene	11.71	105	1485382	103.5400 ppb		100
93)	p-Isopropyltoluene	11.87	119	1331246	103.0604 ppb		96
94)	Benzyl Chloride	12.05	91	517455	108.8917 ppb		98
95)	1,3-DCB	11.80	146	742870	93.6487 ppb		99
96)	1,4-DCB	11.90	146	784645	90.6460 ppb		98
97)	n-Butylbenzene	12.32	91	1211009	108.0459 ppb		98
98)	1,2-DCB	12.30	146	751126	94.1463 ppb		100
99)	Hexachloroethane	12.58	117	123600	96.6081 ppb		94
100)	1,2-Dibromo-3-chloropropan	13.14	75	82658	98.0017 ppb	#	78
101)	1,2,4-Trichlorobenzene	14.05	180	507669	100.2996 ppb		96
102)	Hexachlorobutadiene	14.26	225	245760	99.7330 ppb		89
103)	Naphthalene	14.31	128	1276135	101.2723 ppb		96
104)	1,2,3-Trichlorobenzene	14.57	180	508927	99.7390 ppb		95

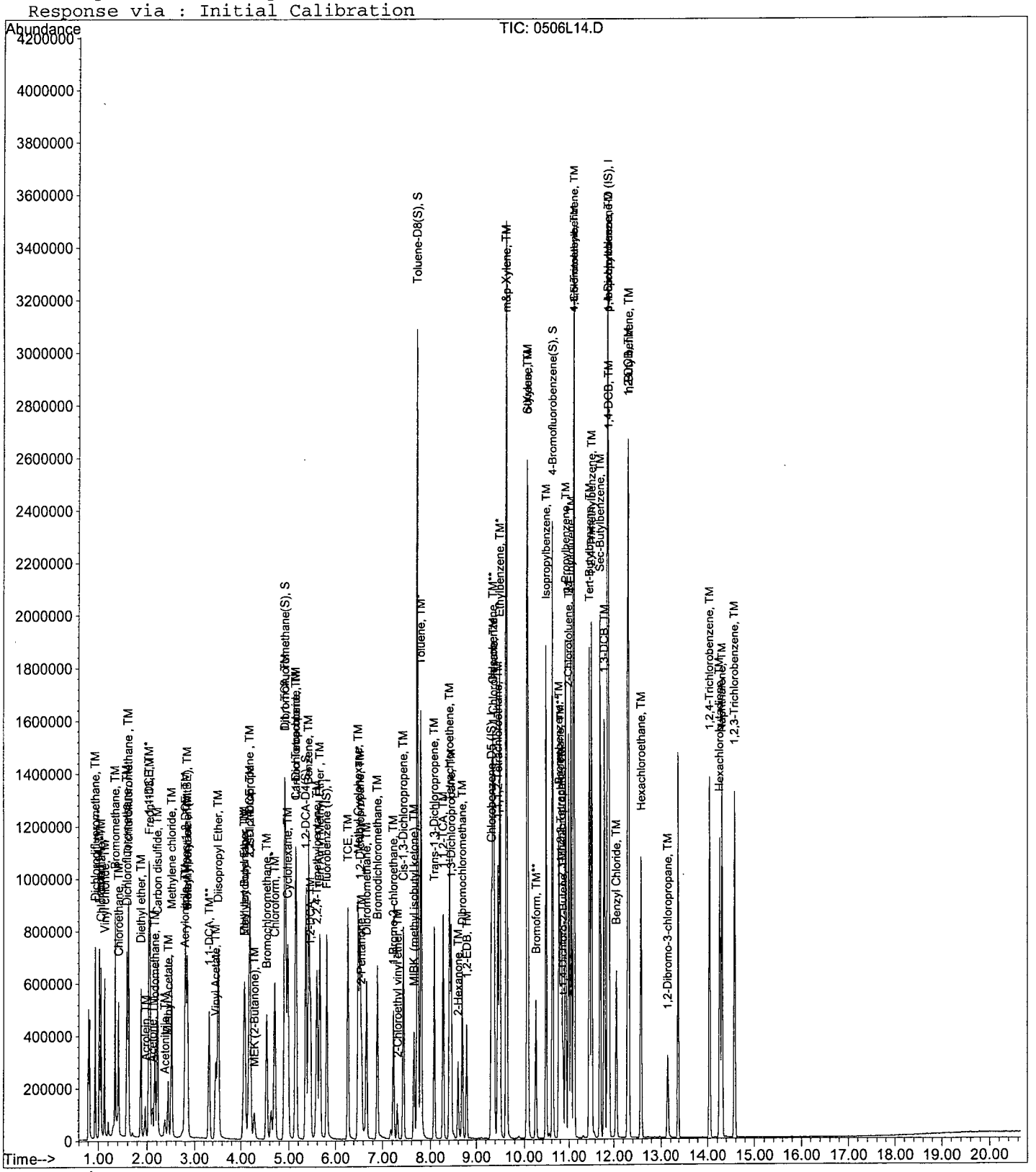
(#) = qualifier out of range (m) = manual integration

Data File : M:\LOKI\DATA\190506\0506L14.D
Acq On : 6 May 19 21:02
Sample : 100ug/L VOC STD 05/06/19
Misc : ISS 3/5/19, 2/11/19

Vial: 10
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 7 14:00 2019 Quant Results File: L0506W.RES

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:04:49 2019
Response via : Initial Calibration



VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Second Source Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Date Analyzed: 6 May 19 21:31
Matrix: Instrument: Loki
Initial Cal. Date: 05/06/19
Data File: 0506L15.D

		Compound	MEAN	CCRF	%D		%Drift
1	TM	Dichlorodifluoromethane	0.2776	0.2703	2.6	TM	
2	TM	Freon 114	0.2013	0.2216	10	TM	
3	TM**L	Chloromethane	0.3454	0.2959	14	TM**L	6.1
4	TM*	Vinyl chloride	0.2681	0.2764	3.1	TM*	
5	TM	2-Chloro-1,1,1-trifluoroethane	0.0000	0.0001	0.00	TM	
6	TML	Bromomethane	0.2001	0.2072	3.6	TML	8.3
7	TM	Chloroethane	0.1362	0.1251	8.1	TM	
8	TM	Dichlorofluoromethane	0.3855	0.3825	0.78	TM	
9	TM	Trichlorofluoromethane	0.3782	0.3692	2.4	TM	
10	TML	Diethyl ether	0.1310	0.1237	5.5	TML	0.00
11	TM	Acrolein	0.0339	0.0349	2.9	TM	
12	TML	Acetone	0.1235	0.1199	2.9	TML	18
13	TM	Freon-113	0.1887	0.1920	1.7	TM	
14	TM*	1,1-DCE	0.1982	0.2015	1.7	TM*	
15	TM	t-Butanol	0.0103	0.0102	0.67	TM	
16	TM	2-Propanol	0.0000	0.0028	0.00	TM	
17	TMQ	Acetonitrile	0.0354	0.0325	8.2	TMQ	5.6
18	TML	Methyl Acetate	0.2072	0.1877	9.4	TML	11
19	TML	Iodomethane	0.1712	0.1798	5.0	TML	1.3
20	TML	Acrylonitrile	0.0935	0.0786	16	TML	6.0
21	TML	Methylene chloride	0.2675	0.2454	8.3	TML	7.7
22	TML	Carbon disulfide	0.6160	0.6269	1.8	TML	11
23	TM	Methyl t-butyl ether (MtBE)	0.5462	0.5609	2.7	TM	
24	TML	Trans-1,2-DCE	0.2254	0.2335	3.6	TML	13
25	TM	Diisopropyl Ether	0.5511	0.5477	0.63	TM	
26	TM**	2,2-Dichloro-1,1,1-trifluoroethane	0.0000	0.0143	0.00	TM**	
27	TM**	1,1-DCA	0.3788	0.3735	1.4	TM**	
28	TML	Vinyl Acetate	0.6298	0.6103	3.1	TML	4.2
29	TM	Ethyl tert Butyl Ether	0.4718	0.4833	2.4	TM	
30	TML	MEK (2-Butanone)	0.1358	0.1272	6.4	TML	19
31	TM	Cis-1,2-DCE	0.2374	0.2420	1.9	TM	
32	TML	2,2-Dichloropropane	0.3011	0.2910	3.4	TML	5.7
33	TM	2-Methylpentane	0.0000	0.0003	0.00	TM	
34	TM	3-Methylpentane	0.1226	0.1230	0.39	TM	
35	TM*	Chloroform	0.4126	0.4015	2.7	TM*	
36	TM	Bromochloromethane	0.1324	0.1347	1.7	TM	
37	TM	1,1,1-TCA	0.3320	0.3433	3.4	TM	
38	TML	Cyclohexane	0.1705	0.1626	4.6	TML	4.2
39	TM	1,1-Dichloropropene	0.2531	0.2530	0.04	TM	
40	TM	2,2,4-Trimethylpentane	0.4617	0.4751	2.9	TM	
		Average			3.7		

VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 6 May 19 21:31
Instrument: Loki
Cal. Date: 05/06/19
Data File: 0506L15.D

		Compound	MEAN	CCRF	%D		%Drift	
41	TM	Carbon Tetrachloride	0.2822	0.3091	9.6	TM		
42	TM	Tert Amyl Methyl Ether	0.4301	0.4509	4.8	TM		
43	TML	Methylcyclopentane	0.0448	0.0422	5.6	TML	20	
44	TM	1,2-DCA	0.3291	0.3235	1.7	TM		
45	TM	Benzene	0.7909	0.8165	3.2	TM		
46	TM	TCE	0.2273	0.2354	3.6	TM		
47	TM	2-Pentanone	0.1366	0.1518	11	TM		
48	TM*	1,2-Dichloropropane	0.2017	0.2004	0.64	TM*		
49	TM	Bromodichloromethane	0.2999	0.3059	2.0	TM		
50	TM	Methyl Cyclohexane	0.2403	0.2449	1.9	TM		
51	TM	Dibromomethane	0.1544	0.1659	7.5	TM		
52	TML	2-Chloroethyl vinyl ether	0.0290	0.0337	16	TML	11	
53	TML	MIBK (methyl isobutyl ketone)	0.2024	0.2274	12	TML	16	
54	TM	1-Bromo-2-chloroethane	0.2779	0.2813	1.2	TM		
55	TM	Cis-1,3-Dichloropropene	0.2988	0.3011	0.76	TM		
56	TM*	Toluene	0.8143	0.8637	6.1	TM*		
57	TM	Trans-1,3-Dichloropropene	0.2691	0.2721	1.1	TM		
58	TM	1,1,2-TCA	0.1704	0.1665	2.3	TM		
59	TML	2-Hexanone	0.1240	0.1402	13	TML	9.6	
60	TM	1,2-EDB	0.2249	0.2498	11	TM		
61	TM	Tetrachloroethene	0.3030	0.3043	0.45	TM		
62	TM	1-Chlorohexane	0.2454	0.2593	5.7	TM		
63	TM	1,1,1,2-Tetrachloroethane	0.2492	0.2577	3.4	TM		
64	TM	m&p-Xylene	0.7085	0.7848	11	TM		
65	TM	o-Xylene	0.3561	0.3727	4.6	TM		
66	TM	Styrene	0.5923	0.6302	6.4	TM		
67	TM	1,3-Dichloropropane	0.3901	0.4029	3.3	TM		
68	TM	Dibromochloromethane	0.2780	0.2714	2.4	TM		
69	TM**	Chlorobenzene	0.6675	0.6972	4.4	TM**		
70	TM*	Ethylbenzene	0.9666	1.040	7.6	TM*		
71	TM**L	Bromoform	0.1723	0.2073	20	TM**L	9.7	
72	TM	Isopropylbenzene	1.674	1.826	9.1	TM		
73	TM**L	1,1,2,2-Tetrachloroethane	0.6479	0.6621	2.2	TM**L	18	
74	TML	1,2,3-Trichloropropane	0.2078	0.2169	4.4	TML	20	
75	TML	t-1,4-Dichloro-2-Butene	0.0712	0.0704	1.1	TML	22	*
76	TM	Bromobenzene	0.5203	0.5764	11	TM		
77	TM	n-Propylbenzene	2.046	2.189	7.0	TM		
78	TM	4-Ethyltoluene	1.590	1.767	11	TM		
79	TM	2-Chlorotoluene	1.269	1.408	11	TM		
80	TM	1,3,5-Trimethylbenzene	1.441	1.626	13	TM		
		Average			6.4			

VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 6 May 19 21:31
Instrument: Loki
Cal. Date: 05/06/19
Data File: 0506L15.D

		Compound	MEAN	CCRF	%D		%Drift
81	TM	4-Chlorotoluene	1.414	1.642	16	TM	
82	TM	Tert-Butylbenzene	1.307	1.320	0.99	TM	
83	TM	1,2,4-Trimethylbenzene	1.414	1.588	12	TM	
84	TM	Sec-Butylbenzene	1.756	1.967	12	TM	
85	TM	p-Isopropyltoluene	1.581	1.763	11	TM	
86	TM	Benzyl Chloride	0.5817	0.5654	2.8	TM	
87	TM	1,3-DCB	0.9711	1.069	10	TM	
88	TM	1,4-DCB	1.060	1.138	7.4	TM	
89	TM	n-Butylbenzene	1.372	1.551	13	TM	
90	TM	1,2-DCB	0.9767	1.009	3.3	TM	
91	TM	Hexachloroethane	0.1566	0.1601	2.2	TM	
92	TML	1,2-Dibromo-3-chloropropane	0.1109	0.1145	3.2	TML	9.5
93	TML	1,2,4-Trichlorobenzene	0.5810	0.7082	22	TML	20
94	TML	Hexachlorobutadiene	0.3294	0.3575	8.5	TML	17
95	TML	Naphthalene	1.260	1.620	29	TML	18
96	TML	1,2,3-Trichlorobenzene	0.5925	0.7342	24	TML	20
97							
98							
99							
100							
101							
102							
103							
104							
105							
106							
107							
108							
109							
110							
111							
112							
113							
114							
115							
116							
117							
118							
119							
120							
		Average			11.1		

Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0506L15.D Vial: 11
Acq On : 6 May 19 21:31 Operator: LP,DG,CMM,PC
Sample : (SS)10ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 7 14:02 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.81	96	344512	25.0000 ppb		0.00
64) Chlorobenzene-D5 (IS)	9.32	117	288768	25.0000 ppb		0.00
79) 1,4-Dichlorobenzene-D (IS)	11.88	152	150208	25.0000 ppb		0.00
System Monitoring Compounds						
39) Dibromofluoromethane(S)	4.92	111	159913	24.6430 ppb		0.00
Spiked Amount 25.000			Recovery = 98.572%			
44) 1,2-DCA-D4(S)	5.36	65	188065	25.7542 ppb		0.00
Spiked Amount 25.000			Recovery = 103.016%			
65) Toluene-D8(S)	7.73	98	518622	26.1948 ppb		0.00
Spiked Amount 25.000			Recovery = 104.780%			
73) 4-Bromofluorobenzene(S)	10.62	95	179160	27.0329 ppb		0.00
Spiked Amount 25.000			Recovery = 108.132%			
Target Compounds						Qvalue
3) Dichlorodifluoromethane	0.93	85	37251	9.7370 ppb		99
4) Freon 114	1.02	85	30539	11.0078 ppb		97
5) Chloromethane	1.05	50	40770	10.6124 ppb		94
6) Vinyl chloride	1.13	62	38083	10.3092 ppb		95
8) Bromomethane	1.35	96	28556	10.8288 ppb		88
9) Chloroethane	1.43	64	17242	9.1872 ppb		87
10) Dichlorofluoromethane	1.59	67	52710	9.9216 ppb		94
11) Trichlorofluoromethane	1.62	101	50883	9.7632 ppb		100
12) Diethyl ether	1.87	74	17048	10.0001 ppb		96
13) Acrolein	1.96	56	60154	128.6300 ppb	#	94
14) Acetone	2.10	43	16520	11.8082 ppb		94
15) Freon-113	2.06	101	26452	10.1727 ppb		96
16) 1,1-DCE	2.04	96	27770	10.1692 ppb		89
17) t-Butanol	2.71	59	17600	124.1663 ppb		99
19) Acetonitrile	2.36	41	56028	132.0298 ppb		98
20) Methyl Acetate	2.43	43	25865	11.1319 ppb		99
21) Iodomethane	2.16	142	24780	9.8730 ppb		91
22) Acrylonitrile	2.78	52	10826	10.5981 ppb		84
23) Methylene chloride	2.51	84	33819	10.7743 ppb		91
24) Carbon disulfide	2.21	76	86389	11.1065 ppb		96
25) Methyl t-butyl ether (MtBE	2.84	73	77288	10.2673 ppb		98
26) Trans-1,2-DCE	2.81	96	32181	11.2797 ppb		99
27) Diisopropyl Ether	3.51	45	75471	9.9373 ppb		100
29) 1,1-DCA	3.32	63	51470	9.8605 ppb		95
30) Vinyl Acetate	3.46	43	84101	10.4224 ppb	#	75
31) Ethyl tert Butyl Ether	4.07	59	66607	10.2447 ppb		94
32) MEK (2-Butanone)	4.27	43	17522	11.9401 ppb		99
33) Cis-1,2-DCE	4.19	96	33342	10.1933 ppb		95
34) 2,2-Dichloropropane	4.18	77	40099	10.5713 ppb		96
36) 3-Methylpentane	2.84	57	16955	10.0390 ppb		91
37) Chloroform	4.71	83	55324	9.7304 ppb		96
38) Bromochloromethane	4.54	128	18562	10.1728 ppb		81
40) 1,1,1-TCA	4.91	97	47309	10.3398 ppb		96
41) Cyclohexane	4.98	41	22411	10.4219 ppb		98
42) 1,1-Dichloropropene	5.15	75	34864	9.9963 ppb		91
43) 2,2,4-Trimethylpentane	5.60	57	65472	10.2893 ppb		99
45) Carbon Tetrachloride	5.14	117	42602	10.9550 ppb		90
46) Tert Amyl Methyl Ether	5.66	73	62136	10.4840 ppb		99
47) Methylcyclopentane	4.08	56	5822	11.9736 ppb		100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0506L15.D Vial: 11
Acq On : 6 May 19 21:31 Operator: LP,DG,CMM,PC
Sample : (SS)10ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 7 14:02 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 13:59:21 2019
Response via : Initial Calibration
DataAcq Meth : L8260

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
48)	1,2-DCA	5.45	62	44582	9.8312	ppb		94
49)	Benzene	5.42	78	112524	10.3247	ppb		96
50)	TCE	6.28	130	32438	10.3569	ppb		93
51)	2-Pentanone	6.56	43	261425	138.8588	ppb		100
52)	1,2-Dichloropropane	6.54	63	27620	9.9362	ppb	#	93
53)	Bromodichloromethane	6.90	83	42156	10.1993	ppb		100
54)	Methyl Cyclohexane	6.50	83	33748	10.1923	ppb		96
55)	Dibromomethane	6.67	93	22863	10.7456	ppb		96
56)	2-Chloroethyl vinyl ether	7.31	63	4638	11.1034	ppb	#	87
57)	MIBK (methyl isobutyl ket	7.65	43	31343	11.5756	ppb		95
58)	1-Bromo-2-chloroethane	7.23	63	38763	10.1210	ppb		98
59)	Cis-1,3-Dichloropropene	7.43	75	41488	10.0755	ppb		99
60)	Toluene	7.80	91	119017	10.6057	ppb		99
61)	Trans-1,3-Dichloropropene	8.08	75	37495	10.1118	ppb		98
62)	1,1,2-TCA	8.27	83	22947	9.7705	ppb		79
63)	2-Hexanone	8.60	43	19314	10.9638	ppb	#	88
66)	1,2-EDB	8.79	107	28850	11.1037	ppb		95
67)	Tetrachloroethene	8.41	166	35154	10.0447	ppb		97
68)	1-Chlorohexane	9.38	91	29952	10.5666	ppb		98
69)	1,1,1,2-Tetrachloroethane	9.45	131	29763	10.3394	ppb		98
70)	m&p-Xylene	9.63	91	181295	22.1524	ppb		95
71)	o-Xylene	10.06	106	43045	10.4639	ppb		98
72)	Styrene	10.08	104	72789	10.6402	ppb		96
74)	1,3-Dichloropropane	8.45	76	46534	10.3284	ppb		93
75)	Dibromochloromethane	8.69	129	31345	9.7624	ppb		99
76)	Chlorobenzene	9.35	112	80533	10.4448	ppb		98
77)	Ethylbenzene	9.50	91	120175	10.7636	ppb		96
78)	Bromoform	10.25	173	23945	10.9750	ppb		91
80)	Isopropylbenzene	10.47	105	109719	10.9118	ppb		97
81)	1,1,2,2-Tetrachloroethane	10.80	83	39782	11.8027	ppb		95
82)	1,2,3-Trichloropropane	10.83	110	13033	11.9868	ppb		89
83)	t-1,4-Dichloro-2-Butene	10.86	53	4231	12.1796	ppb		97
84)	Bromobenzene	10.77	156	34629	11.0774	ppb		100
85)	n-Propylbenzene	10.92	91	131521	10.6982	ppb		97
86)	4-Ethyltoluene	11.05	105	106161	11.1154	ppb		100
87)	2-Chlorotoluene	10.99	91	84586	11.2301	ppb		97
88)	1,3,5-Trimethylbenzene	11.12	105	97720	11.2888	ppb		94
89)	4-Chlorotoluene	11.11	91	98638	11.6133	ppb		98
90)	Tert-Butylbenzene	11.47	119	79321	10.0992	ppb		96
91)	1,2,4-Trimethylbenzene	11.52	105	95393	11.2319	ppb		91
92)	Sec-Butylbenzene	11.71	105	118213	11.2034	ppb		98
93)	p-Isopropyltoluene	11.88	119	105906	11.1472	ppb		95
94)	Benzyl Chloride	12.05	91	33972	9.7198	ppb		98
95)	1,3-DCB	11.80	146	64208	11.0050	ppb		98
96)	1,4-DCB	11.90	146	68387	10.7414	ppb		97
97)	n-Butylbenzene	12.32	91	93171	11.3020	ppb		98
98)	1,2-DCB	12.29	146	60640	10.3339	ppb		98
99)	Hexachloroethane	12.58	117	9617	10.2199	ppb		92
100)	1,2-Dibromo-3-chloropropan	13.13	75	6878	10.9484	ppb		94
101)	1,2,4-Trichlorobenzene	14.05	180	42553	11.9642	ppb		94
102)	Hexachlorobutadiene	14.25	225	21481	11.6659	ppb		85
103)	Naphthalene	14.31	128	97331	11.8231	ppb		96
104)	1,2,3-Trichlorobenzene	14.57	180	44114	12.0058	ppb		95

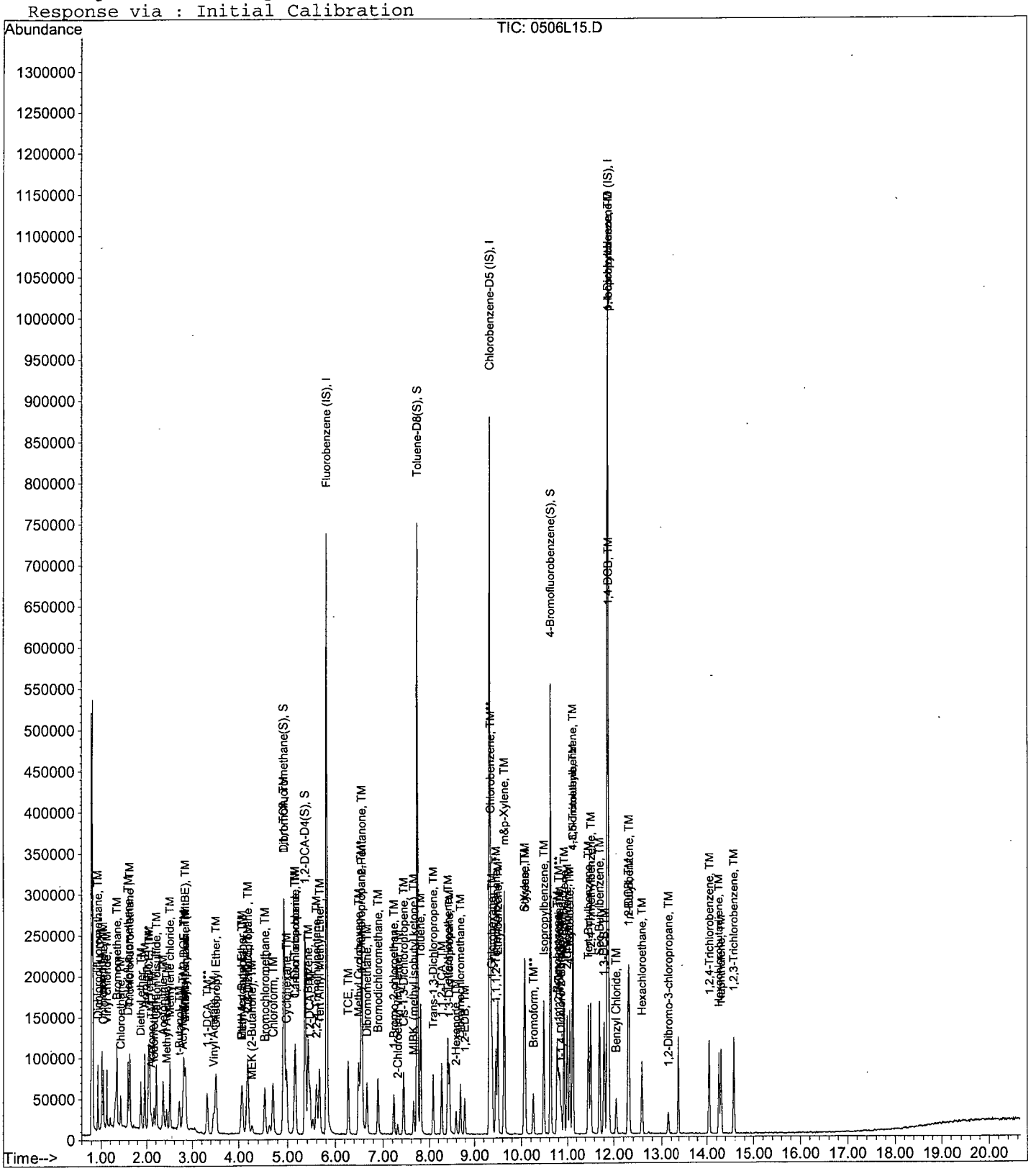
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0506L15.D Vial: 11
Acq On : 6 May 19 21:31 Operator: LP,DG,CMM,PC
Sample : (SS)10ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 7 14:02 2019 Quant Results File: L0506W.RES

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:04:49 2019
Response via : Initial Calibration



VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 7 May 19 18:45
Instrument: Loki
Initial Cal. Date: 05/06/19
Data File: 0507I16.D

		Compound	MEAN	CCRF	%D		%Drift	
1	I	Fluorobenzene (IS)	ISTD			I		
2	TM	Dichlorodifluoromethane	0.2776	0.2313	17	TM		
3	TM	Freon 114	0.2013	0.1913	5.0	TM		
4	TM**L	Chloromethane	0.3454	0.2630	24	TM**L	7.6	
5	TM*	Vinyl chloride	0.2681	0.2514	6.2	TM*		
6	TML	Bromomethane	0.2001	0.1619	19	TML	18	
7	TM	Chloroethane	0.1362	0.1274	6.4	TM		
8	TM	Dichlorofluoromethane	0.3855	0.3896	1.1	TM		
9	TM	Trichlorofluoromethane	0.3782	0.3627	4.1	TM		
10	TML	Diethyl ether	0.1310	0.1254	4.2	TML	1.5	
11	TM	Acrolein	0.0339	0.0326	3.9	TM		
12	TML	Acetone	0.1235	0.1157	6.3	TML	12	
13	TM	Freon-113	0.1887	0.1905	0.94	TM		
14	TM*	1,1-DCE	0.1982	0.1999	0.90	TM*		
15	TM	t-Butanol	0.0103	0.0096	6.3	TM		
16	TM	2-Propanol	0.0000	0.0034	0.00	TM		
17	TMQ	Acetonitrile	0.0354	0.0344	2.8	TMQ	13	
18	TML	Methyl Acetate	0.2072	0.1770	15	TML	4.7	
19	TML	Iodomethane	0.1712	0.0821	52	TML	41	* NT
20	TML	Acrylonitrile	0.0935	0.0848	9.3	TML	15	
21	TML	Methylene chloride	0.2675	0.2416	9.7	TML	5.9	
22	TML	Carbon disulfide	0.6160	0.5679	7.8	TML	0.01	
23	TM	Methyl t-butyl ether (MtBE)	0.5462	0.5224	4.4	TM		
24	TML	Trans-1,2-DCE	0.2254	0.2068	8.3	TML	0.73	
25	TM	Diisopropyl Ether	0.5511	0.5521	0.17	TM		
26	TM**	2,2-Dichloro-1,1,1-trifluoroethane	0.0000	0.0138	0.00	TM**		
27	TM**	1,1-DCA	0.3788	0.4091	8.0	TM**		
28	TML	Vinyl Acetate	0.6298	0.6027	4.3	TML	3.0	
29	TM	Ethyl tert Butyl Ether	0.4718	0.4466	5.3	TM		
30	TML	MEK (2-Butanone)	0.1358	0.1114	18	TML	3.7	
31	TM	Cis-1,2-DCE	0.2374	0.2280	4.0	TM		
32	TML	2,2-Dichloropropane	0.3011	0.2694	11	TML	2.5	
33	TM	2-Methylpentane	0.0000	0.0025	0.00	TM		
34	TM	3-Methylpentane	0.1226	0.1233	0.60	TM		
35	TM*	Chloroform	0.4126	0.4164	0.93	TM*		
36	TM	Bromochloromethane	0.1324	0.1287	2.8	TM		
37	S	Dibromofluoromethane(S)	0.4709	0.4665	0.94	S		
38	TM	1,1,1-TCA	0.3320	0.3389	2.1	TM		
39	TML	Cyclohexane	0.1705	0.1555	8.8	TML	0.38	
40	TM	1,1-Dichloropropene	0.2531	0.2429	4.0	TM		
		Average			7.3			

VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 7 May 19 18:45
Instrument: Loki
Cal. Date: 05/06/19
Data File: 0507l16.D

		Compound	MEAN	CCRF	%D		%Drift
41	TM	2,2,4-Trimethylpentane	0.4617	0.4187	9.3	TM	
42	S	1,2-DCA-D4(S)	0.5299	0.5496	3.7	S	
43	TM	Carbon Tetrachloride	0.2822	0.2995	6.1	TM	
44	TM	Tert Amyl Methyl Ether	0.4301	0.4137	3.8	TM	
45	TML	Methylcyclopentane	0.0448	0.0397	11	TML	12
46	TM	1,2-DCA	0.3291	0.3266	0.74	TM	
47	TM	Benzene	0.7909	0.7848	0.76	TM	
48	TM	TCE	0.2273	0.2300	1.2	TM	
49	TM	2-Pentanone	0.1366	0.1476	8.1	TM	
50	TM*	1,2-Dichloropropane	0.2017	0.2057	2.0	TM*	
51	TM	Bromodichloromethane	0.2999	0.3067	2.2	TM	
52	TM	Methyl Cyclohexane	0.2403	0.2194	8.7	TM	
53	TM	Dibromomethane	0.1544	0.1617	4.7	TM	
54	TML	2-Chloroethyl vinyl ether	0.0290	0.0268	7.3	TML	8.6
55	TML	MIBK (methyl isobutyl ketone)	0.2024	0.1911	5.6	TML	2.9
56	TM	1-Bromo-2-chloroethane	0.2779	0.2790	0.39	TM	
57	TM	Cis-1,3-Dichloropropene	0.2988	0.2830	5.3	TM	
58	TM*	Toluene	0.8143	0.8456	3.8	TM*	
59	TM	Trans-1,3-Dichloropropene	0.2691	0.2625	2.5	TM	
60	TM	1,1,2-TCA	0.1704	0.1644	3.5	TM	
61	TML	2-Hexanone	0.1240	0.1282	3.4	TML	0.36
62	I	Chlorobenzene-D5 (IS)	ISTD			I	
63	S	Toluene-D8(S)	1.714	1.793	4.6	S	
64	TM	1,2-EDB	0.2249	0.2599	16	TM	
65	TM	Tetrachloroethene	0.3030	0.3047	0.55	TM	
66	TM	1-Chlorohexane	0.2454	0.2283	7.0	TM	
67	TM	1,1,1,2-Tetrachloroethane	0.2492	0.2576	3.4	TM	
68	TM	m&p-Xylene	0.7085	0.7526	6.2	TM	
69	TM	o-Xylene	0.3561	0.3344	6.1	TM	
70	TM	Styrene	0.5923	0.6072	2.5	TM	
71	S	4-Bromofluorobenzene(S)	0.5738	0.5988	4.4	S	
72	TM	1,3-Dichloropropane	0.3901	0.4123	5.7	TM	
73	TM	Dibromochloromethane	0.2780	0.2857	2.8	TM	
74	TM**	Chlorobenzene	0.6675	0.6737	0.92	TM**	
75	TM*	Ethylbenzene	0.9666	0.9926	2.7	TM*	
76	TM**L	Bromoform	0.1723	0.1940	13	TM**L	3.3
77	I	1,4-Dichlorobenzene-D (IS)	ISTD			I	
78	TM	Isopropylbenzene	1.674	1.660	0.78	TM	
79	TM**L	1,1,2,2-Tetrachloroethane	0.6479	0.6125	5.5	TM**L	8.4
80	TML	1,2,3-Trichloropropane	0.2078	0.2032	2.2	TML	11
		Average			4.7		

VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 7 May 19 18:45
Instrument: Loki
Cal. Date: 05/06/19
Data File: 0507I16.D

		Compound	MEAN	CCRF	%D		%Drift	
81	TML	t-1,4-Dichloro-2-Butene	0.0712	0.0580	19	TML	1.4	
82	TM	Bromobenzene	0.5203	0.5277	1.4	TM		
83	TM	n-Propylbenzene	2.046	2.110	3.1	TM		
84	TM	4-Ethyltoluene	1.590	1.618	1.8	TM		
85	TM	2-Chlorotoluene	1.269	1.485	17	TM		
86	TM	1,3,5-Trimethylbenzene	1.441	1.494	3.7	TM		
87	TM	4-Chlorotoluene	1.414	1.504	6.4	TM		
88	TM	Tert-Butylbenzene	1.307	1.432	9.6	TM		
89	TM	1,2,4-Trimethylbenzene	1.414	1.439	1.8	TM		
90	TM	Sec-Butylbenzene	1.756	1.787	1.8	TM		
91	TM	p-Isopropyltoluene	1.581	1.581	0.00	TM		
92	TM	Benzyl Chloride	0.5817	0.4233	27	TM		* NT
93	TM	1,3-DCB	0.9711	1.009	3.9	TM		
94	TM	1,4-DCB	1.060	1.061	0.11	TM		
95	TM	n-Butylbenzene	1.372	1.343	2.1	TM		
96	TM	1,2-DCB	0.9767	0.9489	2.8	TM		
97	TM	Hexachloroethane	0.1566	0.1434	8.5	TM		
98	TML	1,2-Dibromo-3-chloropropane	0.1109	0.1226	11	TML	17	
99	TML	1,2,4-Trichlorobenzene	0.5810	0.5848	0.65	TML	0.17	
100	TML	Hexachlorobutadiene	0.3294	0.3171	3.8	TML	3.2	
101	TML	Naphthalene	1.260	1.207	4.3	TML	8.2	
102	TML	1,2,3-Trichlorobenzene	0.5925	0.6089	2.8	TML	0.04	
103								
104								
105								
106								
107								
108								
109								
110								
111								
112								
113								
114								
115								
116								
117								
118								
119								
120								
		Average			6.0			

Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0507L16.D Vial: 15
Acq On : 7 May 19 18:45 Operator: LP,DG,CMM,PC
Sample : 190507A CCV 10ug/L Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:35 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.81	96	313792	25.0000 ppb		0.00
64) Chlorobenzene-D5 (IS)	9.32	117	255360	25.0000 ppb		0.00
79) 1,4-Dichlorobenzene-D (IS)	11.88	152	134528	25.0000 ppb		0.00
System Monitoring Compounds						
39) Dibromofluoromethane(S)	4.93	111	146369	24.7640 ppb		0.00
Spiked Amount 25.000			Recovery = 99.056%			
44) 1,2-DCA-D4(S)	5.36	65	172451	25.9280 ppb		0.00
Spiked Amount 25.000			Recovery = 103.712%			
65) Toluene-D8(S)	7.72	98	457761	26.1457 ppb		0.00
Spiked Amount 25.000			Recovery = 104.584%			
73) 4-Bromofluorobenzene(S)	10.62	95	152898	26.0885 ppb		0.00
Spiked Amount 25.000			Recovery = 104.352%			
Target Compounds						Qvalue
3) Dichlorodifluoromethane	0.93	85	29032	8.3316 ppb		90
4) Freon 114	1.02	85	24008	9.5009 ppb		96
5) Chloromethane	1.05	50	33016	9.2402 ppb		98
6) Vinyl chloride	1.13	62	31557	9.3789 ppb		100
8) Bromomethane	1.35	96	20323	8.2407 ppb		93
9) Chloroethane	1.43	64	15994	9.3566 ppb		88
10) Dichlorofluoromethane	1.59	67	48903	10.1062 ppb		94
11) Trichlorofluoromethane	1.63	101	45524	9.5901 ppb		98
12) Diethyl ether	1.87	74	15744	10.1452 ppb		96
13) Acrolein	1.96	56	51141	120.0631 ppb		99
14) Acetone	2.10	43	14517	11.2213 ppb		91
15) Freon-113	2.07	101	23906	10.0936 ppb		93
16) 1,1-DCE	2.04	96	25097	10.0901 ppb		94
17) t-Butanol	2.70	59	15121	117.1208 ppb		97
19) Acetonitrile	2.35	41	54002	141.7271 ppb		94
20) Methyl Acetate	2.43	43	22219	10.4656 ppb		96
21) Iodomethane	2.16	142	10304	5.9062 ppb	#	91
22) Acrylonitrile	2.78	52	10647	11.5450 ppb		97
23) Methylene chloride	2.51	84	30319	10.5866 ppb		96
24) Carbon disulfide	2.21	76	71286	9.9986 ppb		100
25) Methyl t-butyl ether (MtBE	2.84	73	65574	9.5640 ppb		97
26) Trans-1,2-DCE	2.81	96	25954	9.9273 ppb		97
27) Diisopropyl Ether	3.51	45	69293	10.0170 ppb		95
29) 1,1-DCA	3.32	63	51355	10.8017 ppb		96
30) Vinyl Acetate	3.46	43	75654	10.2958 ppb	#	70
31) Ethyl tert Butyl Ether	4.07	59	56062	9.4669 ppb		98
32) MEK (2-Butanone)	4.28	43	13984	10.3722 ppb	#	83
33) Cis-1,2-DCE	4.19	96	28613	9.6040 ppb		97
34) 2,2-Dichloropropane	4.18	77	33810	9.7537 ppb		98
36) 3-Methylpentane	2.84	57	15476	10.0604 ppb	#	82
37) Chloroform	4.70	83	52270	10.0933 ppb		96
38) Bromochloromethane	4.54	128	16158	9.7223 ppb		86
40) 1,1,1-TCA	4.92	97	42542	10.2082 ppb		96
41) Cyclohexane	4.98	41	19513	9.9618 ppb		89
42) 1,1-Dichloropropene	5.15	75	30482	9.5955 ppb		97
43) 2,2,4-Trimethylpentane	5.60	57	52558	9.0684 ppb		98
45) Carbon Tetrachloride	5.14	117	37598	10.6148 ppb		94
46) Tert Amyl Methyl Ether	5.66	73	51925	9.6189 ppb		98
47) Methylcyclopentane	4.08	56	4983	11.1910 ppb		100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0507L16.D Vial: 15
Acq On : 7 May 19 18:45 Operator: LP,DG,CMM,PC
Sample : 190507A CCV 10ug/L Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:35 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
48)	1,2-DCA	5.45	62	40999	9.9262 ppb	97
49)	Benzene	5.42	78	98508	9.9236 ppb	98
50)	TCE	6.27	130	28863	10.1176 ppb	95
51)	2-Pentanone	6.56	43	231644	135.0858 ppb	100
52)	1,2-Dichloropropane	6.54	63	25823	10.1992 ppb	99
53)	Bromodichloromethane	6.90	83	38491	10.2242 ppb	97
54)	Methyl Cyclohexane	6.49	83	27536	9.1303 ppb	90
55)	Dibromomethane	6.67	93	20296	10.4730 ppb	97
56)	2-Chloroethyl vinyl ether	7.31	63	3369	9.1422 ppb	100
57)	MIBK (methyl isobutyl ket	7.65	43	23986	9.7136 ppb	93
58)	1-Bromo-2-chloroethane	7.23	63	35021	10.0392 ppb	99
59)	Cis-1,3-Dichloropropene	7.43	75	35526	9.4723 ppb	95
60)	Toluene	7.80	91	106136	10.3838 ppb	98
61)	Trans-1,3-Dichloropropene	8.08	75	32946	9.7549 ppb	96
62)	1,1,2-TCA	8.27	83	20633	9.6453 ppb	86
63)	2-Hexanone	8.59	43	16092	10.0356 ppb	91
66)	1,2-EDB	8.79	107	26544	11.5527 ppb	96
67)	Tetrachloroethene	8.41	166	31120	10.0554 ppb	98
68)	1-Chlorohexane	9.38	91	23320	9.3032 ppb	84
69)	1,1,1,2-Tetrachloroethane	9.45	131	26315	10.3375 ppb	94
70)	m&p-Xylene	9.63	91	153740	21.2431 ppb	99
71)	o-Xylene	10.06	106	34158	9.3899 ppb	100
72)	Styrene	10.08	104	62023	10.2526 ppb	98
74)	1,3-Dichloropropane	8.45	76	42114	10.5702 ppb	95
75)	Dibromochloromethane	8.69	129	29180	10.2771 ppb	96
76)	Chlorobenzene	9.35	112	68814	10.0925 ppb	97
77)	Ethylbenzene	9.50	91	101386	10.2687 ppb	98
78)	Bromoform	10.25	173	19812	10.3313 ppb	90
80)	Isopropylbenzene	10.47	105	89353	9.9221 ppb	96
81)	1,1,2,2-Tetrachloroethane	10.80	83	32959	10.8379 ppb	98
82)	1,2,3-Trichloropropane	10.83	110	10934	11.1433 ppb	97
83)	t-1,4-Dichloro-2-Butene	10.86	53	3119	9.8615 ppb	83
84)	Bromobenzene	10.76	156	28398	10.1430 ppb	98
85)	n-Propylbenzene	10.92	91	113542	10.3123 ppb	99
86)	4-Ethyltoluene	11.05	105	87049	10.1766 ppb	97
87)	2-Chlorotoluene	10.99	91	79921	11.7018 ppb	95
88)	1,3,5-Trimethylbenzene	11.12	105	80391	10.3694 ppb	98
89)	4-Chlorotoluene	11.11	91	80918	10.6375 ppb	98
90)	Tert-Butylbenzene	11.47	119	77070	10.9563 ppb	95
91)	1,2,4-Trimethylbenzene	11.52	105	77442	10.1810 ppb	98
92)	Sec-Butylbenzene	11.71	105	96157	10.1752 ppb	97
93)	p-Isopropyltoluene	11.88	119	85090	10.0001 ppb	98
94)	Benzyl Chloride	12.05	91	22779	7.2770 ppb	97
95)	1,3-DCB	11.80	146	54306	10.3928 ppb	99
96)	1,4-DCB	11.90	146	57084	10.0111 ppb	98
97)	n-Butylbenzene	12.32	91	72280	9.7898 ppb	97
98)	1,2-DCB	12.30	146	51060	9.7155 ppb	92
99)	Hexachloroethane	12.58	117	7714	9.1531 ppb	85
100)	1,2-Dibromo-3-chloropropan	13.14	75	6599	11.7397 ppb	93
101)	1,2,4-Trichlorobenzene	14.05	180	31467	9.9835 ppb	96
102)	Hexachlorobutadiene	14.26	225	17061	10.3215 ppb	87
103)	Naphthalene	14.31	128	64941	9.1840 ppb	94
104)	1,2,3-Trichlorobenzene	14.57	180	32763	10.0045 ppb	84

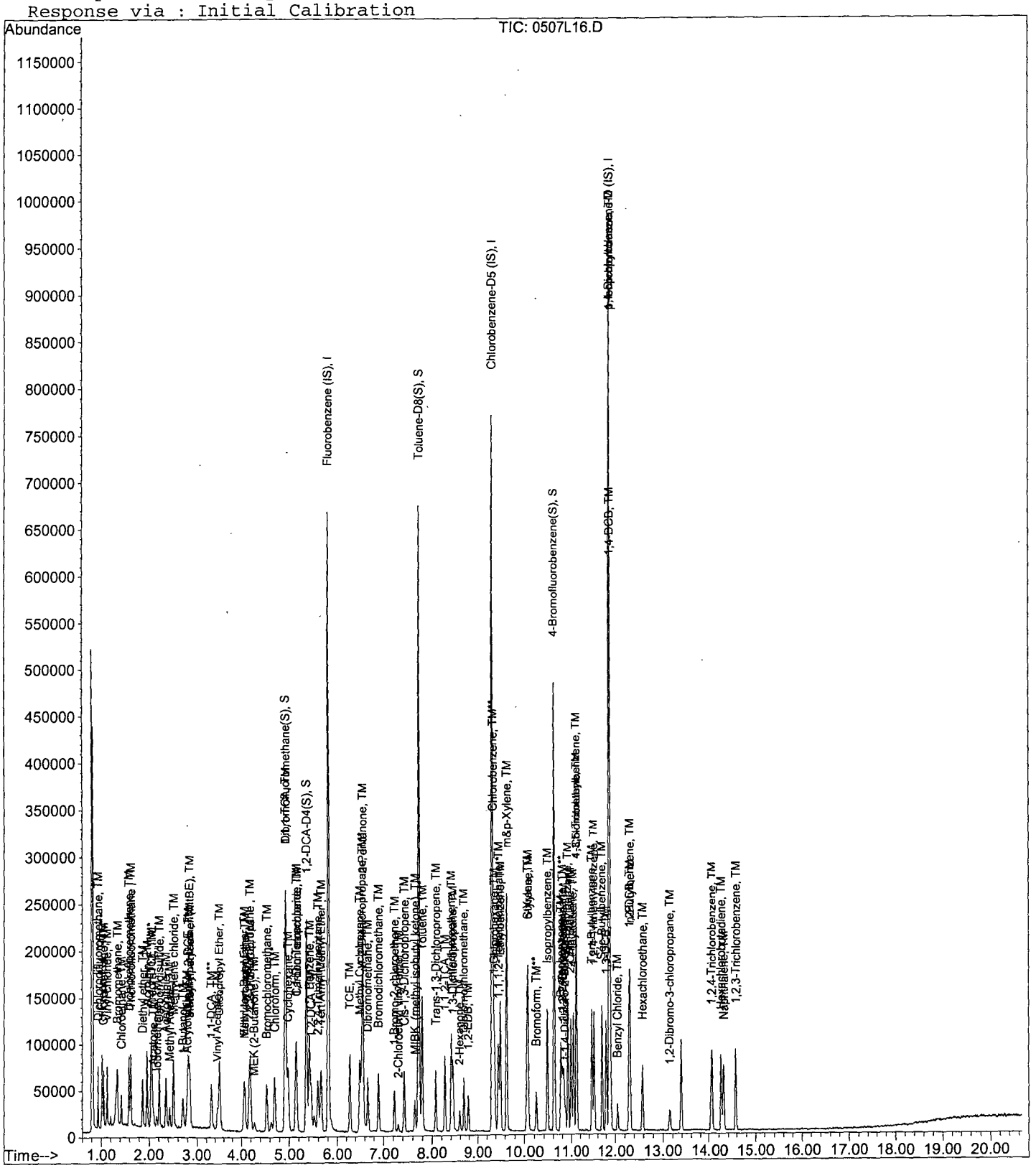
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L16.D Vial: 15
Acq On : 7 May 19 18:45 Operator: LP,DG,CMM,PC
Sample : 190507A CCV 10ug/L Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:35 2019 Quant Results File: L0506W.RES

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration



VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 8 May 19 5:46
Instrument: Loki
Initial Cal. Date: 05/06/19
Data File: 0507I39.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	Fluorobenzene (IS)	ISTD			I	
2	TM	Dichlorodifluoromethane	0.2776	0.2757	0.69	TM	
3	TM	Freon 114	0.2013	0.2164	7.5	TM	
4	TM**L	Chloromethane	0.3454	0.3027	12	TM**L	9.0
5	TM*	Vinyl chloride	0.2681	0.2910	8.6	TM*	
6	TM	2-Chloro-1,1,1-trifluoroethane	0.0000	0.0001	0.00	TM	
7	TML	Bromomethane	0.2001	0.1873	6.4	TML	3.1
8	TM	Chloroethane	0.1362	0.1430	5.0	TM	
9	TM	Dichlorofluoromethane	0.3855	0.4357	13	TM	
10	TM	Trichlorofluoromethane	0.3782	0.4046	7.0	TM	
11	TML	Diethyl ether	0.1310	0.1331	1.6	TML	7.9
12	TM	Acrolein	0.0339	0.0317	6.7	TM	
13	TML	Acetone	0.1235	0.1175	4.9	TML	15
14	TM	Freon-113	0.1887	0.2109	12	TM	
15	TM*	1,1-DCE	0.1982	0.2092	5.6	TM*	
16	TM	t-Butanol	0.0103	0.0097	5.7	TM	
17	TM	2-Propanol	0.0000	0.0014	0.00	TM	
18	TMQ	Acetonitrile	0.0354	0.0350	1.1	TMQ	16
19	TML	Methyl Acetate	0.2072	0.1882	9.2	TML	12
20	TML	Iodomethane	0.1712	0.0861	50	TML	39
21	TML	Acrylonitrile	0.0935	0.0852	8.9	TML	16
22	TML	Methylene chloride	0.2675	0.2624	1.9	TML	16
23	TML	Carbon disulfide	0.6160	0.6286	2.0	TML	11
24	TM	Methyl t-butyl ether (MtBE)	0.5462	0.5651	3.5	TM	
25	TML	Trans-1,2-DCE	0.2254	0.2399	6.5	TML	16
26	TM	Diisopropyl Ether	0.5511	0.5744	4.2	TM	
27	TM**	2,2-Dichloro-1,1,1-trifluoroethane	0.0000	0.0183	0.00	TM**	
28	TM**	1,1-DCA	0.3788	0.4333	14	TM**	
29	TML	Vinyl Acetate	0.6298	0.5461	13	TML	6.5
30	TM	Ethyl tert Butyl Ether	0.4718	0.4694	0.50	TM	
31	TML	MEK (2-Butanone)	0.1358	0.1110	18	TML	3.3
32	TM	Cis-1,2-DCE	0.2374	0.2549	7.4	TM	
33	TML	2,2-Dichloropropane	0.3011	0.2320	23	TML	17
34	TM	2-Methylpentane	0.0000	0.0007	0.00	TM	
35	TM	3-Methylpentane	0.1226	0.1241	1.3	TM	
36	TM*	Chloroform	0.4126	0.4548	10	TM*	
37	TM	Bromochloromethane	0.1324	0.1448	9.3	TM	
38	S	Dibromofluoromethane(S)	0.4709	0.5050	7.2	S	
39	TM	1,1,1-TCA	0.3320	0.3787	14	TM	
40	TML	Cyclohexane	0.1705	0.1737	1.9	TML	11
		Average			7.8		

VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 8 May 19 5:46
Instrument: Loki
Cal. Date: 05/06/19
Data File: 0507I39.D

		Compound	MEAN	CCRF	%D		%Drift
41	TM	1,1-Dichloropropene	0.2531	0.2601	2.8	TM	
42	TM	2,2,4-Trimethylpentane	0.4617	0.4109	11	TM	
43	S	1,2-DCA-D4(S)	0.5299	0.5716	7.9	S	
44	TM	Carbon Tetrachloride	0.2822	0.3393	20	TM	
45	TM	Tert Amyl Methyl Ether	0.4301	0.4546	5.7	TM	
46	TML	Methylcyclopentane	0.0448	0.0465	3.9	TML	33
47	TM	1,2-DCA	0.3291	0.3674	12	TM	
48	TM	Benzene	0.7909	0.8641	9.3	TM	
49	TM	TCE	0.2273	0.2625	16	TM	
50	TM	2-Pentanone	0.1366	0.1496	9.5	TM	
51	TM*	1,2-Dichloropropane	0.2017	0.2394	19	TM*	
52	TM	Bromodichloromethane	0.2999	0.3436	15	TM	
53	TM	Methyl Cyclohexane	0.2403	0.2418	0.65	TM	
54	TM	Dibromomethane	0.1544	0.1767	14	TM	
55	TML	2-Chloroethyl vinyl ether	0.0290	0.0231	20	TML	19
56	TML	MIBK (methyl isobutyl ketone)	0.2024	0.2126	5.0	TML	8.1
57	TM	1-Bromo-2-chloroethane	0.2779	0.3113	12	TM	
58	TM	Cis-1,3-Dichloropropene	0.2988	0.3052	2.1	TM	
59	TM*	Toluene	0.8143	0.9103	12	TM*	
60	TM	Trans-1,3-Dichloropropene	0.2691	0.2806	4.3	TM	
61	TM	1,1,2-TCA	0.1704	0.1886	11	TM	
62	TML	2-Hexanone	0.1240	0.1229	0.85	TML	3.8
63	I	Chlorobenzene-D5 (IS)	ISTD			I	
64	S	Toluene-D8(S)	1.714	1.819	6.1	S	
65	TM	1,2-EDB	0.2249	0.2633	17	TM	
66	TM	Tetrachloroethene	0.3030	0.3263	7.7	TM	
67	TM	1-Chlorohexane	0.2454	0.2296	6.4	TM	
68	TM	1,1,1,2-Tetrachloroethane	0.2492	0.2750	10	TM	
69	TM	m&p-Xylene	0.7085	0.7757	9.5	TM	
70	TM	o-Xylene	0.3561	0.3777	6.1	TM	
71	TM	Styrene	0.5923	0.6218	5.0	TM	
72	S	4-Bromofluorobenzene(S)	0.5738	0.6172	7.6	S	
73	TM	1,3-Dichloropropane	0.3901	0.4279	9.7	TM	
74	TM	Dibromochloromethane	0.2780	0.3065	10	TM	
75	TM**	Chlorobenzene	0.6675	0.7436	11	TM**	
76	TM*	Ethylbenzene	0.9666	1.070	11	TM*	
77	TM**L	Bromoform	0.1723	0.2072	20	TM**L	9.7
78	I	1,4-Dichlorobenzene-D (IS)	ISTD			I	
79	TM	Isopropylbenzene	1.674	1.784	6.6	TM	
80	TM**L	1,1,2,2-Tetrachloroethane	0.6479	0.6298	2.8	TM**L	12
		Average			9.5		

VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix: 0

SDG No:
Date Analyzed: 8 May 19 5:46
Instrument: Loki
Cal. Date: 05/06/19
Data File: 0507I39.D

		Compound	MEAN	CCRF	%D		%Drift
81	TML	1,2,3-Trichloropropane	0.2078	0.2308	11	TML	28
82	TML	t-1,4-Dichloro-2-Butene	0.0712	0.0579	19	TML	1.5
83	TM	Bromobenzene	0.5203	0.5945	14	TM	
84	TM	n-Propylbenzene	2.046	2.135	4.4	TM	
85	TM	4-Ethyltoluene	1.590	1.704	7.2	TM	
86	TM	2-Chlorotoluene	1.269	1.414	11	TM	
87	TM	1,3,5-Trimethylbenzene	1.441	1.606	11	TM	
88	TM	4-Chlorotoluene	1.414	1.640	16	TM	
89	TM	Tert-Butylbenzene	1.307	1.506	15	TM	
90	TM	1,2,4-Trimethylbenzene	1.414	1.475	4.4	TM	
91	TM	Sec-Butylbenzene	1.756	1.937	10	TM	
92	TM	p-Isopropyltoluene	1.581	1.632	3.2	TM	
93	TM	Benzyl Chloride	0.5817	0.3150	46	TM	
94	TM	1,3-DCB	0.9711	1.035	6.6	TM	
95	TM	1,4-DCB	1.060	1.120	5.7	TM	
96	TM	n-Butylbenzene	1.372	1.385	0.92	TM	
97	TM	1,2-DCB	0.9767	1.028	5.2	TM	
98	TM	Hexachloroethane	0.1566	0.1774	13	TM	
99	TML	1,2-Dibromo-3-chloropropane	0.1109	0.1062	4.3	TML	1.4
100	TML	1,2,4-Trichlorobenzene	0.5810	0.5743	1.2	TML	1.8
101	TML	Hexachlorobutadiene	0.3294	0.3081	6.5	TML	0.23
102	TML	Naphthalene	1.260	1.152	8.6	TML	12
103	TML	1,2,3-Trichlorobenzene	0.5925	0.5876	0.81	TML	3.3
104							
105							
106							
107							
108							
109							
110							
111							
112							
113							
114							
115							
116							
117							
118							
119							
120							
		Average			9.8		

Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0507L39.D Vial: 38
Acq On : 8 May 19 5:46 Operator: LP,DG,CMM,PC
Sample : Ending CCV 10ug/L Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:32 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.81	96	284352	25.0000 ppb		0.00
64) Chlorobenzene-D5 (IS)	9.32	117	237504	25.0000 ppb		0.00
79) 1,4-Dichlorobenzene-D (IS)	11.88	152	124472	25.0000 ppb		0.00
System Monitoring Compounds						
39) Dibromofluoromethane(S)	4.92	111	143605	26.8118 ppb		0.00
Spiked Amount 25.000			Recovery = 107.248%			
44) 1,2-DCA-D4(S)	5.36	65	162539	26.9678 ppb		0.00
Spiked Amount 25.000			Recovery = 107.872%			
65) Toluene-D8(S)	7.73	98	432011	26.5300 ppb		0.00
Spiked Amount 25.000			Recovery = 106.120%			
73) 4-Bromofluorobenzene(S)	10.62	95	146590	26.8926 ppb		0.00
Spiked Amount 25.000			Recovery = 107.572%			
Target Compounds						Qvalue
3) Dichlorodifluoromethane	0.93	85	31359	9.9311 ppb		100
4) Freon 114	1.02	85	24610	10.7475 ppb		90
5) Chloromethane	1.05	50	34428	10.8983 ppb		95
6) Vinyl chloride	1.13	62	33100	10.8560 ppb		100
8) Bromomethane	1.35	96	21304	9.6910 ppb		99
9) Chloroethane	1.43	64	16270	10.5035 ppb		100
10) Dichlorofluoromethane	1.59	67	49554	11.3010 ppb		94
11) Trichlorofluoromethane	1.63	101	46020	10.6983 ppb		98
12) Diethyl ether	1.87	74	15139	10.7911 ppb		93
13) Acrolein	1.96	56	45038	116.6823 ppb	#	98
14) Acetone	2.10	43	13361	11.4731 ppb		100
15) Freon-113	2.07	101	23988	11.1768 ppb		98
16) 1,1-DCE	2.04	96	23797	10.5580 ppb		90
17) t-Butanol	2.70	59	13789	117.8615 ppb		98
19) Acetonitrile	2.35	41	49806	144.9007 ppb		98
20) Methyl Acetate	2.43	43	21406	11.1636 ppb	#	85
21) Iodomethane	2.17	142	9790	6.0678 ppb		96
22) Acrylonitrile	2.78	52	9690	11.6007 ppb		96
23) Methylene chloride	2.51	84	29851	11.6029 ppb		93
24) Carbon disulfide	2.21	76	71492	11.1377 ppb		97
25) Methyl t-butyl ether (MtBE	2.84	73	64277	10.3454 ppb		97
26) Trans-1,2-DCE	2.81	96	27292	11.6045 ppb		91
27) Diisopropyl Ether	3.51	45	65337	10.4230 ppb		96
29) 1,1-DCA	3.32	63	49282	11.4388 ppb		96
30) Vinyl Acetate	3.51	43	62109	9.3451 ppb		99
31) Ethyl tert Butyl Ether	4.07	59	53392	9.9495 ppb		97
32) MEK (2-Butanone)	4.27	43	12627	10.3327 ppb		98
33) Cis-1,2-DCE	4.19	96	28993	10.7390 ppb		96
34) 2,2-Dichloropropane	4.18	77	26392	8.3419 ppb		94
36) 3-Methylpentane	2.84	57	14118	10.1278 ppb	#	83
37) Chloroform	4.71	83	51733	11.0238 ppb		98
38) Bromochloromethane	4.54	128	16468	10.9347 ppb		82
40) 1,1,1-TCA	4.91	97	43075	11.4062 ppb		97
41) Cyclohexane	4.98	41	19760	11.1343 ppb		94
42) 1,1-Dichloropropene	5.15	75	29584	10.2770 ppb	#	90
43) 2,2,4-Trimethylpentane	5.59	57	46736	8.8988 ppb	#	78
45) Carbon Tetrachloride	5.14	117	38591	12.0232 ppb		93
46) Tert Amyl Methyl Ether	5.66	73	51711	10.5710 ppb		99
47) Methylcyclopentane	4.07	56	5290	13.2822 ppb		100

(#) = qualifier out of range (m) = manual integration

Data File : M:\LOKI\DATA\190506\0507L39.D Vial: 38
Acq On : 8 May 19 5:46 Operator: LP,DG,CMM,PC
Sample : Ending CCV 10ug/L Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:32 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
48)	1,2-DCA	5.46	62	41793	11.1661	ppb		98
49)	Benzene	5.42	78	98289	10.9266	ppb		100
50)	TCE	6.27	130	29862	11.5516	ppb		88
51)	2-Pentanone	6.56	43	212706	136.8845	ppb		99
52)	1,2-Dichloropropane	6.54	63	27228	11.8675	ppb	#	94
53)	Bromodichloromethane	6.90	83	39086	11.4572	ppb		99
54)	Methyl Cyclohexane	6.50	83	27507	10.0650	ppb		77
55)	Dibromomethane	6.67	93	20099	11.4451	ppb		88
56)	2-Chloroethyl vinyl ether	7.30	63	2623	8.0545	ppb	#	81
57)	MIBK (methyl isobutyl ket	7.65	43	24177	10.8132	ppb		92
58)	1-Bromo-2-chloroethane	7.23	63	35413	11.2026	ppb		100
59)	Cis-1,3-Dichloropropene	7.43	75	34713	10.2137	ppb		98
60)	Toluene	7.80	91	103538	11.1784	ppb		95
61)	Trans-1,3-Dichloropropene	8.08	75	31917	10.4286	ppb		100
62)	1,1,2-TCA	8.27	83	21453	11.0670	ppb		94
63)	2-Hexanone	8.59	43	13981	9.6250	ppb		99
66)	1,2-EDB	8.79	107	25014	11.7053	ppb		95
67)	Tetrachloroethene	8.41	166	31001	10.7700	ppb		98
68)	1-Chlorohexane	9.38	91	21814	9.3567	ppb		92
69)	1,1,1,2-Tetrachloroethane	9.46	131	26127	11.0353	ppb		86
70)	m&p-Xylene	9.63	91	147385	21.8960	ppb		96
71)	o-Xylene	10.06	106	35884	10.6060	ppb		93
72)	Styrene	10.08	104	59076	10.4996	ppb		99
74)	1,3-Dichloropropane	8.45	76	40647	10.9690	ppb		95
75)	Dibromochloromethane	8.69	129	29118	11.0263	ppb		100
76)	Chlorobenzene	9.35	112	70644	11.1398	ppb		97
77)	Ethylbenzene	9.50	91	101659	11.0705	ppb		95
78)	Bromoform	10.25	173	19686	10.9708	ppb		94
80)	Isopropylbenzene	10.48	105	88832	10.6612	ppb		99
81)	1,1,2,2-Tetrachloroethane	10.80	83	31357	11.1744	ppb		99
82)	1,2,3-Trichloropropane	10.83	110	11489	12.8374	ppb		93
83)	t-1,4-Dichloro-2-Butene	10.86	53	2884	9.8545	ppb		88
84)	Bromobenzene	10.77	156	29599	11.4261	ppb		90
85)	n-Propylbenzene	10.92	91	106317	10.4362	ppb		96
86)	4-Ethyltoluene	11.05	105	84848	10.7207	ppb		98
87)	2-Chlorotoluene	10.99	91	70420	11.1437	ppb		95
88)	1,3,5-Trimethylbenzene	11.12	105	79940	11.1442	ppb		96
89)	4-Chlorotoluene	11.12	91	81671	11.6039	ppb		99
90)	Tert-Butylbenzene	11.47	119	74964	11.5179	ppb		98
91)	1,2,4-Trimethylbenzene	11.52	105	73463	10.4382	ppb		95
92)	Sec-Butylbenzene	11.71	105	96442	11.0299	ppb		98
93)	p-Isopropyltoluene	11.88	119	81250	10.3203	ppb		94
94)	Benzyl Chloride	12.06	91	15684	5.4152	ppb	#	92
95)	1,3-DCB	11.80	146	51518	10.6557	ppb		94
96)	1,4-DCB	11.90	146	55775	10.5718	ppb		98
97)	n-Butylbenzene	12.32	91	68940	10.0918	ppb		98
98)	1,2-DCB	12.30	146	51168	10.5226	ppb		94
99)	Hexachloroethane	12.58	117	8832	11.3263	ppb		83
100)	1,2-Dibromo-3-chloropropan	13.14	75	5286	10.1426	ppb		84
101)	1,2,4-Trichlorobenzene	14.05	180	28594	9.8157	ppb		93
102)	Hexachlorobutadiene	14.26	225	15338	10.0228	ppb		90
103)	Naphthalene	14.31	128	57354	8.8334	ppb		98
104)	1,2,3-Trichlorobenzene	14.57	180	29258	9.6659	ppb		94

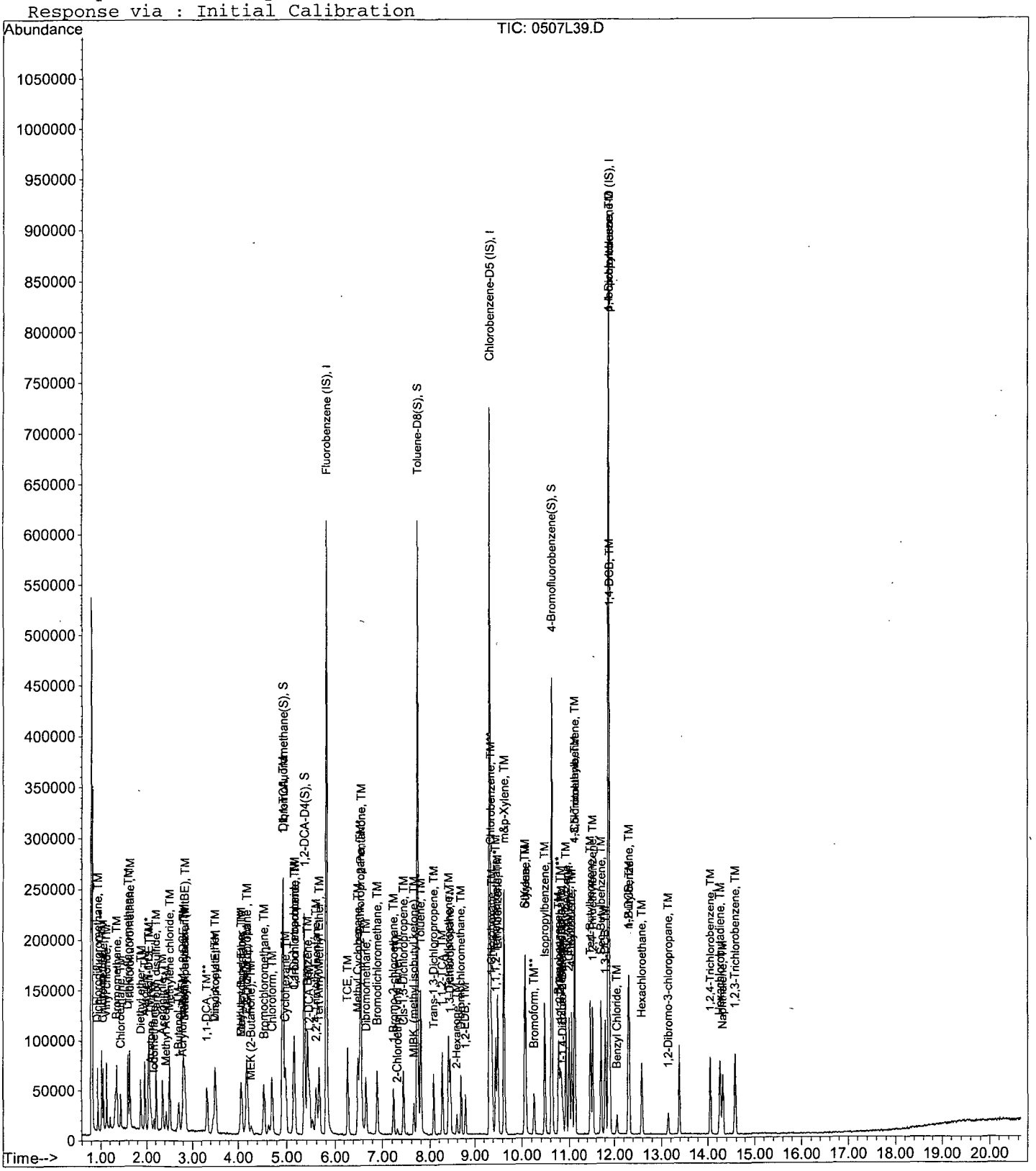
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L39.D Vial: 38
Acq On : 8 May 19 5:46 Operator: LP,DG,CMM,PC
Sample : Ending CCV 10ug/L Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:32 2019 Quant Results File: L0506W.RES

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration



ORGANICS
Raw Data

Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L24.D Vial: 23
Acq On : 7 May 19 22:35 Operator: LP,DG,CMM,PC
Sample : AZ90446W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:41 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	298176	25.0000 ppb	0.00
64) Chlorobenzene-D5 (IS)	9.33	117	247872	25.0000 ppb	0.00
79) 1,4-Dichlorobenzene-D (IS)	11.88	152	116408	25.0000 ppb	0.00
System Monitoring Compounds					
39) Dibromofluoromethane(S)	4.92	111	139029	24.7540 ppb	0.00
Spiked Amount 25.000			Recovery =	99.016%	
44) 1,2-DCA-D4(S)	5.36	65	156654	24.7864 ppb	0.00
Spiked Amount 25.000			Recovery =	99.144%	
65) Toluene-D8(S)	7.72	98	421585	24.8068 ppb	0.00
Spiked Amount 25.000			Recovery =	99.228%	
73) 4-Bromofluorobenzene(S)	10.62	95	133874	23.5325 ppb	0.00
Spiked Amount 25.000			Recovery =	94.132%	

Target Compounds Qvalue

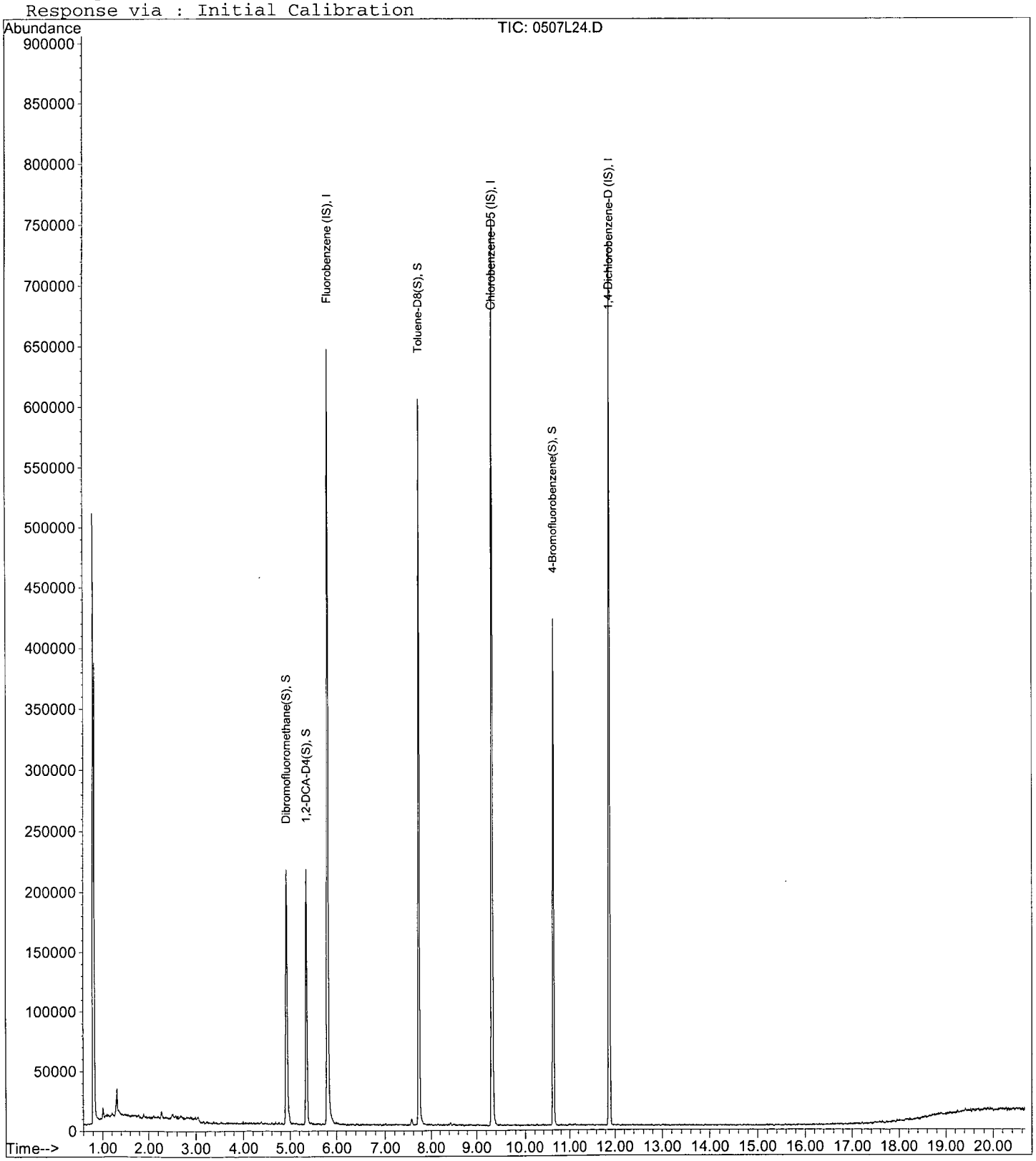
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L24.D Vial: 23
Acq On : 7 May 19 22:35 Operator: LP,DG,CMM,PC
Sample : AZ90446W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:41 2019 Quant Results File: L0506W.RES

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L25.D Vial: 24
Acq On : 7 May 19 23:04 Operator: LP,DG,CMM,PC
Sample : AZ90447W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:41 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	279040	25.0000 ppb	0.00
64) Chlorobenzene-D5 (IS)	9.33	117	235264	25.0000 ppb	0.00
79) 1,4-Dichlorobenzene-D (IS)	11.88	152	107128	25.0000 ppb	0.00
System Monitoring Compounds					
39) Dibromofluoromethane(S)	4.92	111	144644	27.5199 ppb	0.00
Spiked Amount 25.000			Recovery = 110.080%		
44) 1,2-DCA-D4(S)	5.36	65	166348	28.1252 ppb	0.00
Spiked Amount 25.000			Recovery = 112.500%		
65) Toluene-D8(S)	7.72	98	430561	26.6927 ppb	0.00
Spiked Amount 25.000			Recovery = 106.772%		
73) 4-Bromofluorobenzene(S)	10.62	95	135488	25.0926 ppb	0.00
Spiked Amount 25.000			Recovery = 100.372%		

Target Compounds Qvalue

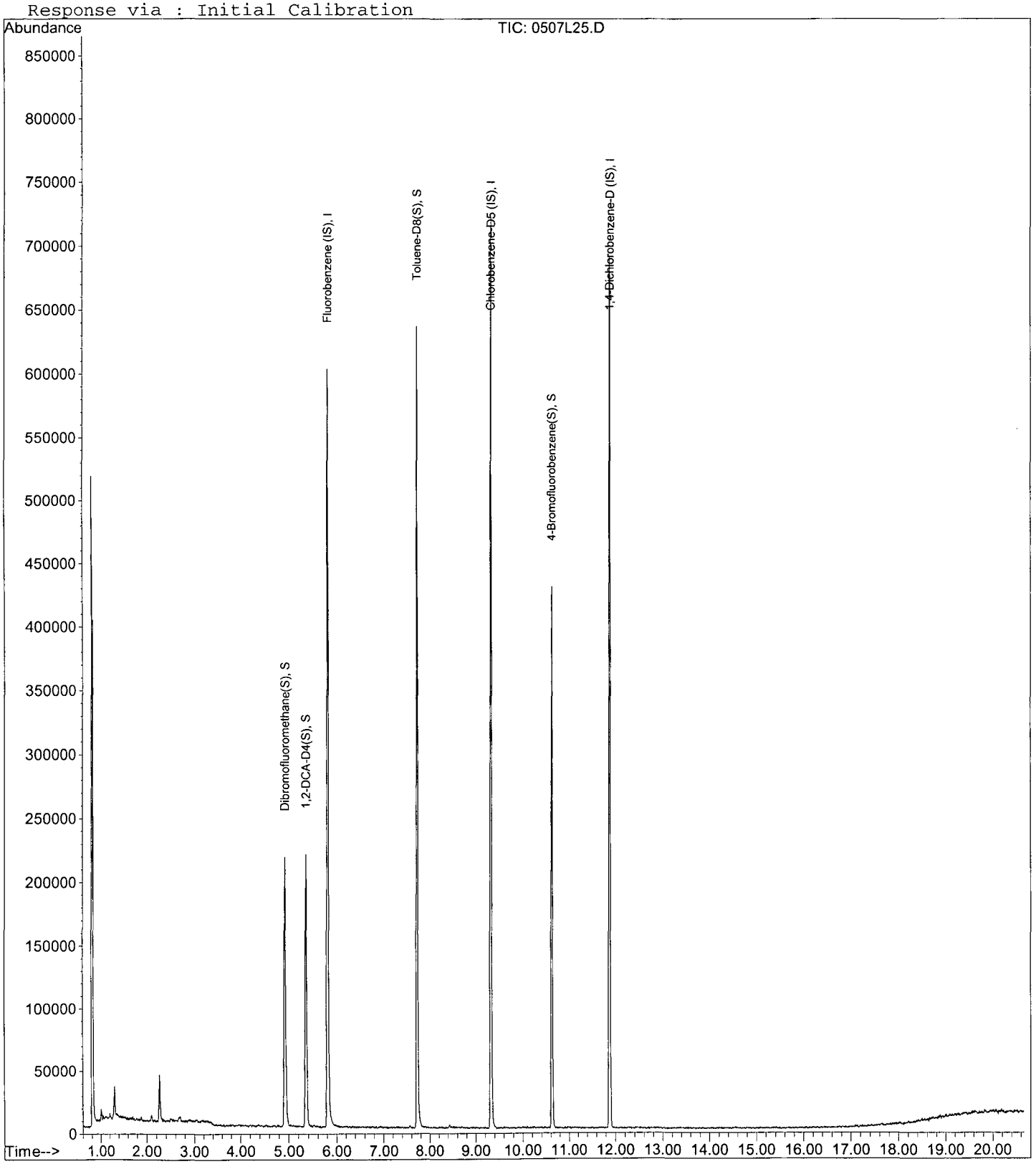
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L25.D Vial: 24
Acq On : 7 May 19 23:04 Operator: LP,DG,CMM,PC
Sample : AZ90447W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:41 2019 Quant Results File: L0506W.RES

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L26.D Vial: 25
Acq On : 7 May 19 23:32 Operator: LP,DG,CMM,PC
Sample : AZ90448W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:42 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	282624	25.0000	ppb	0.00
64) Chlorobenzene-D5 (IS)	9.32	117	236992	25.0000	ppb	0.00
79) 1,4-Dichlorobenzene-D (IS)	11.88	152	112496	25.0000	ppb	0.00
System Monitoring Compounds						
39) Dibromofluoromethane(S)	4.92	111	145695	27.3684	ppb	0.00
Spiked Amount 25.000			Recovery = 109.472%			
44) 1,2-DCA-D4(S)	5.36	65	164679	27.4900	ppb	0.00
Spiked Amount 25.000			Recovery = 109.960%			
65) Toluene-D8(S)	7.72	98	432150	26.5959	ppb	0.00
Spiked Amount 25.000			Recovery = 106.384%			
73) 4-Bromofluorobenzene(S)	10.62	95	138091	25.3882	ppb	0.00
Spiked Amount 25.000			Recovery = 101.552%			
Target Compounds						Qvalue
14) Acetone	2.29	43	2775367	3407.6735	ppb	# 47

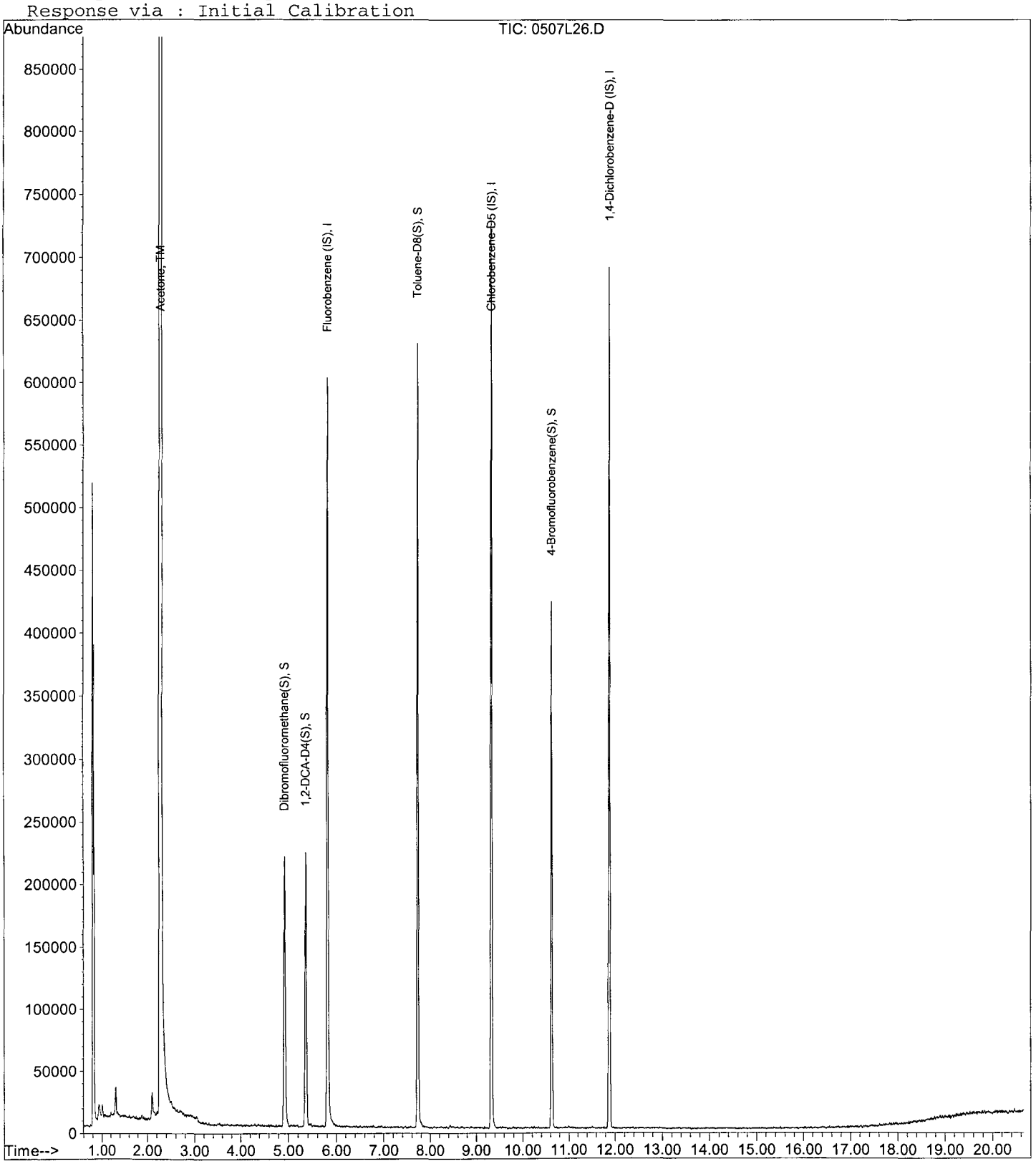
(#) = qualifier out of range (m) = manual integration

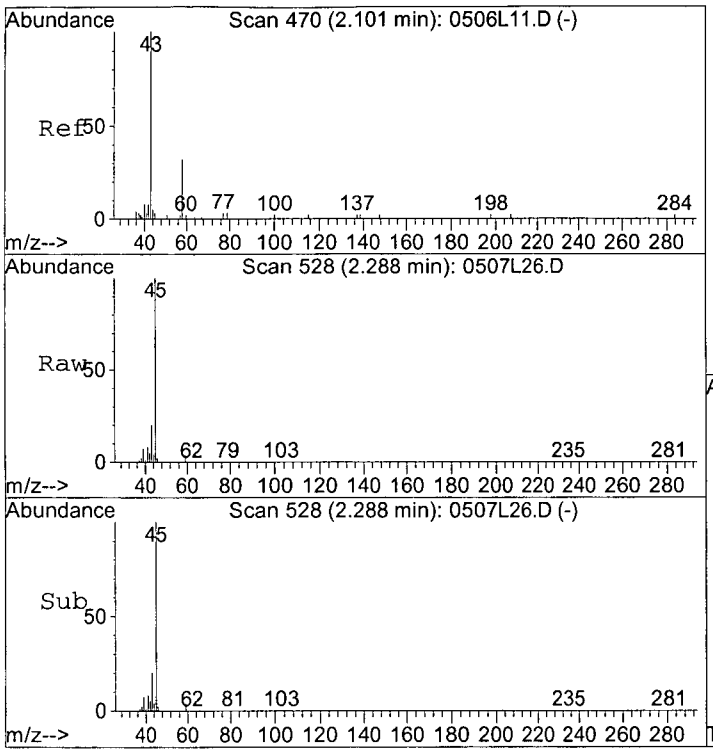
Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L26.D Vial: 25
Acq On : 7 May 19 23:32 Operator: LP,DG,CMM,PC
Sample : AZ90448W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:42 2019 Quant Results File: L0506W.RES

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration

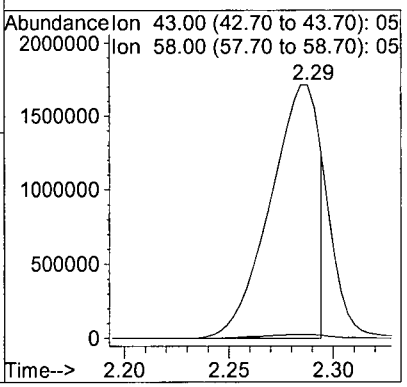




#14
Acetone
Concen: 3407.6735 ppb
RT: 2.29 min Scan# 528
Delta R.T. 0.18 min
Lab File: 0507L26.D
Acq: 7 May 19 23:32

Tgt Ion: 43 Resp: 2775367

Ion	Ratio	Lower	Upper
43	100		
58	1.6	24.3	36.5#



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L23.D Vial: 22
Acq On : 7 May 19 22:06 Operator: LP,DG,CMM,PC
Sample : AZ90449W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:40 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	294272	25.0000 ppb	0.00
64) Chlorobenzene-D5 (IS)	9.32	117	244800	25.0000 ppb	0.00
79) 1,4-Dichlorobenzene-D (IS)	11.88	152	118592	25.0000 ppb	0.00
System Monitoring Compounds					
39) Dibromofluoromethane(S)	4.92	111	144288	26.0312 ppb	0.00
Spiked Amount 25.000			Recovery = 104.124%		
44) 1,2-DCA-D4(S)	5.36	65	161803	25.9407 ppb	0.00
Spiked Amount 25.000			Recovery = 103.764%		
65) Toluene-D8(S)	7.72	98	423565	25.2361 ppb	0.00
Spiked Amount 25.000			Recovery = 100.944%		
73) 4-Bromofluorobenzene(S)	10.62	95	133843	23.8223 ppb	0.00
Spiked Amount 25.000			Recovery = 95.288%		

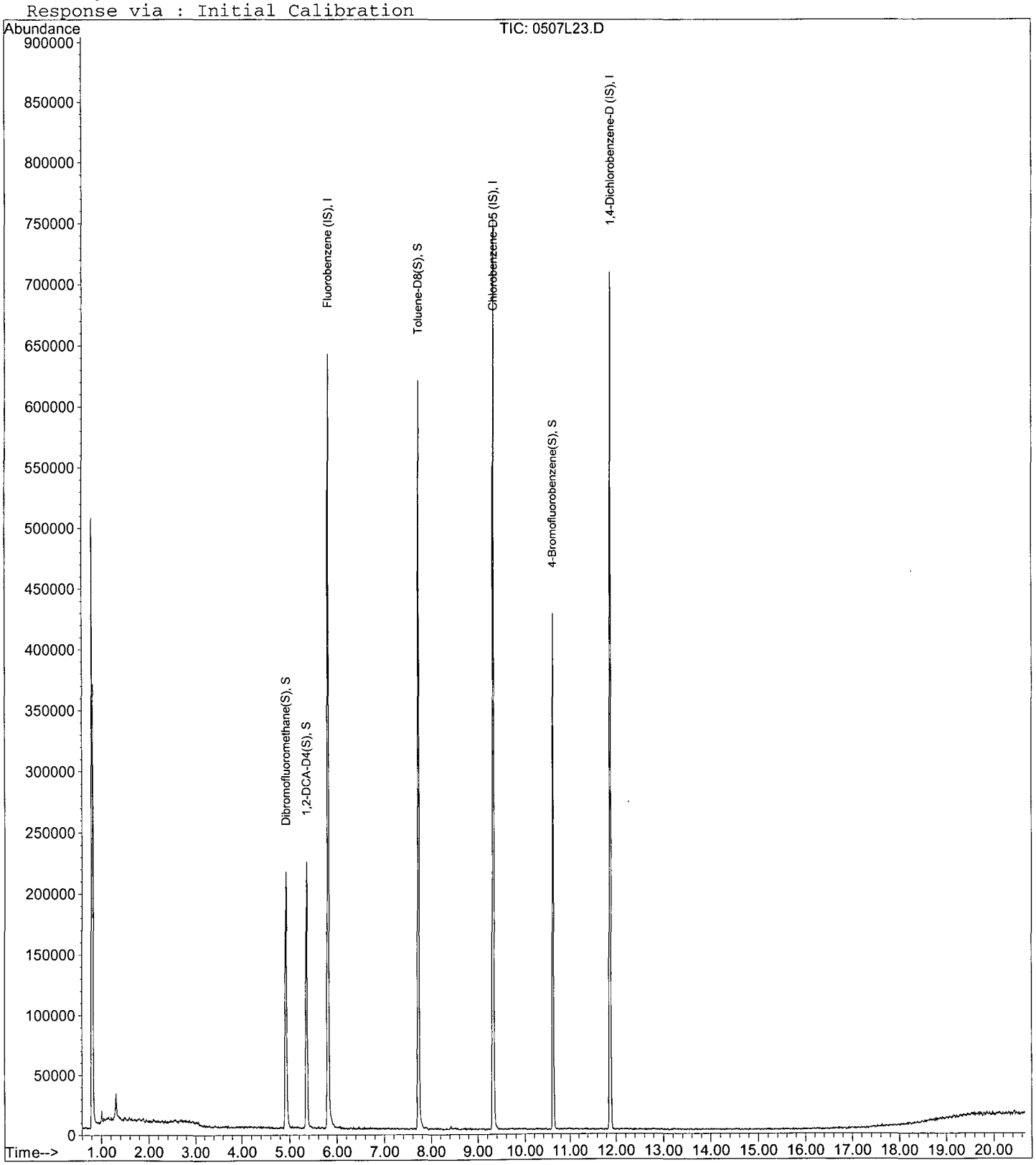
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Data File : M:\LOKI\DATA\190506\0507L23.D Vial: 22
Acq On : 7 May 19 22:06 Operator: LP,DG,CMM,PC
Sample : AZ90449W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:40 2019 Quant Results File: L0506W.RES

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L27.D Vial: 26
Acq On : 8 May 19 00:01 Operator: LP,DG,CMM,PC
Sample : AZ90450W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:43 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	285440	25.0000 ppb	0.00
64) Chlorobenzene-D5 (IS)	9.32	117	233792	25.0000 ppb	0.00
79) 1,4-Dichlorobenzene-D (IS)	11.88	152	109744	25.0000 ppb	0.00
System Monitoring Compounds					
39) Dibromofluoromethane(S)	4.92	111	140491	26.1305 ppb	0.00
Spiked Amount 25.000			Recovery	= 104.520%	
44) 1,2-DCA-D4(S)	5.36	65	158056	26.1241 ppb	0.00
Spiked Amount 25.000			Recovery	= 104.496%	
65) Toluene-D8(S)	7.72	98	414321	25.8476 ppb	0.00
Spiked Amount 25.000			Recovery	= 103.392%	
73) 4-Bromofluorobenzene(S)	10.62	95	131943	24.5899 ppb	0.00
Spiked Amount 25.000			Recovery	= 98.360%	

Target Compounds Qvalue

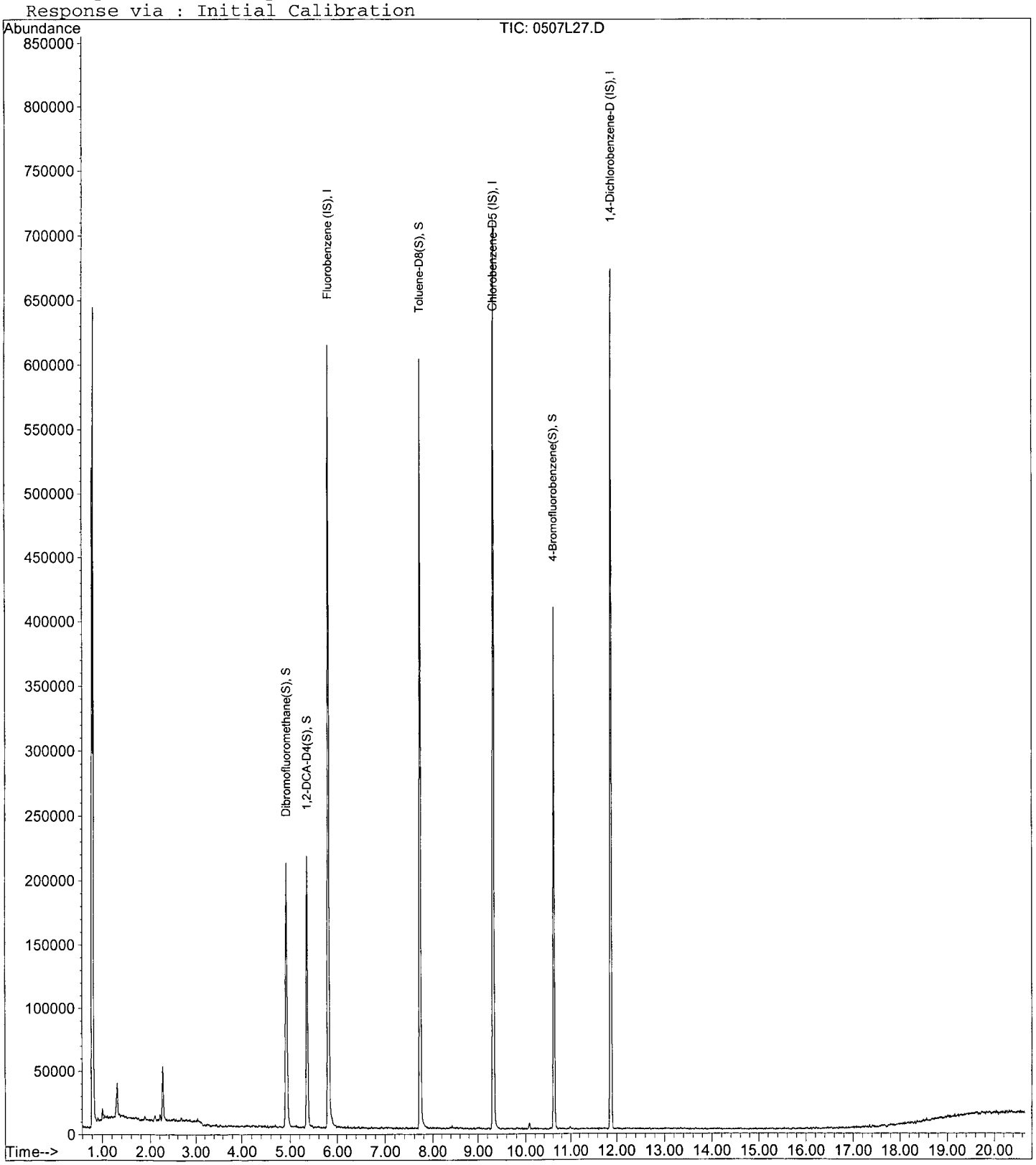
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L27.D Vial: 26
Acq On : 8 May 19 00:01 Operator: LP,DG,CMM,PC
Sample : AZ90450W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:43 2019 Quant Results File: L0506W.RES

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L17.D Vial: 16
Acq On : 7 May 19 19:14 Operator: LP,DG,CMM,PC
Sample : 190507A LCS 10ug/L x 4ketones Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:35 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.81	96	291904	25.0000 ppb		0.00
64) Chlorobenzene-D5 (IS)	9.32	117	239680	25.0000 ppb		0.00
79) 1,4-Dichlorobenzene-D (IS)	11.88	152	125088	25.0000 ppb		0.00
System Monitoring Compounds						
39) Dibromofluoromethane(S)	4.92	111	145786	26.5149 ppb		0.00
Spiked Amount 25.000			Recovery = 106.060%			
44) 1,2-DCA-D4(S)	5.36	65	167248	27.0312 ppb		0.00
Spiked Amount 25.000			Recovery = 108.124%			
65) Toluene-D8(S)	7.72	98	463485	28.2044 ppb		0.00
Spiked Amount 25.000			Recovery = 112.816%			
73) 4-Bromofluorobenzene(S)	10.62	95	154295	28.0492 ppb		0.00
Spiked Amount 25.000			Recovery = 112.196%			
Target Compounds						Qvalue
3) Dichlorodifluoromethane	0.93	85	28035	8.6488 ppb		89
4) Freon 114	1.02	85	24200	10.2950 ppb		99
5) Chloromethane	1.05	50	34258	10.5099 ppb		100
6) Vinyl chloride	1.13	62	30462	9.7323 ppb		96
8) Bromomethane	1.34	96	20228	8.8878 ppb		87
9) Chloroethane	1.43	64	16458	10.3500 ppb		91
10) Dichlorofluoromethane	1.58	67	48570	10.7900 ppb		96
11) Trichlorofluoromethane	1.62	101	44576	10.0945 ppb		94
12) Diethyl ether	1.86	74	57	-0.3808 ppb	#	1
13) Acrolein	1.96	56	49456	124.8134 ppb	#	95
14) Acetone	2.10	43	39610	42.2997 ppb		92
15) Freon-113	2.06	101	23049	10.4615 ppb		96
16) 1,1-DCE	2.04	96	23200	10.0268 ppb		86
17) t-Butanol	2.70	59	14605	121.6065 ppb		95
19) Acetonitrile	2.36	41	50274	141.8646 ppb		98
20) Methyl Acetate	2.43	43	22406	11.3943 ppb		93
21) Iodomethane	2.16	142	12328	6.8597 ppb		94
22) Acrylonitrile	2.78	52	9086	10.4857 ppb		100
23) Methylene chloride	2.51	84	30681	11.6184 ppb		89
24) Carbon disulfide	2.21	76	71446	10.8247 ppb		95
25) Methyl t-butyl ether (MtBE	2.84	73	64524	10.1165 ppb		95
26) Trans-1,2-DCE	2.81	96	26007	10.7342 ppb		96
27) Diisopropyl Ether	3.51	45	64922	10.0889 ppb		98
29) 1,1-DCA	3.32	63	47007	10.6285 ppb		92
30) Vinyl Acetate	3.46	43	68618	10.0431 ppb	#	75
31) Ethyl tert Butyl Ether	4.07	59	53841	9.7736 ppb		97
32) MEK (2-Butanone)	4.27	43	51791	43.4615 ppb		91
33) Cis-1,2-DCE	4.19	96	28859	10.4129 ppb		97
34) 2,2-Dichloropropane	4.18	77	32126	9.9721 ppb	#	86
36) 3-Methylpentane	2.84	57	14282	9.9804 ppb	#	96
37) Chloroform	4.71	83	50526	10.4881 ppb		96
38) Bromochloromethane	4.54	128	16555	10.7081 ppb		72
40) 1,1,1-TCA	4.91	97	41520	10.7100 ppb		100
41) Cyclohexane	4.98	41	20982	11.5176 ppb		84
42) 1,1-Dichloropropene	5.15	75	30853	10.4405 ppb		94
43) 2,2,4-Trimethylpentane	5.60	57	53417	9.9078 ppb	#	84
45) Carbon Tetrachloride	5.14	117	36535	11.0881 ppb		98
46) Tert Amyl Methyl Ether	5.66	73	51959	10.3469 ppb		97
47) Methylcyclopentane	4.06	56	4856	11.7712 ppb		100

(#) = qualifier out of range (m) = manual integration

Data File : M:\LOKI\DATA\190506\0507L17.D Vial: 16
Acq On : 7 May 19 19:14 Operator: LP,DG,CMM,PC
Sample : 190507A LCS 10ug/L x 4ketones Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:35 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
48)	1,2-DCA	5.45	62	39919	10.3894	ppb		97
49)	Benzene	5.42	78	96667	10.4683	ppb		99
50)	TCE	6.27	130	27975	10.5417	ppb		95
51)	2-Pentanone	6.56	43	220089	137.9714	ppb		98
52)	1,2-Dichloropropane	6.53	63	25301	10.7423	ppb		100
53)	Bromodichloromethane	6.90	83	37120	10.5994	ppb		99
54)	Methyl Cyclohexane	6.50	83	27154	9.6788	ppb		100
55)	Dibromomethane	6.67	93	19283	10.6964	ppb		98
56)	2-Chloroethyl vinyl ether	7.32	63	42	1.5219	ppb	#	43
57)	MIBK (methyl isobutyl ket	7.65	43	94313	41.3038	ppb		94
58)	1-Bromo-2-chloroethane	7.23	63	34456	10.6179	ppb		98
59)	Cis-1,3-Dichloropropene	7.43	75	35226	10.0965	ppb		96
60)	Toluene	7.80	91	103295	10.8636	ppb		97
61)	Trans-1,3-Dichloropropene	8.08	75	32348	10.2960	ppb		96
62)	1,1,2-TCA	8.27	83	19736	9.9178	ppb	#	73
63)	2-Hexanone	8.59	43	57996	38.6618	ppb		96
66)	1,2-EDB	8.79	107	25845	11.9844	ppb		99
67)	Tetrachloroethene	8.41	166	31400	10.8096	ppb		93
68)	1-Chlorohexane	9.38	91	22766	9.6764	ppb		84
69)	1,1,1,2-Tetrachloroethane	9.46	131	27601	11.5521	ppb		91
70)	m&p-Xylene	9.63	91	150561	22.1648	ppb		97
71)	o-Xylene	10.06	106	35492	10.3949	ppb		90
72)	Styrene	10.08	104	62088	10.9347	ppb		94
74)	1,3-Dichloropropane	8.45	76	41037	10.9737	ppb		97
75)	Dibromochloromethane	8.69	129	28423	10.6654	ppb		85
76)	Chlorobenzene	9.35	112	68889	10.7644	ppb		97
77)	Ethylbenzene	9.50	91	101311	10.9324	ppb		98
78)	Bromoform	10.25	173	19629	10.8514	ppb		90
80)	Isopropylbenzene	10.47	105	89875	10.7332	ppb		97
81)	1,1,2,2-Tetrachloroethane	10.80	83	33342	11.8855	ppb		98
82)	1,2,3-Trichloropropane	10.83	110	10784	11.9015	ppb		90
83)	t-1,4-Dichloro-2-Butene	10.87	53	3137	10.7424	ppb		94
84)	Bromobenzene	10.77	156	29429	11.3045	ppb		98
85)	n-Propylbenzene	10.92	91	110623	10.8054	ppb		98
86)	4-Ethyltoluene	11.05	105	86185	10.8360	ppb		94
87)	2-Chlorotoluene	10.99	91	67633	10.6500	ppb		98
88)	1,3,5-Trimethylbenzene	11.12	105	80508	11.1681	ppb		99
89)	4-Chlorotoluene	11.12	91	80319	11.3556	ppb		96
90)	Tert-Butylbenzene	11.47	119	65841	10.0664	ppb		97
91)	1,2,4-Trimethylbenzene	11.52	105	77427	10.9473	ppb		97
92)	Sec-Butylbenzene	11.71	105	98488	11.2084	ppb		100
93)	p-Isopropyltoluene	11.88	119	85076	10.7530	ppb		93
94)	Benzyl Chloride	12.05	91	25069	8.6129	ppb		92
95)	1,3-DCB	11.80	146	52935	10.8949	ppb		97
96)	1,4-DCB	11.90	146	56205	10.6009	ppb		98
97)	n-Butylbenzene	12.32	91	73539	10.7120	ppb		94
98)	1,2-DCB	12.30	146	50105	10.2533	ppb		98
99)	Hexachloroethane	12.58	117	8097	10.3326	ppb		97
100)	1,2-Dibromo-3-chloropropan	13.14	75	6195	11.8542	ppb	#	82
101)	1,2,4-Trichlorobenzene	14.05	180	31934	10.8412	ppb		98
102)	Hexachlorobutadiene	14.26	225	17037	11.1004	ppb	#	89
103)	Naphthalene	14.31	128	64564	9.7177	ppb		93
104)	1,2,3-Trichlorobenzene	14.57	180	31657	10.3851	ppb		92

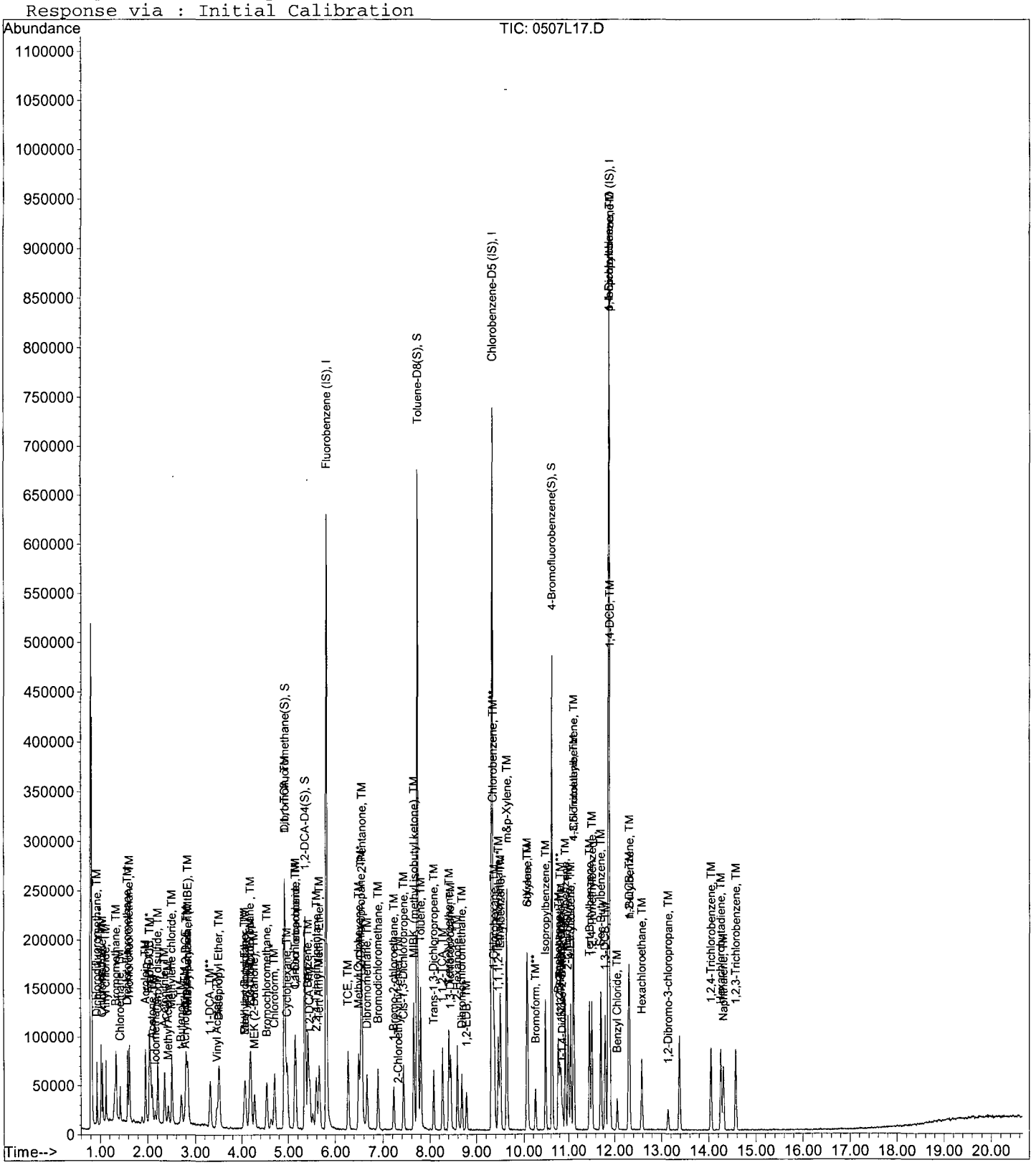
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L17.D Vial: 16
Acq On : 7 May 19 19:14 Operator: LP,DG,CMM,PC
Sample : 190507A LCS 10ug/L x 4ketones Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:35 2019 Quant Results File: L0506W.RES

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0507L18.D Vial: 17
Acq On : 7 May 19 19:43 Operator: LP,DG,CMM,PC
Sample : 190507A LCSD 10ug/L x 4 ketones Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:35 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Fluorobenzene (IS)	5.81	96	313216	25.0000 ppb		0.00
64) Chlorobenzene-D5 (IS)	9.32	117	256256	25.0000 ppb		0.00
79) 1,4-Dichlorobenzene-D (IS)	11.88	152	129544	25.0000 ppb		0.00
System Monitoring Compounds						
39) Dibromofluoromethane(S)	4.92	111	148958	25.2484 ppb		0.00
Spiked Amount 25.000			Recovery = 100.992%			
44) 1,2-DCA-D4(S)	5.35	65	167881	25.2873 ppb		0.00
Spiked Amount 25.000			Recovery = 101.148%			
65) Toluene-D8(S)	7.72	98	480869	27.3695 ppb		0.00
Spiked Amount 25.000			Recovery = 109.476%			
73) 4-Bromofluorobenzene(S)	10.62	95	157584	26.7940 ppb		0.00
Spiked Amount 25.000			Recovery = 107.176%			
Target Compounds						Qvalue
3) Dichlorodifluoromethane	0.93	85	28243	8.1201 ppb		97
4) Freon 114	1.02	85	25219	9.9985 ppb		91
5) Chloromethane	1.05	50	30880	8.5474 ppb		89
6) Vinyl chloride	1.13	62	30251	9.0073 ppb		97
8) Bromomethane	1.34	96	23077	9.5134 ppb		97
9) Chloroethane	1.43	64	14198	8.3212 ppb		89
10) Dichlorofluoromethane	1.59	67	46756	9.6803 ppb		97
11) Trichlorofluoromethane	1.62	101	42266	8.9202 ppb		99
12) Diethyl ether	1.88	74	42	-0.3936 ppb	#	20
13) Acrolein	1.96	56	51039	120.0440 ppb	#	94
14) Acetone	2.10	43	43816	43.7577 ppb		96
15) Freon-113	2.06	101	22935	9.7014 ppb		99
16) 1,1-DCE	2.04	96	24497	9.8670 ppb		92
17) t-Butanol	2.71	59	15222	118.1199 ppb		97
19) Acetonitrile	2.36	41	52400	136.7897 ppb		91
20) Methyl Acetate	2.43	43	23450	11.0993 ppb		92
21) Iodomethane	2.16	142	14177	7.1671 ppb		98
22) Acrylonitrile	2.78	52	10363	11.2260 ppb		98
23) Methylene chloride	2.51	84	29962	10.4696 ppb		88
24) Carbon disulfide	2.21	76	71347	10.0274 ppb		98
25) Methyl t-butyl ether (MtBE	2.84	73	67673	9.8883 ppb		95
26) Trans-1,2-DCE	2.80	96	26977	10.3593 ppb		96
27) Diisopropyl Ether	3.51	45	65738	9.5206 ppb		99
29) 1,1-DCA	3.32	63	46886	9.8798 ppb		95
30) Vinyl Acetate	3.46	43	69817	9.5330 ppb	#	76
31) Ethyl tert Butyl Ether	4.07	59	54259	9.1793 ppb		98
32) MEK (2-Butanone)	4.27	43	54044	42.2462 ppb		93
33) Cis-1,2-DCE	4.19	96	28961	9.7386 ppb		93
34) 2,2-Dichloropropane	4.18	77	33229	9.5971 ppb		95
36) 3-Methylpentane	2.84	57	13940	9.0786 ppb	#	73
37) Chloroform	4.70	83	50500	9.7694 ppb		93
38) Bromochloromethane	4.54	128	15954	9.6172 ppb		81
40) 1,1,1-TCA	4.91	97	41810	10.0510 ppb		99
41) Cyclohexane	4.98	41	18670	9.5483 ppb		95
42) 1,1-Dichloropropene	5.15	75	30566	9.6396 ppb		94
43) 2,2,4-Trimethylpentane	5.59	57	52787	9.1247 ppb	#	82
45) Carbon Tetrachloride	5.14	117	37184	10.5172 ppb		98
46) Tert Amyl Methyl Ether	5.66	73	50414	9.3562 ppb		96
47) Methylcyclopentane	4.07	56	5113	11.5321 ppb		100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0507L18.D Vial: 17
Acq On : 7 May 19 19:43 Operator: LP,DG,CMM,PC
Sample : 190507A LCSD 10ug/L x 4 ketones Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:35 2019 Quant Results File: L0506W.RES

Quant Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
48)	1,2-DCA	5.45	62	40071	9.7194	ppb		98
49)	Benzene	5.42	78	99332	10.0250	ppb		98
50)	TCE	6.28	130	29121	10.2268	ppb		93
51)	2-Pentanone	6.56	43	228926	133.7463	ppb		99
52)	1,2-Dichloropropane	6.53	63	26357	10.4292	ppb		96
53)	Bromodichloromethane	6.90	83	38848	10.3380	ppb		97
54)	Methyl Cyclohexane	6.50	83	29869	9.9221	ppb		100
55)	Dibromomethane	6.67	93	19321	9.9882	ppb		96
57)	MIBK (methyl isobutyl ket	7.65	43	95027	38.7801	ppb	#	92
58)	1-Bromo-2-chloroethane	7.23	63	35254	10.1246	ppb		98
59)	Cis-1,3-Dichloropropene	7.43	75	33831	9.0369	ppb		97
60)	Toluene	7.80	91	103517	10.1462	ppb		95
61)	Trans-1,3-Dichloropropene	8.08	75	33140	9.8303	ppb		98
62)	1,1,2-TCA	8.27	83	20416	9.5614	ppb	#	74
63)	2-Hexanone	8.59	43	61066	37.9399	ppb		94
66)	1,2-EDB	8.79	107	24788	10.7508	ppb		94
67)	Tetrachloroethene	8.41	166	31161	10.0334	ppb		95
68)	1-Chlorohexane	9.38	91	23451	9.3228	ppb		84
69)	1,1,1,2-Tetrachloroethane	9.46	131	26606	10.4153	ppb		92
70)	m&p-Xylene	9.63	91	152176	20.9534	ppb		96
71)	o-Xylene	10.06	106	36485	9.9945	ppb		96
72)	Styrene	10.08	104	62365	10.2730	ppb		97
74)	1,3-Dichloropropane	8.45	76	40162	10.0451	ppb		88
75)	Dibromochloromethane	8.69	129	28042	9.8417	ppb		100
76)	Chlorobenzene	9.36	112	69822	10.2045	ppb		97
77)	Ethylbenzene	9.50	91	102196	10.3146	ppb		92
78)	Bromoform	10.25	173	19730	10.2600	ppb		91
80)	Isopropylbenzene	10.47	105	88665	10.2245	ppb		99
81)	1,1,2,2-Tetrachloroethane	10.80	83	32843	11.2526	ppb		100
82)	1,2,3-Trichloropropane	10.82	110	10514	11.1256	ppb		95
83)	t-1,4-Dichloro-2-Butene	10.87	53	3046	10.0143	ppb		89
84)	Bromobenzene	10.77	156	29796	11.0518	ppb		92
85)	n-Propylbenzene	10.92	91	110786	10.4491	ppb		99
86)	4-Ethyltoluene	11.05	105	85861	10.4239	ppb		99
87)	2-Chlorotoluene	10.99	91	68030	10.3440	ppb		97
88)	1,3,5-Trimethylbenzene	11.12	105	81722	10.9466	ppb		97
89)	4-Chlorotoluene	11.11	91	82317	11.2377	ppb		98
90)	Tert-Butylbenzene	11.47	119	66482	9.8147	ppb		96
91)	1,2,4-Trimethylbenzene	11.52	105	75816	10.3508	ppb		90
92)	Sec-Butylbenzene	11.71	105	94943	10.4333	ppb		100
93)	p-Isopropyltoluene	11.88	119	86403	10.5451	ppb		94
94)	Benzyl Chloride	12.05	91	26158	8.6779	ppb		98
95)	1,3-DCB	11.80	146	52398	10.4134	ppb		96
96)	1,4-DCB	11.90	146	55810	10.1643	ppb		95
97)	n-Butylbenzene	12.32	91	72337	10.1744	ppb		99
98)	1,2-DCB	12.30	146	52358	10.3458	ppb		97
99)	Hexachloroethane	12.58	117	7733	9.5287	ppb		94
100)	1,2-Dibromo-3-chloropropan	13.14	75	6632	12.2592	ppb		95
101)	1,2,4-Trichlorobenzene	14.05	180	31013	10.2039	ppb		97
102)	Hexachlorobutadiene	14.26	225	16070	10.0914	ppb		92
103)	Naphthalene	14.31	128	65192	9.5116	ppb		91
104)	1,2,3-Trichlorobenzene	14.57	180	31146	9.8803	ppb		92

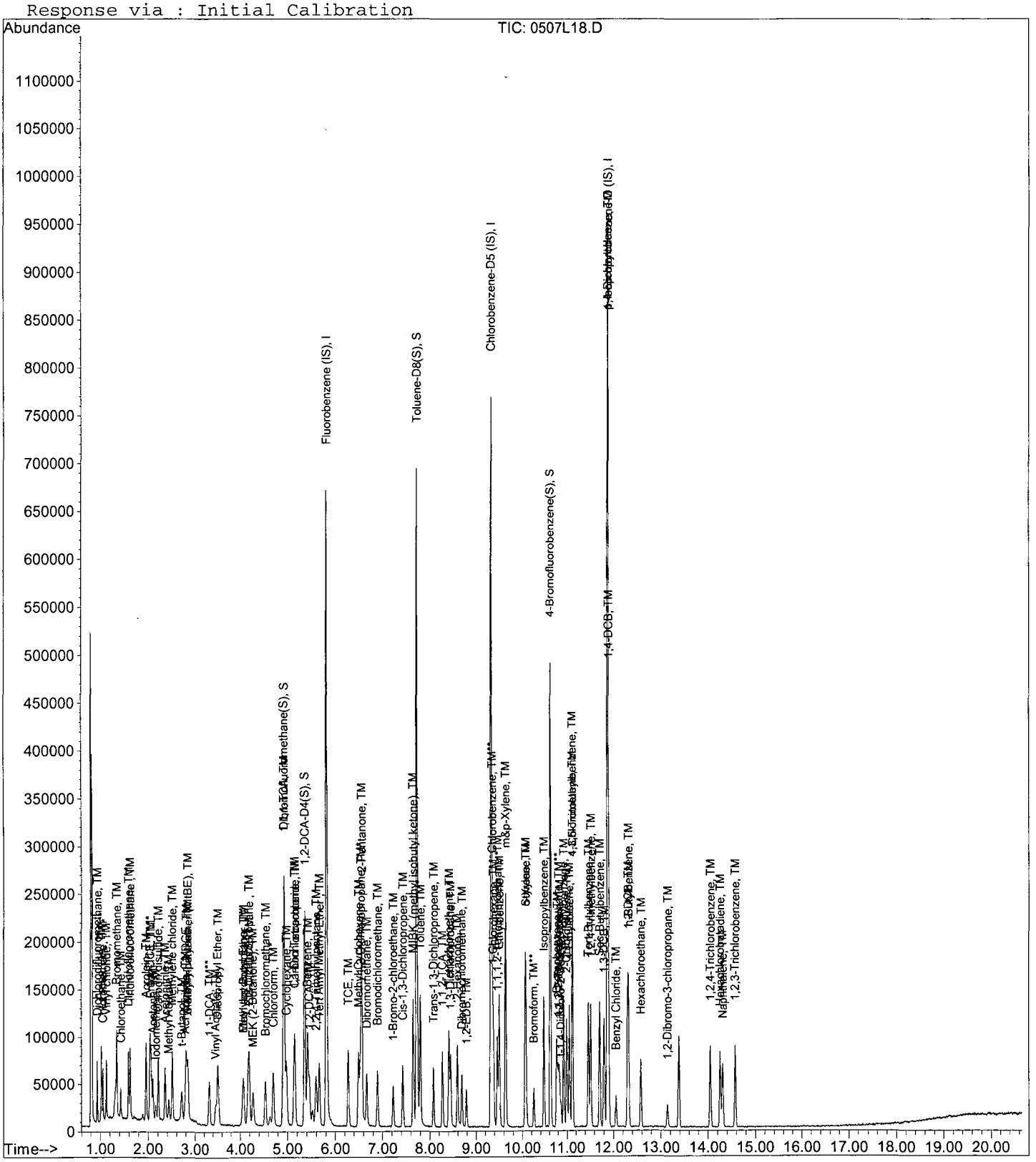
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L18.D Vial: 17
Acq On : 7 May 19 19:43 Operator: LP,DG,CMM,PC
Sample : 190507A LCSD 10ug/L x 4 ketones Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:35 2019 Quant Results File: L0506W.RES

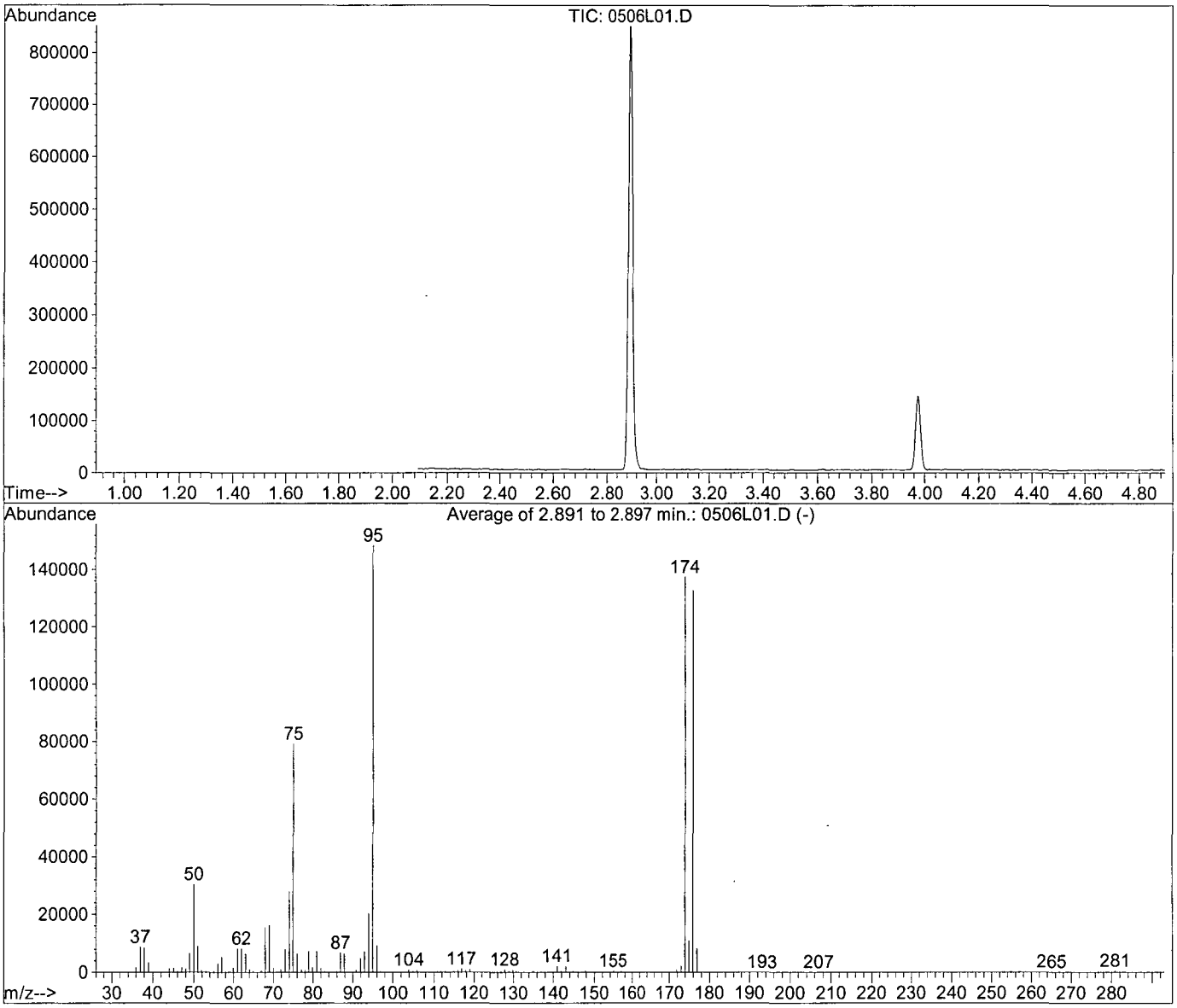
Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration



Data File : M:\LOKI\DATA\190506\0506L01.D
Acq On : 6 May 19 16:21
Sample : 25ug/L BFB STD 3/11/19
Misc : 1ul

Vial: 1
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B



AutoFind: Scans 249, 250, 251; Background Corrected with Scan 235

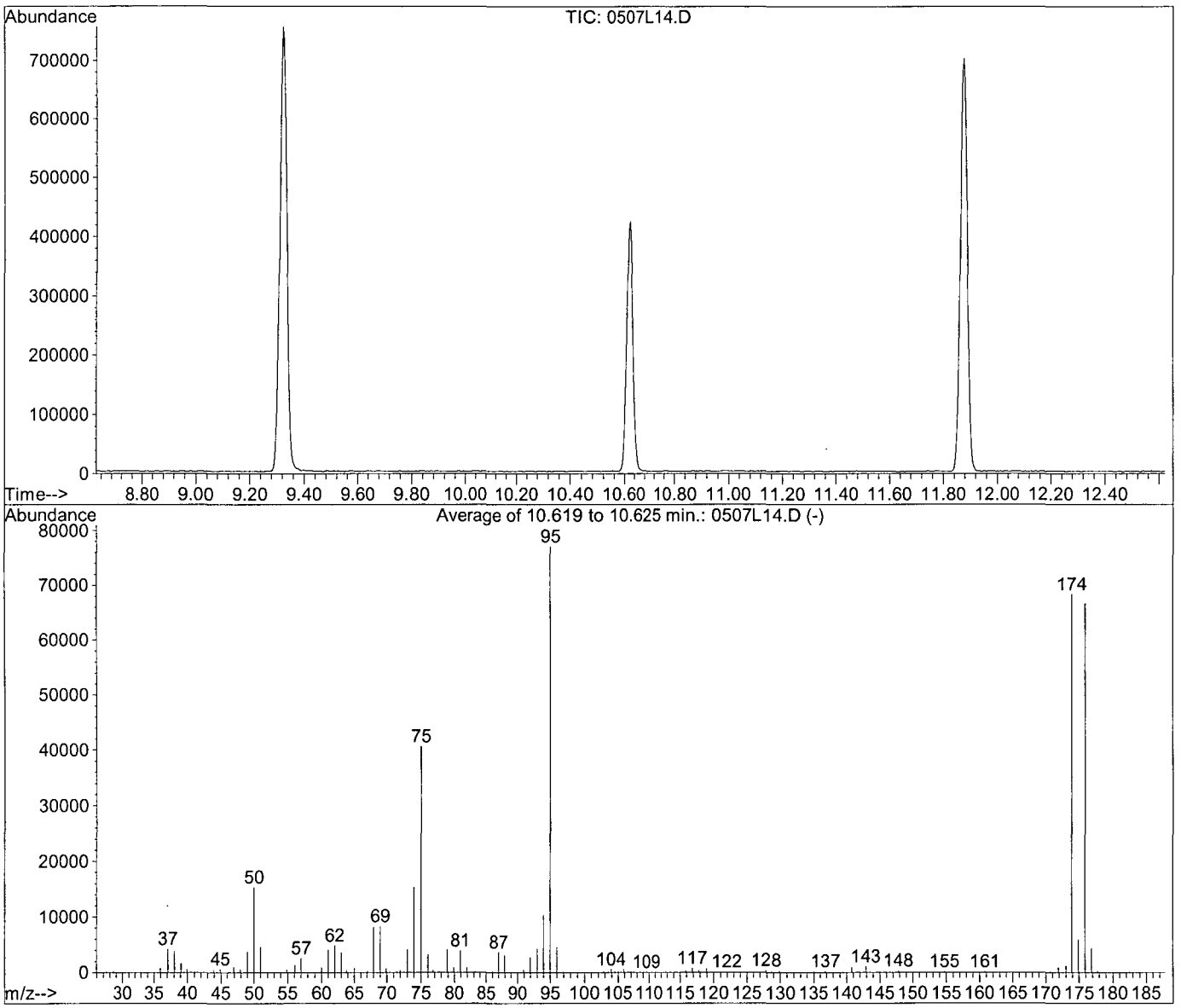
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.5	30403	PASS
75	95	30	60	53.4	79237	PASS
95	95	100	100	100.0	148480	PASS
96	95	5	9	6.2	9256	PASS
173	174	0.00	2	1.6	2199	PASS
174	95	50	100	92.6	137496	PASS
175	174	5	9	8.0	10935	PASS
176	174	95	101	96.6	132797	PASS
177	176	5	9	6.3	8340	PASS

0506L01.D L0506W.M Mon May 13 08:58:27 2019

Data File : M:\LOKI\DATA\190506\0507L14.D
Acq On : 7 May 19 17:47
Sample : 25ug/L BFB STD 3/11/19
Misc : ISS 3/5/19, 2/11/19

Vial: 13
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Method : M:\LOKI\DATA\190506\L0506W.M (RTE Integrator)
Title : METHOD 8260B



AutoFind: Scans 3119, 3120, 3121; Background Corrected with Scan 3104

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	19.9	15338	PASS
75	95	30	60	52.8	40704	PASS
95	95	100	100	100.0	77083	PASS
96	95	5	9	5.9	4555	PASS
173	174	0.00	2	1.7	1192	PASS
174	95	50	100	88.7	68349	PASS
175	174	5	9	8.6	5880	PASS
176	174	95	101	97.6	66696	PASS
177	176	5	9	6.5	4330	PASS

0507L14.D L0506W.M Mon May 13 08:59:08 2019

Loki 8260 Standard Prep

Loki 8260 Water Calibration Curve

0.3ug/L

Prepared By (Initials): PC

Prepared: 05/06/19

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	0.3ug/L	5	Prepared 05/06/19	07/05/19	N/A	3uL	50mL	P&T Water	0.3
VOA STD. 10	O2SI		5	Prepared 05/06/19	07/05/19	N/A	3uL			0.3
VOA STD. 12	O2SI		5	Prepared 05/06/19	07/05/19	N/A	3uL			0.3
VOA STD. TBA	Various		250	Prepared 05/06/19	05/22/19	N/A	2uL			10

0.5ug/L

Prepared: 05/06/19

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	0.5ug/L	5	Prepared 05/06/19	07/05/19	N/A	5uL	50mL	P&T Water	0.5
VOA STD. 10	O2SI		5	Prepared 05/06/19	07/05/19	N/A	5uL			0.5
VOA STD. 12	O2SI		5	Prepared 05/06/19	07/05/19	N/A	5uL			0.5
VOA STD. TBA	Various		250	Prepared 05/06/19	05/22/19	N/A	5uL			25

1.0ug/L

Prepared: 05/06/19

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	1.0ug/L	5	Prepared 05/06/19	07/05/19	N/A	10uL	50mL	P&T Water	1
VOA STD. 10	O2SI		5	Prepared 05/06/19	07/05/19	N/A	10uL			1
VOA STD. 12	O2SI		5	Prepared 05/06/19	07/05/19	N/A	10uL			1
VOA STD. TBA	Various		250	Prepared 05/06/19	05/22/19	N/A	10uL			50

2.0ug/L

Prepared: 05/06/19

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	2.0ug/L	5	Prepared 05/06/19	07/05/19	N/A	20uL	50mL	P&T Water	2
VOA STD. 10	O2SI		5	Prepared 05/06/19	07/05/19	N/A	20uL			2
VOA STD. 12	O2SI		5	Prepared 05/06/19	07/05/19	N/A	20uL			2
VOA STD. TBA	Various		250	Prepared 05/06/19	05/22/19	N/A	15uL			75

5ug/L

Prepared: 05/06/19

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	5ug/L	50	Prepared 05/06/19	07/05/19	N/A	5uL	50mL	P&T Water	5
VOA STD. 8	Phenova		50	Prepared 05/06/19	05/22/19	N/A	5uL			5
VOA STD. 1	O2SI		50	Prepared 05/06/19	07/05/19	N/A	5uL			5
VOA STD. 2	O2SI		50	Prepared 05/06/19	07/05/19	N/A	5uL			5
VOA STD. TBA	Various		250	Prepared 05/06/19	05/22/19	N/A	20uL			100

10ug/L

Prepared: 05/06/19

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	10ug/L	50	Prepared 05/06/19	07/05/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 8	Phenova		50	Prepared 05/06/19	05/22/19	N/A	10uL			10
VOA STD. 1	O2SI		50	Prepared 05/06/19	07/05/19	N/A	10uL			10
VOA STD. 2	O2SI		50	Prepared 05/06/19	07/05/19	N/A	10uL			10
VOA STD. TBA	Various		250	Prepared 05/06/19	05/22/19	N/A	25uL			125

20ug/L

Prepared: 05/06/19

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	20ug/L	50	Prepared 05/06/19	07/05/19	N/A	20uL	50mL	P&T Water	20
VOA STD. 8	Phenova		50	Prepared 05/06/19	05/22/19	N/A	20uL			20
VOA STD. 1	O2SI		50	Prepared 05/06/19	07/05/19	N/A	20uL			20
VOA STD. 2	O2SI		50	Prepared 05/06/19	07/05/19	N/A	20uL			20
VOA STD. TBA	Various		250	Prepared 05/06/19	05/22/19	N/A	30uL			150

40ug/L

Prepared: 05/06/19

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	40ug/L	50	Prepared 05/06/19	07/05/19	N/A	40uL	50mL	P&T Water	40
VOA STD. 8	Phenova		50	Prepared 05/06/19	05/22/19	N/A	40uL			40
VOA STD. 1	O2SI		50	Prepared 05/06/19	07/05/19	N/A	40uL			40
VOA STD. 2	O2SI		50	Prepared 05/06/19	07/05/19	N/A	40uL			40
VOA STD. TBA	Various		250	Prepared 05/06/19	05/22/19	N/A	35uL			175

100ug/L

Prepared: 05/06/19

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	100ug/L	50	Prepared 05/06/19	07/05/19	N/A	100uL	50mL	P&T Water	100
VOA STD. 8	Phenova		50	Prepared 05/06/19	05/22/19	N/A	100uL			100
VOA STD. 1	O2SI		50	Prepared 05/06/19	07/05/19	N/A	100uL			100
VOA STD. 2	O2SI		50	Prepared 05/06/19	07/05/19	N/A	100uL			100
VOA STD. TBA	Various		250	Prepared 05/06/19	05/22/19	N/A	40uL			200

Loki 8260 Water Second Source (SS)

Prepared: 05/06/19

Prepared By (Initials): PC

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 4	Phenova	8260 Water SS	50	Prepared 05/06/19	07/05/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 5	O2SI	8260 Water SS	50	Prepared 05/06/19	07/05/19	N/A	10uL			10
VOA STD. 6	Various	8260 Water SS	50	Prepared 05/06/19	05/08/19	N/A	10uL			10
Voa STD. TBA	Various	8260 Water SS	250	Prepared 05/06/19	05/08/19	N/A	25uL			250

8260 Water Continuing Calibrations (CCV)/ Lab Control Spikes (LCS)

Prepared: 05/06/19

Prepared By (Initials): PC

Expires: 05/07/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	CCV/ LCS	50	Prepared 05/06/19	07/05/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 8	Phenova	CCV/ LCS	50	Prepared 05/06/19	05/22/19	N/A	10uL			10
VOA STD. 1	O2SI	CCV/ LCS	50	Prepared 05/06/19	07/05/19	N/A	10uL			10
VOA STD. 2	O2SI	CCV/ LCS	50	Prepared 05/06/19	07/05/19	N/A	10uL			10
VOA STD. TBA	Various	CCV/ LCS	250	Prepared 05/06/19	05/22/19	N/A	25uL			125

LCS (X4 Ketones)

Prepared: 05/06/19

Prepared By (Initials): PC

Expires: 05/07/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	LCS X4 Ketones	50	Prepared 05/06/19	07/05/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 8	Phenova	LCS X4 Ketones	50	Prepared 05/06/19	05/22/19	N/A	10uL			10
VOA STD. 1	O2SI	LCS X4 Ketones	50	Prepared 05/06/19	07/05/19	N/A	10uL			10
VOA STD. 2	O2SI	LCS X4 Ketones	50	Prepared 05/06/19	07/05/19	N/A	40uL			40
VOA STD. TBA	Various	LCS X4 Ketones	250	Prepared 05/06/19	05/22/19	N/A	25uL			125

Loki 8260 Water Surrogate

Prepared: 02/11/19 — **Prepared By (Initials): PC**

Expires: 07/28/19

Methanol Lot No: 202404-9077

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
8260 Surrogate Solution	O2SI	120002-01	2,000	**384756-39333**	**07/28/19**	**02/10/22**	375uL	15mL	Methanol	50

Loki 8260 Water Internal Standard

Prepared: 03/21/19 — **Prepared By (Initials): DG**

Expires: 03/06/20

Methanol Lot No: 202404-9077

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Internal Standard Solution	O2SI	120004-02	2,000	**326533-38436**	**03/06/20**	**04/27/21**	375uL	15mL	Methanol	50

Injection Log

Directory: M:\LOKI\DATA\190506\

Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	0506L01.D	1	25ug/L BFB STD 3/11/19	1ul	6 May 19 16:21
2	0506L06.D	1	0.3ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 17:12
3	0506L07.D	1	0.5ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 17:41
4	0506L08.D	1	1.0ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 18:09
5	0506L09.D	1	2.0ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 18:38
6	0506L10.D	1	5.0ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 19:07
7	0506L11.D	1	10ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 19:36
8	0506L12.D	1	20ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 20:05
9	0506L13.D	1	40ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 20:34
10	0506L14.D	1	100ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 21:02
11	0506L15.D	1	(SS)10ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 21:31
13	0507L14.D	1	25ug/L BFB STD 3/11/19	ISS 3/5/19, 2/11/19	7 May 19 17:47
15	0507L16.D	1	190507A CCV 10ug/L	ISS 3/5/19, 2/11/19	7 May 19 18:45
16	0507L17.D	1	190507A LCS 10ug/L x 4ketones	ISS 3/5/19, 2/11/19	7 May 19 19:14
17	0507L18.D	1	190507A LCSD 10ug/L x 4 ketones	ISS 3/5/19, 2/11/19	7 May 19 19:43
22	0507L23.D	1	AZ90449W03	ISS 3/5/19, 2/11/19	7 May 19 22:06
23	0507L24.D	1	AZ90446W03	ISS 3/5/19, 2/11/19	7 May 19 22:35
24	0507L25.D	1	AZ90447W03	ISS 3/5/19, 2/11/19	7 May 19 23:04
25	0507L26.D	1	AZ90448W03	ISS 3/5/19, 2/11/19	7 May 19 23:32
26	0507L27.D	1	AZ90450W03	ISS 3/5/19, 2/11/19	8 May 19 00:01
38	0507L39.D	1	Ending CCV 10ug/L	ISS 3/5/19, 2/11/19	8 May 19 5:46

ORGANICS
Calibration Data

VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 05/06/19
Matrix: Instrument: Loki
Initials: DP LLP

			0506L06.D	0506L07.D	0506L08 D	0506L09.D	0506L10.D	0506L11.D	0506L12.D	0506L13.D	0506L14.D							
		Compound	1	2	3	4	5	6	7	8	9		Avg	%RSD	Type	r^2	Q	MRF
1	I	Fluorobenzene (IS)																
2	S	Dibromofluoromethane(S)	0.5648	0.5190	0.5045	0.4083	0.4585	0.4430	0.4609	0.4604	0.4186		0.47	11	S			
3	S	1,2-DCA-D4(S)	0.6264	0.5849	0.5736	0.4710	0.5124	0.5177	0.5166	0.5041	0.4624		0.53	10	S			
4	I	Chlorobenzene-D5 (IS)																
5	S	Toluene-D8(S)	1.885	1.726	1.638	1.476	1.705	1.638	1.820	1.755	1.784		1.7	7.0	S			
6	S	4-Bromofluorobenzene(S)	0.5824	0.5492	0.5233	0.4948	0.5695	0.5569	0.6253	0.6168	0.6457		0.57	8.6	S			
7	I	1,4-Dichlorobenzene-D (IS)																
8																		
9																		
10																		
11																		
12																		
13																		
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31																		
32																		
33																		
34																		
35																		

Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0506L06.D Vial: 2
Acq On : 6 May 19 17:12 Operator: LP,DG,CMM,PC
Sample : 0.3ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:10 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	295808	25.0000 ppb	0.00
4) Chlorobenzene-D5 (IS)	9.32	117	250112	25.0000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.87	152	111512	25.0000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.92	111	33417	5.9975 ppb	0.00
Spiked Amount 25.000			Recovery	= 23.992%	
3) 1,2-DCA-D4(S)	5.36	65	37057	5.9102 ppb	0.00
Spiked Amount 25.000			Recovery	= 23.640%	
5) Toluene-D8(S)	7.72	98	94272	5.4975 ppb	0.00
Spiked Amount 25.000			Recovery	= 21.988%	
6) 4-Bromofluorobenzene(S)	10.62	95	29133	5.0752 ppb	0.00
Spiked Amount 25.000			Recovery	= 20.300%	

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

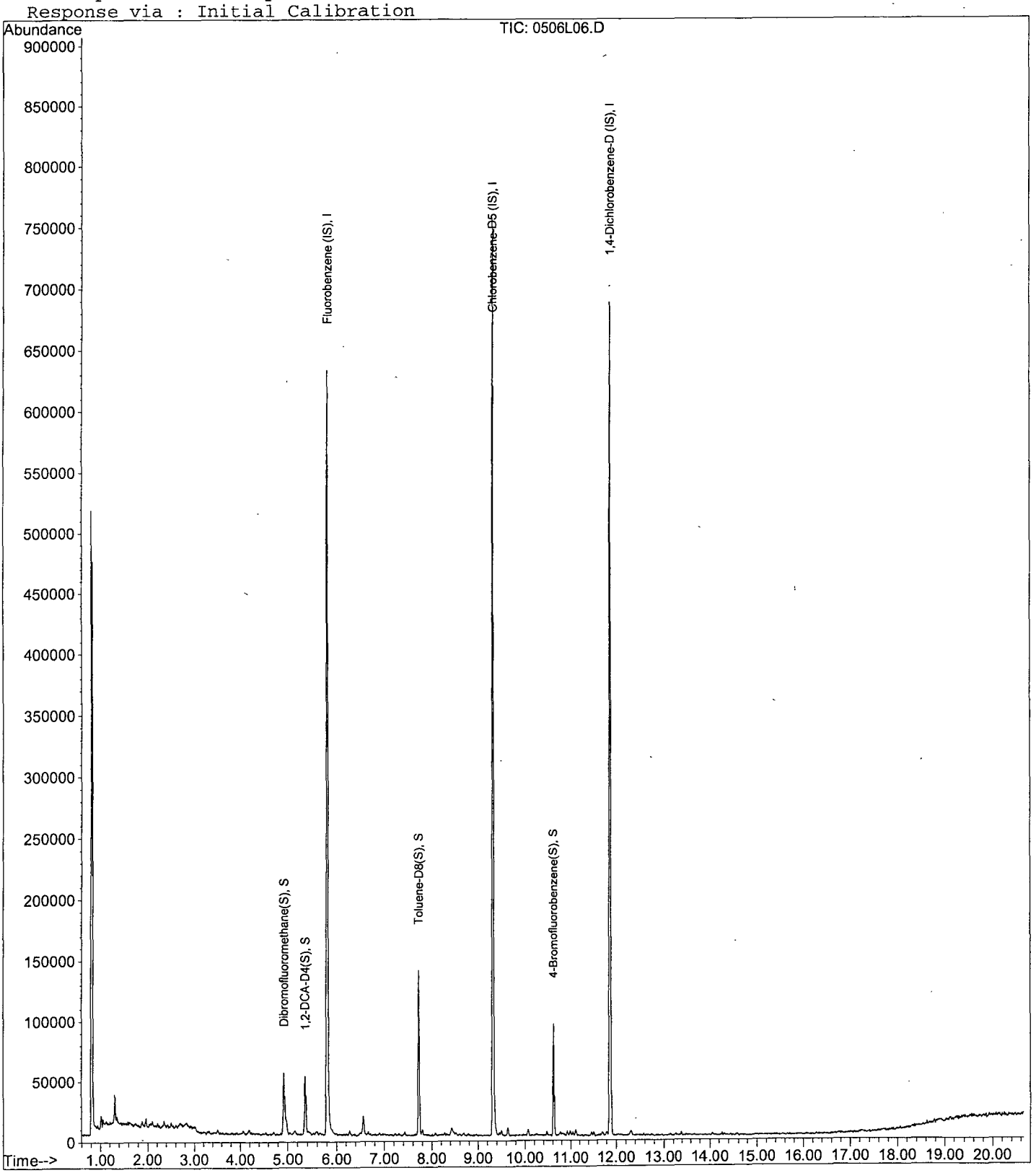
Quantitation Report

Data File : M:\LOKI\DATA\190506\0506L06.D
Acq On : 6 May 19 17:12
Sample : 0.3ug/L VOC STD 05/06/19
Misc : ISS 3/5/19, 2/11/19

Vial: 2
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 8 10:10 2019 Quant Results File: LSUR506W.RES

Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0506L07.D Vial: 3
Acq On : 6 May 19 17:41 Operator: LP,DG,CMM,PC
Sample : 0.5ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:10 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	298496	25.0000 ppb	0.00
4) Chlorobenzene-D5 (IS)	9.32	117	256960	25.0000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.87	152	116304	25.0000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.92	111	30985	5.5109 ppb	0.00
Spiked Amount 25.000			Recovery	= 22.044%	
3) 1,2-DCA-D4(S)	5.36	65	34918	5.5189 ppb	0.00
Spiked Amount 25.000			Recovery	= 22.076%	
5) Toluene-D8(S)	7.72	98	88702	5.0348 ppb	0.00
Spiked Amount 25.000			Recovery	= 20.140%	
6) 4-Bromofluorobenzene(S)	10.62	95	28222	4.7854 ppb	0.00
Spiked Amount 25.000			Recovery	= 19.140%	

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

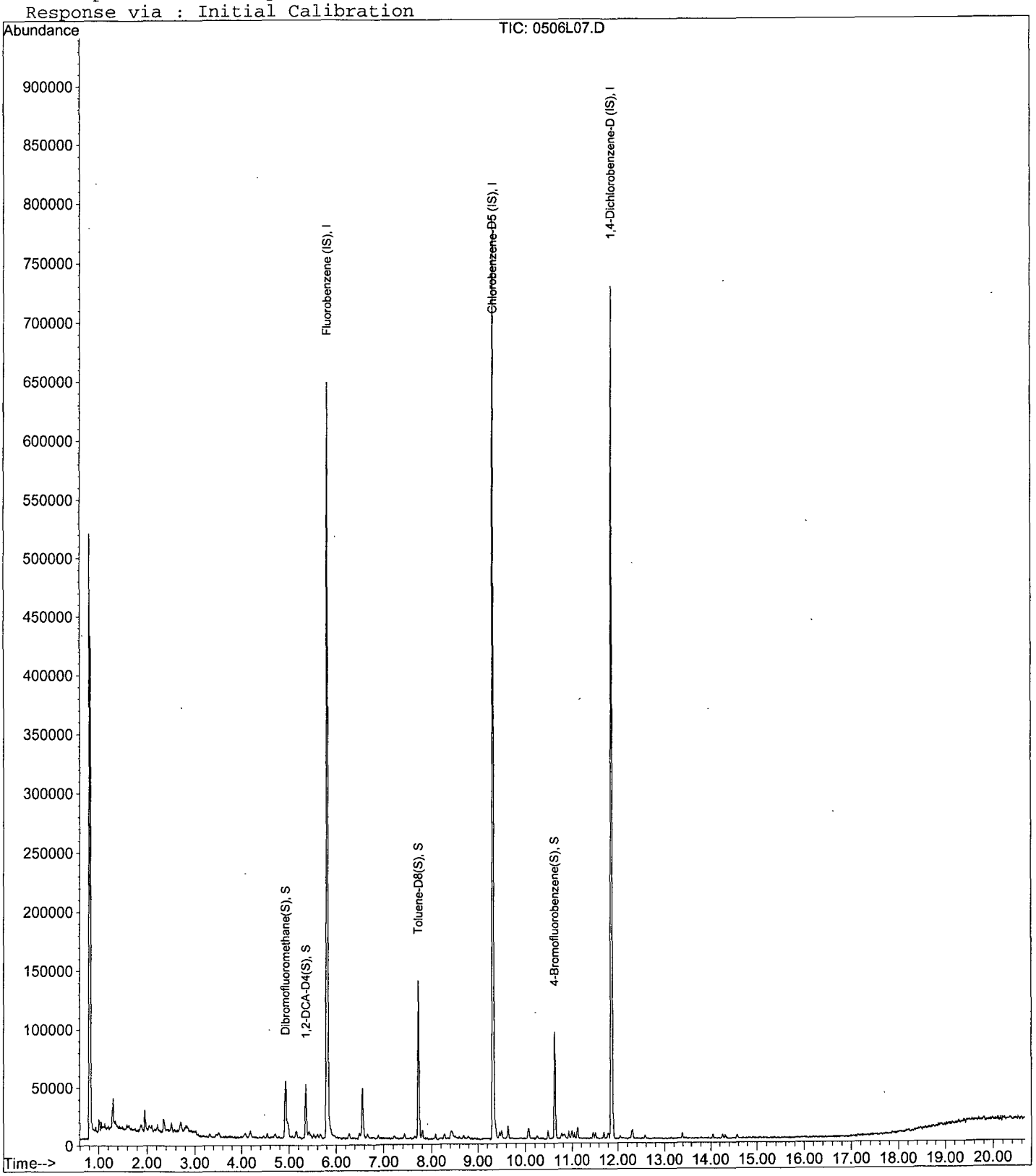
Quantitation Report

Data File : M:\LOKI\DATA\190506\0506L07.D
Acq On : 6 May 19 17:41
Sample : 0.5ug/L VOC STD 05/06/19
Misc : ISS 3/5/19, 2/11/19

Vial: 3
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 8 10:10 2019 Quant Results File: LSUR506W.RES

Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0506L08.D Vial: 4
Acq On : 6 May 19 18:09 Operator: LP,DG,CMM,PC
Sample : 1.0ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:10 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	280704	25.0000 ppb	0.00
4) Chlorobenzene-D5 (IS)	9.32	117	248896	25.0000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.87	152	110784	25.0000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.92	111	56648	10.7139 ppb	0.00
Spiked Amount 25.000			Recovery = 42.856%		
3) 1,2-DCA-D4(S)	5.36	65	64410	10.8255 ppb	0.00
Spiked Amount 25.000			Recovery = 43.304%		
5) Toluene-D8(S)	7.72	98	163053	9.5549 ppb	0.00
Spiked Amount 25.000			Recovery = 38.220%		
6) 4-Bromofluorobenzene(S)	10.62	95	52103	9.1211 ppb	0.00
Spiked Amount 25.000			Recovery = 36.484%		
Target Compounds					Qvalue

(#) = qualifier out of range (m) = manual integration

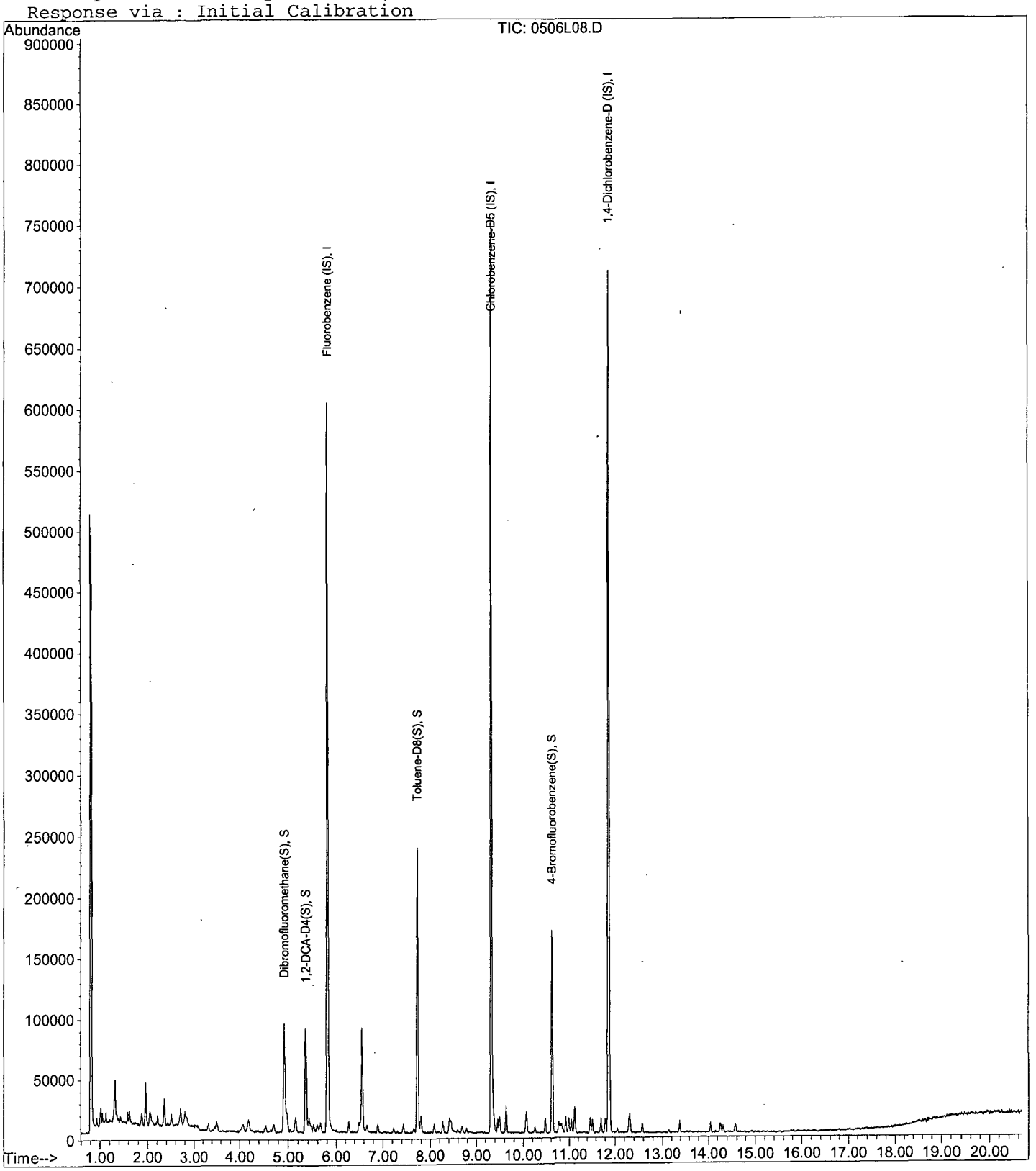
Quantitation Report

Data File : M:\LOKI\DATA\190506\0506L08.D
Acq On : 6 May 19 18:09
Sample : 1.0ug/L VOC STD 05/06/19
Misc : ISS 3/5/19, 2/11/19

Vial: 4
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 8 10:10 2019 Quant Results File: LSUR506W.RES

Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0506L09.D Vial: 5
Acq On : 6 May 19 18:38 Operator: LP,DG,CMM,PC
Sample : 2.0ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:10 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	334080	25.0000 ppb	0.00
4) Chlorobenzene-D5 (IS)	9.32	117	274496	25.0000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.88	152	134848	25.0000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.92	111	54560	8.6704 ppb	0.00
Spiked Amount 25.000			Recovery	= 34.680%	
3) 1,2-DCA-D4(S)	5.36	65	62941	8.8885 ppb	0.00
Spiked Amount 25.000			Recovery	= 35.552%	
5) Toluene-D8(S)	7.72	98	162061	8.6111 ppb	0.00
Spiked Amount 25.000			Recovery	= 34.444%	
6) 4-Bromofluorobenzene(S)	10.62	95	54332	8.6242 ppb	0.00
Spiked Amount 25.000			Recovery	= 34.496%	

Target Compounds Qvalue

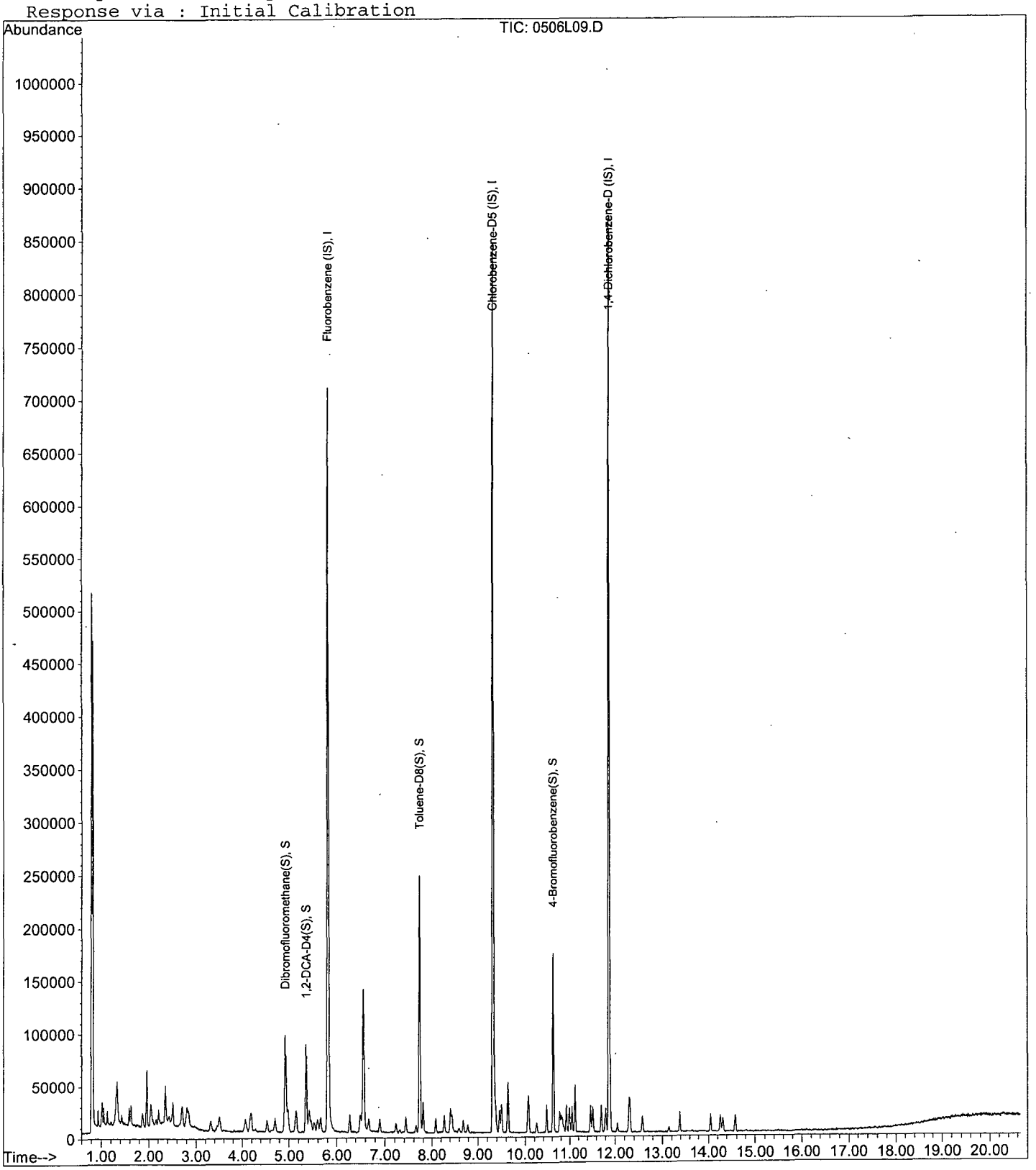
(#) = qualifier out of range (m) = manual integration

Data File : M:\LOKI\DATA\190506\0506L09.D
Acq On : 6 May 19 18:38
Sample : 2.0ug/L VOC STD 05/06/19
Misc : ISS 3/5/19, 2/11/19

Vial: 5
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 8 10:10 2019 Quant Results File: LSUR506W.RES

Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0506L10.D Vial: 6
Acq On : 6 May 19 19:07 Operator: LP,DG,CMM,PC
Sample : 5.0ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:11 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	336768	25.0000 ppb	0.00
4) Chlorobenzene-D5 (IS)	9.32	117	277248	25.0000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.87	152	139648	25.0000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.93	111	154421	24.3438 ppb	0.00
Spiked Amount 25.000			Recovery =	97.376%	
3) 1,2-DCA-D4(S)	5.36	65	172551	24.1731 ppb	0.00
Spiked Amount 25.000			Recovery =	96.692%	
5) Toluene-D8(S)	7.72	98	472798	24.8726 ppb	0.00
Spiked Amount 25.000			Recovery =	99.492%	
6) 4-Bromofluorobenzene(S)	10.62	95	157896	24.8143 ppb	0.00
Spiked Amount 25.000			Recovery =	99.256%	

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

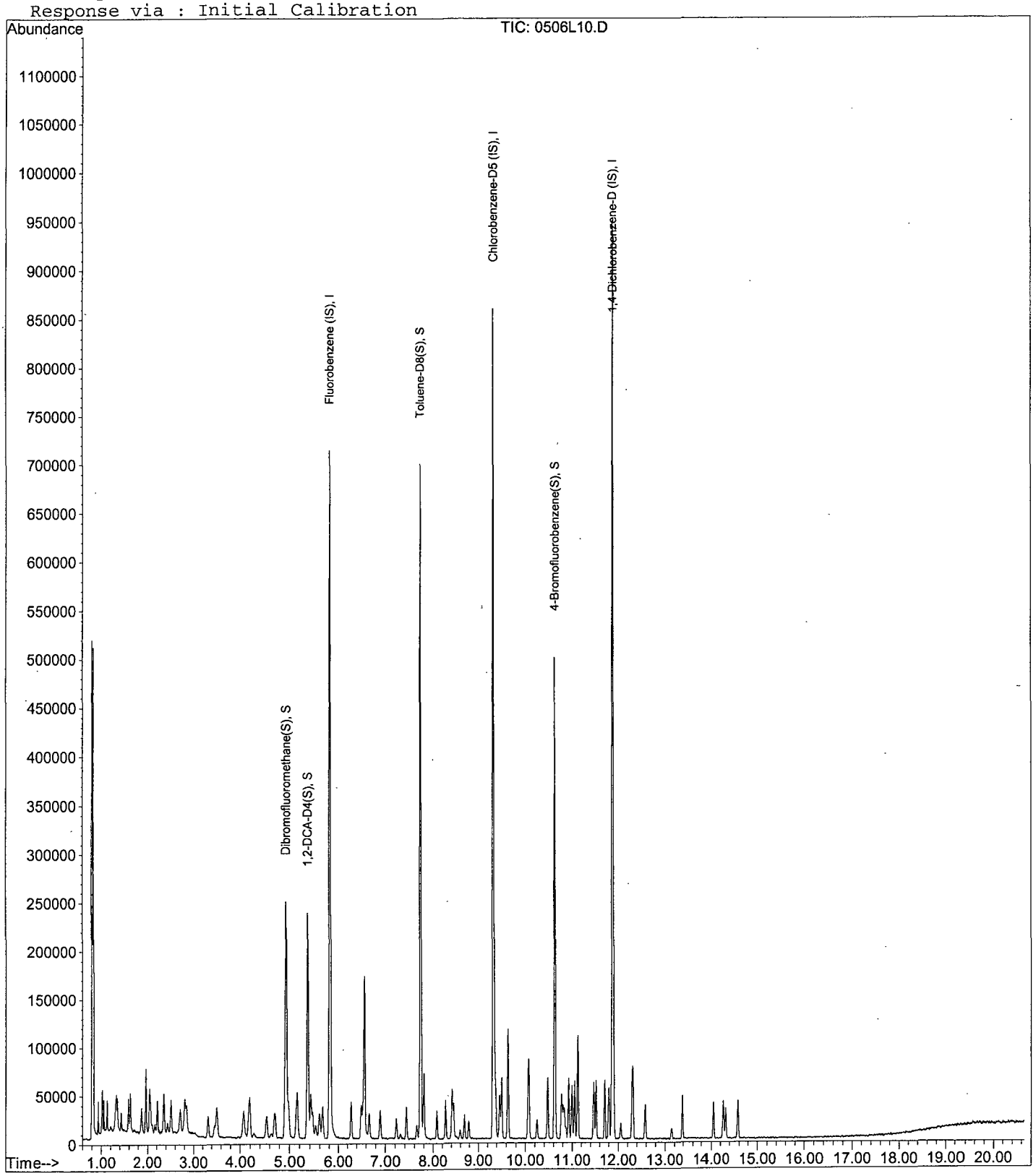
Quantitation Report

Data File : M:\LOKI\DATA\190506\0506L10.D
Acq On : 6 May 19 19:07
Sample : 5.0ug/L VOC STD 05/06/19
Misc : ISS 3/5/19, 2/11/19

Vial: 6
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 8 10:11 2019 Quant Results File: LSUR506W.RES

Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0506L11.D Vial: 7
Acq On : 6 May 19 19:36 Operator: LP,DG,CMM,PC
Sample : 10ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:11 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	333632	25.0000 ppb	0.00
4) Chlorobenzene-D5 (IS)	9.32	117	286272	25.0000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.87	152	149824	25.0000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.92	111	147794	23.5181 ppb	0.00
Spiked Amount 25.000			Recovery =	94.072%	
3) 1,2-DCA-D4(S)	5.36	65	172716	24.4236 ppb	0.00
Spiked Amount 25.000			Recovery =	97.696%	
5) Toluene-D8(S)	7.72	98	468975	23.8938 ppb	0.00
Spiked Amount 25.000			Recovery =	95.576%	
6) 4-Bromofluorobenzene(S)	10.62	95	159420	24.2641 ppb	0.00
Spiked Amount 25.000			Recovery =	97.056%	

Target Compounds Qvalue

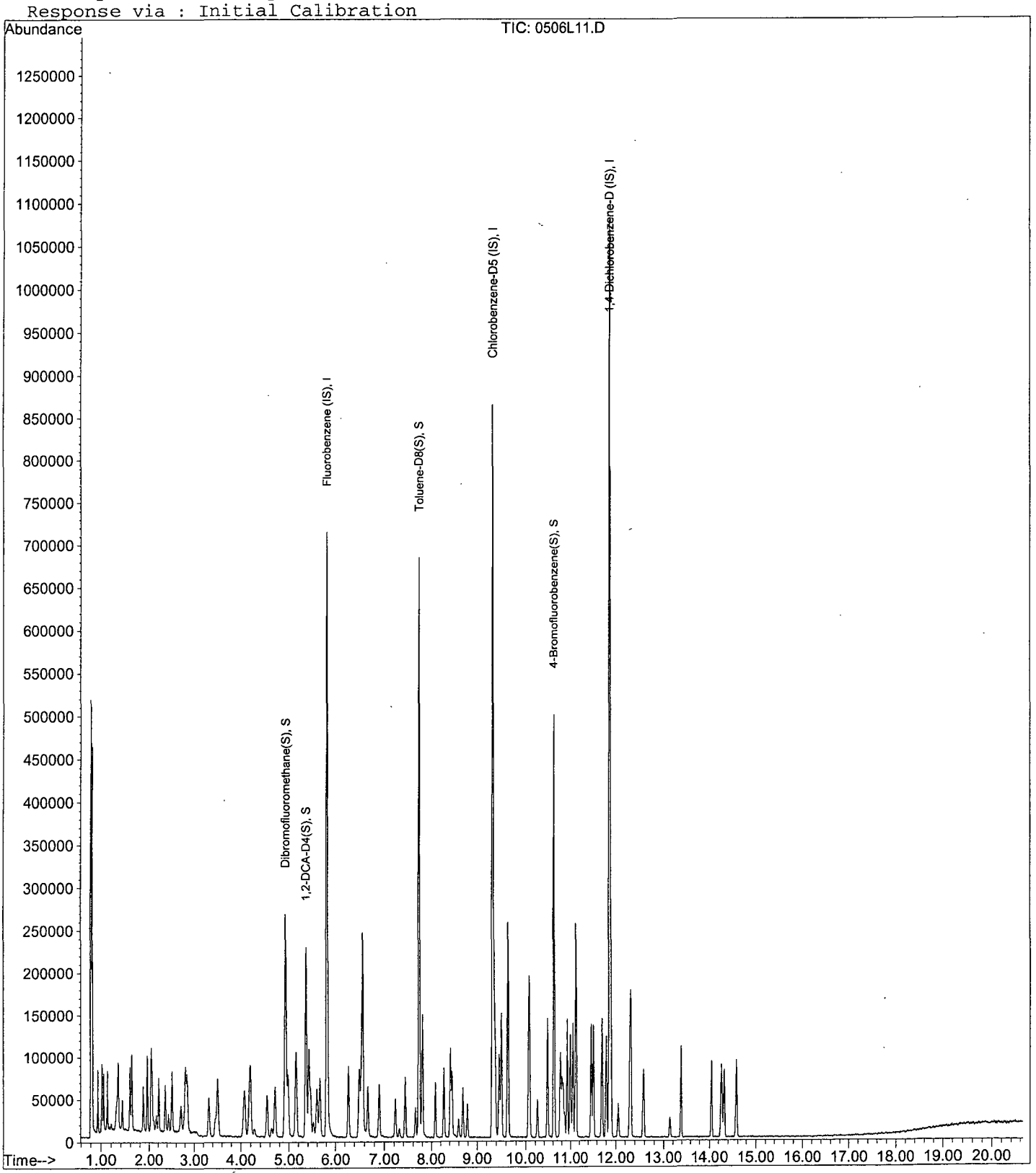
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0506L11.D Vial: 7
Acq On : 6 May 19 19:36 Operator: LP,DG,CMM,PC
Sample : 10ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:11 2019 Quant Results File: LSUR506W.RES

Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0506L12.D Vial: 8
Acq On : 6 May 19 20:05 Operator: LP,DG,CMM,PC
Sample : 20ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:11 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	326592	25.0000 ppb	0.00
4) Chlorobenzene-D5 (IS)	9.32	117	273280	25.0000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.87	152	150848	25.0000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.92	111	301031	48.9349 ppb	0.00
Spiked Amount 25.000			Recovery = 195.740%		
3) 1,2-DCA-D4(S)	5.36	65	337439	48.7455 ppb	0.00
Spiked Amount 25.000			Recovery = 194.984%		
5) Toluene-D8(S)	7.72	98	994495	53.0773 ppb	0.00
Spiked Amount 25.000			Recovery = 212.308%		
6) 4-Bromofluorobenzene(S)	10.62	95	341787	54.4939 ppb	0.00
Spiked Amount 25.000			Recovery = 217.976%		
Target Compounds					Qvalue

(#) = qualifier out of range (m) = manual integration
0506L12.D LSUR506W.M Wed May 08 10:11:54 2019 Page 1

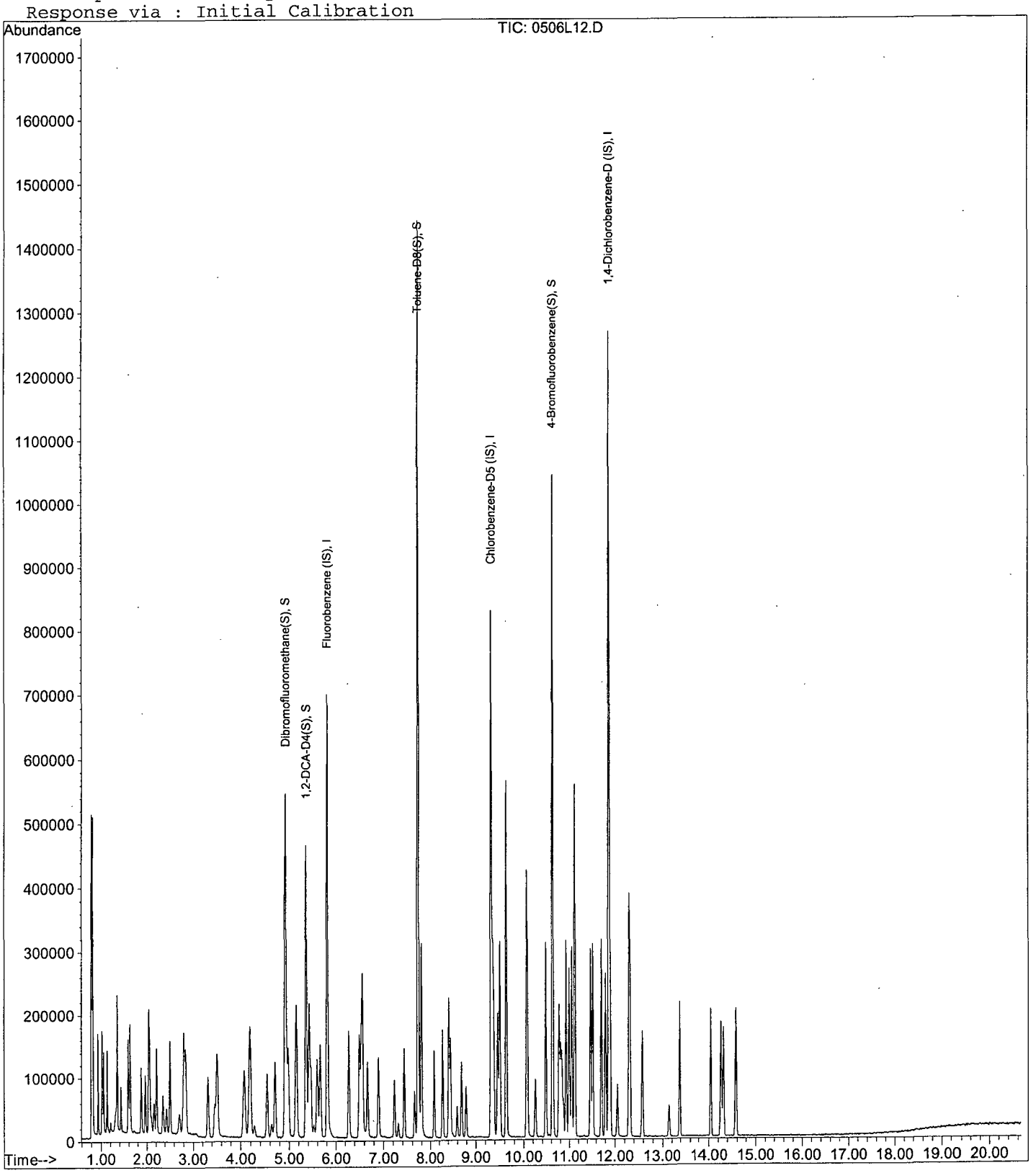
Quantitation Report

Data File : M:\LOKI\DATA\190506\0506L12.D
Acq On : 6 May 19 20:05
Sample : 20ug/L VOC STD 05/06/19
Misc : ISS 3/5/19, 2/11/19

Vial: 8
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 8 10:11 2019 Quant Results File: LSUR506W.RES

Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0506L13.D Vial: 9
Acq On : 6 May 19 20:34 Operator: LP,DG,CMM,PC
Sample : 40ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:11 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	339968	25.0000 ppb	0.00
4) Chlorobenzene-D5 (IS)	9.32	117	298304	25.0000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.87	152	166272	25.0000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.92	111	313030	48.8834 ppb	0.00
Spiked Amount 25.000			Recovery	= 195.532%	
3) 1,2-DCA-D4(S)	5.35	65	342765	47.5667 ppb	0.00
Spiked Amount 25.000			Recovery	= 190.268%	
5) Toluene-D8(S)	7.72	98	1047065	51.1951 ppb	0.00
Spiked Amount 25.000			Recovery	= 204.780%	
6) 4-Bromofluorobenzene(S)	10.62	95	367999	53.7511 ppb	0.00
Spiked Amount 25.000			Recovery	= 215.004%	
Target Compounds					Qvalue

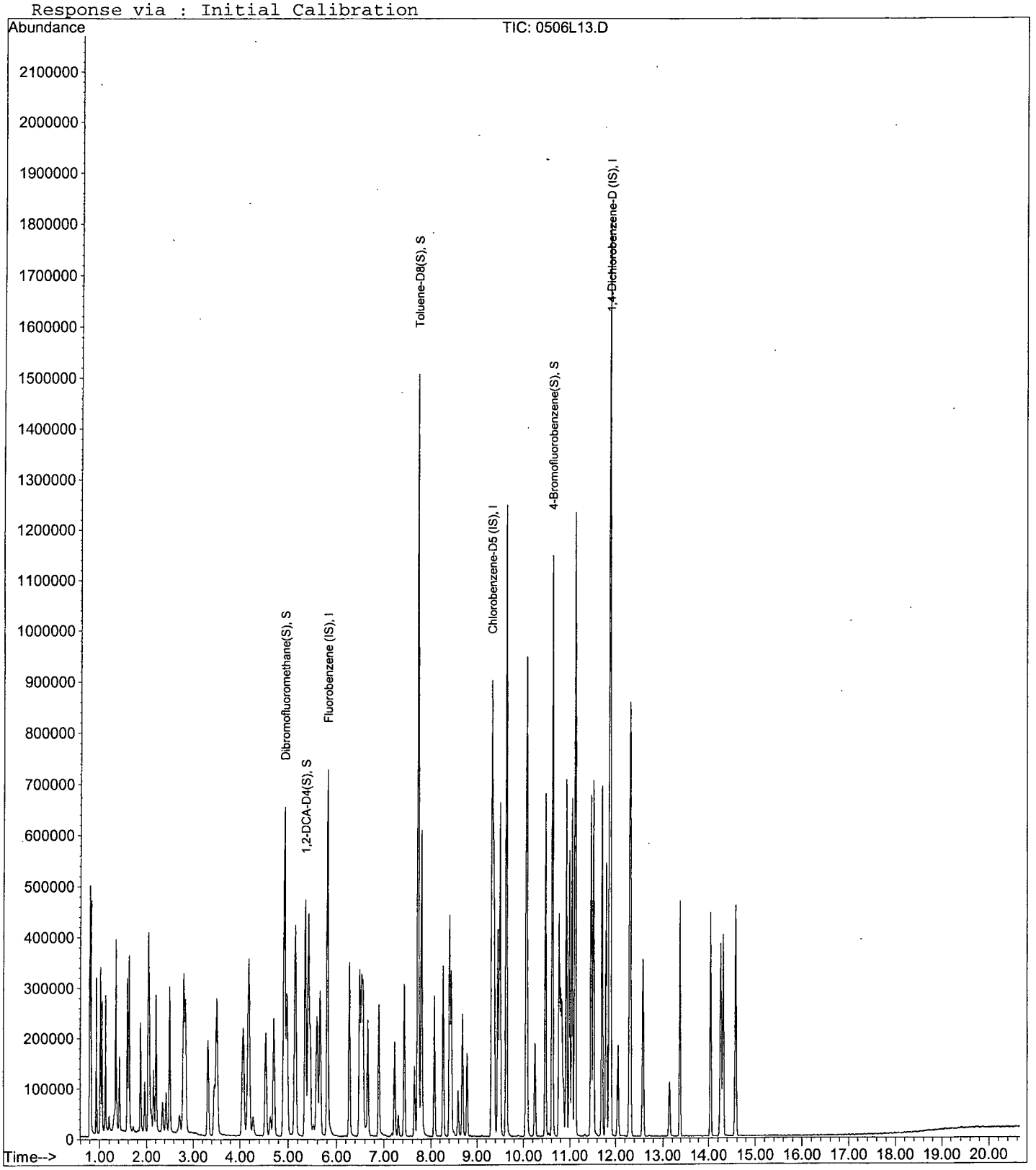
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0506L13.D Vial: 9
Acq On : 6 May 19 20:34 Operator: LP,DG,CMM,PC
Sample : 40ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:11 2019 Quant Results File: LSUR506W.RES

Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0506L14.D Vial: 10
Acq On : 6 May 19 21:02 Operator: LP,DG,CMM,PC
Sample : 100ug/L VOC STD 05/06/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 10:11 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	371520	25.0000 ppb	0.00
4) Chlorobenzene-D5 (IS)	9.32	117	300096	25.0000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.88	152	204224	25.0000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.92	111	622137	88.9032 ppb	0.00
Spiked Amount 25.000			Recovery = 355.612%		
3) 1,2-DCA-D4(S)	5.36	65	687191	87.2650 ppb	0.00
Spiked Amount 25.000			Recovery = 349.060%		
5) Toluene-D8(S)	7.72	98	2141598	104.0858 ppb	0.00
Spiked Amount 25.000			Recovery = 416.344%		
6) 4-Bromofluorobenzene(S)	10.62	95	775055	112.5311 ppb	0.00
Spiked Amount 25.000			Recovery = 450.124%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

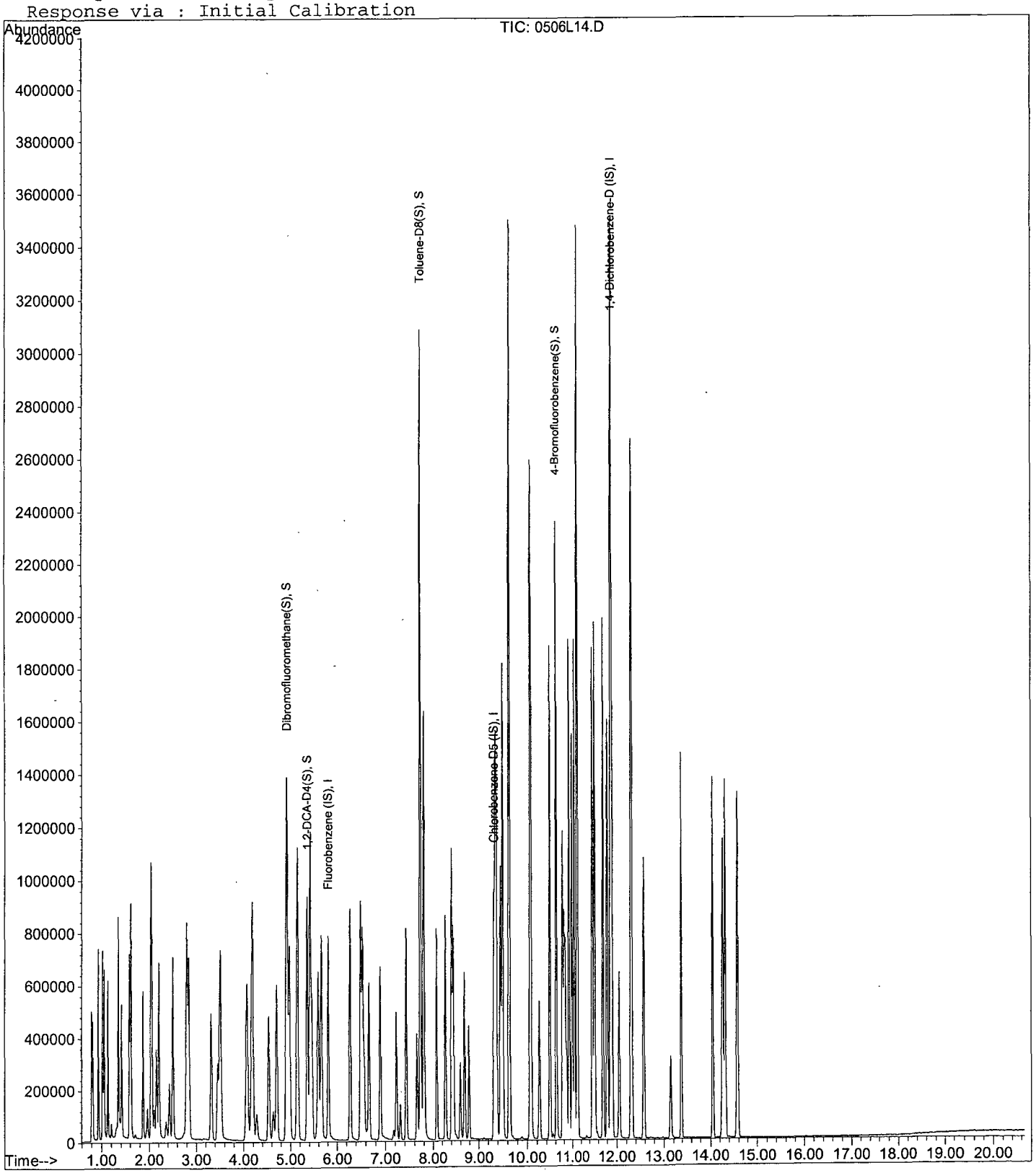
Quantitation Report

Data File : M:\LOKI\DATA\190506\0506L14.D
Acq On : 6 May 19 21:02
Sample : 100ug/L VOC STD 05/06/19
Misc : ISS 3/5/19, 2/11/19

Vial: 10
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 8 10:11 2019 Quant Results File: LSUR506W.RES

Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration



VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 05/07/19
Matrix: Instrument: Loki
Initials: DP/LP

			0507L04.D	0507L05.D	0507L06.D	0507L07.D	0507L08.D	0507L09.D	0507L10 D										
		Compound	1	2	3	4	5	6	7				Avg	%RSD	Type	r^2	Q	MRF
1	I	Fluorobenzene (IS)																
2	TMHBL	Gasoline C6-C10	12.3	5.139	2.799	1.277	0.8567	0.7300	0.6457				3.4	125	TMHBL	0.994		
3	I	Chlorobenzene-D5 (IS)																
4	I	1,4-Dichlorobenzene-D (IS)																
5																		
6																		
7																		
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9																		
10																		
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Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L04.D Vial: 3
Acq On : 7 May 19 13:00 Operator: LP,DG,CMM,PC
Sample : 20ug/L GAS STD 05/07/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 13:26 2019 Quant Results File: LGAS0507.RES

Quant Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 12:55:33 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	TIC	622326	25.0000 ppb	0.00
3) Chlorobenzene-D5 (IS)	9.32	TIC	731427	25.0000 ppb	0.00
4) 1,4-Dichlorobenzene-D (IS)	11.88	TIC	693110	25.0000 ppb	0.00
System Monitoring Compounds					
Target Compounds					Qvalue
2) Gasoline C6-C10	9.32	TIC	6130006m	11.8348 ppb	100

(#) = qualifier out of range (m) = manual integration
0507L04.D LGAS0507.M Wed May 08 13:59:37 2019 Page 1

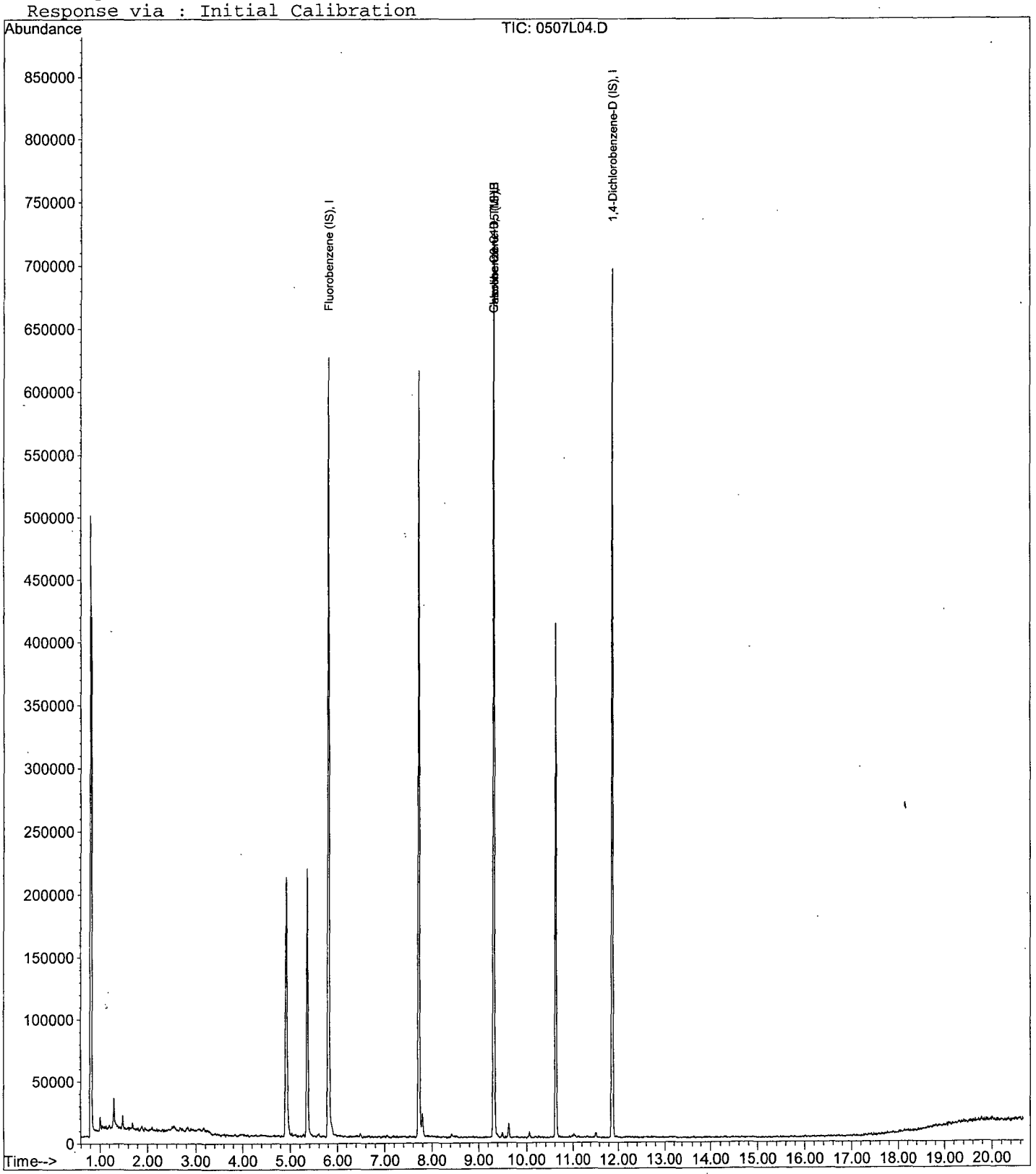
Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L04.D
Acq On : 7 May 19 13:00
Sample : 20ug/L GAS STD 05/07/19
Misc : ISS 3/5/19, 2/11/19

Vial: 3
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 8 13:26 2019 Quant Results File: LGAS0507.RES

Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L05.D Vial: 4
Acq On : 7 May 19 13:29 Operator: LP,DG,CMM,PC
Sample : 50ug/L GAS STD 05/07/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 13:26 2019 Quant Results File: LGAS0507.RES

Quant Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 12:43:44 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	TIC	658890	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	9.32	TIC	783401	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene-D (IS)	11.88	TIC	763173	25.0000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) Gasoline C6-C10	9.32	TIC	6772191m	1919.4867	ppb	100

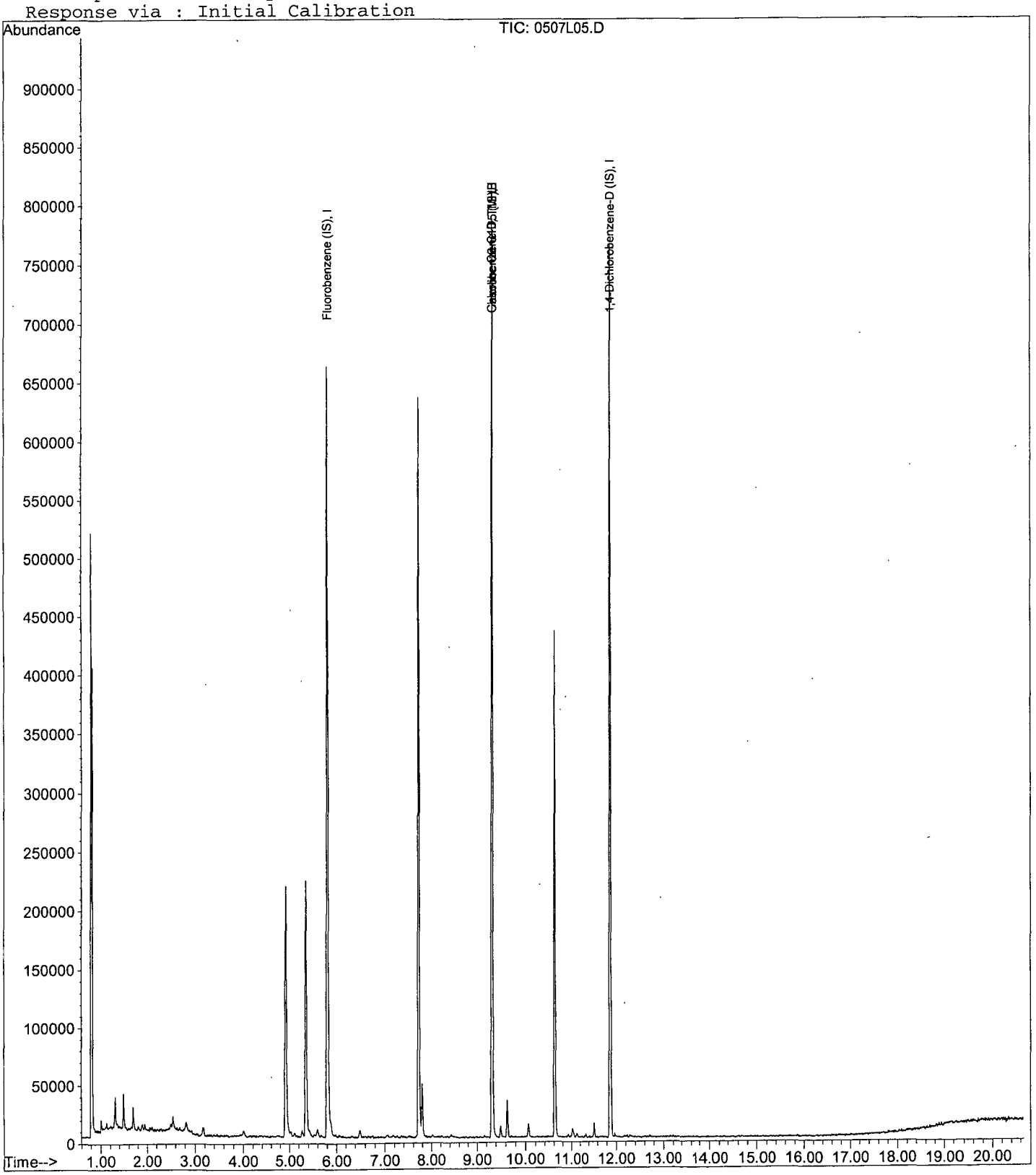
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L05.D Vial: 4
Acq On : 7 May 19 13:29 Operator: LP,DG,CMM,PC
Sample : 50ug/L GAS STD 05/07/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 13:26 2019 Quant Results File: LGAS0507.RES

Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L06.D Vial: 5
Acq On : 7-May 19 13:57 Operator: LP,DG,CMM,PC
Sample : 100ug/L GAS STD 05/07/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 13:27 2019 Quant Results File: LGAS0507.RES

Quant Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 12:43:44 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	TIC	687024	25.0000 ppb	0.00
3) Chlorobenzene-D5 (IS)	9.32	TIC	821834	25.0000 ppb	0.00
4) 1,4-Dichlorobenzene-D (IS)	11.88	TIC	793715	25.0000 ppb	0.00

System Monitoring Compounds

Target Compounds					Qvalue
2) Gasoline C6-C10	9.32	TIC	7693034m	1919.1937 ppb	100

(#) = qualifier out of range (m) = manual integration

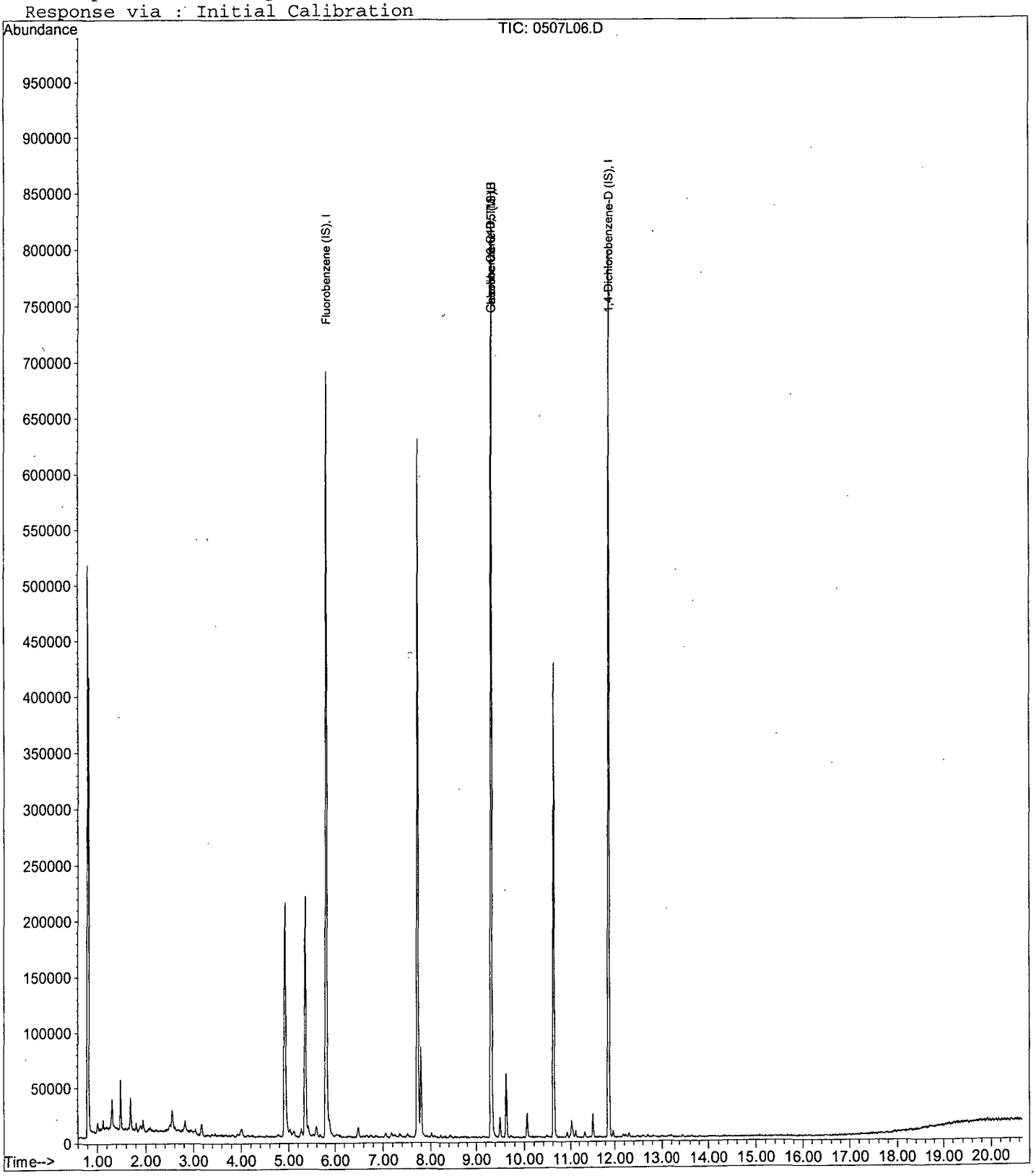
Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L06.D
Acq On : 7 May 19 13:57
Sample : 100ug/L GAS STD 05/07/19
Misc : ISS 3/5/19, 2/11/19

Vial: 5
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 8 13:27 2019 Quant Results File: LGAS0507.RES

Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L07.D Vial: 6
Acq On : 7 May 19 14:26 Operator: LP,DG,CMM,PC
Sample : 300ug/L GAS STD 05/07/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 13:27 2019 Quant Results File: LGAS0507.RES

Quant Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 12:43:44 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	TIC	621440	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	9.32	TIC	730511	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene-D (IS)	11.88	TIC	736956	25.0000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) Gasoline C6-C10	9.32	TIC	9526065m	1917.8772	ppb	100

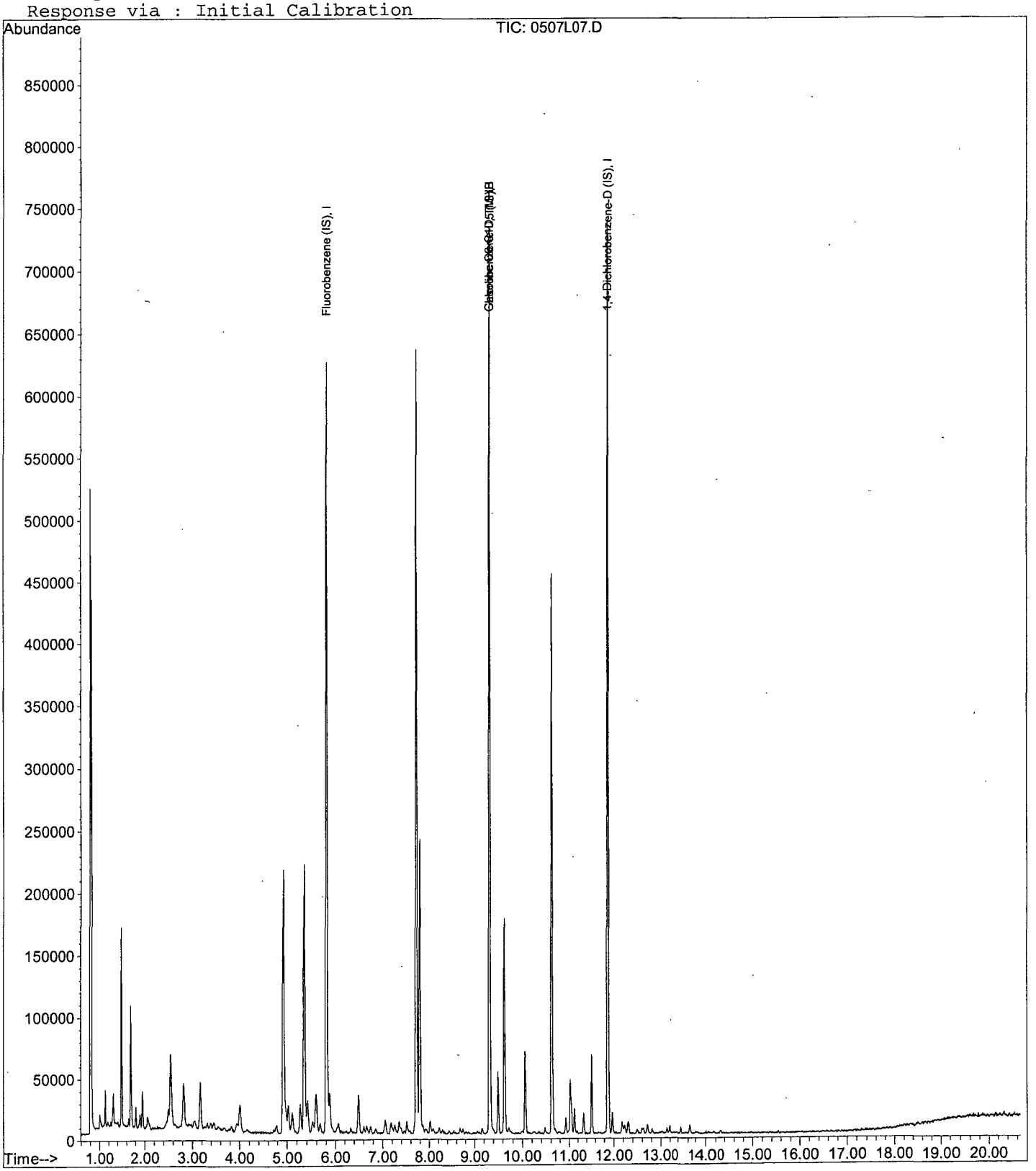
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L07.D Vial: 6
Acq On : 7 May 19 14:26 Operator: LP,DG,CMM,PC
Sample : 300ug/L GAS STD 05/07/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 13:27 2019 Quant Results File: LGAS0507.RES

Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L08.D Vial: 7
Acq On : 7 May 19 14:55 Operator: LP,DG,CMM,PC
Sample : 600ug/L GAS STD 05/07/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 13:45 2019 Quant Results File: LGAS0507.RES

Quant Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 12:43:44 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	TIC	648353	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	9.32	TIC	769587	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene-D (IS)	11.88	TIC	780508	25.0000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) Gasoline C6-C10	11.88	TIC	13330419m	1916.2103	ppb	100

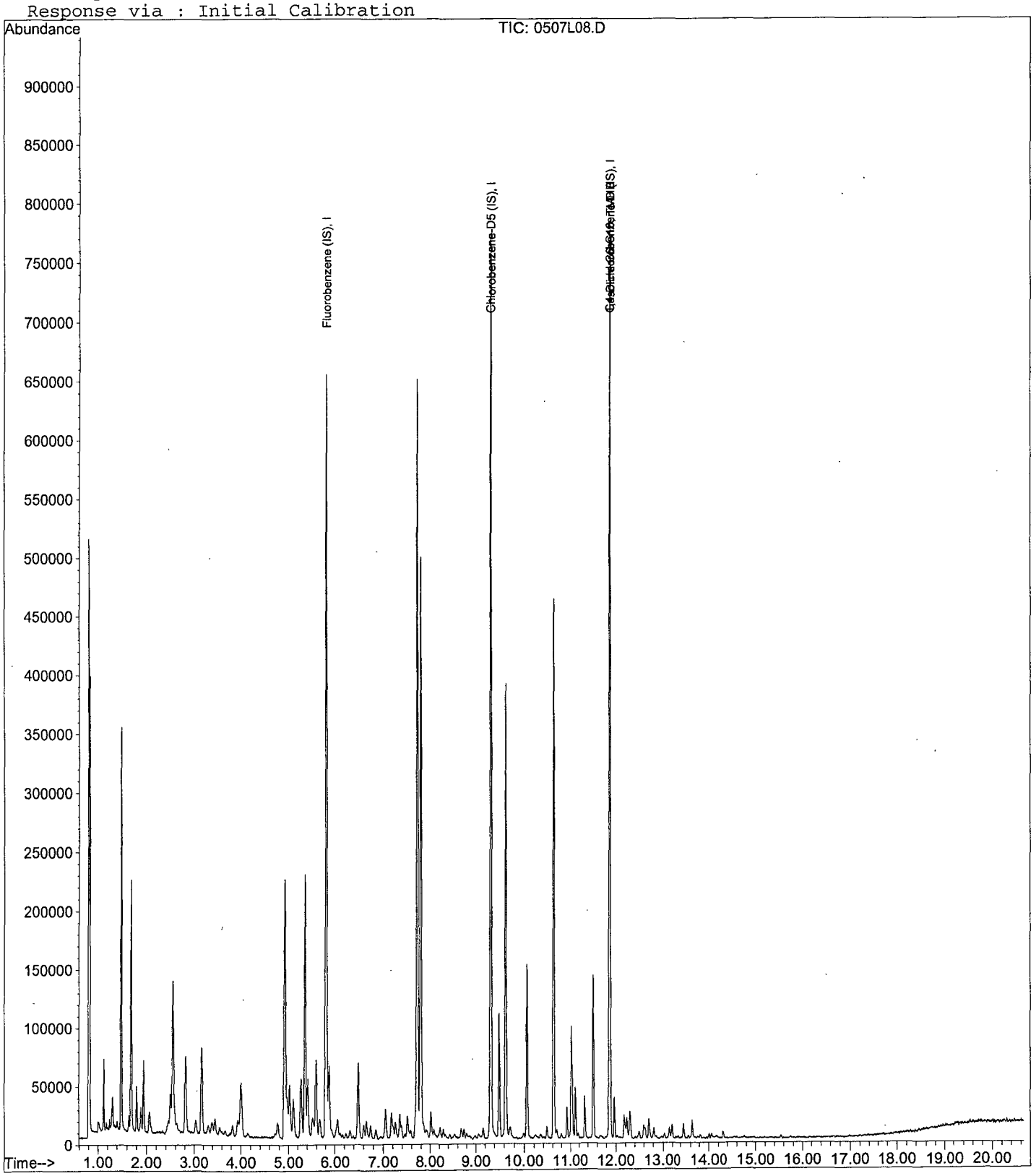
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L08.D Vial: 7
Acq On : 7 May 19 14:55 Operator: LP,DG,CMM,PC
Sample : 600ug/L GAS STD 05/07/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 13:45 2019 Quant Results File: LGAS0507.RES

Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L09.D Vial: 8
Acq On : 7 May 19 15:24 Operator: LP,DG,CMM,PC
Sample : 800ug/L GAS STD 05/07/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 13:28 2019 Quant Results File: LGAS0507.RES

Quant Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 12:43:44 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	TIC	662015	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	9.32	TIC	816006	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene-D (IS)	11.88	TIC	837617	25.0000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) Gasoline C6-C10	9.32	TIC	15465297m	1915.3179	ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

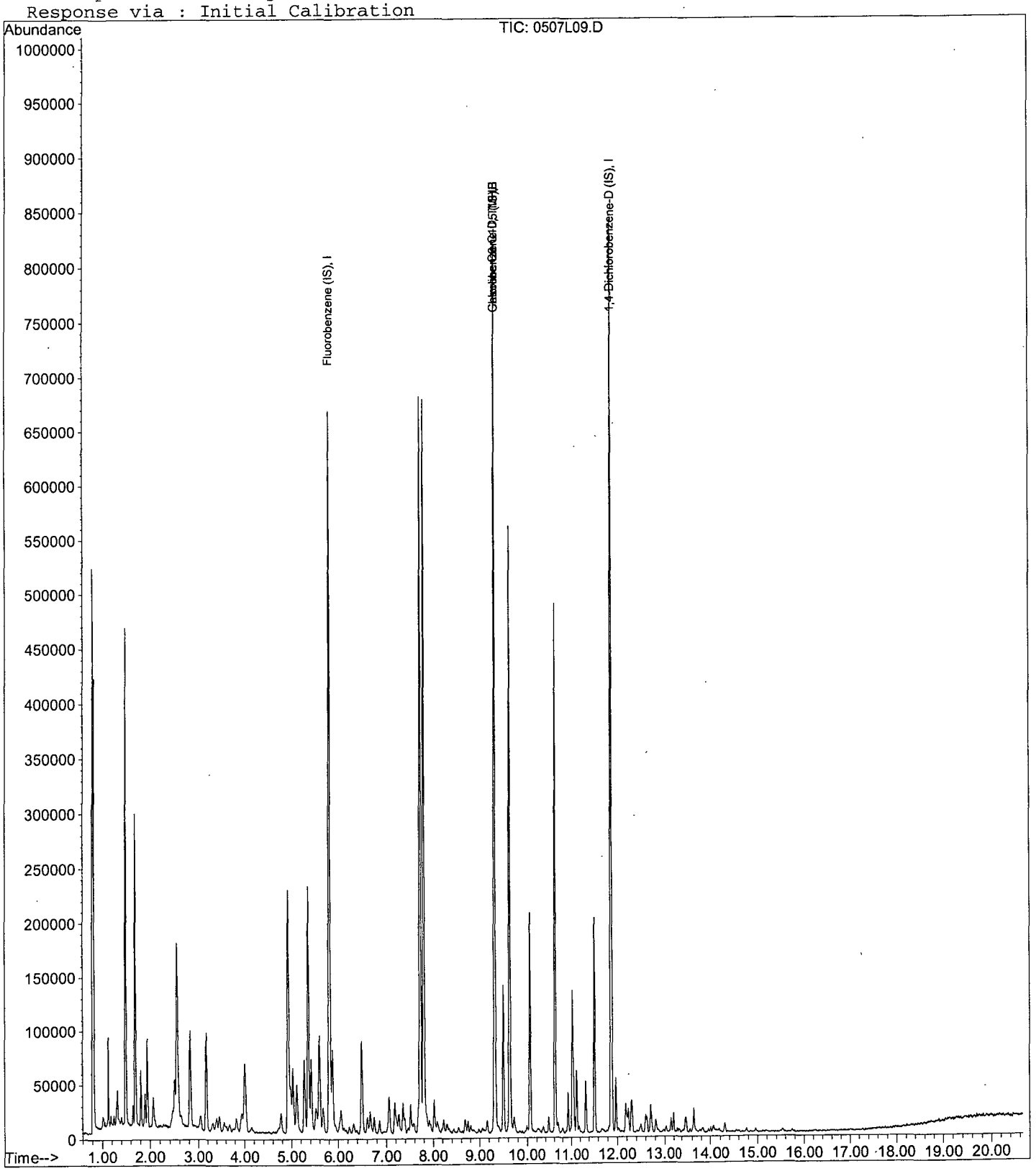
Data File : M:\LOKI\DATA\190506\0507L09.D
Acq On : 7 May 19 15:24
Sample : 800ug/L GAS STD 05/07/19
Misc : ISS 3/5/19, 2/11/19

Vial: 8
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 8 13:28 2019

Quant Results File: LGAS0507.RES

Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L10.D Vial: 9
Acq On : 7 May 19 15:52 Operator: LP,DG,CMM,PC
Sample : 1000ug/L GAS STD 05/07/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 13:34 2019 Quant Results File: LGAS0507.RES

Quant Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 12:43:44 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	TIC	663855	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	9.32	TIC	811244	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene-D (IS)	11.87	TIC	862729	25.0000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) Gasoline C6-C10	7.80	TIC	17145680m	1914.5320	ppb	100

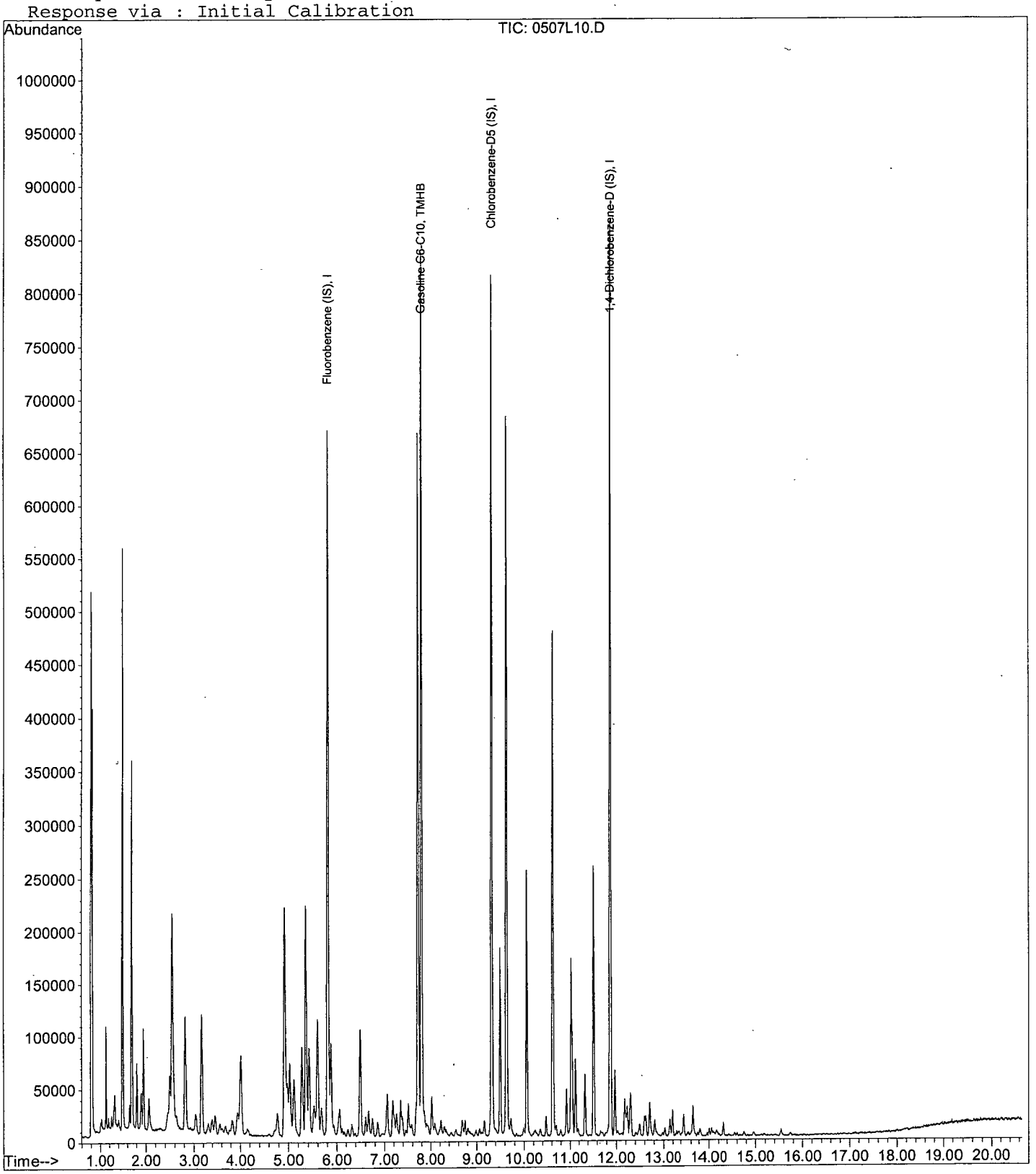
(#) = qualifier out of range (m) = manual integration

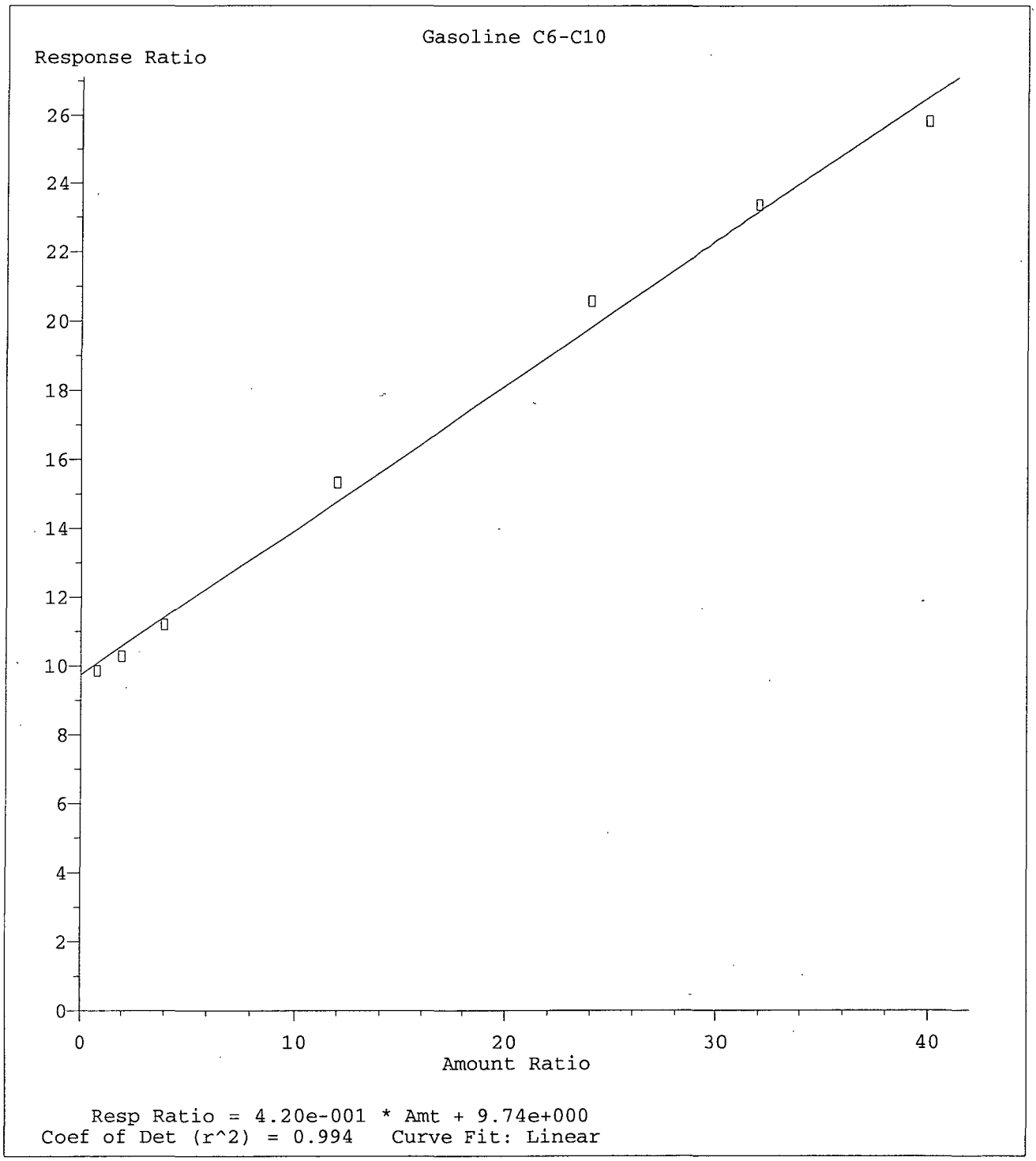
Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L10.D Vial: 9
Acq On : 7 May 19 15:52 Operator: LP,DG,CMM,PC
Sample : 1000ug/L GAS STD 05/07/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 13:34 2019 Quant Results File: LGAS0507.RES

Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration





Method Name: M:\LOKI\DATA\190506\LGAS0507.M
Calibration Table Last Updated: Wed May 08 13:45:44 2019

VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 7 May 19 16:50
Instrument: Loki
Initial Cal. Date: 05/07/19
Data File: 0507L12.D

		Compound	MEAN	CCRF	%D		%Drift
1	TMHB	Gasoline C6-C10	3.394	1.277	62	TMHBL	11
2							
3							
4							
5							
6							
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39							
40							
		Average			62.0		

Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L12.D Vial: 11
Acq On : 7 May 19 16:50 Operator: LP,DG,CMM,PC
Sample : (SS)300ug/L GAS STD 05/07/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 13:46 2019 Quant Results File: LGAS0507.RES

Quant Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	TIC	596879	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	9.32	TIC	694250	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene-D (IS)	11.88	TIC	712948	25.0000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) Gasoline C6-C10	9.32	TIC	9146484m	332.2863	ppb	100

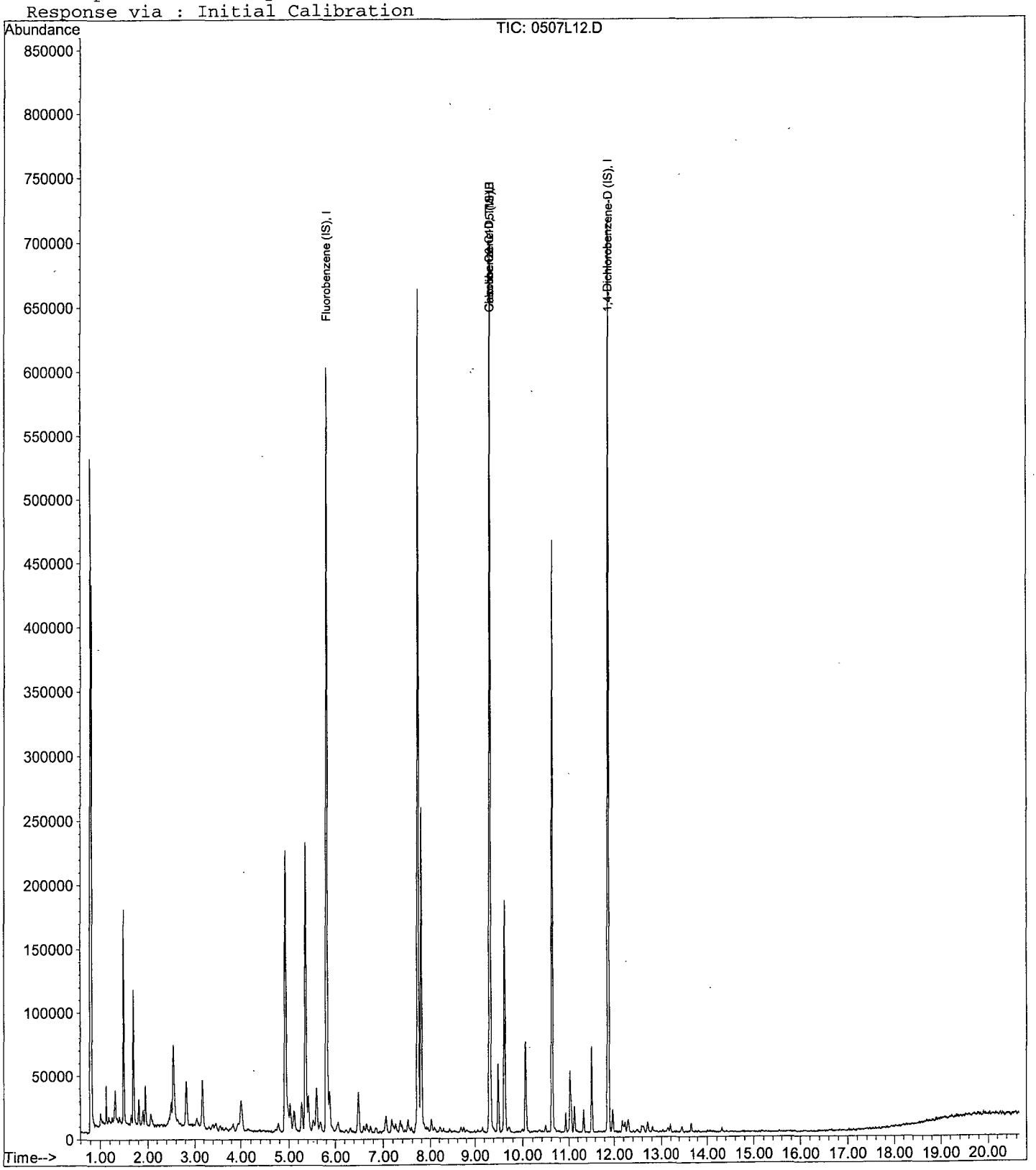
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L12.D Vial: 11
Acq On : 7 May 19 16:50 Operator: LP,DG,CMM,PC
Sample : (SS)300ug/L GAS STD 05/07/19 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 13:46 2019 Quant Results File: LGAS0507.RES

Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration



VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 7 May 19 20:11
Instrument: Loki
Initial Cal. Date: 05/06/19
Data File: 0507I19.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	Fluorobenzene (IS)	ISTD			I	
2	TMHB	Gasoline C6-C10	3.394	1.225	64	TMHBL	1.7
3	I	Chlorobenzene-D5 (IS)	ISTD			I	
4	I	1,4-Dichlorobenzene-D (IS)	ISTD			I	
5							
6							
7							
8							
9							
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37							
38							
39							
40							
		Average			64.0		

VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 7 May 19 20:11
Instrument: Loki
Initial Cal. Date: 05/06/19
Data File: 0507I19.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	Fluorobenzene (IS)	ISTD			I	
2	S	Dibromofluoromethane(S)	0.4709	0.4963	5.4	S	
3	S	1,2-DCA-D4(S)	0.5299	0.5606	5.8	S	
4	I	Chlorobenzene-D5 (IS)	ISTD			I	
5	S	Toluene-D8(S)	1.714	1.851	8.0	S	
6	S	4-Bromofluorobenzene(S)	0.5738	0.5907	3.0	S	
7	I	1,4-Dichlorobenzene-D (IS)	ISTD			I	
8							
9							
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34							
35							
36							
37							
38							
39							
40							
		Average			5.6		

Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507119.D Vial: 18
Acq On : 7 May 19 20:11 Operator: LP,DG,CMM,PC
Sample : 190507A CCV 300ug/L Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:07 2019 Quant Results File: LGAS0507.RES

Quant Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	TIC	628055	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	9.32	TIC	730767	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene-D (IS)	11.88	TIC	732832	25.0000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) Gasoline C6-C10	9.32	TIC	9229387m	294.8567	ppb	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0507119.D Vial: 18
Acq On : 7 May 19 20:11 Operator: LP,DG,CMM,PC
Sample : 190507A CCV 300ug/L Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:05 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	296256	25.0000 ppb	0.00
4) Chlorobenzene-D5 (IS)	9.32	117	241536	25.0000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.88	152	117464	25.0000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.92	111	147037	26.3495 ppb	0.00
Spiked Amount 25.000			Recovery = 105.400%		
3) 1,2-DCA-D4(S)	5.36	65	166068	26.4462 ppb	0.00
Spiked Amount 25.000			Recovery = 105.784%		
5) Toluene-D8(S)	7.72	98	446979	26.9910 ppb	0.00
Spiked Amount 25.000			Recovery = 107.964%		
6) 4-Bromofluorobenzene(S)	10.62	95	142684	25.7391 ppb	0.00
Spiked Amount 25.000			Recovery = 102.956%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report

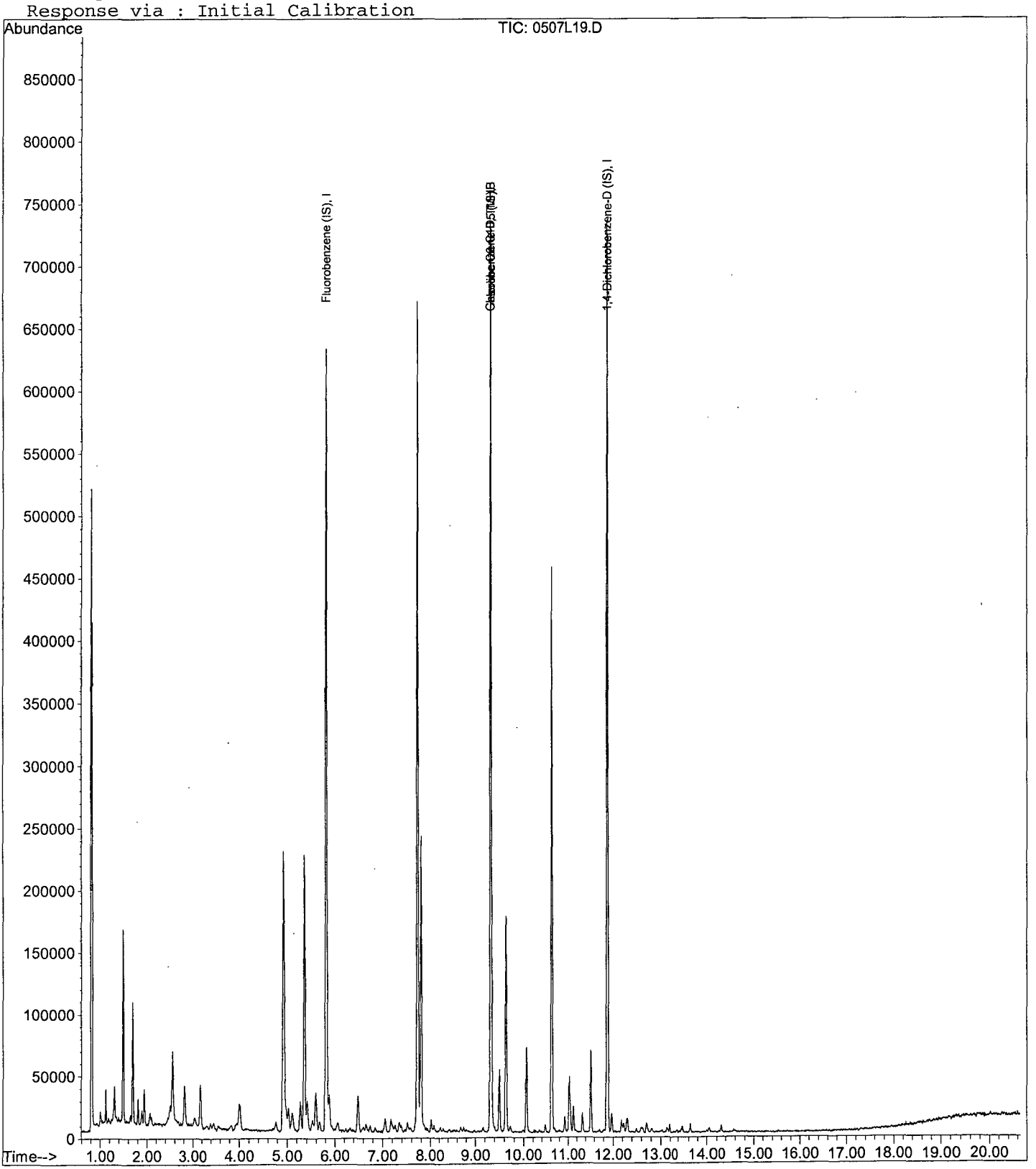
Data File : M:\LOKI\DATA\190506\0507119.D
Acq On : 7 May 19 20:11
Sample : 190507A CCV 300ug/L
Misc : ISS 3/5/19, 2/11/19

Vial: 18
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 8 14:07 2019

Quant Results File: LGAS0507.RES

Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration



VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 8 May 19 6:14
Instrument: Loki
Initial Cal. Date: 05/06/19
Data File: 0507L40.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	Fluorobenzene (IS)	ISTD			I	
2	TMHB	Gasoline C6-C10	3.394	1.306	62	TMHBL	18
3	I	Chlorobenzene-D5 (IS)	ISTD			I	
4	I	1,4-Dichlorobenzene-D (IS)	ISTD			I	
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
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24							
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28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			62.0		

VOLATILE ORGANIC ANALYSIS
VOLATILE ORGANIC COMPOUNDS

Form 7

Ending Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 8 May 19 6:14
Instrument: Loki
Initial Cal. Date: 05/06/19
Data File: 0507L40.D

		Compound	MEAN	CCRF	%D		%Drift
1	I	Fluorobenzene (IS)	ISTD			I	
2	S	Dibromofluoromethane(S)	0.4709	0.4881	3.7	S	
3	S	1,2-DCA-D4(S)	0.5299	0.5434	2.5	S	
4	I	Chlorobenzene-D5 (IS)	ISTD			I	
5	S	Toluene-D8(S)	1.714	1.756	2.5	S	
6	S	4-Bromofluorobenzene(S)	0.5738	0.5442	5.2	S	
7	I	1,4-Dichlorobenzene-D (IS)	ISTD			I	
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
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28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			3.5		

Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L40.D Vial: 39
Acq On : 8 May 19 6:14 Operator: LP,DG,CMM,PC
Sample : Ending CCV 300ug/L Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:06 2019 Quant Results File: LGAS0507.RES

Quant Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	TIC	617772	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	9.32	TIC	728809	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene-D (IS)	11.88	TIC	699398	25.0000	ppb	0.00

System Monitoring Compounds

Target Compounds						Qvalue
2) Gasoline C6-C10	9.32	TIC	9679804m	352.8298	ppb	100

(#) = qualifier out of range (m) = manual integration
0507L40.D LGAS0507.M Wed May 08 14:06:14 2019 Page 1

Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0507L40.D Vial: 39
Acq On : 8 May 19 6:14 Operator: LP,DG,CMM,PC
Sample : Ending CCV 300ug/L Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:05 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	286528	25.0000 ppb	0.00
4) Chlorobenzene-D5 (IS)	9.32	117	238912	25.0000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.88	152	111512	25.0000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.92	111	139867	25.9156 ppb	0.00
Spiked Amount 25.000			Recovery	= 103.664%	
3) 1,2-DCA-D4(S)	5.36	65	155687	25.6348 ppb	0.00
Spiked Amount 25.000			Recovery	= 102.540%	
5) Toluene-D8(S)	7.72	98	419614	25.6168 ppb	0.00
Spiked Amount 25.000			Recovery	= 102.468%	
6) 4-Bromofluorobenzene(S)	10.62	95	130008	23.7100 ppb	0.00
Spiked Amount 25.000			Recovery	= 94.840%	

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report

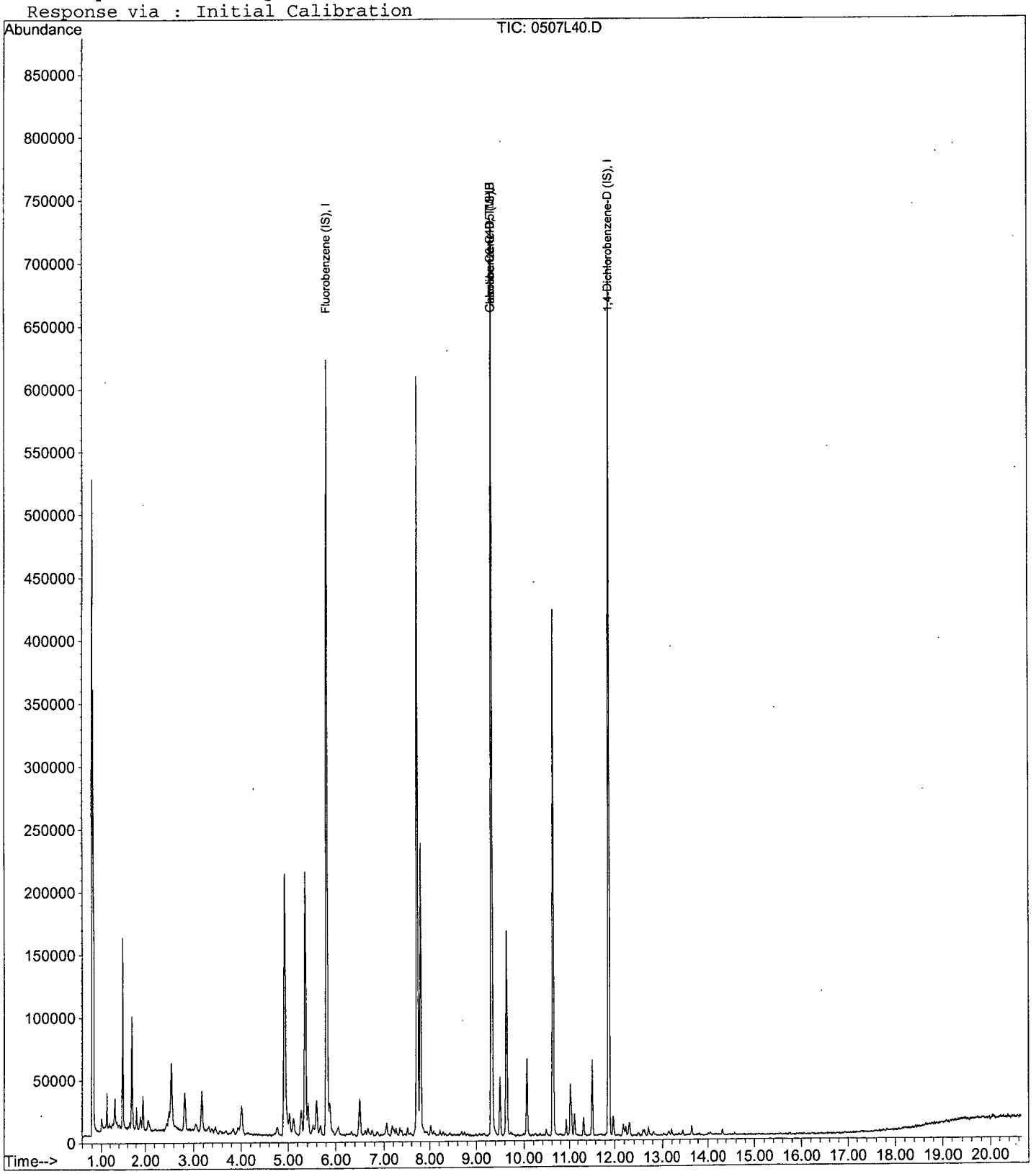
Data File : M:\LOKI\DATA\190506\0507L40.D
Acq On : 8 May 19 6:14
Sample : Ending CCV 300ug/L
Misc : ISS 3/5/19, 2/11/19

Vial: 39
Operator: LP,DG,CMM,PC
Inst : Loki
Multiplr: 1.00

Quant Time: May 8 14:06 2019

Quant Results File: LGAS0507.RES

Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration



ORGANICS
Raw Data

Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L24.D Vial: 23
Acq On : 7 May 19 22:35 Operator: LP,DG,CMM,PC
Sample : AZ90446W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:09 2019 Quant Results File: LGAS0507.RES

Quant Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	TIC	641762	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	9.32	TIC	750838	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene-D (IS)	11.88	TIC	731627	25.0000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
0507L24.D L0509W.M Thu May 16 08:55:59 2019 Page 1

Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0507L24.D Vial: 23
Acq On : 7 May 19 22:35 Operator: LP,DG,CMM,PC
Sample : AZ90446W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:05 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	298176	25.0000 ppb	0.00
4) Chlorobenzene-D5 (IS)	9.33	117	247872	25.0000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.88	152	116408	25.0000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.92	111	139029	24.7540 ppb	0.00
Spiked Amount 25.000			Recovery =	99.016%	
3) 1,2-DCA-D4(S)	5.36	65	156654	24.7864 ppb	0.00
Spiked Amount 25.000			Recovery =	99.144%	
5) Toluene-D8(S)	7.72	98	421585	24.8068 ppb	0.00
Spiked Amount 25.000			Recovery =	99.228%	
6) 4-Bromofluorobenzene(S)	10.62	95	133874	23.5325 ppb	0.00
Spiked Amount 25.000			Recovery =	94.132%	

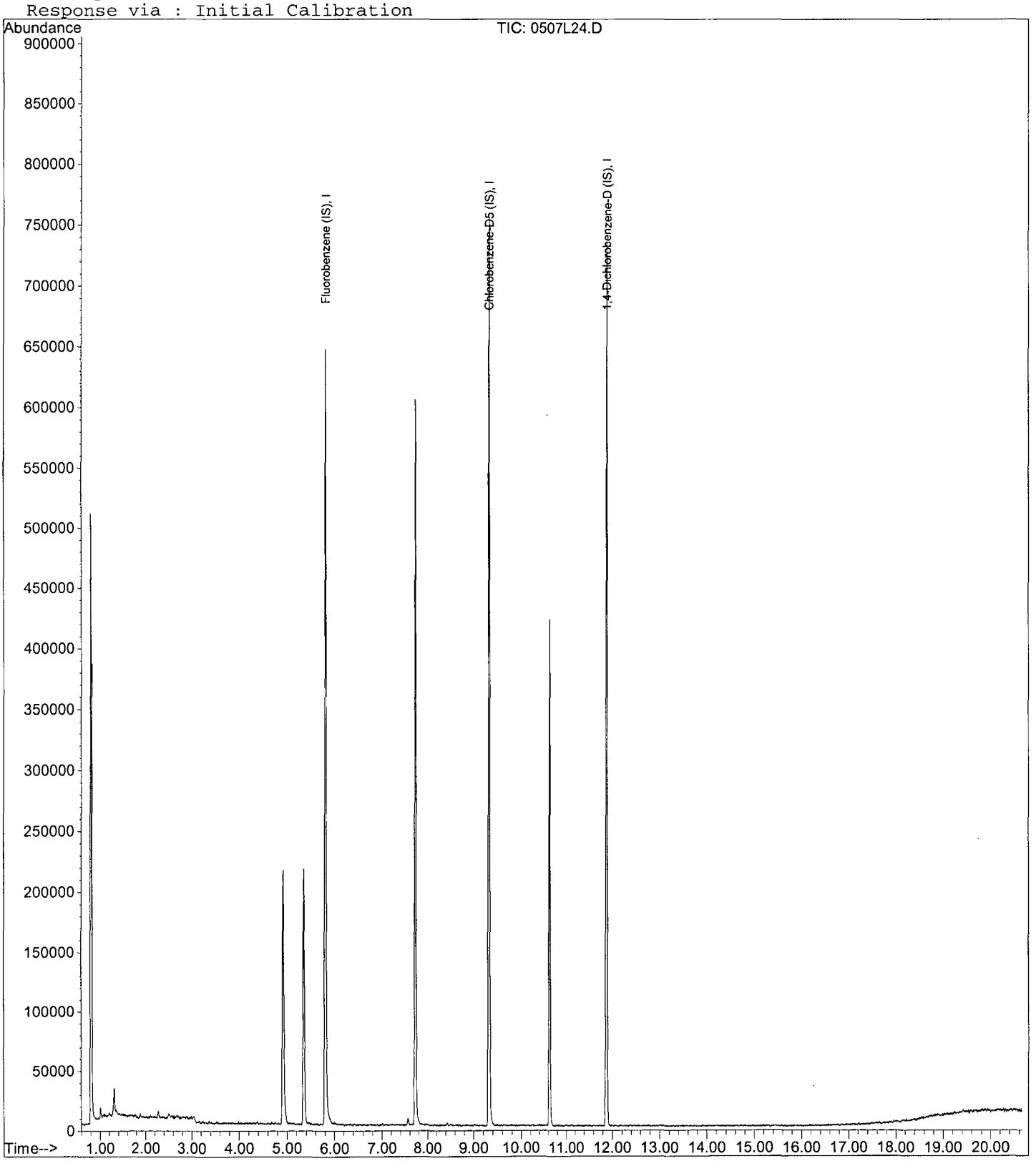
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Data File : M:\LOKI\DATA\190506\0507L24.D Vial: 23
Acq On : 7 May 19 22:35 Operator: LP,DG,CMM,PC
Sample : AZ90446W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:09 2019 Quant Results File: LGAS0507.RES

Method : M:\LOKI\DATA\190509\L0509W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri May 10 11:18:17 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L25.D Vial: 24
Acq On : 7 May 19 23:04 Operator: LP,DG,CMM,PC
Sample : AZ90447W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:10 2019 Quant Results File: LGAS0507.RES

Quant Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	TIC	598196	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	9.32	TIC	717533	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene-D (IS)	11.88	TIC	687981	25.0000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
0507L25.D L0509W.M Thu May 16 08:56:03 2019 Page 1

Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0507L25.D Vial: 24
Acq On : 7 May 19 23:04 Operator: LP,DG,CMM,PC
Sample : AZ90447W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:05 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	279040	25.0000 ppb	0.00
4) Chlorobenzene-D5 (IS)	9.33	117	235264	25.0000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.88	152	107128	25.0000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.92	111	144644	27.5199 ppb	0.00
Spiked Amount 25.000			Recovery	= 110.080%	
3) 1,2-DCA-D4(S)	5.36	65	166348	28.1252 ppb	0.00
Spiked Amount 25.000			Recovery	= 112.500%	
5) Toluene-D8(S)	7.72	98	430561	26.6927 ppb	0.00
Spiked Amount 25.000			Recovery	= 106.772%	
6) 4-Bromofluorobenzene(S)	10.62	95	135488	25.0926 ppb	0.00
Spiked Amount 25.000			Recovery	= 100.372%	

Target Compounds Qvalue

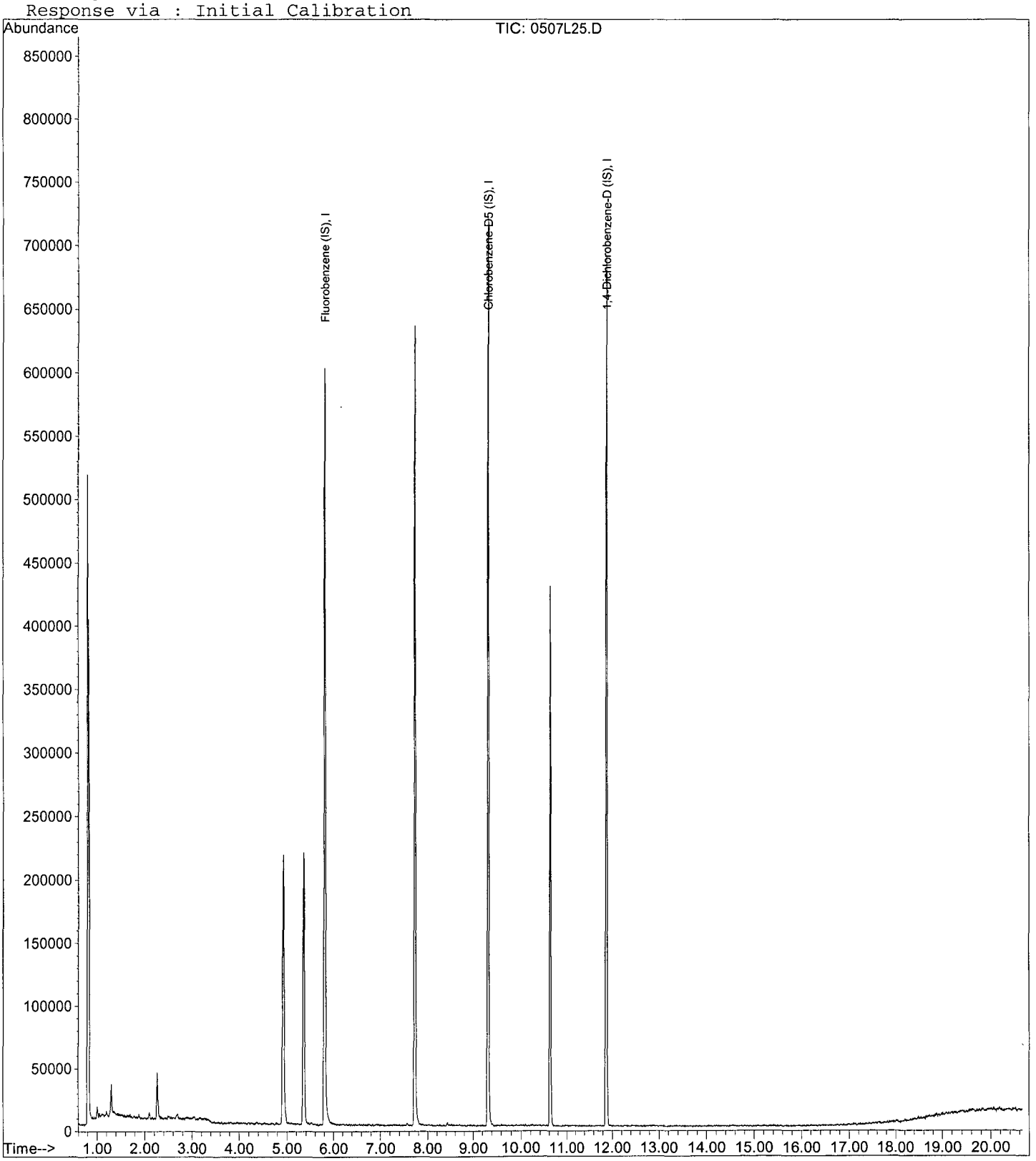
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L25.D Vial: 24
Acq On : 7 May 19 23:04 Operator: LP,DG,CMM,PC
Sample : AZ90447W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:10 2019 Quant Results File: LGAS0507.RES

Method : M:\LOKI\DATA\190509\L0509W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri May 10 11:18:17 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L26.D Vial: 25
Acq On : 7 May 19 23:32 Operator: LP,DG,CMM,PC
Sample : AZ90448W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:10 2019 Quant Results File: LGAS0507.RES

Quant Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	TIC	598641	25.0000 ppb	0.00
3) Chlorobenzene-D5 (IS)	9.32	TIC	726315	25.0000 ppb	0.00
4) 1,4-Dichlorobenzene-D (IS)	11.88	TIC	688801	25.0000 ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0507L26.D Vial: 25
Acq On : 7 May 19 23:32 Operator: LP,DG,CMM,PC
Sample : AZ90448W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:05 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	282624	25.0000 ppb	0.00
4) Chlorobenzene-D5 (IS)	9.32	117	236992	25.0000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.88	152	112496	25.0000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.92	111	145695	27.3684 ppb	0.00
Spiked Amount 25.000			Recovery = 109.472%		
3) 1,2-DCA-D4(S)	5.36	65	164679	27.4900 ppb	0.00
Spiked Amount 25.000			Recovery = 109.960%		
5) Toluene-D8(S)	7.72	98	432150	26.5959 ppb	0.00
Spiked Amount 25.000			Recovery = 106.384%		
6) 4-Bromofluorobenzene(S)	10.62	95	138091	25.3882 ppb	0.00
Spiked Amount 25.000			Recovery = 101.552%		

Target Compounds Qvalue

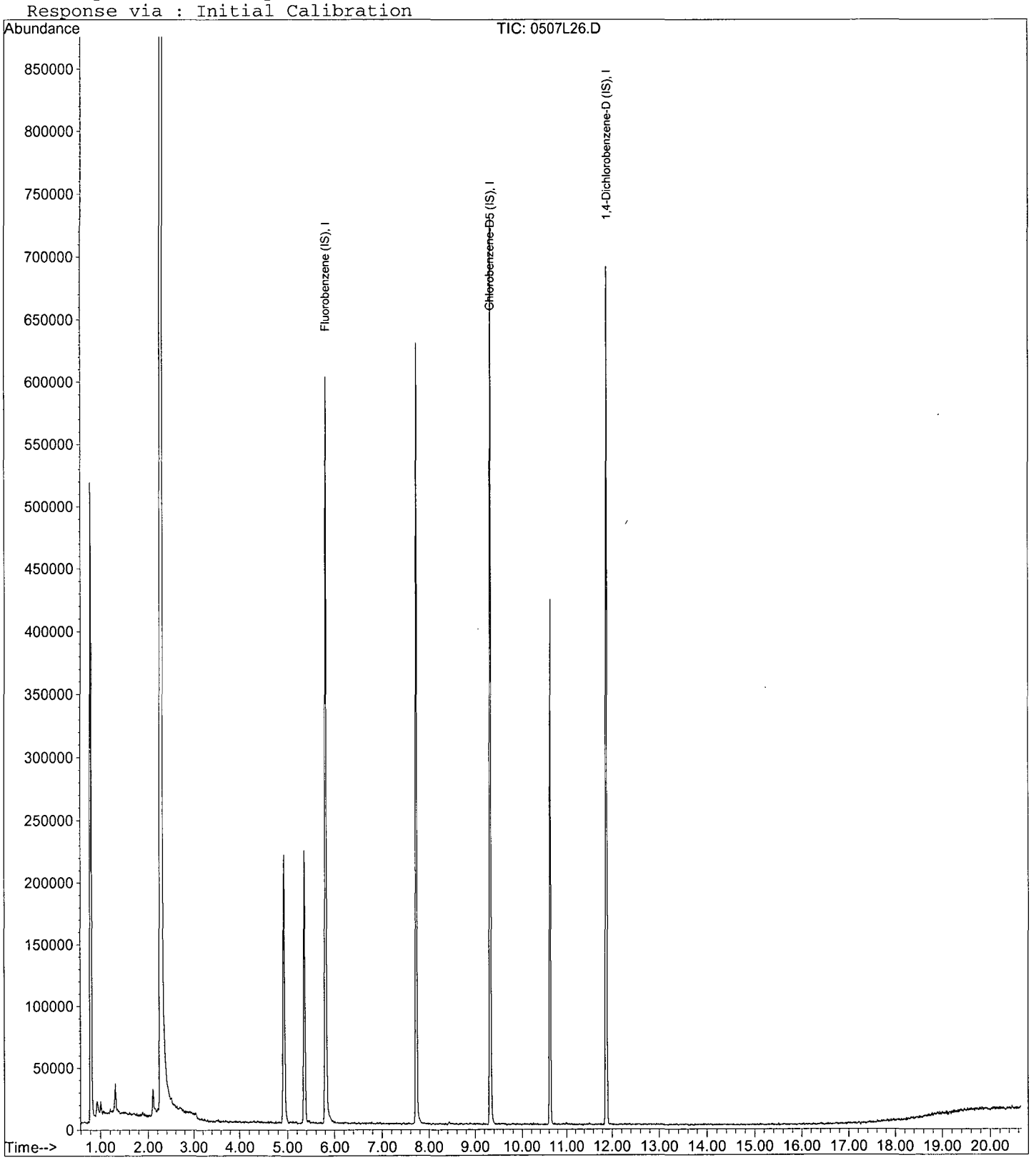
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L26.D Vial: 25
Acq On : 7 May 19 23:32 Operator: LP,DG,CMM,PC
Sample : AZ90448W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:10 2019 Quant Results File: LGAS0507.RES

Method : M:\LOKI\DATA\190509\L0509W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri May 10 11:18:17 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L23.D Vial: 22
Acq On : 7 May 19 22:06 Operator: LP,DG,CMM,PC
Sample : AZ90449W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:09 2019 Quant Results File: LGAS0507.RES

Quant Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	TIC	637567	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	9.32	TIC	749864	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene-D (IS)	11.88	TIC	706867	25.0000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0507L23.D Vial: 22
Acq On : 7 May 19 22:06 Operator: LP,DG,CMM,PC
Sample : AZ90449W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:05 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	294272	25.0000 ppb	0.00
4) Chlorobenzene-D5 (IS)	9.32	117	244800	25.0000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.88	152	118592	25.0000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.92	111	144288	26.0312 ppb	0.00
Spiked Amount 25.000			Recovery	= 104.124%	
3) 1,2-DCA-D4(S)	5.36	65	161803	25.9407 ppb	0.00
Spiked Amount 25.000			Recovery	= 103.764%	
5) Toluene-D8(S)	7.72	98	423565	25.2361 ppb	0.00
Spiked Amount 25.000			Recovery	= 100.944%	
6) 4-Bromofluorobenzene(S)	10.62	95	133843	23.8223 ppb	0.00
Spiked Amount 25.000			Recovery	= 95.288%	

Target Compounds Qvalue

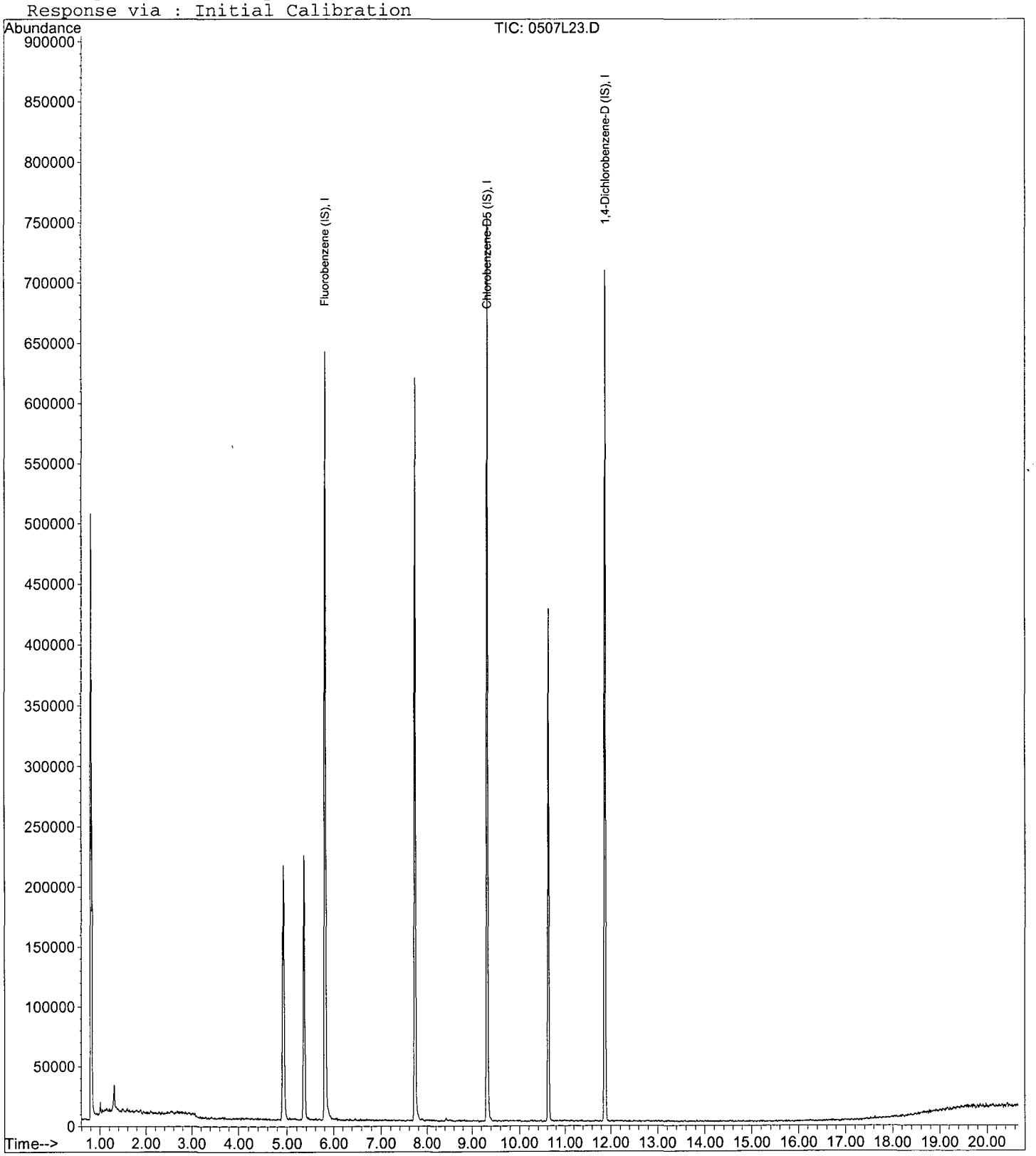
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L23.D Vial: 22
Acq On : 7 May 19 22:06 Operator: LP,DG,CMM,PC
Sample : AZ90449W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:09 2019 Quant Results File: LGAS0507.RES

Method : M:\LOKI\DATA\190509\L0509W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri May 10 11:18:17 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L27.D Vial: 26
Acq On : 8 May 19 00:01 Operator: LP,DG,CMM,PC
Sample : AZ90450W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:10 2019 Quant Results File: LGAS0507.RES

Quant Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	TIC	610045	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	9.32	TIC	708437	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene-D (IS)	11.88	TIC	670544	25.0000	ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0507L27.D Vial: 26
Acq On : 8 May 19 00:01 Operator: LP,DG,CMM,PC
Sample : AZ90450W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:05 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	285440	25.0000 ppb	0.00
4) Chlorobenzene-D5 (IS)	9.32	117	233792	25.0000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.88	152	109744	25.0000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.92	111	140491	26.1305 ppb	0.00
Spiked Amount 25.000			Recovery	= 104.520%	
3) 1,2-DCA-D4(S)	5.36	65	158056	26.1241 ppb	0.00
Spiked Amount 25.000			Recovery	= 104.496%	
5) Toluene-D8(S)	7.72	98	414321	25.8476 ppb	0.00
Spiked Amount 25.000			Recovery	= 103.392%	
6) 4-Bromofluorobenzene(S)	10.62	95	131943	24.5899 ppb	0.00
Spiked Amount 25.000			Recovery	= 98.360%	

Target Compounds Qvalue

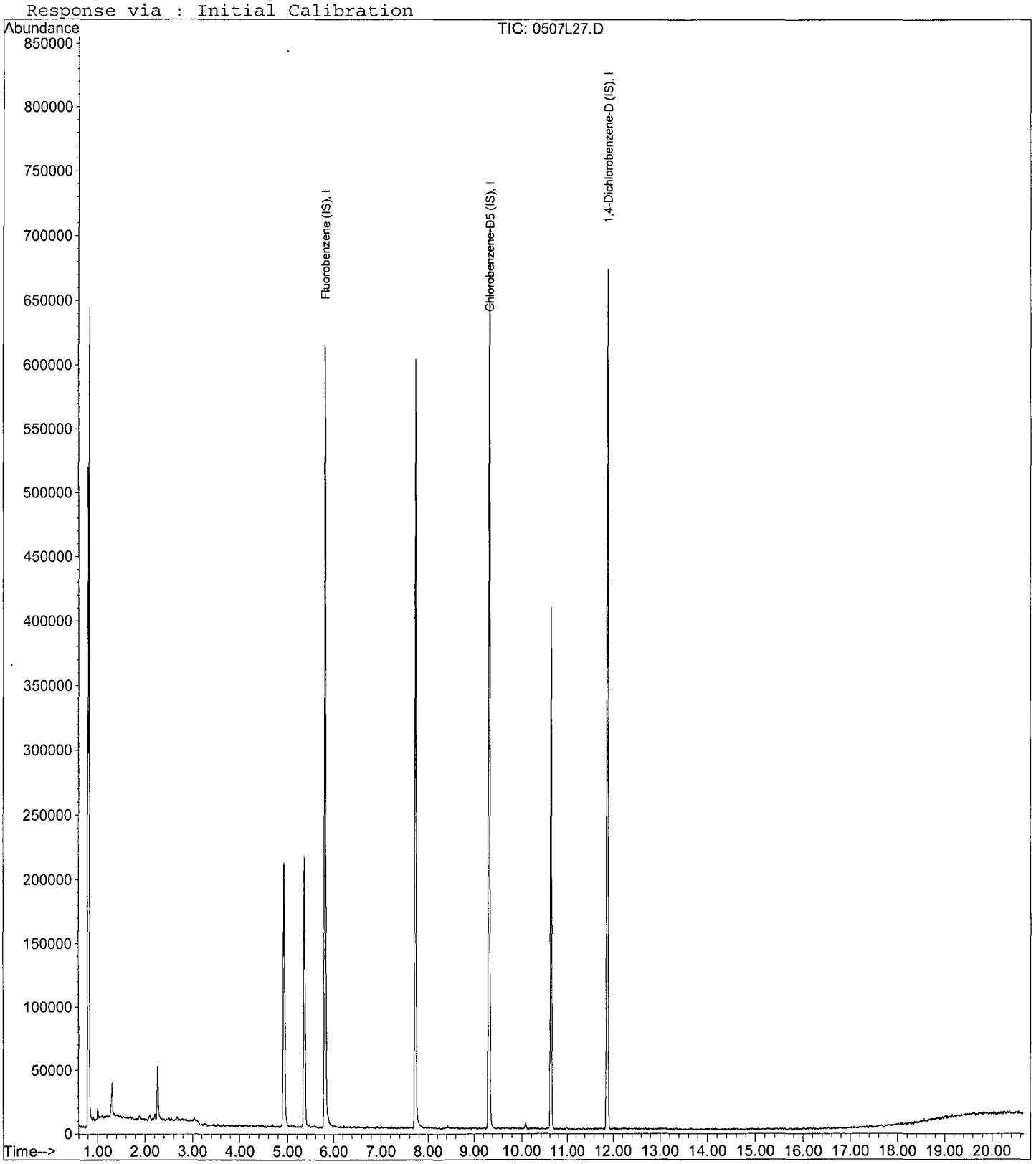
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L27.D Vial: 26
Acq On : 8 May 19 00:01 Operator: LP,DG,CMM,PC
Sample : AZ90450W03 Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:10 2019 Quant Results File: LGAS0507.RES

Method : M:\LOKI\DATA\190509\L0509W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri May 10 11:18:17 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L22.D Vial: 21
Acq On : 7 May 19 21:37 Operator: LP,DG,CMM,PC
Sample : 190507A blk Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:09 2019 Quant Results File: LGAS0507.RES

Quant Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	TIC	661796	25.0000 ppb	0.00
3) Chlorobenzene-D5 (IS)	9.32	TIC	782681	25.0000 ppb	0.00
4) 1,4-Dichlorobenzene-D (IS)	11.88	TIC	754361	25.0000 ppb	0.00

System Monitoring Compounds

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0507L22.D Vial: 21
Acq On : 7 May 19 21:37 Operator: LP,DG,CMM,PC
Sample : 190507A blk Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:05 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	314432	25.0000	ppb	0.00
4) Chlorobenzene-D5 (IS)	9.33	117	255296	25.0000	ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.88	152	120080	25.0000	ppb	0.00
System Monitoring Compounds						
2) Dibromofluoromethane(S)	4.92	111	143158	24.1714	ppb	0.00
Spiked Amount 25.000			Recovery = 96.684%			
3) 1,2-DCA-D4(S)	5.35	65	159934	23.9971	ppb	0.00
Spiked Amount 25.000			Recovery = 95.988%			
5) Toluene-D8(S)	7.72	98	425326	24.2992	ppb	0.00
Spiked Amount 25.000			Recovery = 97.196%			
6) 4-Bromofluorobenzene(S)	10.62	95	132470	22.6086	ppb	0.00
Spiked Amount 25.000			Recovery = 90.436%			

Target Compounds	Qvalue

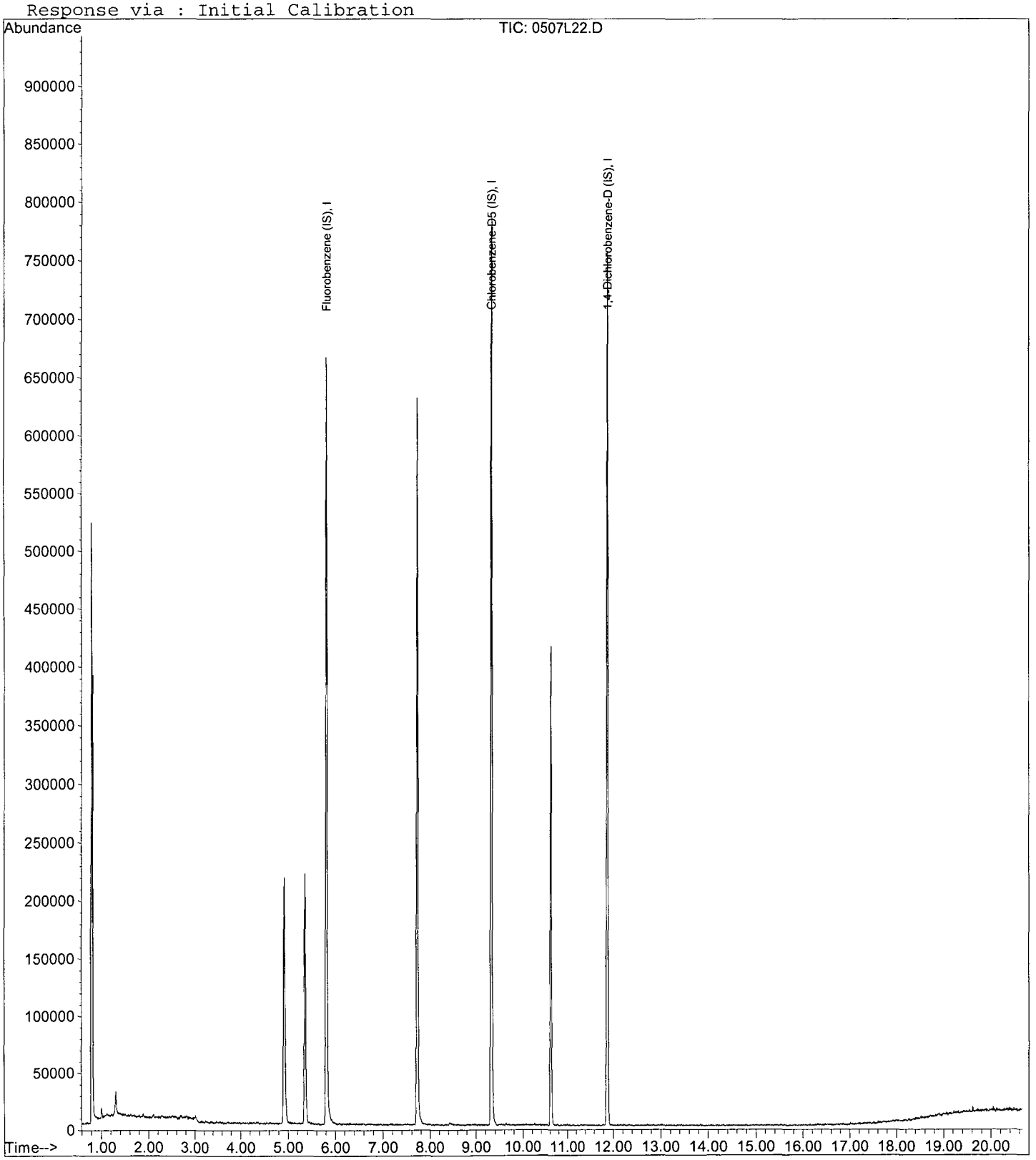
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L22.D Vial: 21
Acq On : 7 May 19 21:37 Operator: LP,DG,CMM,PC
Sample : 190507A blk Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:09 2019 Quant Results File: LGAS0507.RES

Method : M:\LOKI\DATA\190509\L0509W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri May 10 11:18:17 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L20.D Vial: 19
Acq On : 7 May 19 20:40 Operator: LP,DG,CMM,PC
Sample : 190507A LCS 300ug/L Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:08 2019 Quant Results File: LGAS0507.RES

Quant Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	TIC	634957	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	9.32	TIC	762692	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene-D (IS)	11.88	TIC	787130	25.0000	ppb	0.00
System Monitoring Compounds						
Target Compounds						Qvalue
2) Gasoline C6-C10	9.32	TIC	9375355m	299.0333	ppb	100

(#) = qualifier out of range (m) = manual integration
0507L20.D L0509W.M Thu May 16 08:55:23 2019 Page 1

Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0507L20.D Vial: 19
Acq On : 7 May 19 20:40 Operator: LP,DG,CMM,PC
Sample : 190507A LCS 300ug/L Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:05 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	297664	25.0000 ppb	0.00
4) Chlorobenzene-D5 (IS)	9.32	117	252672	25.0000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.88	152	128024	25.0000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.93	111	149454	26.6560 ppb	0.00
Spiked Amount 25.000			Recovery = 106.624%		
3) 1,2-DCA-D4(S)	5.36	65	169121	26.8050 ppb	0.00
Spiked Amount 25.000			Recovery = 107.220%		
5) Toluene-D8(S)	7.72	98	454938	26.2609 ppb	0.00
Spiked Amount 25.000			Recovery = 105.044%		
6) 4-Bromofluorobenzene(S)	10.62	95	148450	25.5990 ppb	0.00
Spiked Amount 25.000			Recovery = 102.396%		

Target Compounds Qvalue

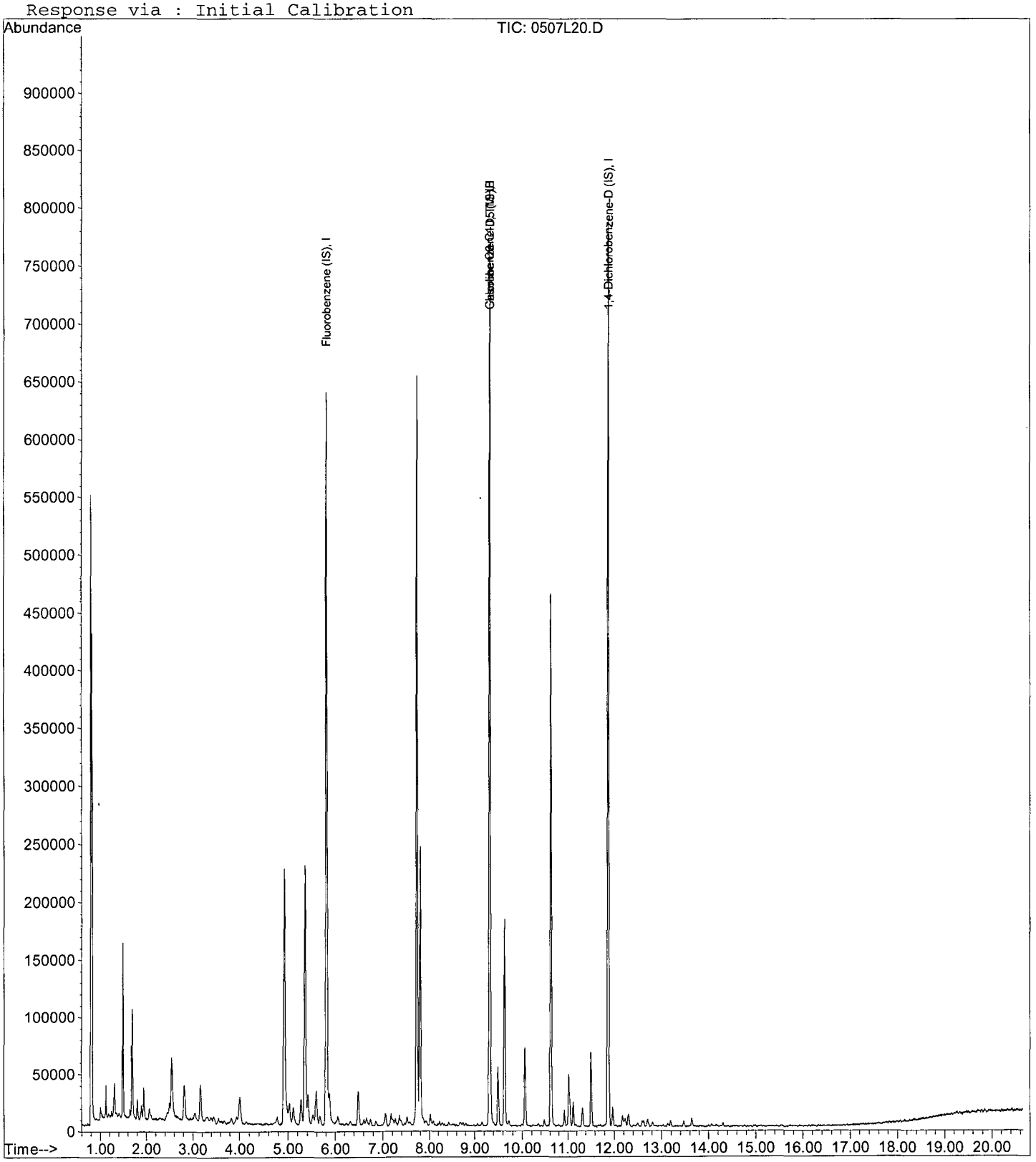
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L20.D Vial: 19
Acq On : 7 May 19 20:40 Operator: LP,DG,CMM,PC
Sample : 190507A LCS 300ug/L Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:08 2019 Quant Results File: LGAS0507.RES

Method : M:\LOKI\DATA\190509\L0509W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri May 10 11:18:17 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : M:\LOKI\DATA\190506\0507L21.D Vial: 20
Acq On : 7 May 19 21:09 Operator: LP,DG,CMM,PC
Sample : 190507A LCSD 300ug/L Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:09 2019 Quant Results File: LGAS0507.RES

Quant Method : M:\LOKI\DATA\190506\LGAS0507.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed May 08 13:45:44 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	TIC	625704	25.0000	ppb	0.00
3) Chlorobenzene-D5 (IS)	9.32	TIC	754174	25.0000	ppb	0.00
4) 1,4-Dichlorobenzene-D (IS)	11.88	TIC	751752	25.0000	ppb	0.00
System Monitoring Compounds						
Target Compounds						Qvalue
2) Gasoline C6-C10	9.32	TIC	9295787m	304.4624	ppb	100

(#) = qualifier out of range (m) = manual integration
0507L21.D L0509W.M Thu May 16 08:55:27 2019 Page 1

Quantitation Report (Not Reviewed)

Data File : M:\LOKI\DATA\190506\0507L21.D Vial: 20
Acq On : 7 May 19 21:09 Operator: LP,DG,CMM,PC
Sample : 190507A LCSD 300ug/L Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:05 2019 Quant Results File: LSUR506W.RES

Quant Method : M:\LOKI\DATA\190506\LSUR506W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Tue May 07 14:19:58 2019
Response via : Initial Calibration
DataAcq Meth : L8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene (IS)	5.81	96	296832	25.0000 ppb	0.00
4) Chlorobenzene-D5 (IS)	9.32	117	249024	25.0000 ppb	0.00
7) 1,4-Dichlorobenzene-D (IS)	11.88	152	119512	25.0000 ppb	0.00
System Monitoring Compounds					
2) Dibromofluoromethane(S)	4.92	111	145639	26.0484 ppb	0.00
Spiked Amount 25.000			Recovery	= 104.192%	
3) 1,2-DCA-D4(S)	5.36	65	164210	26.0996 ppb	0.00
Spiked Amount 25.000			Recovery	= 104.400%	
5) Toluene-D8(S)	7.72	98	439190	25.7232 ppb	0.00
Spiked Amount 25.000			Recovery	= 102.892%	
6) 4-Bromofluorobenzene(S)	10.62	95	143742	25.1503 ppb	0.00
Spiked Amount 25.000			Recovery	= 100.600%	

Target Compounds Qvalue

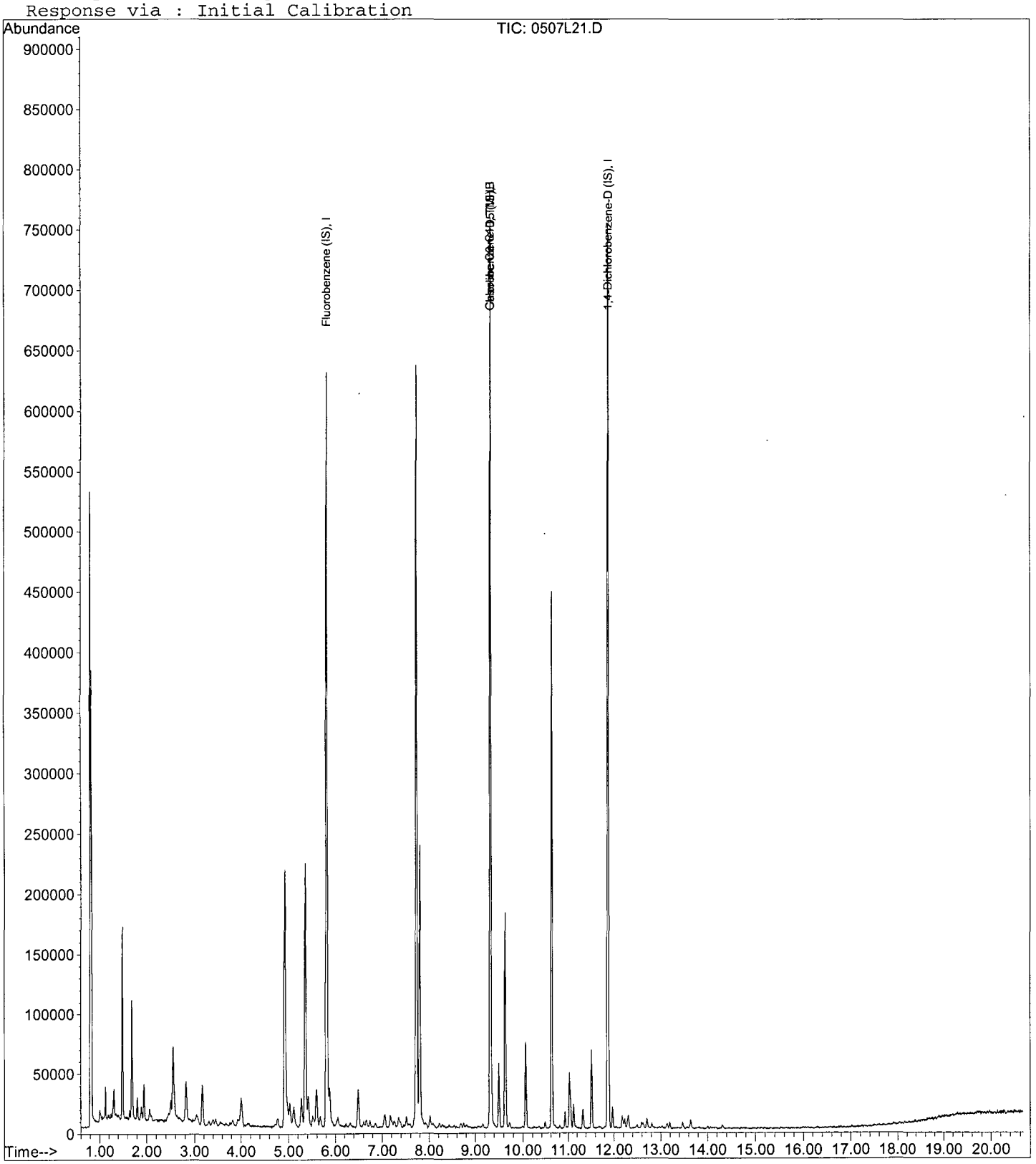
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : M:\LOKI\DATA\190506\0507L21.D Vial: 20
Acq On : 7 May 19 21:09 Operator: LP,DG,CMM,PC
Sample : 190507A LCSD 300ug/L Inst : Loki
Misc : ISS 3/5/19, 2/11/19 Multiplr: 1.00

Quant Time: May 8 14:09 2019 Quant Results File: LGAS0507.RES

Method : M:\LOKI\DATA\190509\L0509W.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Fri May 10 11:18:17 2019
Response via : Initial Calibration



Loki 8260 Standard Prep

Loki 8260 Water Calibration Curve

0.3ug/L

Prepared By (Initials): PC

Prepared: 05/06/19

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	0.3ug/L	5	Prepared 05/06/19	07/05/19	N/A	3uL	50mL	P&T Water	0.3
VOA STD. 10	O2SI		5	Prepared 05/06/19	07/05/19	N/A	3uL			0.3
VOA STD. 12	O2SI		5	Prepared 05/06/19	07/05/19	N/A	3uL			0.3
VOA STD. TBA	Various		250	Prepared 05/06/19	05/22/19	N/A	2uL			10

0.5ug/L

Prepared: 05/06/19

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	0.5ug/L	5	Prepared 05/06/19	07/05/19	N/A	5uL	50mL	P&T Water	0.5
VOA STD. 10	O2SI		5	Prepared 05/06/19	07/05/19	N/A	5uL			0.5
VOA STD. 12	O2SI		5	Prepared 05/06/19	07/05/19	N/A	5uL			0.5
VOA STD. TBA	Various		250	Prepared 05/06/19	05/22/19	N/A	5uL			25

1.0ug/L

Prepared: 05/06/19

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	1.0ug/L	5	Prepared 05/06/19	07/05/19	N/A	10uL	50mL	P&T Water	1
VOA STD. 10	O2SI		5	Prepared 05/06/19	07/05/19	N/A	10uL			1
VOA STD. 12	O2SI		5	Prepared 05/06/19	07/05/19	N/A	10uL			1
VOA STD. TBA	Various		250	Prepared 05/06/19	05/22/19	N/A	10uL			50

2.0ug/L

Prepared: 05/06/19

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 9	O2SI	2.0ug/L	5	Prepared 05/06/19	07/05/19	N/A	20uL	50mL	P&T Water	2
VOA STD. 10	O2SI		5	Prepared 05/06/19	07/05/19	N/A	20uL			2
VOA STD. 12	O2SI		5	Prepared 05/06/19	07/05/19	N/A	20uL			2
VOA STD. TBA	Various		250	Prepared 05/06/19	05/22/19	N/A	15uL			75

5ug/L

Prepared: 05/06/19

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	5ug/L	50	Prepared 05/06/19	07/05/19	N/A	5uL	50mL	P&T Water	5
VOA STD. 8	Phenova		50	Prepared 05/06/19	05/22/19	N/A	5uL			5
VOA STD. 1	O2SI		50	Prepared 05/06/19	07/05/19	N/A	5uL			5
VOA STD. 2	O2SI		50	Prepared 05/06/19	07/05/19	N/A	5uL			5
VOA STD. TBA	Various		250	Prepared 05/06/19	05/22/19	N/A	20uL			100

10ug/L

Prepared: 05/06/19

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	10ug/L	50	Prepared 05/06/19	07/05/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 8	Phenova		50	Prepared 05/06/19	05/22/19	N/A	10uL			10
VOA STD. 1	O2SI		50	Prepared 05/06/19	07/05/19	N/A	10uL			10
VOA STD. 2	O2SI		50	Prepared 05/06/19	07/05/19	N/A	10uL			10
VOA STD. TBA	Various		250	Prepared 05/06/19	05/22/19	N/A	25uL			125

20ug/L

Prepared: 05/06/19

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	20ug/L	50	Prepared 05/06/19	07/05/19	N/A	20uL	50mL	P&T Water	20
VOA STD. 8	Phenova		50	Prepared 05/06/19	05/22/19	N/A	20uL			20
VOA STD. 1	O2SI		50	Prepared 05/06/19	07/05/19	N/A	20uL			20
VOA STD. 2	O2SI		50	Prepared 05/06/19	07/05/19	N/A	20uL			20
VOA STD. TBA	Various		250	Prepared 05/06/19	05/22/19	N/A	30uL			150

40ug/L

Prepared: 05/06/19

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	40ug/L	50	Prepared 05/06/19	07/05/19	N/A	40uL	50mL	P&T Water	40
VOA STD. 8	Phenova		50	Prepared 05/06/19	05/22/19	N/A	40uL			40
VOA STD. 1	O2SI		50	Prepared 05/06/19	07/05/19	N/A	40uL			40
VOA STD. 2	O2SI		50	Prepared 05/06/19	07/05/19	N/A	40uL			40
VOA STD. TBA	Various		250	Prepared 05/06/19	05/22/19	N/A	35uL			175

100ug/L

Prepared: 05/06/19

Expires: 06/05/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	100ug/L	50	Prepared 05/06/19	07/05/19	N/A	100uL	50mL	P&T Water	100
VOA STD. 8	Phenova		50	Prepared 05/06/19	05/22/19	N/A	100uL			100
VOA STD. 1	O2SI		50	Prepared 05/06/19	07/05/19	N/A	100uL			100
VOA STD. 2	O2SI		50	Prepared 05/06/19	07/05/19	N/A	100uL			100
VOA STD. TBA	Various		250	Prepared 05/06/19	05/22/19	N/A	40uL			200

Loki 8260 Water Second Source (SS)

Prepared: 05/06/19

Expires: 06/05/19

Prepared By (Initials): PC

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 4	Phenova	8260 Water SS	50	Prepared 05/06/19	07/05/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 5	O2SI	8260 Water SS	50	Prepared 05/06/19	07/05/19	N/A	10uL			10
VOA STD. 6	Various	8260 Water SS	50	Prepared 05/06/19	05/08/19	N/A	10uL			10
Voa STD. TBA	Various	8260 Water SS	250	Prepared 05/06/19	05/08/19	N/A	25uL			250

8260 Water Continuing Calibrations (CCV)/ Lab Control Spikes (LCS)

Prepared: 05/06/19

Expires: 05/07/19

Prepared By (Initials): PC

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	CCV/ LCS	50	Prepared 05/06/19	07/05/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 8	Phenova	CCV/ LCS	50	Prepared 05/06/19	05/22/19	N/A	10uL			10
VOA STD. 1	O2SI	CCV/ LCS	50	Prepared 05/06/19	07/05/19	N/A	10uL			10
VOA STD. 2	O2SI	CCV/ LCS	50	Prepared 05/06/19	07/05/19	N/A	10uL			10
VOA STD. TBA	Various	CCV/ LCS	250	Prepared 05/06/19	05/22/19	N/A	25uL			125

LCS (X4 Ketones)

Prepared: 05/06/19

Expires: 05/07/19

Prepared By (Initials): PC

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA STD. 7	Various	LCS X4 Ketones	50	Prepared 05/06/19	07/05/19	N/A	10uL	50mL	P&T Water	10
VOA STD. 8	Phenova	LCS X4 Ketones	50	Prepared 05/06/19	05/22/19	N/A	10uL			10
VOA STD. 1	O2SI	LCS X4 Ketones	50	Prepared 05/06/19	07/05/19	N/A	10uL			10
VOA STD. 2	O2SI	LCS X4 Ketones	50	Prepared 05/06/19	07/05/19	N/A	40uL			40
VOA STD. TBA	Various	LCS X4 Ketones	250	Prepared 05/06/19	05/22/19	N/A	25uL			125

Loki 8260 Water Surrogate

Prepared: 02/11/19 **Prepared By (Initials):** PC

Expires: 07/28/19

Methanol Lot No: 202404-9077

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
8260 Surrogate Solution	O2SI	120002-01	2,000	**384756-39333**	**07/28/19**	**02/10/22**	375uL	15mL	Methanol	50

Loki 8260 Water Internal Standard

Prepared: 03/21/19 **Prepared By (Initials):** DG

Expires: 03/06/20

Methanol Lot No: 202404-9077

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Internal Standard Solution	O2SI	120004-02	2,000	**326533-38436**	**03/06/20**	**04/27/21**	375uL	15mL	Methanol	50

Gas Primary Working Standard

Prepared: 02/01/19 — **Prepared By (Initials): CMM**

Expires: 11/01/19

Methanol Lot No. 9077-02

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
50,000ug/mL Gas STD	Restek	30205	50,000	A0132443-39861	11/01/19	12/31/24	80uL	2mL	Methanol	2,000

Gas Second Source (SS) Working Standard

Prepared: 01/14/19 — **Prepared By (Initials): CMM**

Expires: 01/14/20

Methanol Lot No. 946

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
Gasoline (5,000ppm)	O2SI	020246-06	5,000	G34-326538-39193	01/14/20	10/31/20	800uL	2mL	Methanol	2,000

Loki Gas Calibration Curve

Prepared: 05/07/19 — **Prepared By (Initials): PC**

Expires: 07/06/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
VOA Gasses Standards	Phenova	20ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	1uL	100mL	P&T Water	20
VOA Gasses Standards	Phenova	50ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	2.5uL	100mL	P&T Water	50
VOA Gasses Standards	Phenova	100ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	5uL	100mL	P&T Water	100
VOA Gasses Standards	Phenova	300ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	15uL	100mL	P&T Water	300
VOA Gasses Standards	Phenova	600ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	30uL	100mL	P&T Water	600
VOA Gasses Standards	Phenova	800ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	40uL	100mL	P&T Water	800
VOA Gasses Standards	Phenova	1,000ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	50uL	100mL	P&T Water	1,000

Loki Gas Second Source

Prepared: 05/07/19 — **Prepared By (Initials): PC**

Expires: 07/06/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. (ug/mL)	Reference To APPL Prep Date	Exp. Date	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
50,000ug/mL Gas STD	Phenova	SS 300ug/L	2,000	Prepared 01/14/19	01/14/20	N/A	15uL	100mL	P&T Water	300

Loki Gas Continuing Calibrations/Lab Control Spikes

Prepared: 05/07/19 — **Prepared By (Initials): PC**

Expires: 05/08/19

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
VOA Gasses Standards	Phenova	300ug/L	2,000	Prepared 02/01/19	11/01/19	N/A	15uL	100mL	P&T Water	300

Loki Gas Surrogate

Prepared: 08/30/18 — **Prepared By (Initials): PC**

Expires: 04/02/19

Methanol Lot No. 57159

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/mL)
8260B Surrogate Solution	O2SI	120002-01	2,000	**275545-36329**	**06/09/19**	**04/02/19**	375uL	15mL	Methanol	50

Loki Gas Internal Standard

Prepared: 08/24/18 — **Prepared By (Initials): PC**

Expires: 04/13/19

Methanol Lot No. 57159

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier P/N#	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date (1 yr.)	Exp. Date (Manufacturers)	Aliquot From Stock	Final Volume	Solvent	Final Standard Conc. (ug/L)
IS Solution	O2SI	120004-02	2,000	**326533-38443**	**04/13/19**	**04/27/21**	375uL	15mL	Methanol	50

Injection Log

Directory: M:\LOKI\DATA\190506\

Vial	FileName	Multiplier	SampleName	Misc Info	Injected
2	0506L06.D	1	0.3ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 17:12
3	0506L07.D	1	0.5ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 17:41
4	0506L08.D	1	1.0ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 18:09
5	0506L09.D	1	2.0ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 18:38
6	0506L10.D	1	5.0ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 19:07
7	0506L11.D	1	10ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 19:36
8	0506L12.D	1	20ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 20:05
9	0506L13.D	1	40ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 20:34
10	0506L14.D	1	100ug/L VOC STD 05/06/19	ISS 3/5/19, 2/11/19	6 May 19 21:02
3	0507L04.D	1	20ug/L GAS STD 05/07/19	ISS 3/5/19, 2/11/19	7 May 19 13:00
4	0507L05.D	1	50ug/L GAS STD 05/07/19	ISS 3/5/19, 2/11/19	7 May 19 13:29
5	0507L06.D	1	100ug/L GAS STD 05/07/19	ISS 3/5/19, 2/11/19	7 May 19 13:57
6	0507L07.D	1	300ug/L GAS STD 05/07/19	ISS 3/5/19, 2/11/19	7 May 19 14:26
7	0507L08.D	1	600ug/L GAS STD 05/07/19	ISS 3/5/19, 2/11/19	7 May 19 14:55
8	0507L09.D	1	800ug/L GAS STD 05/07/19	ISS 3/5/19, 2/11/19	7 May 19 15:24
9	0507L10.D	1	1000ug/L GAS STD 05/07/19	ISS 3/5/19, 2/11/19	7 May 19 15:52
11	0507L12.D	1	(SS)300ug/L GAS STD 05/07/19	ISS 3/5/19, 2/11/19	7 May 19 16:50
18	0507L19.D	1	190507A CCV 300ug/L	ISS 3/5/19, 2/11/19	7 May 19 20:11
19	0507L20.D	1	190507A LCS 300ug/L	ISS 3/5/19, 2/11/19	7 May 19 20:40
20	0507L21.D	1	190507A LCSD 300ug/L	ISS 3/5/19, 2/11/19	7 May 19 21:09
21	0507L22.D	1	190507A blk	ISS 3/5/19, 2/11/19	7 May 19 21:37
22	0507L23.D	1	AZ90449W03	ISS 3/5/19, 2/11/19	7 May 19 22:06
23	0507L24.D	1	AZ90446W03	ISS 3/5/19, 2/11/19	7 May 19 22:35
24	0507L25.D	1	AZ90447W03	ISS 3/5/19, 2/11/19	7 May 19 23:04
25	0507L26.D	1	AZ90448W03	ISS 3/5/19, 2/11/19	7 May 19 23:32
26	0507L27.D	1	AZ90450W03	ISS 3/5/19, 2/11/19	8 May 19 00:01
39	0507L40.D	1	Ending CCV 300ug/L	ISS 3/5/19, 2/11/19	8 May 19 6:14

ORGANICS
Calibration Data

APPL, INC.

RSK 175

Form 6
Initial Calibration

Lab Name: APPL, Inc. SDG No:
Case No: Initial Cal. Date: 03/11/19
Matrix: Instrument: 7890

Initials: CM/LP

19031100.D 19031101.D 19031103.D 19031104.D 19031105.D 19031106.D 19031107.D

		Compound	1	2	3	4	5	6	7				Avg	%RSD	Type	r^2	Q
1	ATML	Methane	17670	8968	6066	11811	14125	14507	13183				12333	31	ATM	0.999	
2	ATML	Ethane	14730	8189	5526	9883	12114	11368	10522				10333	28	ATM	0.999	
3	ATML	Ethene	12553	7178	4798	8331	10165	9095	8863				8712	28	ATM	1.000	
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2.487833

Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031100.D Vial: 1
Acq On : 11 Mar 19 10:21 Operator: cmm
Sample : RSK Std 1 03/11/19 Inst : 7890
Misc : 125uL from RSK Std 3 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:49 2019 Quant Results File: RSK0311.RES

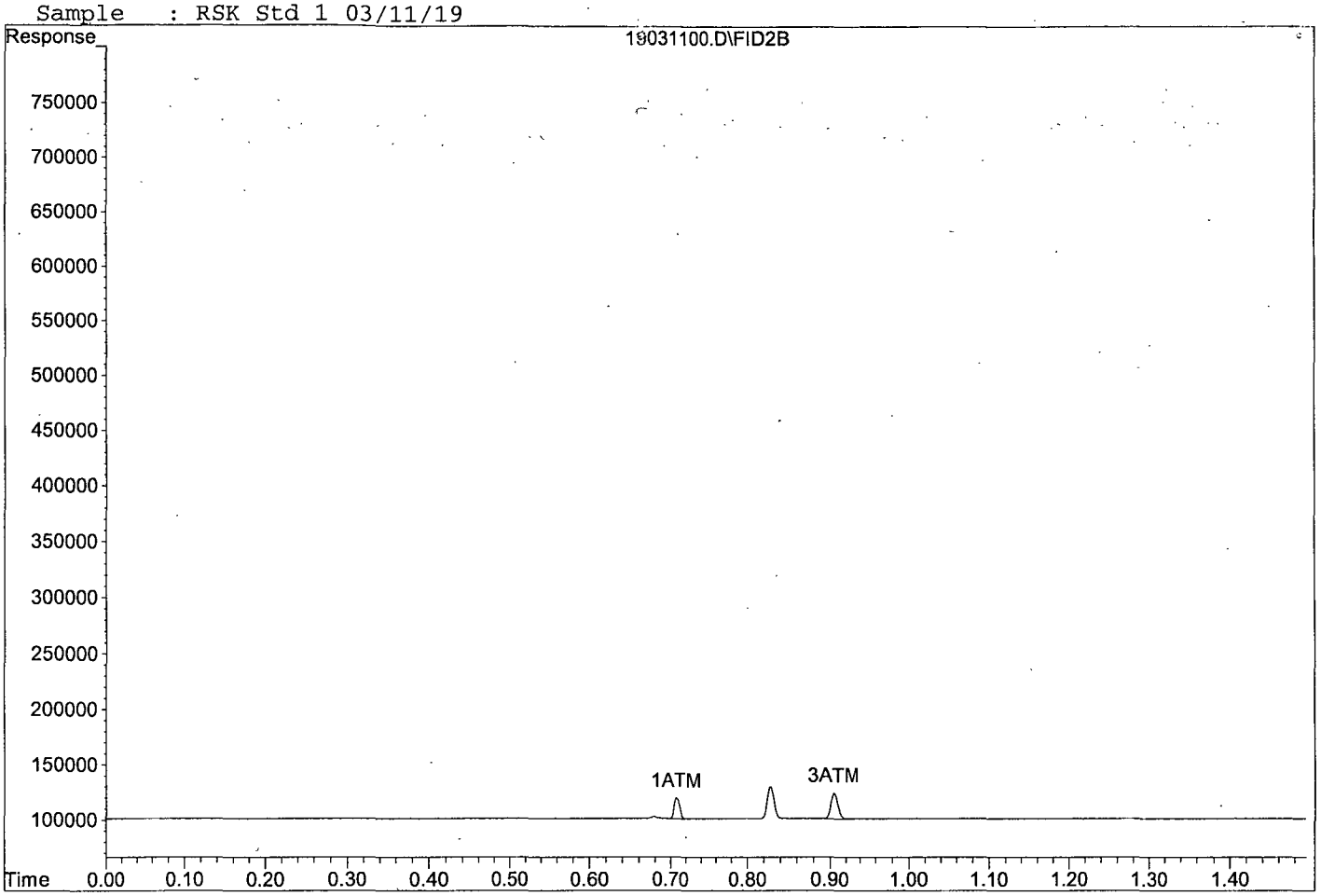
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:48:58 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) ATM Methane	0.71	18377	0.442	ppb
3) ATM Ethene	0.91	22909	1.995	ppb
Target Compounds				
2) ATM Ethane	0.83	28797	N.D.	ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031100.D
Sample : RSK Std 1 03/11/19



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031101.D Vial: 2
Acq On : 11 Mar 19 10:23 Operator: cmm
Sample : RSK Std 2 03/11/19 Inst : 7890
Misc : 250uL from RSK Std 3 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:49 2019 Quant Results File: RSK0311.RES

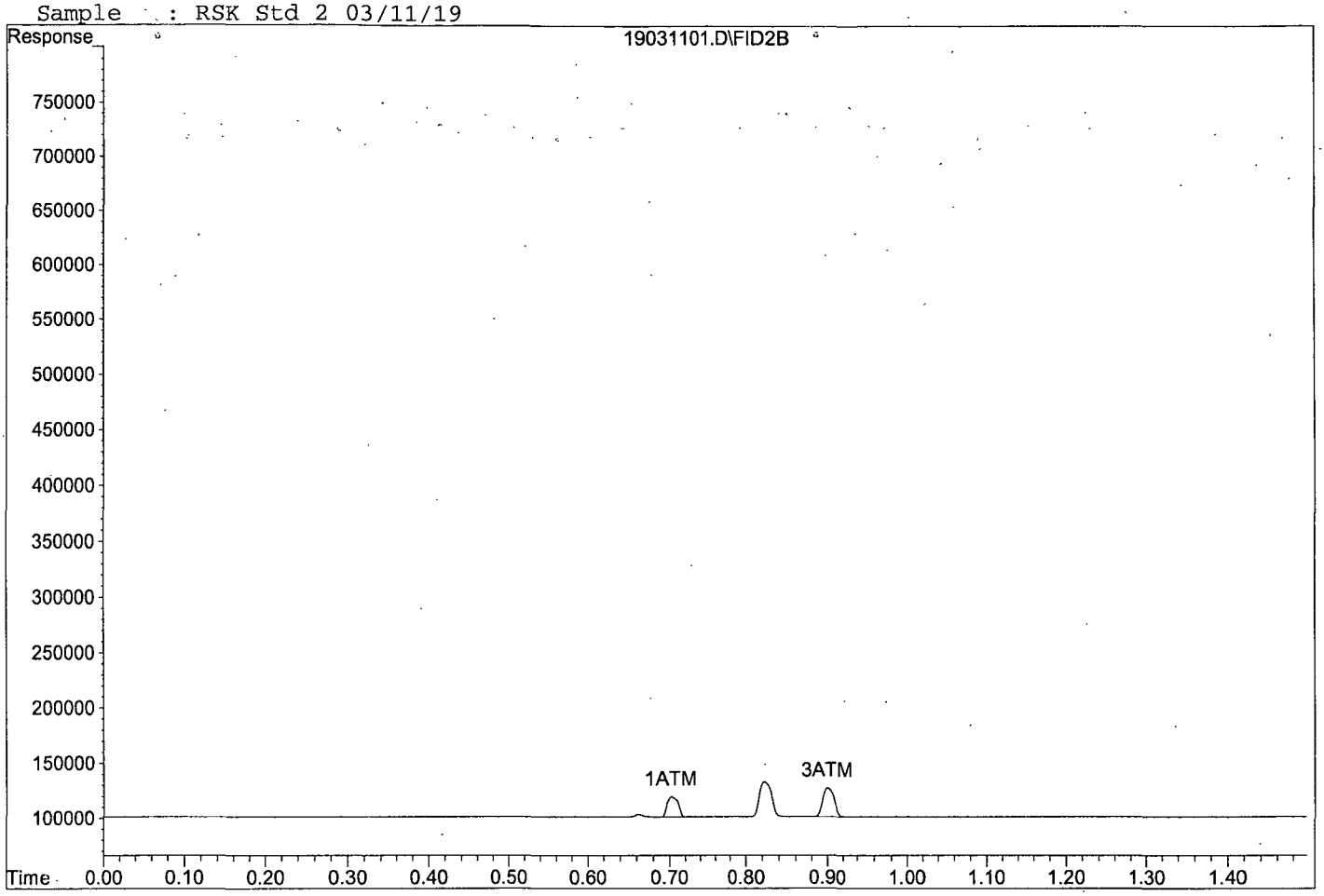
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:49:30 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) ATM Methane	0.70	18654	0.484	ppb
3) ATM Ethene	0.90	26201	2.738	ppb
Target Compounds				
2) ATM Ethane	0.82	31979	N.D.	ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031101.D
Sample : RSK Std 2 03/11/19



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031103.D Vial: 4
Acq On : 11 Mar 19 10:28 Operator: cmm
Sample : RSK Std 3 03/11/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:50 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:49:59 2019
Response via : Multiple Level Calibration

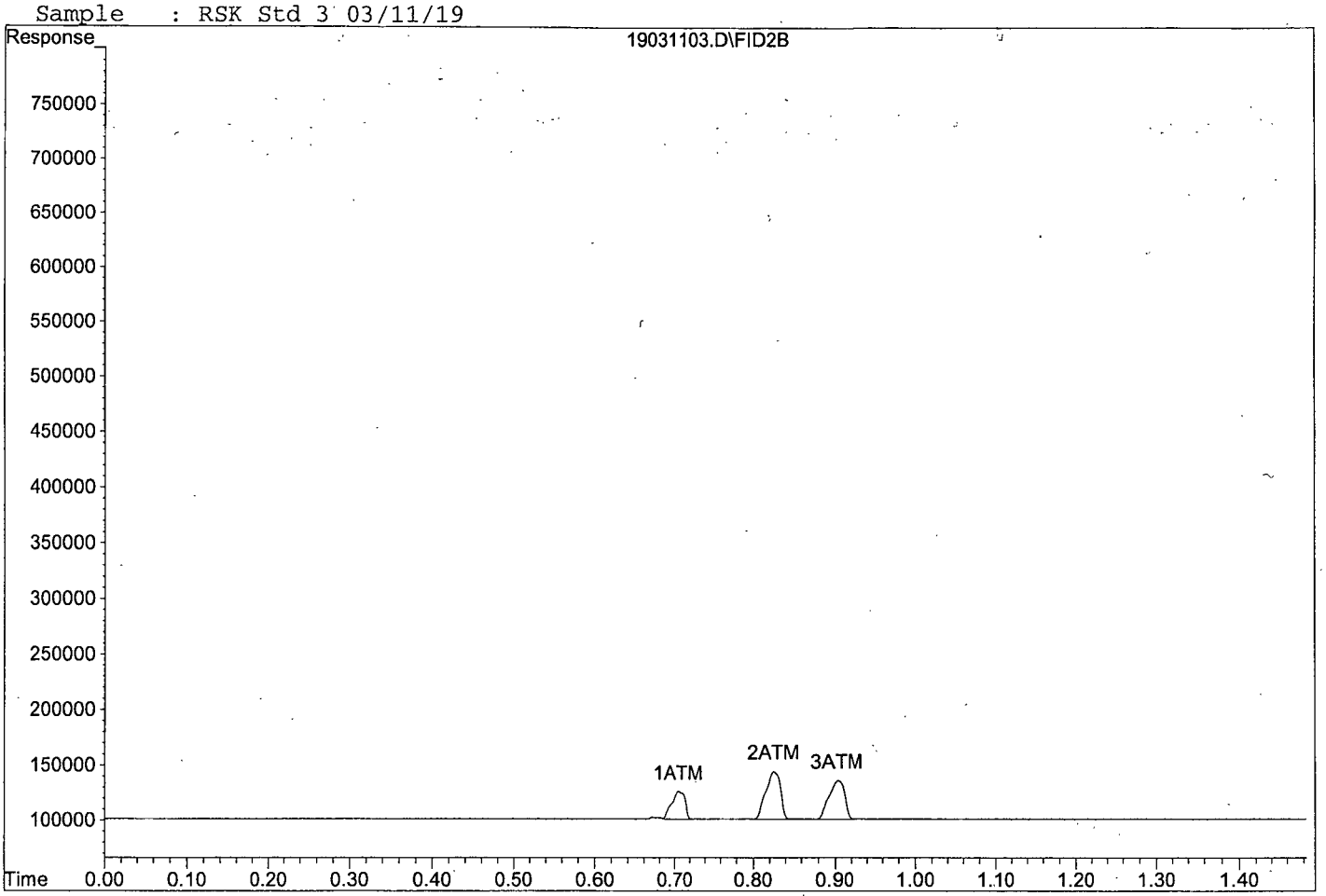
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.70	25296	1.488 ppb
2) ATM Ethane	0.83	43104	2.024 ppb
3) ATM Ethene	0.90	35029	4.730 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031103.D
Sample : RSK Std 3 03/11/19



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031104.D Vial: 5
Acq On : 11 Mar 19 10:31 Operator: cmm
Sample : RSK Std 4 03/11/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:50 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:50:29 2019
Response via : Multiple Level Calibration

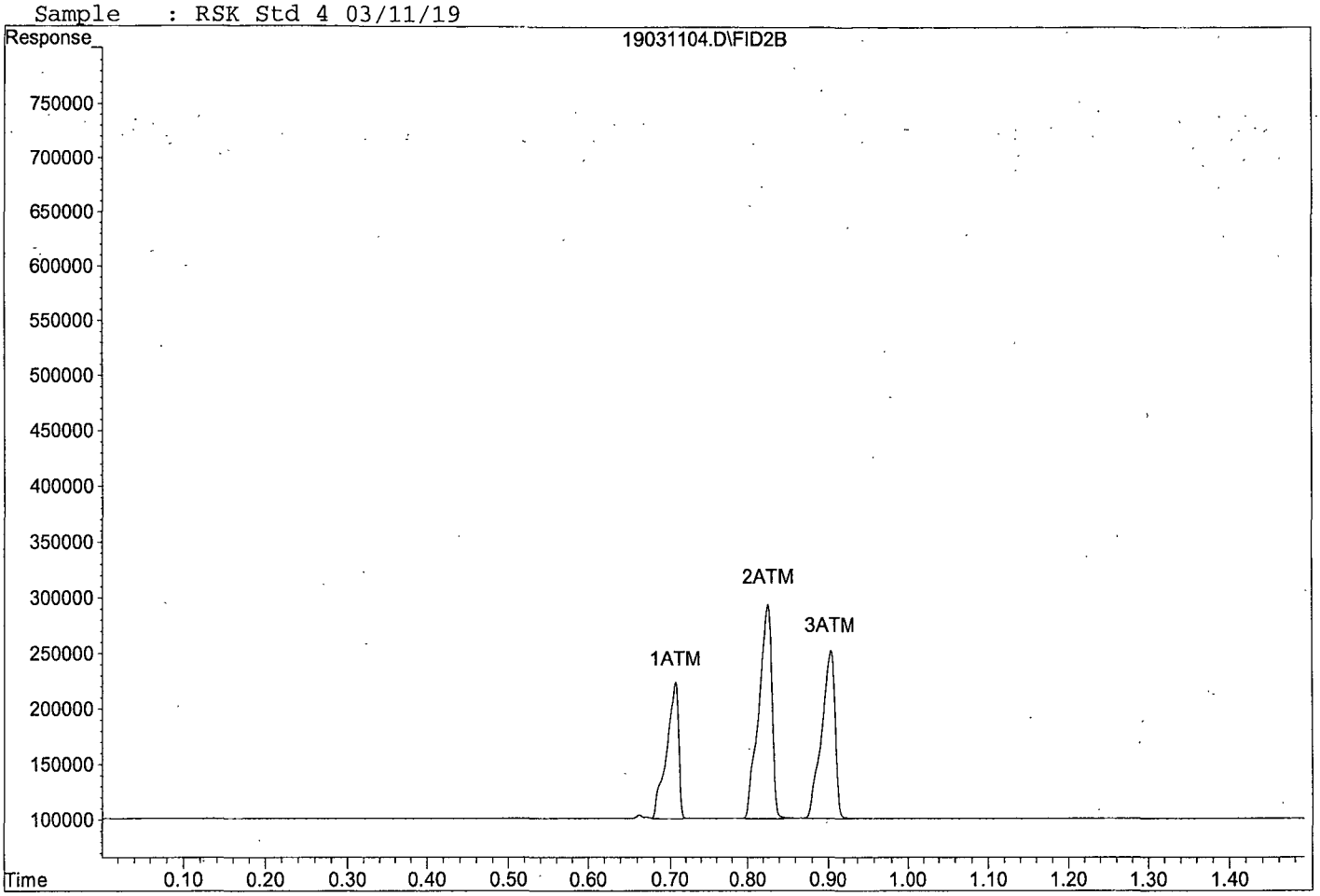
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.71	123132	16.291 ppb
2) ATM Ethane	0.83	193161	30.521 ppb
3) ATM Ethene	0.90	151872	31.095 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031104.D
Sample : RSK Std 4 03/11/19



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031105.D Vial: 6
Acq On : 11 Mar 19 10:33 Operator: cmm
Sample : RSK Std 5 03/11/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:51 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:51:01 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

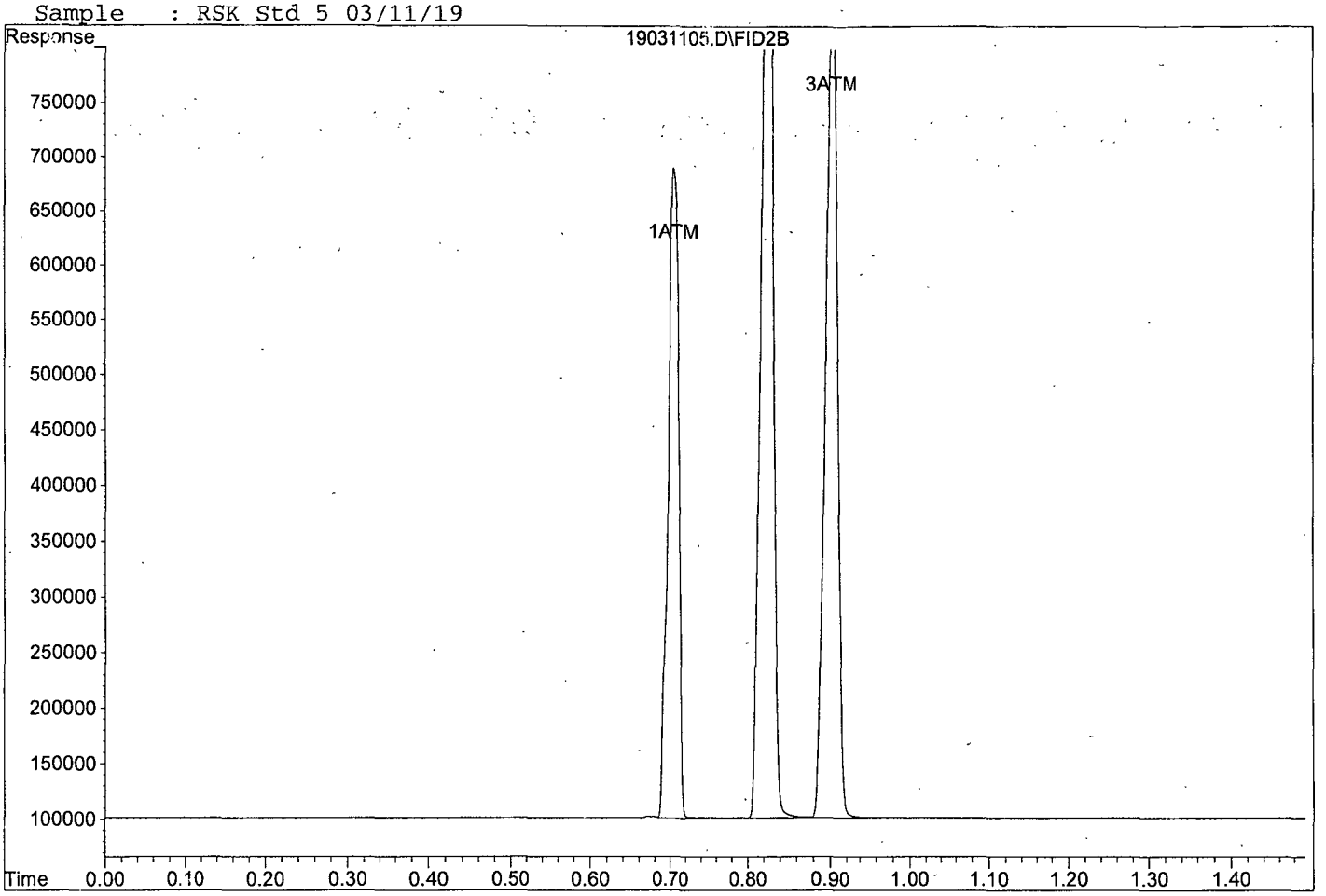
Compound	R.T.	Response	Conc	Units
Target Compounds				
1) ATM Methane	0.70	588996	86.775	ppb
2) ATM Ethane	0.83	946997	173.678	ppb
3) ATM Ethene	0.90	741247	164.087	ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File: G:\ROCKY\DATA\190311RS\19031105.D
Sample : RSK Std 5 03/11/19



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031106.D Vial: 7
Acq On : 11 Mar 19 10:35 Operator: cmm
Sample : RSK Std 6 03/11/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:51 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:51:33 2019
Response via : Multiple Level Calibration

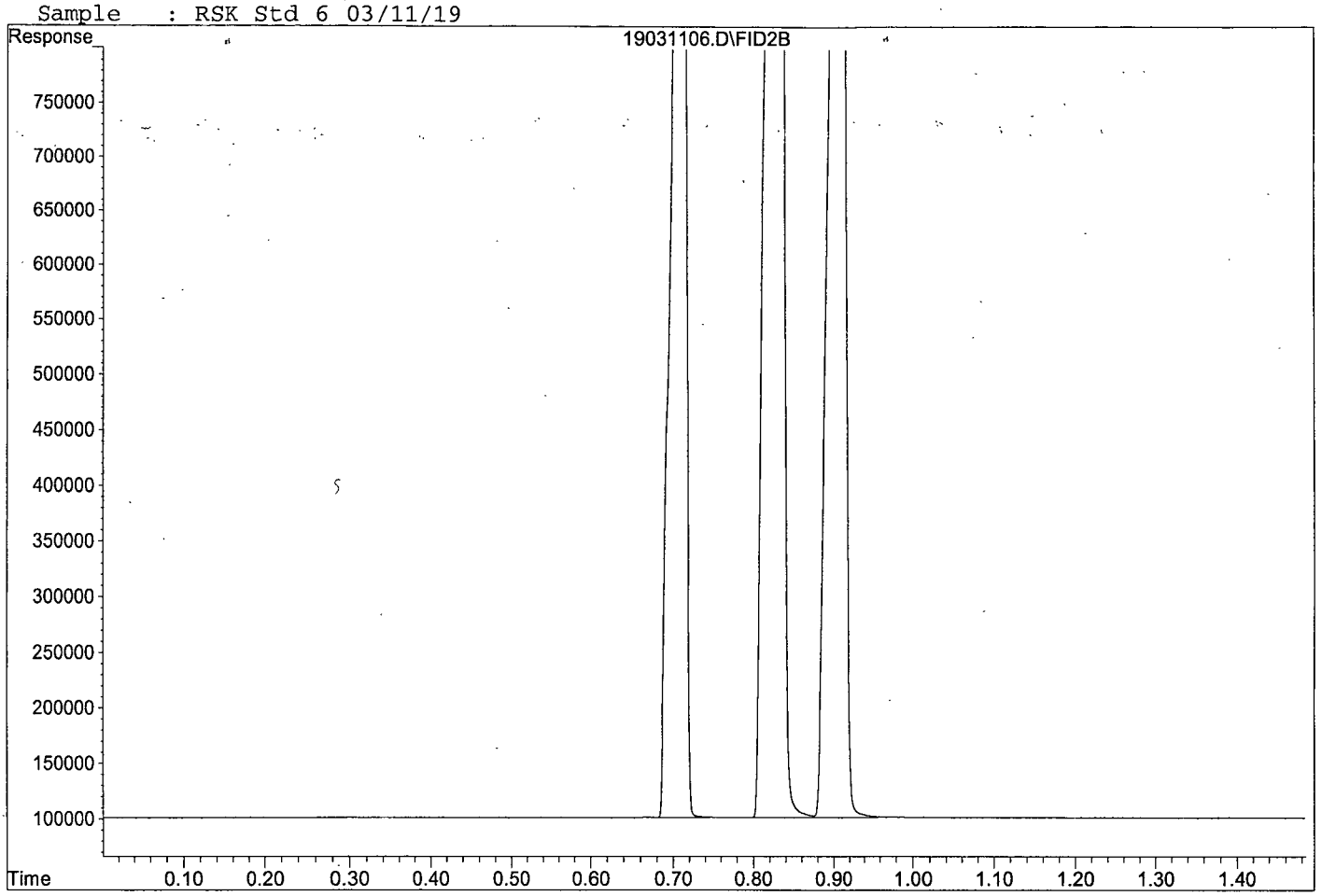
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.71	1512363	226.478 ppb
2) ATM Ethane	0.83	2221790	415.768 ppb
3) ATM Ethene	0.91	1658041	370.960 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031106.D
Sample : RSK Std 6 03/11/19



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031107.D Vial: 8
Acq On : 11 Mar 19 10:37 Operator: cmm
Sample : RSK Std 7 03/11/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:52 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:52:05 2019
Response via : Multiple Level Calibration

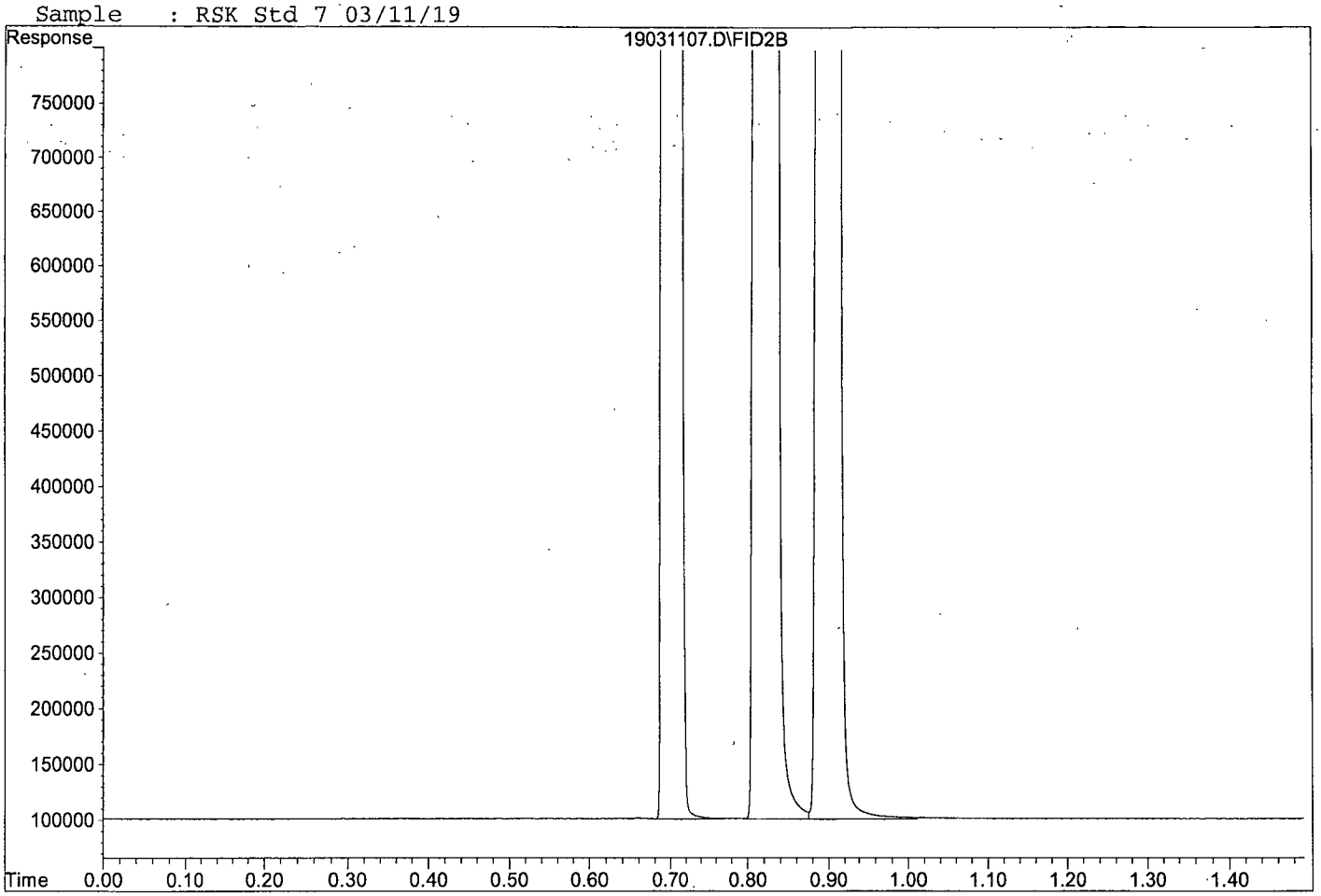
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

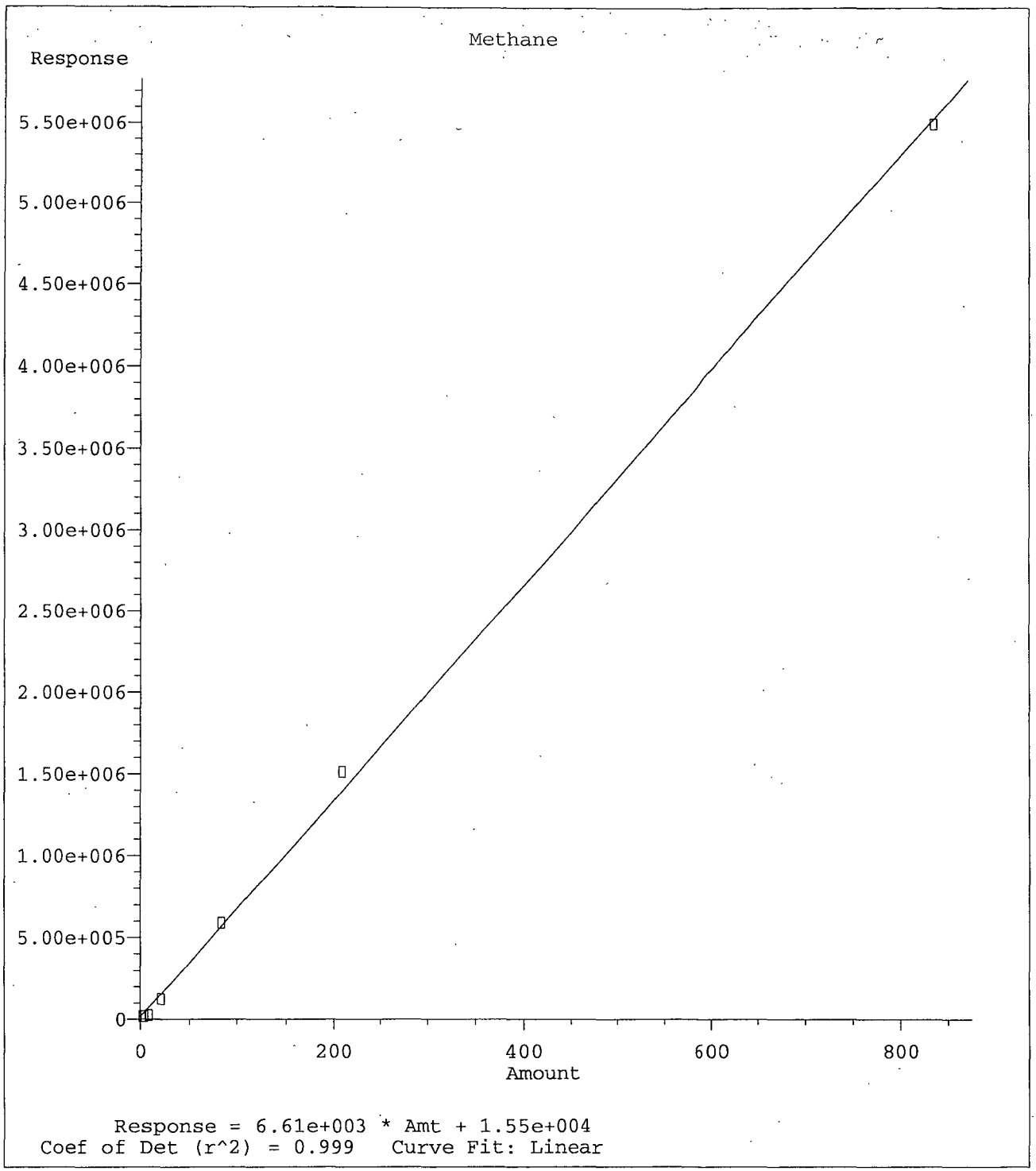
Compound	R.T.	Response	Conc	Units
Target Compounds				
1) ATM Methane	0.71	5497199	829.373	ppb
2) ATM Ethane	0.83	8225741	1555.950	ppb
3) ATM Ethene	0.91	6463235	1455.245	ppb

Target Compounds

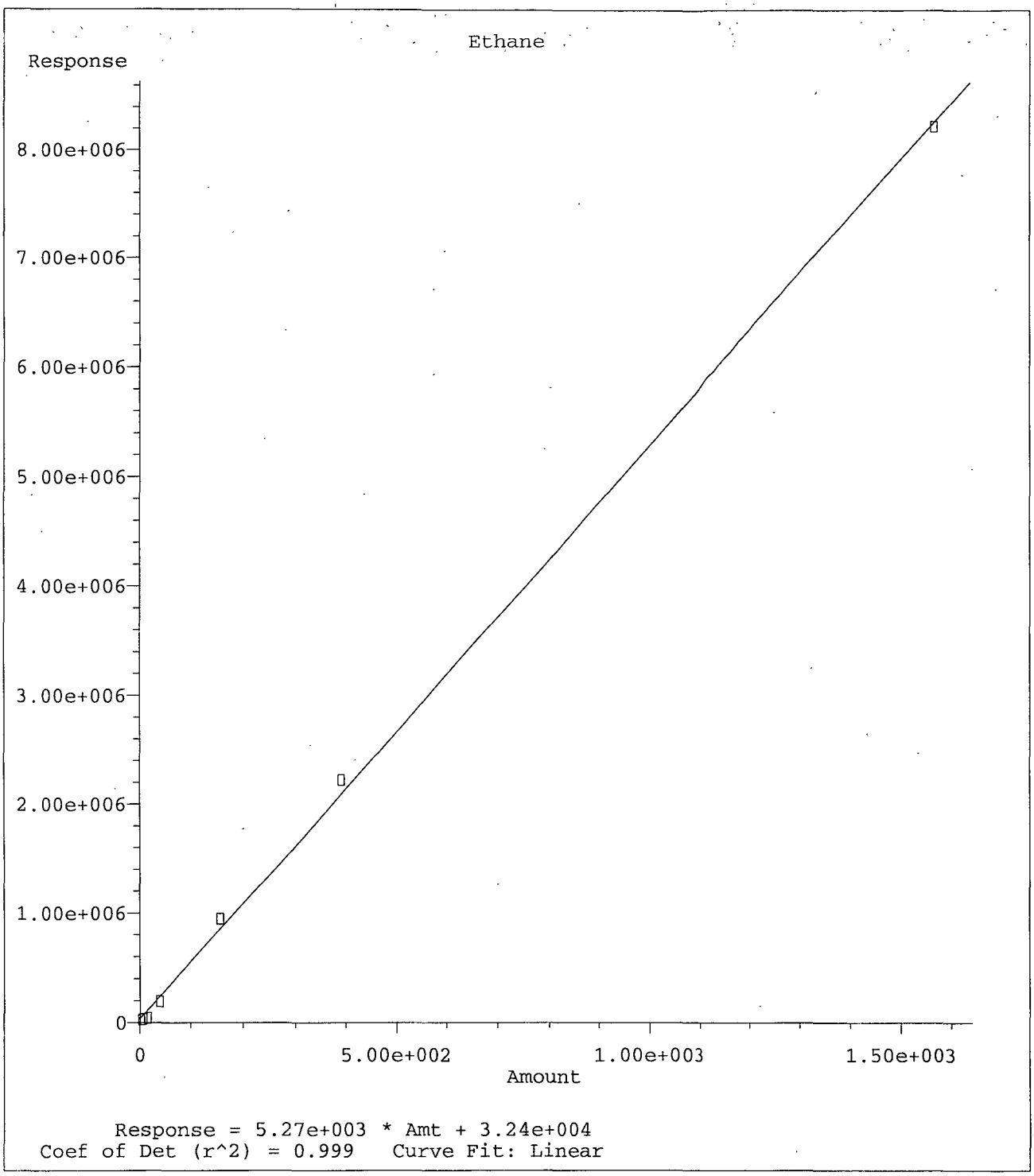
(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031107.D
Sample : RSK Std 7 03/11/19

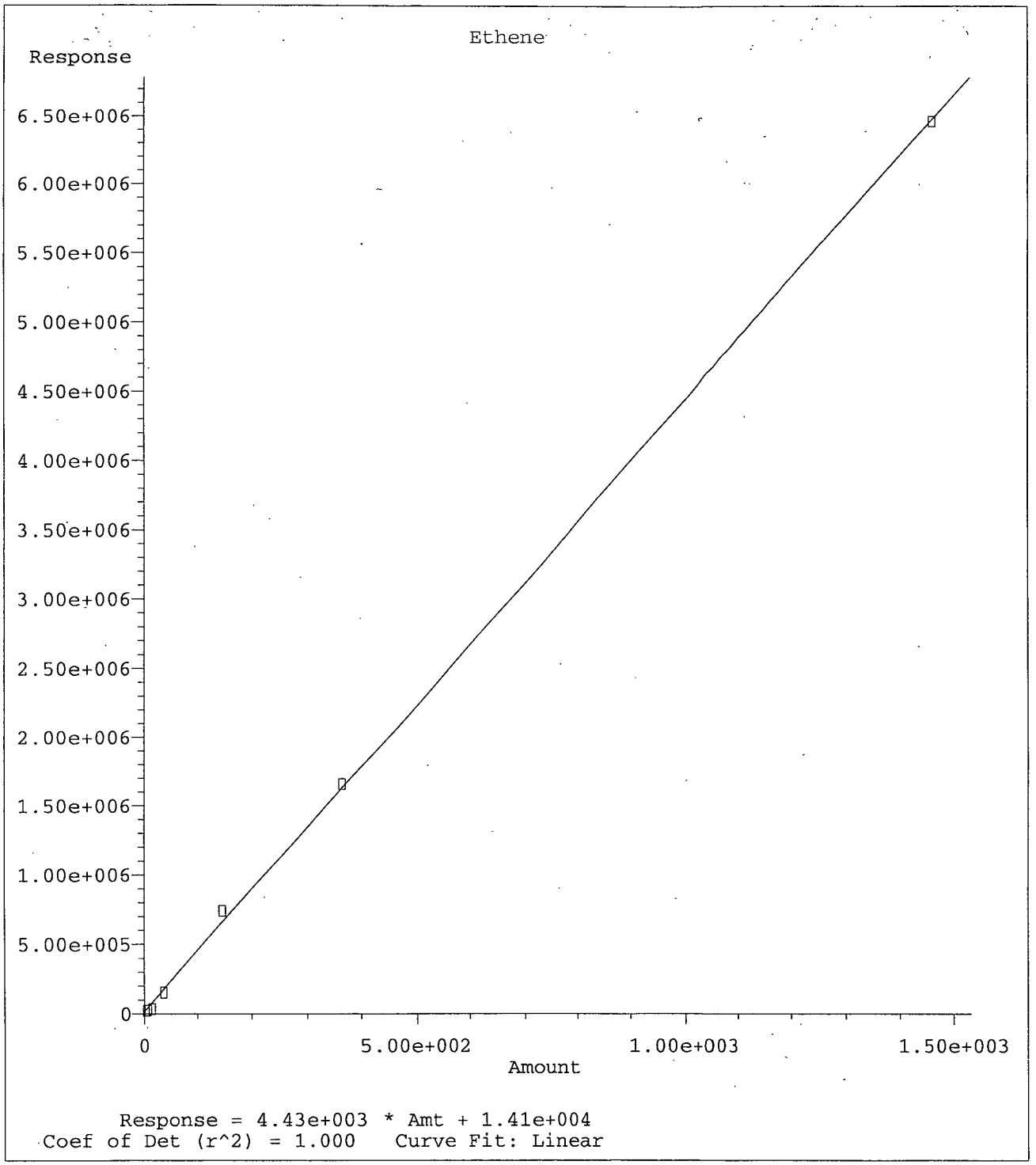




Method Name: G:\ROCKY\DATA\190311RS\RSK0311.M
Calibration Table Last Updated: Mon Mar 11 10:52:05 2019



Method Name: G:\ROCKY\DATA\190311RS\RSK0311.M
Calibration Table Last Updated: Mon Mar 11 10:52:05 2019



Method Name: G:\ROCKY\DATA\190311RS\RSK0311.M
Calibration Table Last Updated: Mon Mar 11 10:52:05 2019

Form 7

Second Source Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 03/11/19
Instrument: 7890
Initial Cal. Date: 03/11/19
Data File: 19031108.D

		Compound	MEAN	CCRF	%D		%Drift
1	ATML	Methane	12333	15569	26	ATML	15
2	ATML	Ethane	10333	12628	22	ATML	16
3	ATML	Ethene	8712	10096	16	ATML	12
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
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29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			21.3		

Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19031108.D Vial: 9
Acq On : 11 Mar 19 10:48 Operator: cmm
Sample : SS RSK Std 5 03/11/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 11 10:59 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Mon Mar 11 10:59:14 2019
Response via : Multiple Level Calibration

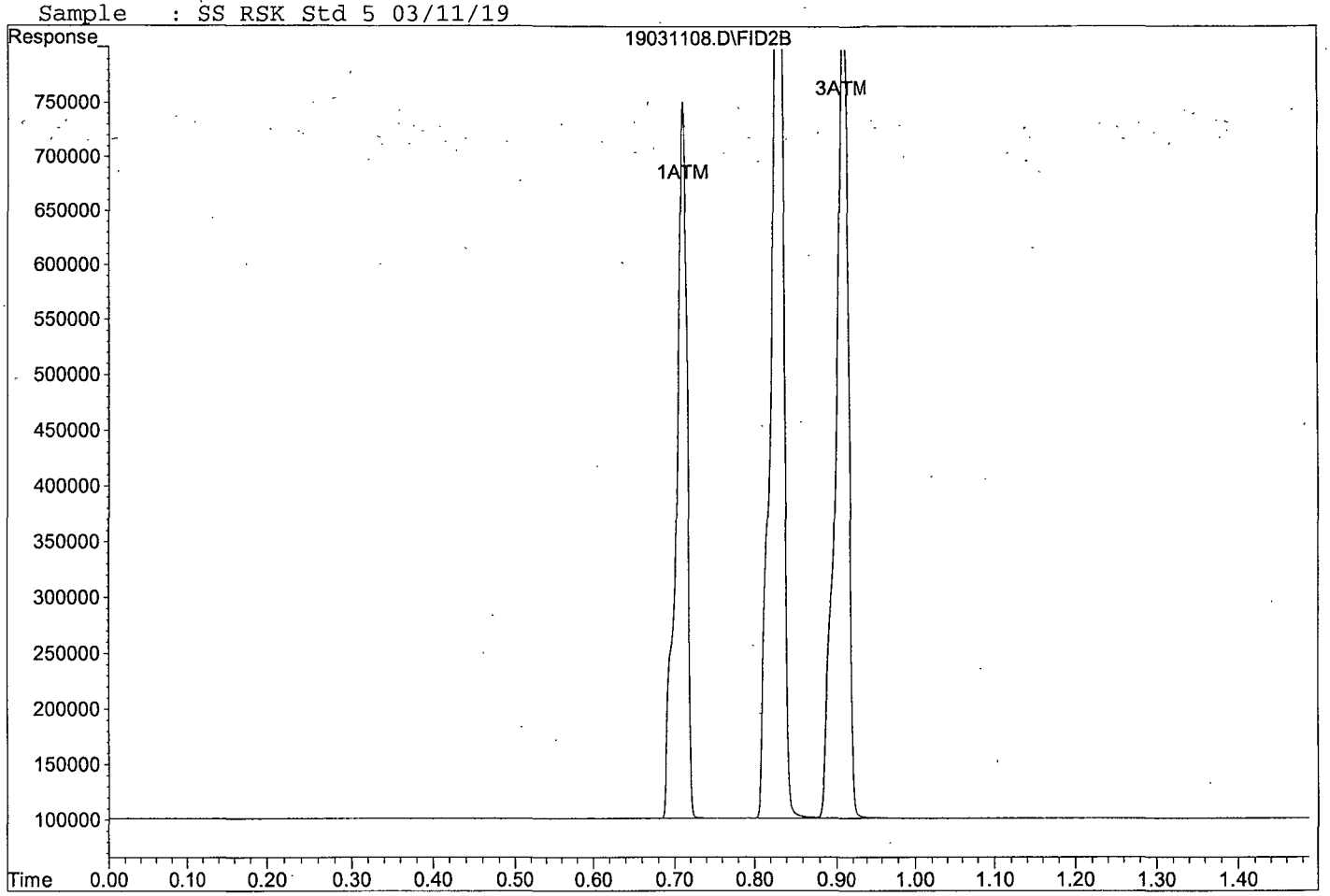
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.71	649223	95.887 ppb
2) ATM Ethane	0.83	987165	181.306 ppb
3) ATM Ethene	0.91	736184	162.944 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19031108.D
Sample : SS RSK Std 5 03/11/19



Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 3 May 19 10:33
Instrument: 7890
Initial Cal. Date: 03/11/19
Data File: 19050300.D

		Compound	MEAN	CCRF	%D	%Drift	
1	ATML	Methane	12333	11331	8.1	ATML	17
2	ATML	Ethane	10333	9563	7.5	ATML	13
3	ATML	Ethene	8712	7866	9.7	ATML	13
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
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29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			8.4		

Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050300.D Vial: 1
Acq On : 3 May 19 10:33 Operator: cmm
Sample : 190503A LCS/CCV RSK Std 5 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 10:36 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri Apr 19 11:51:54 2019
Response via : Multiple Level Calibration

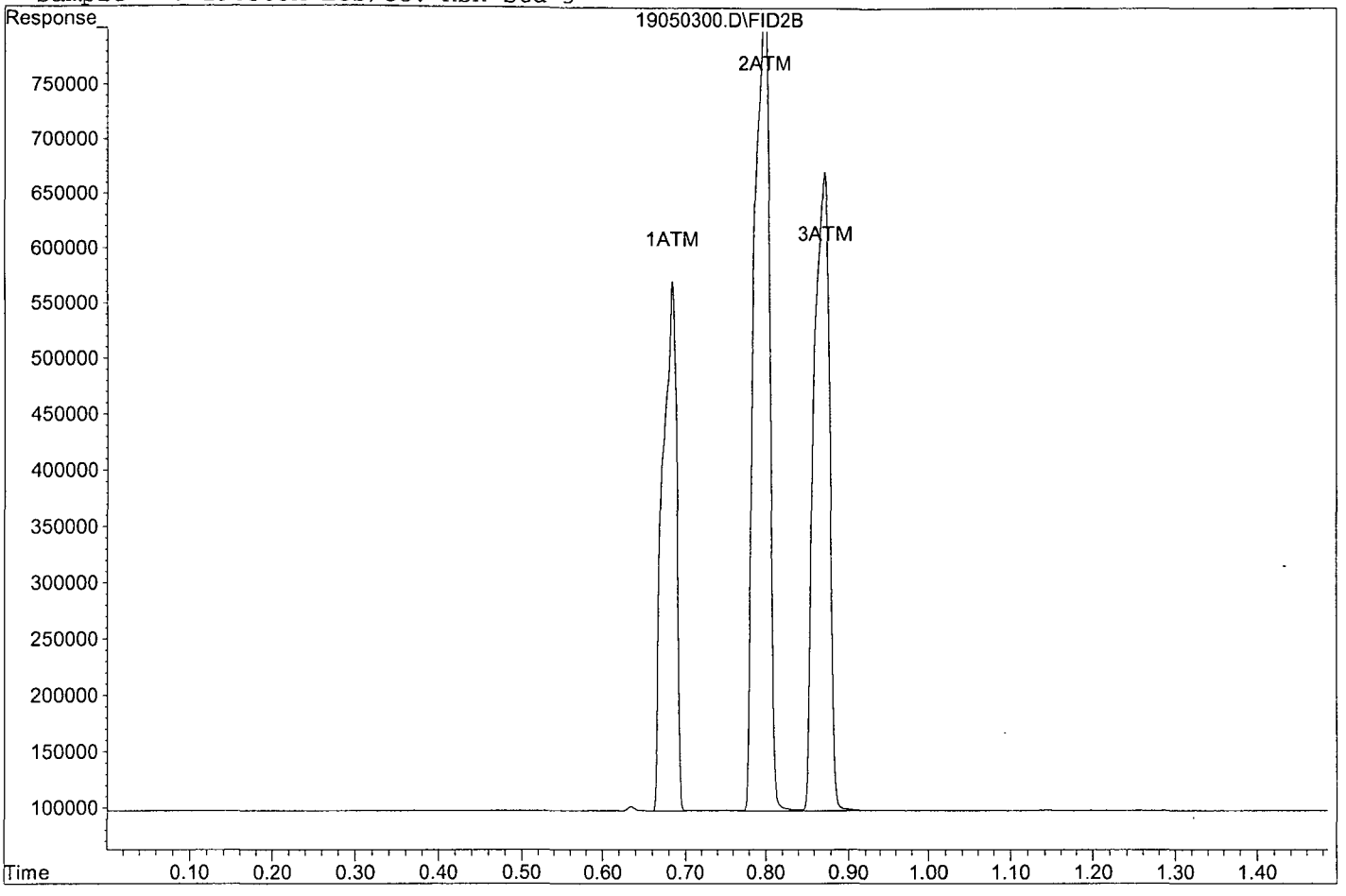
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.68	472503	69.150 ppb
2) ATM Ethane	0.80	747558	135.804 ppb
3) ATM Ethene	0.87	573589	126.255 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050300.D
Sample : 190503A LCS/CCV RSK Std 5



Form 7

Ending Calibration

Lab Name: APPL, Inc.
Case No:
Matrix:

SDG No:
Date Analyzed: 3 May 19 11:36
Instrument: 7890
Initial Cal. Date: 03/11/19
Data File: 19050326.D

		Compound	MEAN	CCRF	%D		%Drift
1	ATML	Methane	12333	12299	0.28	ATML	9.8
2	ATML	Ethane	10333	10297	0.35	ATML	6.2
3	ATML	Ethene	8712	8355	4.1	ATML	7.9
4							
5							
6							
7							
8							
9							
10							
11							
12							
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30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
		Average			1.6		

Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050326.D Vial: 27
Acq On : 3 May 19 11:36 Operator: cmm
Sample : Ending CCV RSK Std 5 05/03/19 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 11:38 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri May 03 11:06:47 2019
Response via : Multiple Level Calibration

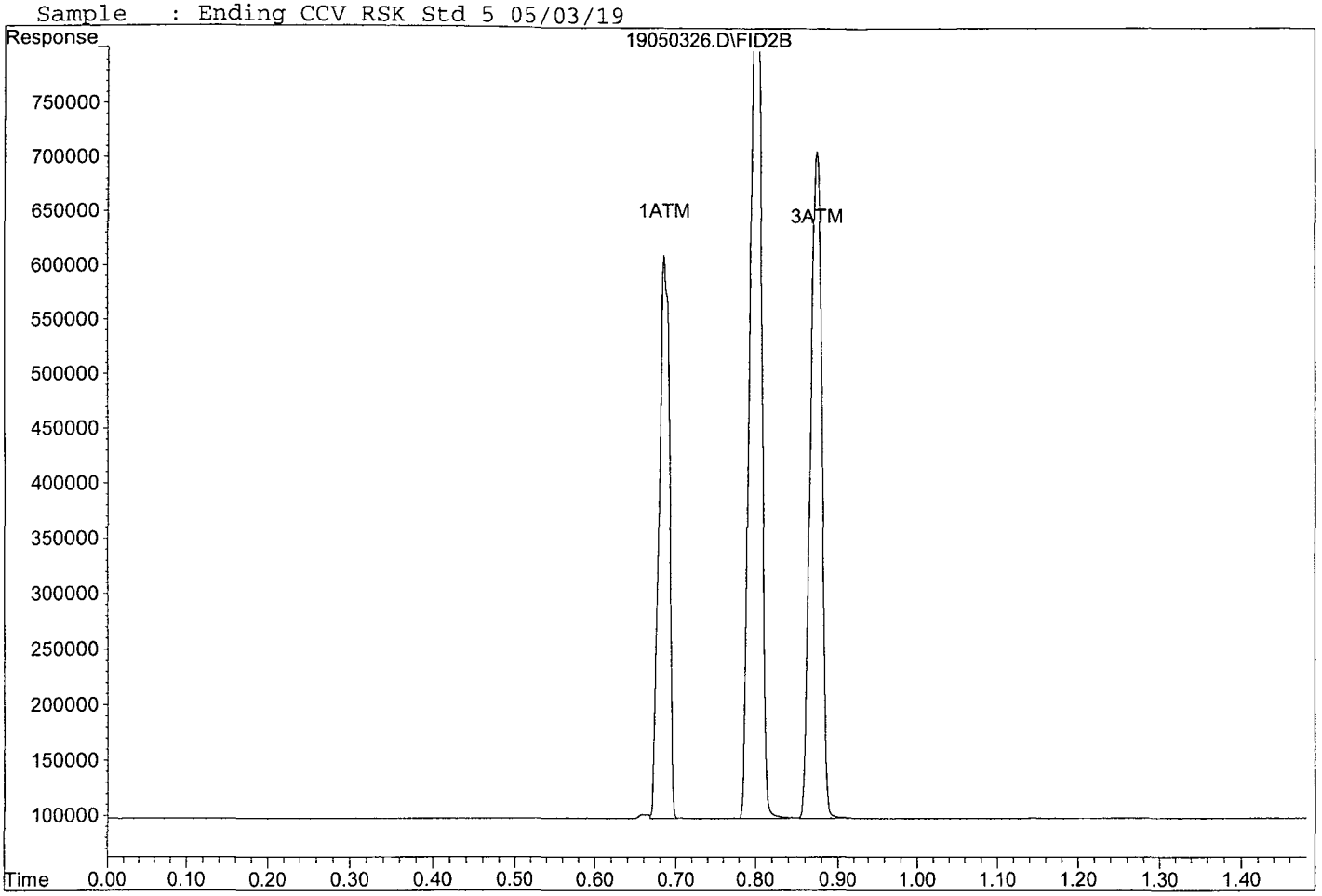
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) ATM Methane	0.69	512865	75.256	ppb
2) ATM Ethane	0.80	804929	146.699	ppb
3) ATM Ethene	0.87	609221	134.295	ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050326.D
Sample : Ending CCV RSK Std 5 05/03/19



ORGANICS
Raw Data

APPL, INC.

Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050323.D Vial: 24
Acq On : 3 May 19 11:29 Operator: cmm
Sample : AZ90449W04 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 11:31 2019 Quant Results File: RSK0311.RES

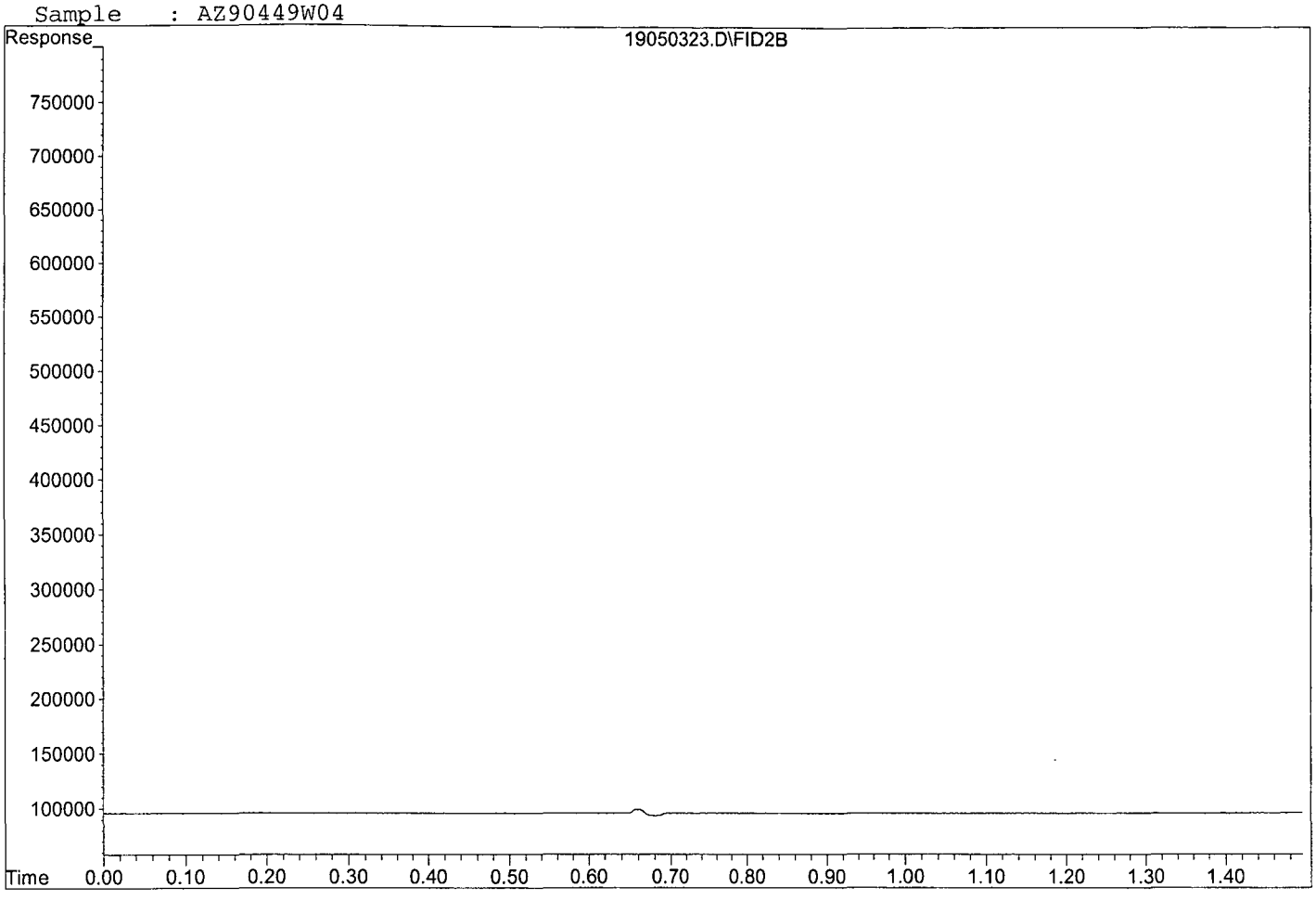
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri May 03 11:06:47 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
Target Compounds					
1) ATM Methane	0.00	0	N.D.	ppb	d
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050323.D
Sample : AZ90449W04



Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050324.D Vial: 25
Acq On : 3 May 19 11:31 Operator: cmm
Sample : AZ90450W04 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 11:34 2019 Quant Results File: RSK0311.RES

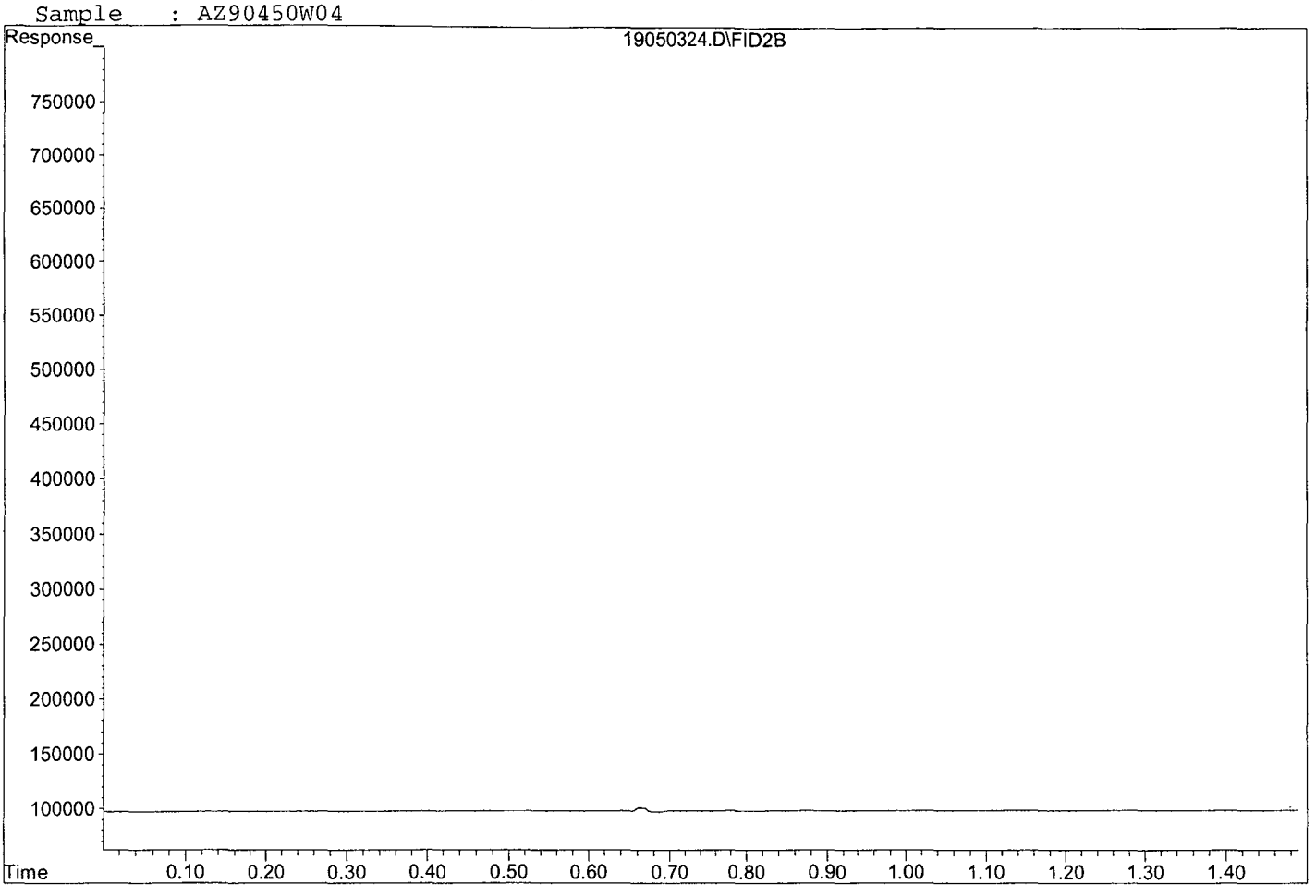
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri May 03 11:06:47 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
Target Compounds					
1) ATM Methane	0.00	0	N.D.	ppb	d
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050324.D
Sample : AZ90450W04



Quantitation Report (QT Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050302.D Vial: 3
Acq On : 3 May 19 10:39 Operator: cmm
Sample : 190503A Blk Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 10:43 2019 Quant Results File: RSK0311.RES

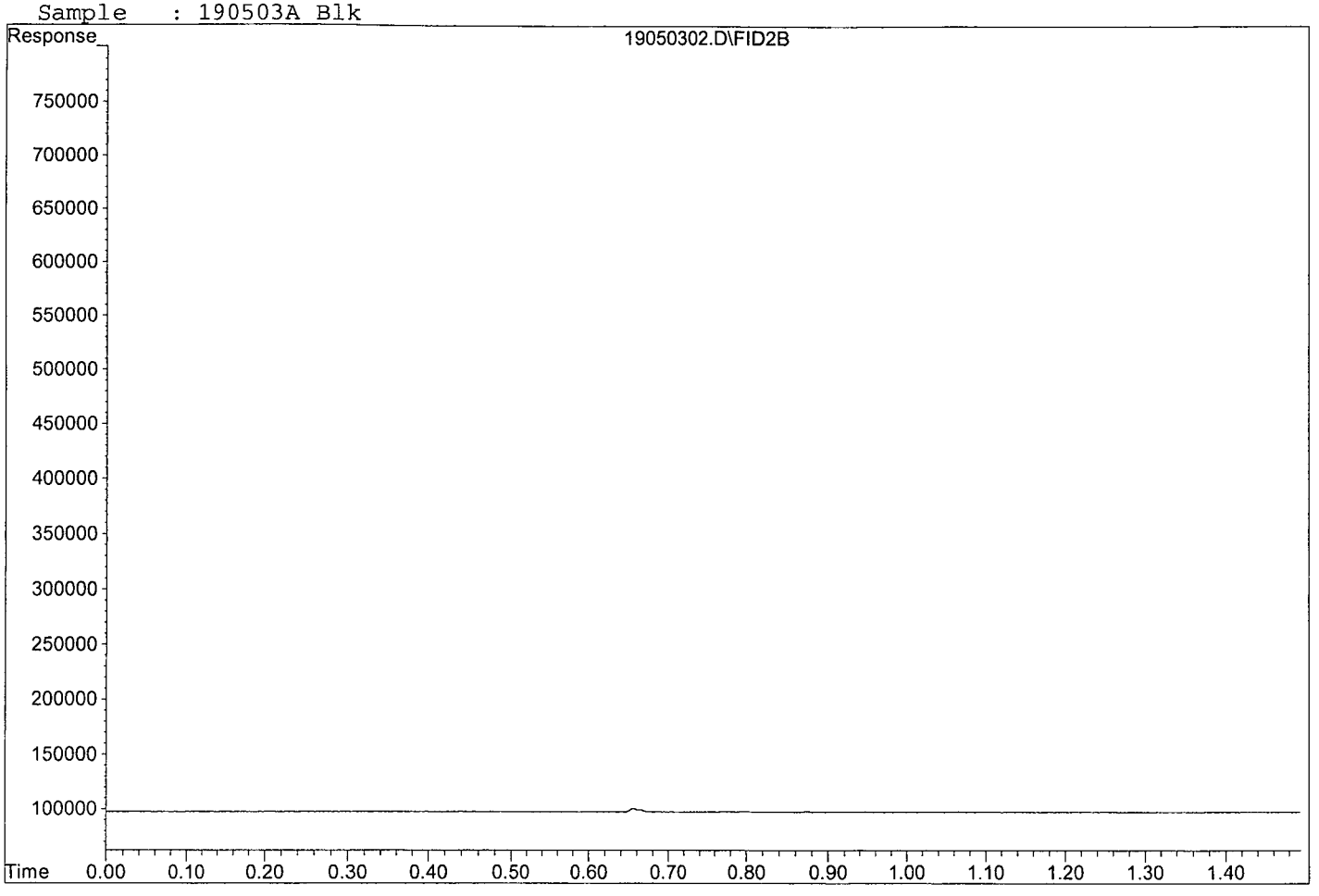
Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri Apr 19 11:51:54 2019
Response via : Multiple Level Calibration

Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc	Units	
Target Compounds					
Target Compounds					
1) ATM Methane	0.00	0	N.D.	ppb	d
2) ATM Ethane	0.00	0	N.D.	ppb	d
3) ATM Ethene	0.00	0	N.D.	ppb	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050302.D
Sample : 190503A Blk



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050300.D Vial: 1
Acq On : 3 May 19 10:33 Operator: cmm
Sample : 190503A LCS/CCV RSK Std 5 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 10:36 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri Apr 19 11:51:54 2019
Response via : Multiple Level Calibration

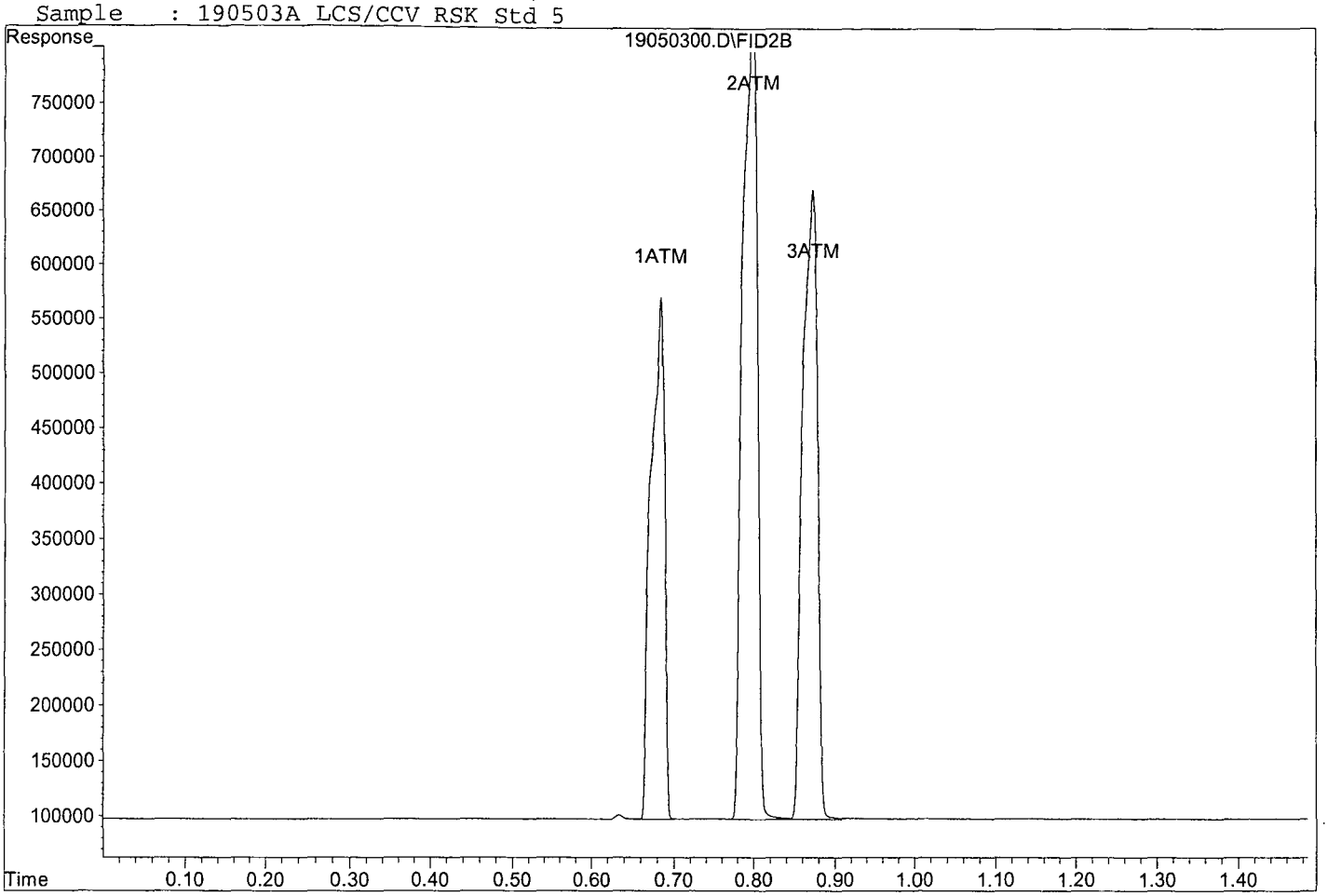
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.68	472503	69.150 ppb
2) ATM Ethane	0.80	747558	135.804 ppb
3) ATM Ethene	0.87	573589	126.255 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050300.D
Sample : 190503A LCS/CCV RSK Std 5



Quantitation Report (Not Reviewed)

Data File : G:\ROCKY\DATA\190311RS\19050301.D Vial: 2
Acq On : 3 May 19 10:36 Operator: cmm
Sample : 190503A LCSD RSK Std 5 Inst : 7890
Misc : Multiplr: 1.00
IntFile : autoint1.e
Quant Time: May 3 10:38 2019 Quant Results File: RSK0311.RES

Method : G:\ROCKY\DATA\190311RS\RSK0311.M (Chemstation Integrator)
Title : RSK 175
Last Update : Fri Apr 19 11:51:54 2019
Response via : Multiple Level Calibration

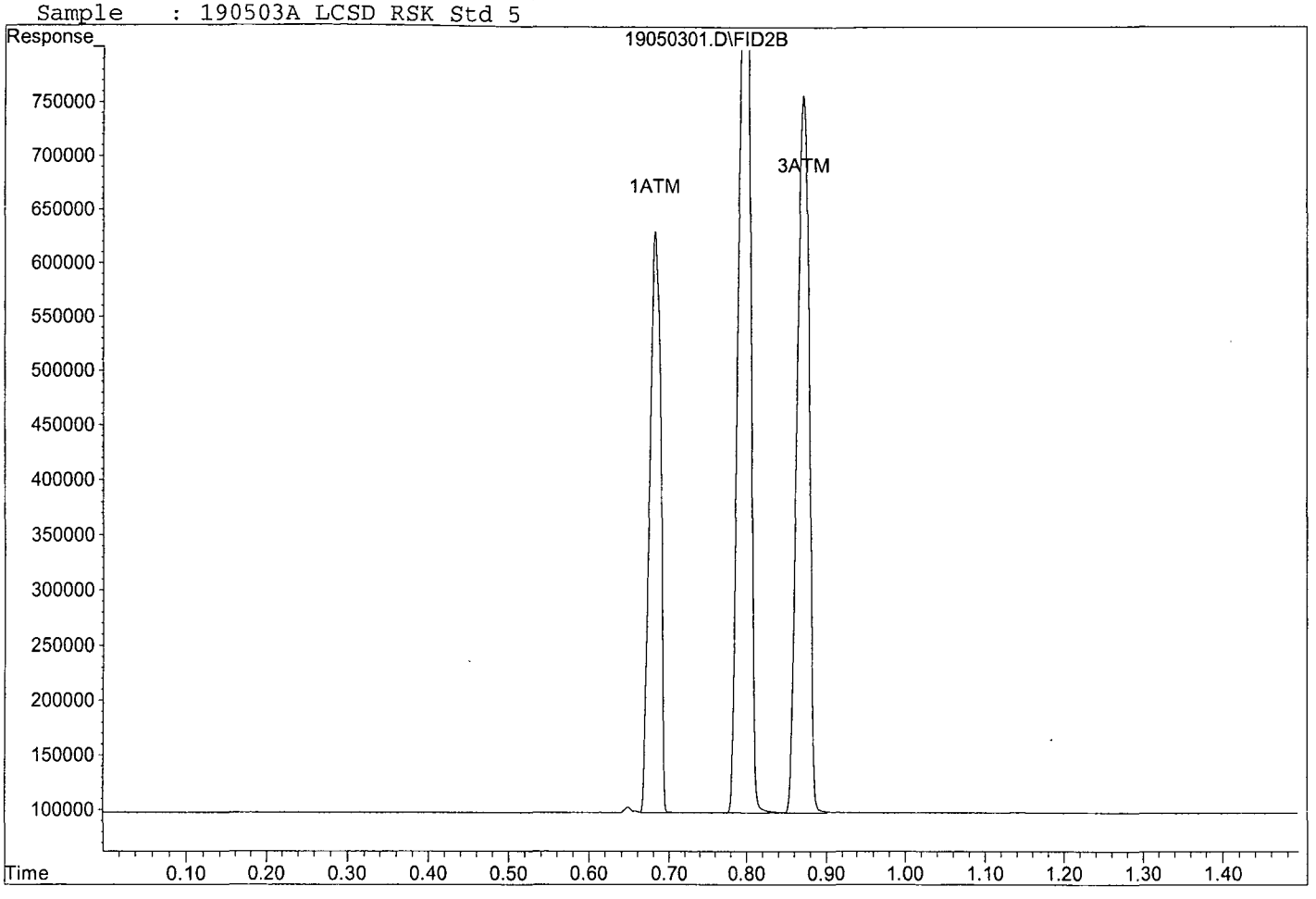
Volume Inj. : 0.500 mL
Signal Phase : CARBOPACK
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) ATM Methane	0.68	533347	78.355 ppb
2) ATM Ethane	0.80	860868	157.322 ppb
3) ATM Ethene	0.87	660243	145.808 ppb

Target Compounds

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File: G:\ROCKY\DATA\190311RS\19050301.D
Sample : 190503A LCSD RSK Std 5



Primary Source Stock Standard 10,000ppmV **Manufacturer Exp Date 9-21-21**

RSK Gas Mix (Scott Specialty Gas) Cat.# 0104E40028`4, Lot # 160-401303031-39773

1% Gas Concentration Moles = 10,000ppmV Methane, Ethane, Ethene

RSK Calibration Curve (prepared in 1.0 L Tedlar Bags at room temp) **Expires 04/11/19** **CMM 03/11/19**

Analye	Conc Std 1 (1/2 = LOD) (ug/L)	Conc Std 2 (LOQ Chk) (ug/L)	Conc Std 3 (ug/L)	Conc Std 4 (ug/L)	Conc Std 5 (ug/L)	Conc Std 6 (ug/L)	Conc Std 7 (ug/L)
Methane (MW 16.04)	2.08	4.16	8.34	20.85	83.40	208.5	834.0
Ethane (MW 30.07)	3.91	7.81	15.6	39.09	156.35	390.9	1563.5
Ethene (MW 28.05)	3.65	7.30	14.6	36.46	145.84	364.6	1458.4
Stock Source	RSK Tank Lot #170PLU5SPC06L-35410	RSK Tank Lot #170PLU5SPC06L-35410	RSK Tank Lot #170PLU5SPC06L-35410	RSK Tank Lot #170PLU5SPC06L-35410	RSK Tank Lot #170PLU5SPC06L-35410	RSK Tank Lot #170PLU5SPC06L-35410	RSK Tank Lot #170PLU5SPC06L-35410
Stock Conc (ppmv)	10,000 ppmV	10,000 ppmV	10,000 ppmV	10,000 ppmV	10,000 ppmV	10,000 ppmV	10,000 ppmV
Stock Aliquot (mL)	0.010	0.020	0.040	0.100	0.400	1.00	4.00
Final Volume P&T Water	32 mL	32 mL	32 mL	32 mL	32 mL	32 mL	32 mL

Second Source Stock Standard 10,000ppmV **Manufacturer Exp date 9-21-2021**

RSK Gas Mix (Scott Specialty Gas) Cat.# 23452, Lot # 160-401303032-1-39774

1% Gas Concentration Moles = 10,000ppmV Methane, Ethane, Ethene

Second Source **Expires 03/12/19** **CMM 03/11/19**

2.0mL of SS from tank into 980 mL Nitrogen

final conc: 13.3ug/L Methane, 25.0 ug/L Ethane, and 23.3 ug/L Ethene

CCV/LCS/LCSD **CMM 04/29/19**

Spike 0.400mL of 10,000ppmV into 32mL DI water, with 8mL Nitrogen headspace

final conc: 83.40ug/L Methane, 156.35ug/L Ethane, and 145.84ug/L Ethene

CCV/LCS/LCSD **CMM 05/03/19**

Spike 0.400mL of 10,000ppmV into 32mL DI water, with 8mL Nitrogen headspace

final conc: 83.40ug/L Methane, 156.35ug/L Ethane, and 145.84ug/L Ethene

Injection Log

Directory: G:\ROCKY\DATA\190311RS\

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	19031100.D	1	RSK Std 1 03/11/19	125uL from RSK Std 3	11 Mar 19 10:21
2	2	19031101.D	1	RSK Std 2 03/11/19	250uL from RSK Std 3	11 Mar 19 10:23
3	4	19031103.D	1	RSK Std 3 03/11/19		11 Mar 19 10:28
4	5	19031104.D	1	RSK Std 4 03/11/19		11 Mar 19 10:31
5	6	19031105.D	1	RSK Std 5 03/11/19		11 Mar 19 10:33
6	7	19031106.D	1	RSK Std 6 03/11/19		11 Mar 19 10:35
7	8	19031107.D	1	RSK Std 7 03/11/19		11 Mar 19 10:37
8	9	19031108.D	1	SS RSK Std 5 03/11/19		11 Mar 19 10:48
9	1	19050300.D	1	190503A LCS/CCV RSK Std 5		3 May 19 10:33
10	2	19050301.D	1	190503A LCSD RSK Std 5		3 May 19 10:36
11	3	19050302.D	1	190503A Blk		3 May 19 10:39
12	24	19050323.D	1	AZ90449W04		3 May 19 11:29
13	25	19050324.D	1	AZ90450W04		3 May 19 11:31
14	27	19050326.D	1	Ending CCV RSK Std 5 05/03/19		3 May 19 11:36

INORGANIC ANALYSIS
Calibration Data

A.P.P.L. INC.

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: A.P.P.L. INC. Contract: AECOM

ARF No: 88764 SDG: 88764

Initial Calibration Source: Inorganic Ventures

Continuing Calibration Source: o2si

Analysis Date: 05/01/19

Analyte	Calibration Verification									M
	True ICV	Found 16:50	%R(1)	True CCV1	Found 18:39	%R(1)	True CCV1	Found 18:51	%R(1)	
TOXN	3	2.9656	98.9	3	3.0459	102	3	2.8702	95.7	

(1) Control Limits: 90-110

ILM02.0

A.P.P.L. INC.
3
BLANKS

Lab Name: A.P.P.L. INC. Contract: AECOM

ARF No.: 88764 SDG: 88764

Preparation Blank Matrix (soil/water): water

Preparation Blank Concentration Units (ug/L or mg/kg): mg/L

Analyte	Calibration Blanks										M
	ICB 05/01/19 16:51	C	CCB 05/01/19 18:41	C	CCB 05/01/19 18:52	C		C		C	
TOXN	.100	U	.100	U	.100	U					

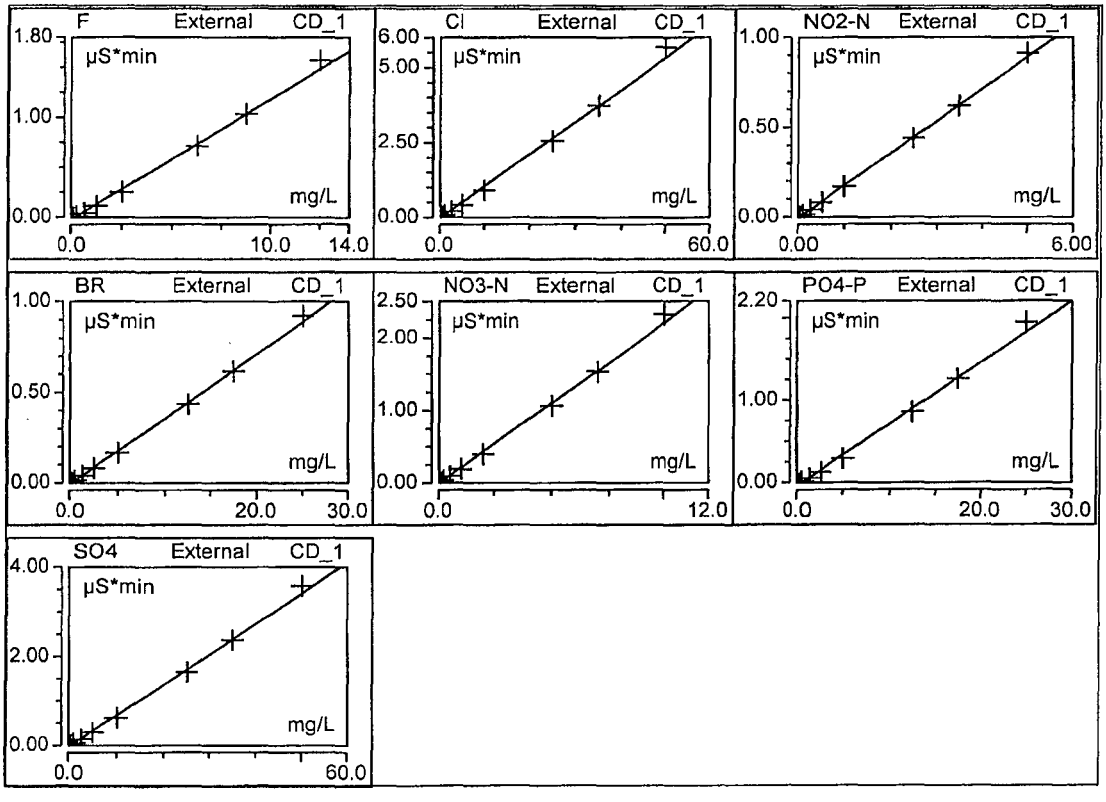
Calibration Batch Report

Sequence:	190401	*Injection Volume:*	25.00
Instrument Method:	Anions IM	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:26	*Run Time:*	5

Calibration Summary

Peak Name	Eval.Type	Cal.Type	Points	Offset (C0)	Slope (C1)	Curve (C2)	Coeff.Det. %
F	Area	Lin, WithOffset, 1/A	8.000	-0.017	0.120	0.000	99.4806
Cl	Area	Lin, WithOffset, 1/A	8.000	-0.028	0.107	0.000	99.4166
NO2-N	Area	Lin, WithOffset, 1/A	8.000	-0.001	0.179	0.000	99.9419
BR	Area	Lin, WithOffset, 1/A	8.000	-0.002	0.036	0.000	99.8824
NO3-N	Area	Lin, WithOffset, 1/A	8.000	-0.007	0.222	0.000	99.7096
PO4-P	Area	Lin, WithOffset, 1/A	7.000	-0.032	0.075	0.000	99.3402
SO4	Area	Lin, WithOffset, 1/A	8.000	-0.012	0.069	0.000	99.7352

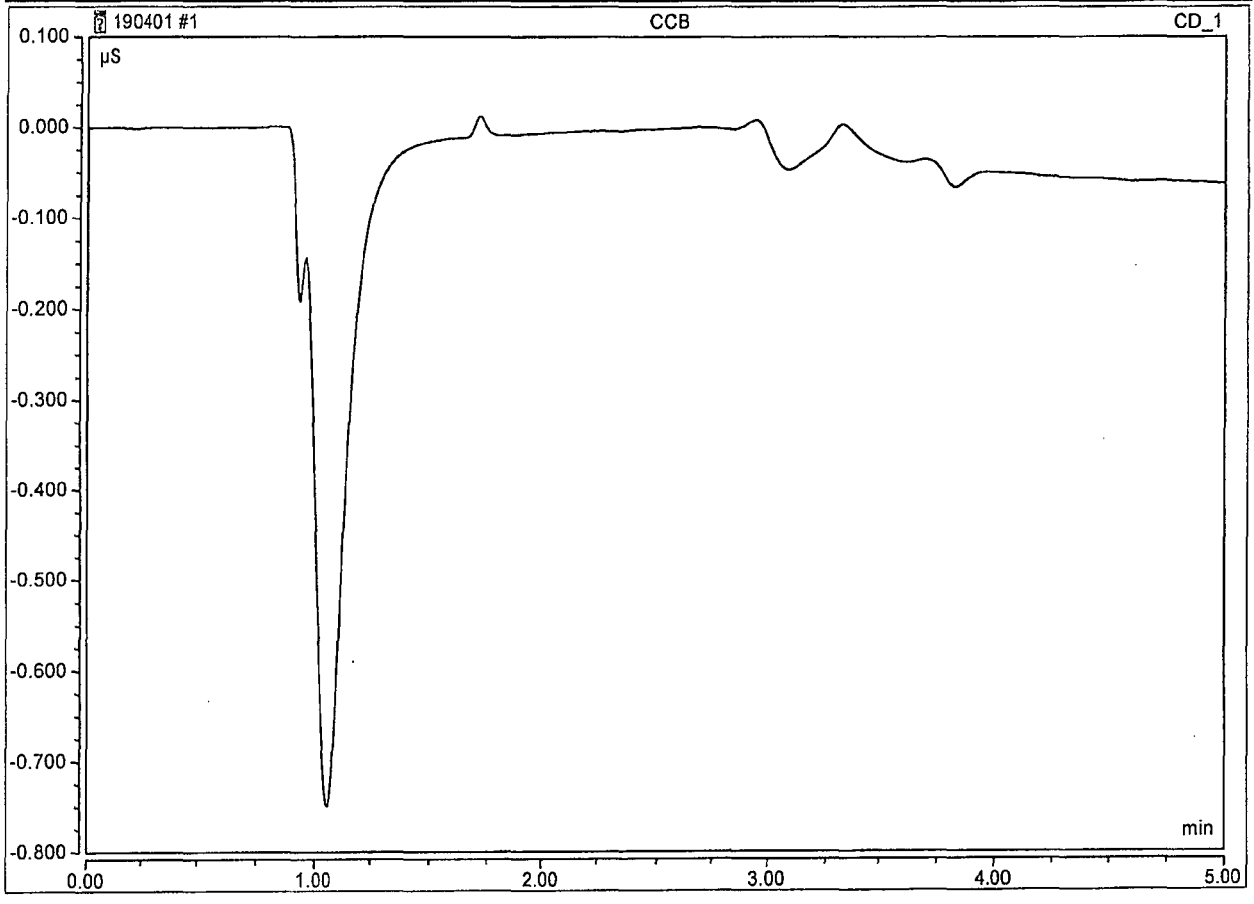
Injection Name	Amount mg/L CD_1 F	Amount mg/L CD_1 Cl	Amount mg/L CD_1 NO2-N	Amount mg/L CD_1 BR	Amount mg/L CD_1 NO3-N	Amount mg/L CD_1 PO4-P	Amount mg/L CD_1 SO4
I cal 1	0.152	0.5642	0.0447	0.2325	0.1005	0.4778	0.4991
I cal 2	0.223	1.0054	0.1008	0.5019	0.2020	0.6726	1.0108
i cal 3	0.498	2.1345	0.2378	1.1759	0.4556	1.1460	2.2782
i cal 4	1.078	4.1718	0.4757	2.3481	0.8983	2.1327	4.5095
i cal 5	2.245	8.6460	0.9640	4.7379	1.8243	4.3601	9.1640
i cal 6	6.079	24.1535	2.4749	12.2599	4.8399	11.9336	24.2601
i cal 7	8.756	35.0732	3.4778	17.3494	6.9503	17.3831	34.7622
I cal 8	13.194	53.1515	5.1141	25.8443	10.5090	26.6219	52.4162



Peak Integration Report

Sample Name:	CCB	*Inj. Vol.:*	25uL
Injection Type:	Unknown	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:27	*Run Time:*	5.00

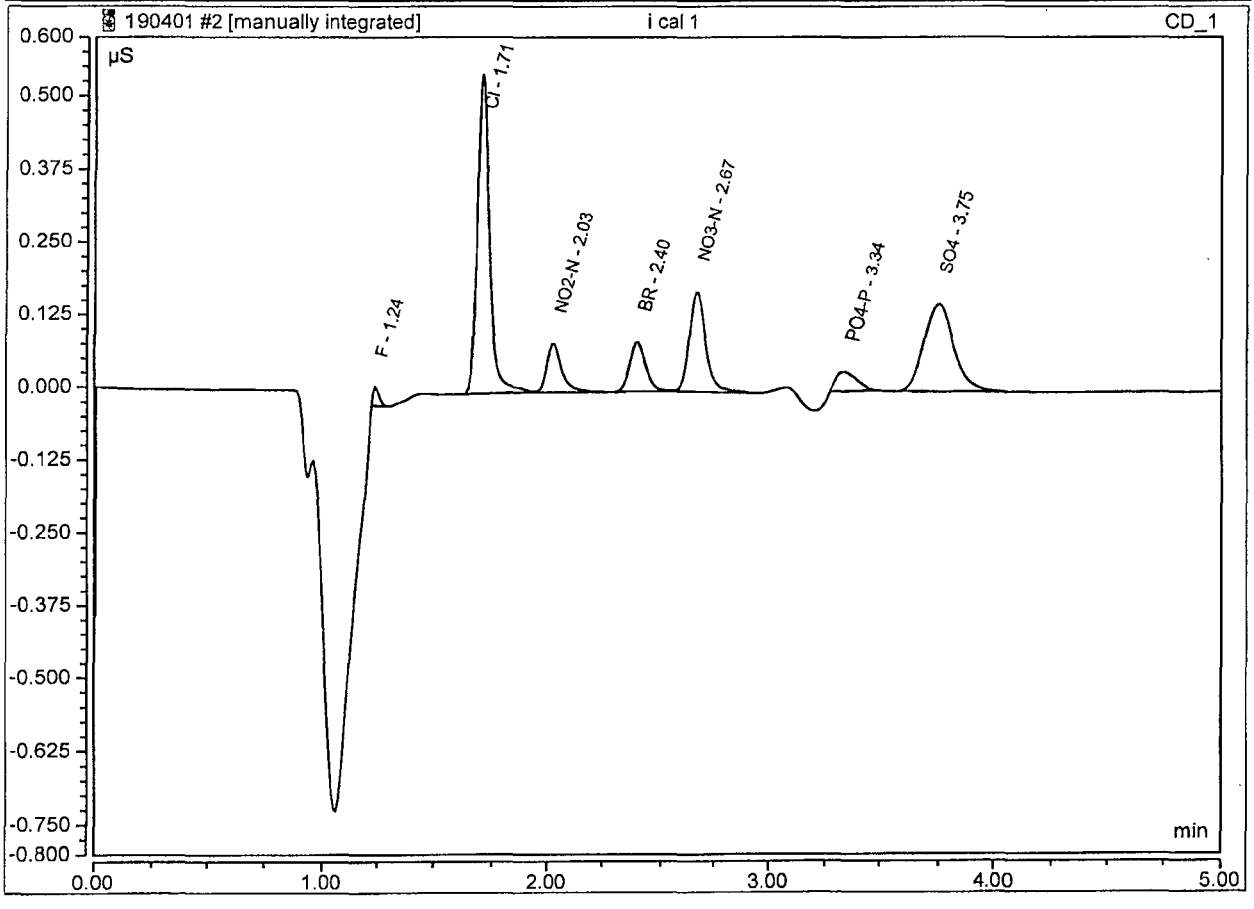
No.	Time (min)	Peak Name	Peak Type	Area (µS*min)	Height (µS)	Amount	Amount	Recovery
	min			µS*min	µS	n.a.	n.a.	



Peak Integration Report

Sample Name:	i cal 1	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:34	*Run Time:*	5.00

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB*	0.001	0.032	0.15	0.1000	152.1%
2	1.71	Cl	BMB	0.033	0.547	0.56	0.4000	141.1%
3	2.03	NO2-N	BMB	0.007	0.084	0.04	0.0400	111.8%
4	2.40	BR	BMB	0.007	0.086	0.23	0.2000	116.3%
5	2.67	NO3-N	BMB	0.016	0.173	0.10	0.0800	125.7%
6	3.34	PO4-P	BMB*	0.004	0.034	0.48	0.2000	238.9%
7	3.75	SO4	BMB	0.023	0.151	0.50	0.4000	124.8%

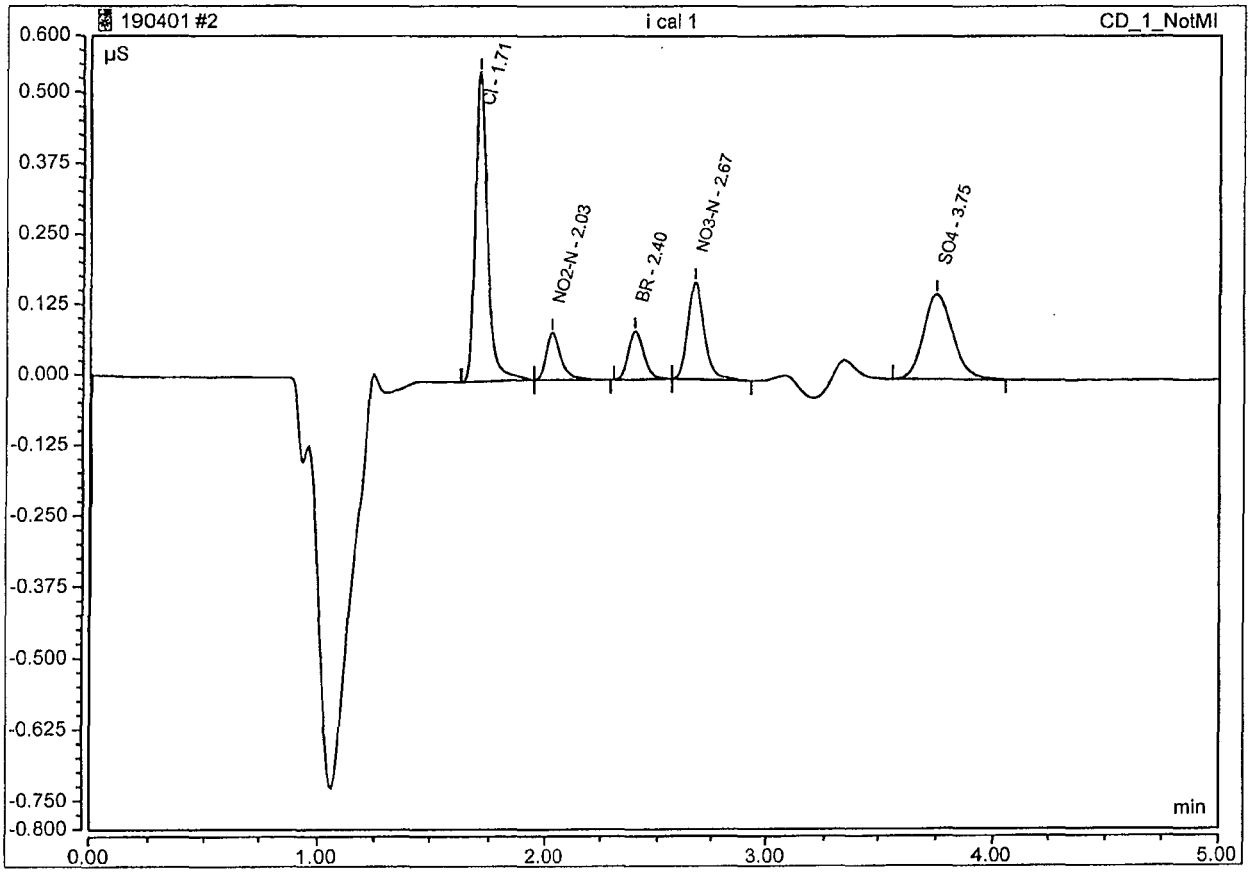


F mi1 HH 190405

Not Manipulated Peak Integration Report

Sample Name:	i cal 1	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:34	*Run Time:*	5.00

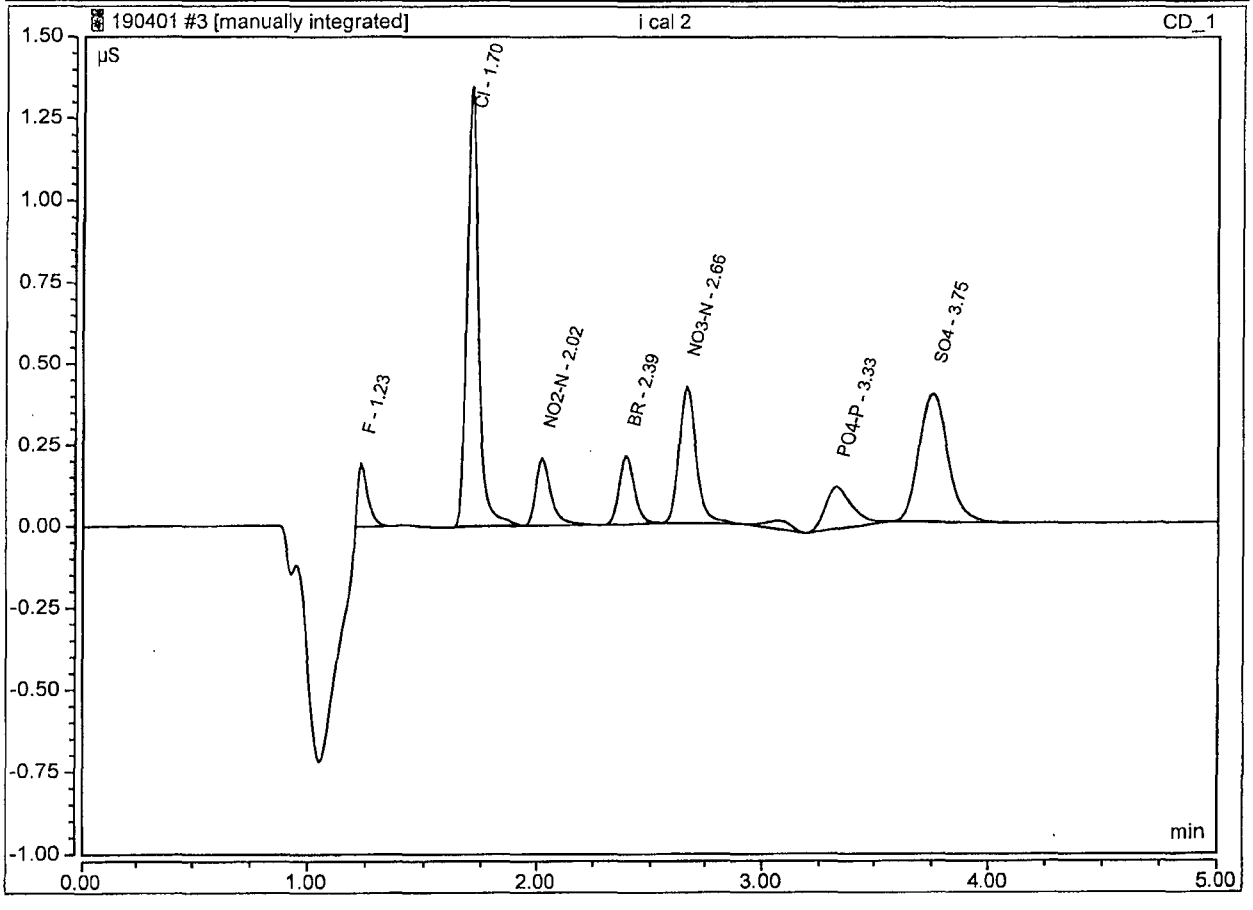
No.	Time min	Peak Name	Peak Type	Area µS*min	Height µS	Ammount mg/L
1	n.a.	F	BMB*	n.a.	n.a.	n.a.
2	1.71	Cl	BMB	0.033	0.547	0.5642
3	2.03	NO2-N	BMB	0.007	0.084	0.0447
4	2.40	BR	BMB	0.007	0.086	0.2325
5	2.67	NO3-N	BMB	0.016	0.173	0.1005
6	n.a.	PO4-P	BMB*	n.a.	n.a.	n.a.
7	3.75	SO4	BMB	0.023	0.151	0.4991



Peak Integration Report

Sample Name:	**i cal 2**	*Inj. Vol.:*	**25uL**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-Apr-2019 / 18:42**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB*	0.010	0.194	0.22	0.2500	89.3%
2	1.70	Cl	BMB	0.080	1.346	1.01	1.0000	100.5%
3	2.02	NO2-N	BMB	0.017	0.208	0.10	0.1000	100.8%
4	2.39	BR	BMB	0.016	0.211	0.50	0.5000	100.4%
5	2.66	NO3-N	BMB	0.038	0.421	0.20	0.2000	101.0%
7	3.33	PO4-P	BMB	0.018	0.129	0.67	0.5000	134.5%
8	3.75	SO4	BMB	0.058	0.395	1.01	1.0000	101.1%

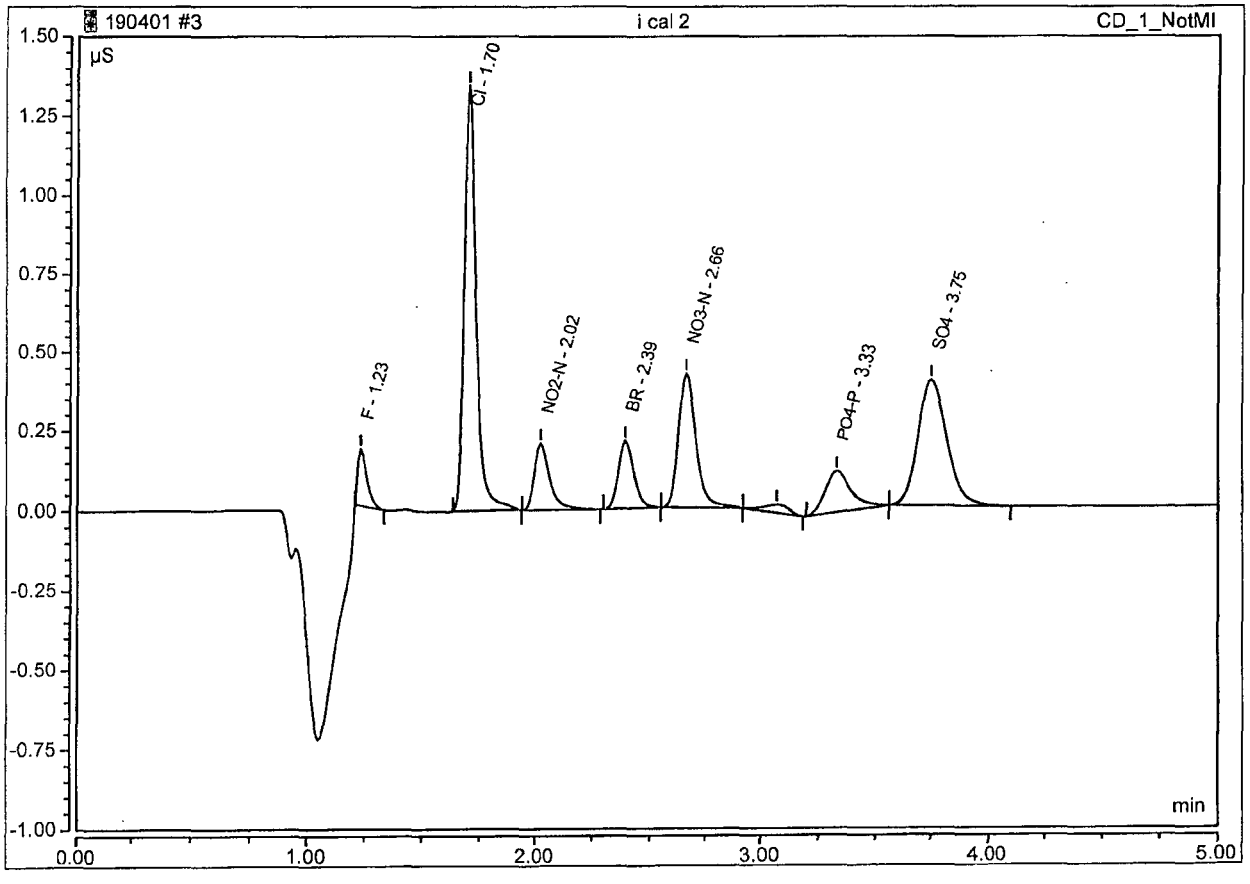


F mi1 HH 190405

Not Manipulated Peak Integration Report

Sample Name:	i cal 2	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:42	*Run Time:*	5.00

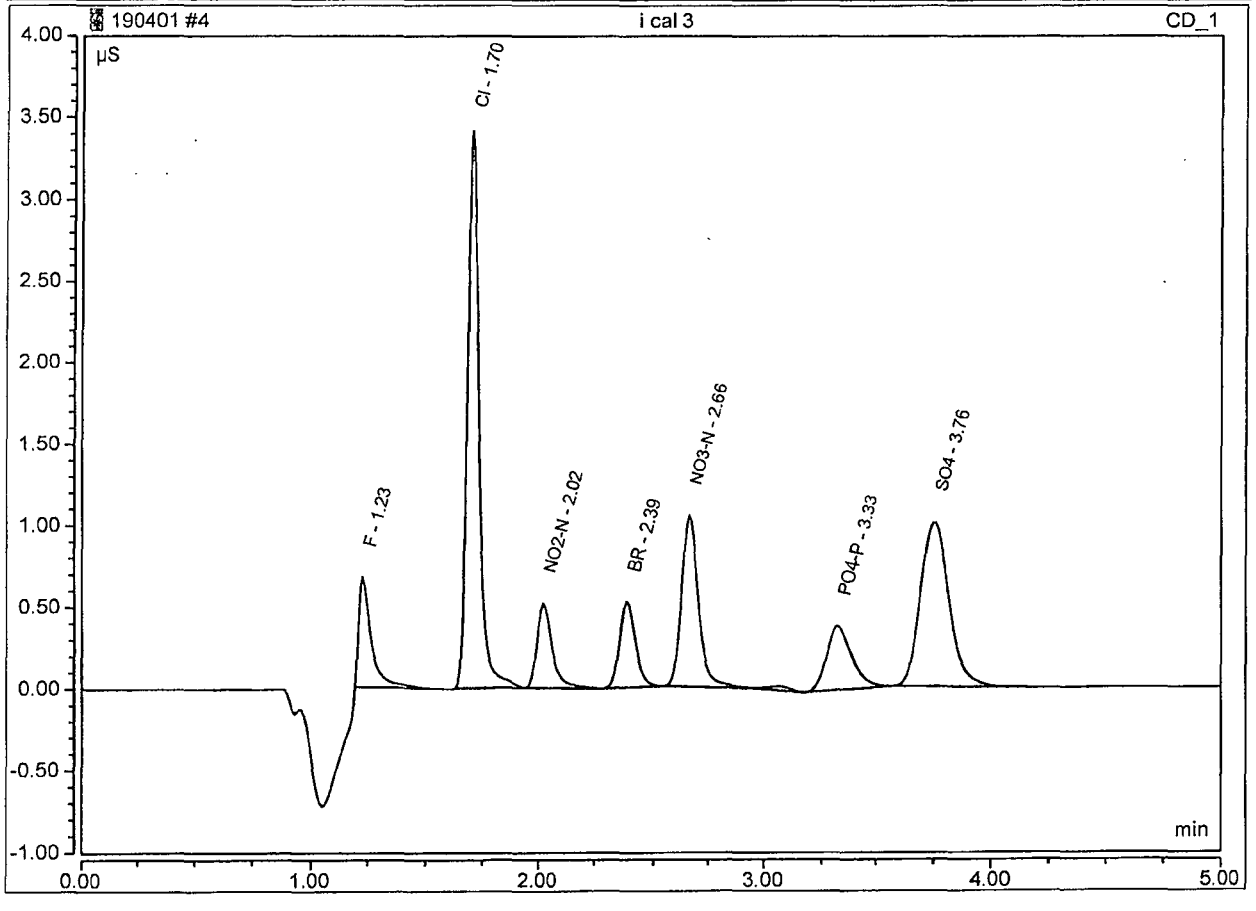
No.	Time min	Peak Name	Peak Type	Area µS*min	Height µS	Ammount mg/L
1	1.23	F	BMB*	0.008	0.177	0.3039
2	1.70	Cl	BMB	0.080	1.346	1.0054
3	2.02	NO2-N	BMB	0.017	0.208	0.1008
4	2.39	BR	BMB	0.016	0.211	0.5019
5	2.66	NO3-N	BMB	0.038	0.421	0.2020
7	3.33	PO4-P	BMB	0.018	0.129	0.6726
8	3.75	SO4	BMB	0.058	0.395	1.0108



Peak Integration Report

Sample Name:	**i cal 3**	*Inj. Vol.:*	**25uL**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-Apr-2019 / 18:49**	*Run Time:*	**5.00**

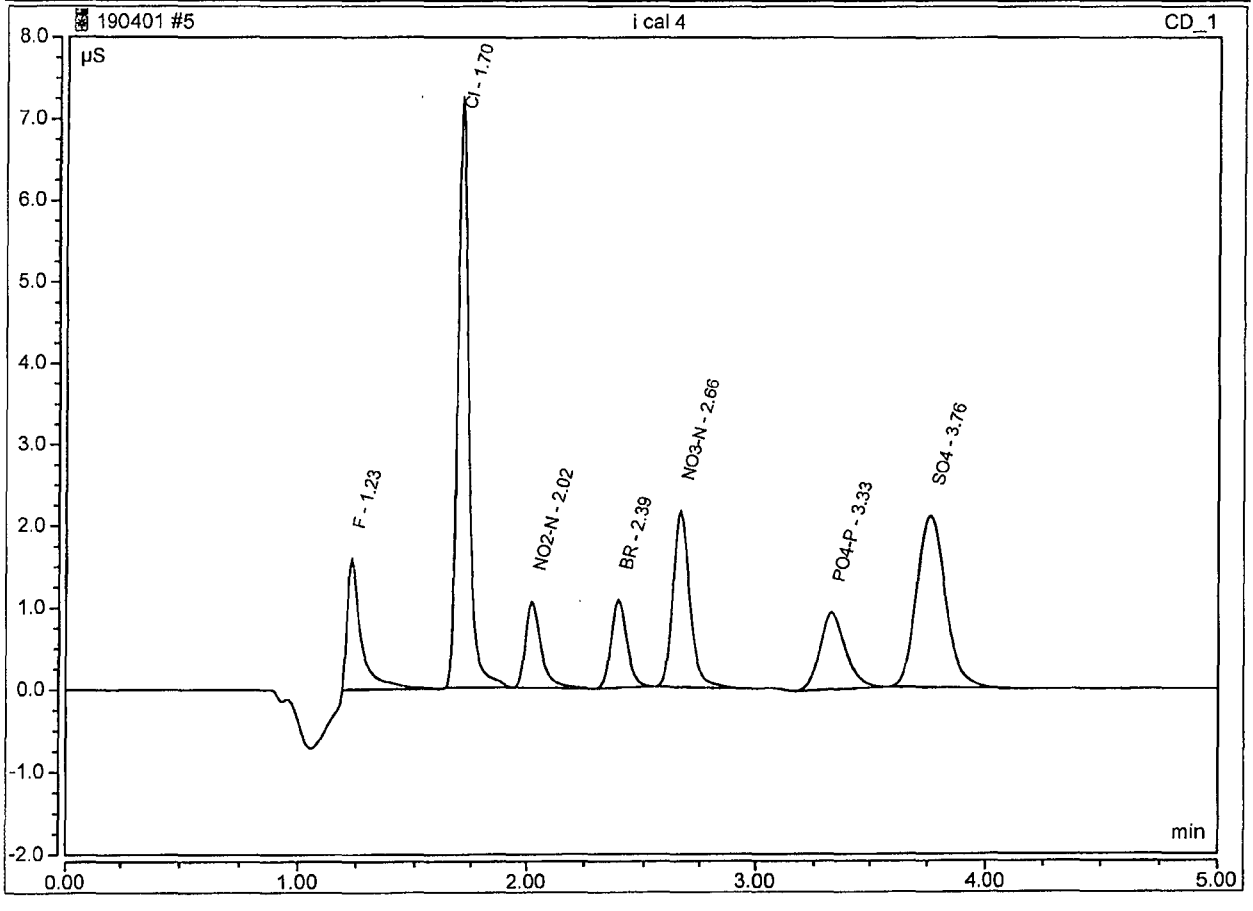
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.043	0.673	0.50	0.6250	79.7%
2	1.70	Cl	BMB	0.201	3.411	2.13	2.5000	85.4%
3	2.02	NO2-N	BMB	0.041	0.518	0.24	0.2500	95.1%
4	2.39	BR	BMB	0.040	0.524	1.18	1.2500	94.1%
5	2.66	NO3-N	BMB	0.094	1.046	0.46	0.5000	91.1%
7	3.33	PO4-P	BMB	0.053	0.392	1.15	1.2500	91.7%
8	3.76	SO4	BMB	0.145	1.005	2.28	2.5000	91.1%



Peak Integration Report

Sample Name:	i cal 4	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:56	*Run Time:*	5.00

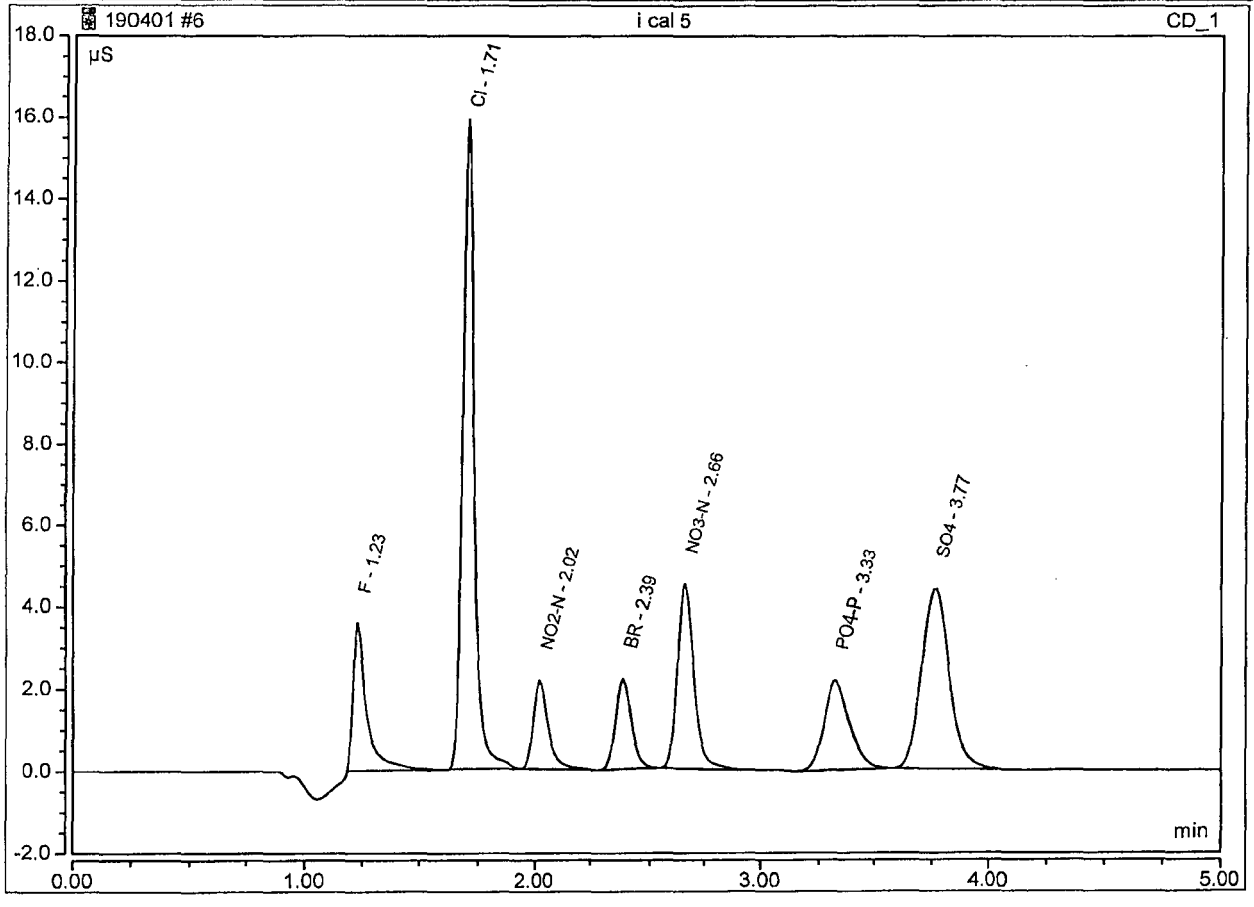
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.112	1.593	1.08	1.2500	86.2%
2	1.70	Cl	BMB	0.420	7.239	4.17	5.0000	83.4%
3	2.02	NO2-N	BMB	0.084	1.054	0.48	0.5000	95.1%
4	2.39	BR	BMB	0.082	1.069	2.35	2.5000	93.9%
5	2.66	NO3-N	BMB	0.193	2.151	0.90	1.0000	89.8%
6	3.33	PO4-P	BMB	0.127	0.939	2.13	2.5000	85.3%
7	3.76	SO4	BMB	0.298	2.093	4.51	5.0000	90.2%



Peak Integration Report

Sample Name:	i cal 5	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:04	*Run Time:*	5.00

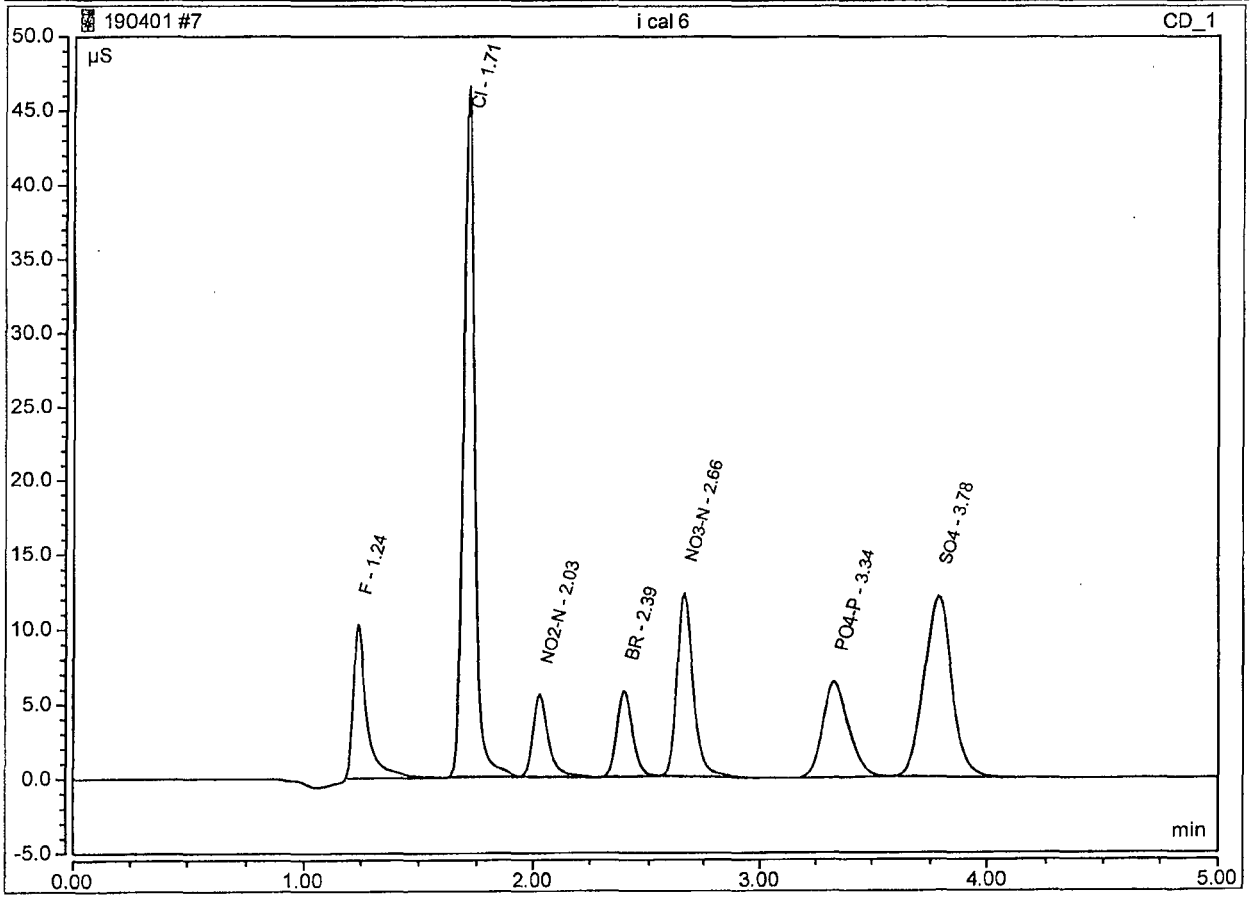
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.253	3.584	2.24	2.5000	89.8%
2	1.71	Cl	BMB	0.900	15.899	8.65	10.0000	86.5%
3	2.02	NO2-N	BMB	0.171	2.155	0.96	1.0000	96.4%
4	2.39	BR	BMB	0.167	2.196	4.74	5.0000	94.8%
5	2.66	NO3-N	BMB	0.398	4.491	1.82	2.0000	91.2%
6	3.33	PO4-P	BMB	0.293	2.182	4.36	5.0000	87.2%
7	3.77	SO4	BMB	0.618	4.399	9.16	10.0000	91.6%



Peak Integration Report

Sample Name:	i cal 6	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:11	*Run Time:*	5.00

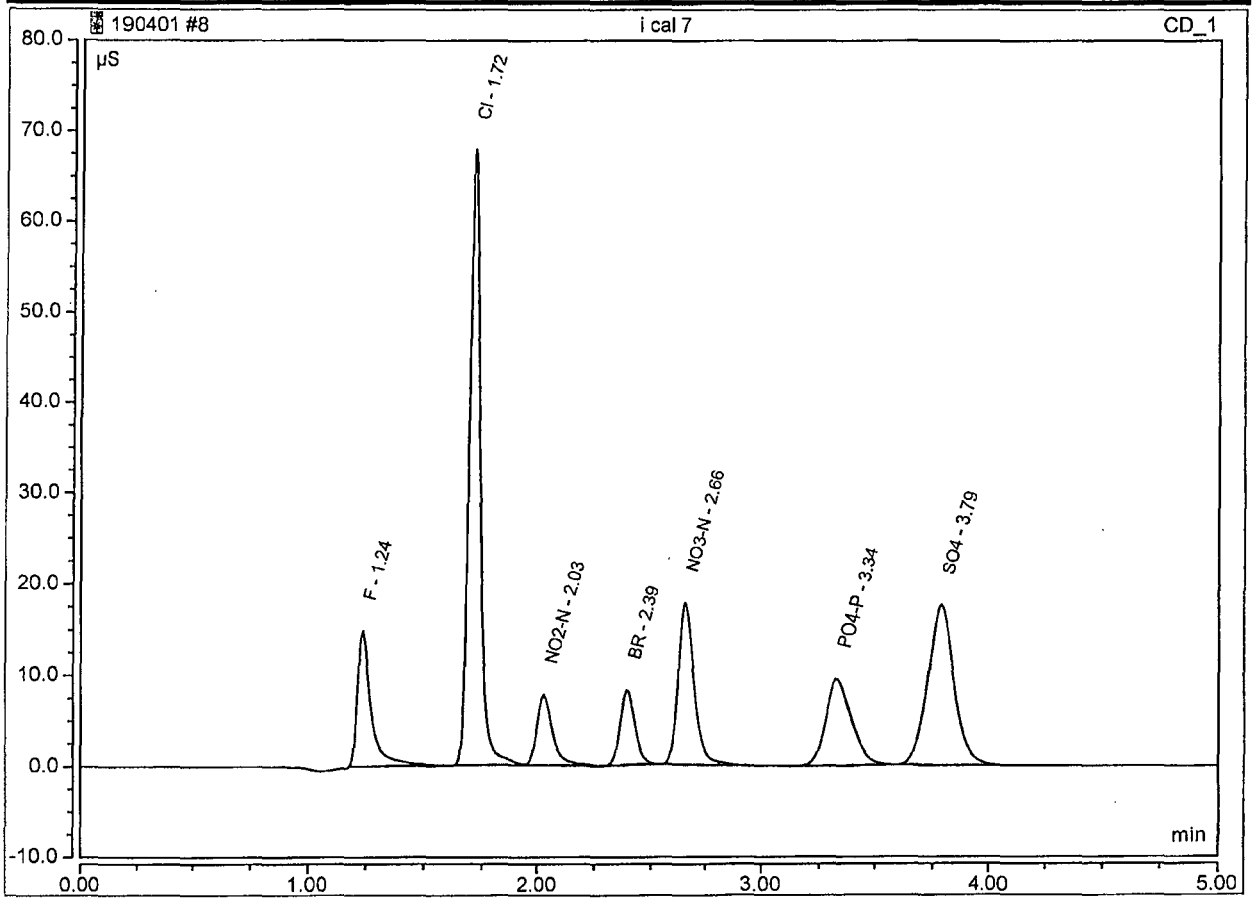
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB	0.715	10.279	6.08	6.2500	97.3%
2	1.71	Cl	BMB	2.565	46.518	24.15	25.0000	96.6%
3	2.03	NO2-N	BMB	0.441	5.520	2.47	2.5000	99.0%
4	2.39	BR	BMB	0.436	5.795	12.26	12.5000	98.1%
5	2.66	NO3-N	BMB	1.067	12.256	4.84	5.0000	96.8%
6	3.34	PO4-P	BMB	0.857	6.441	11.93	12.5000	95.5%
7	3.78	SO4	BMB	1.654	12.099	24.26	25.0000	97.0%



Peak Integration Report

Sample Name:	i cal 7	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:19	*Run Time:*	5.00

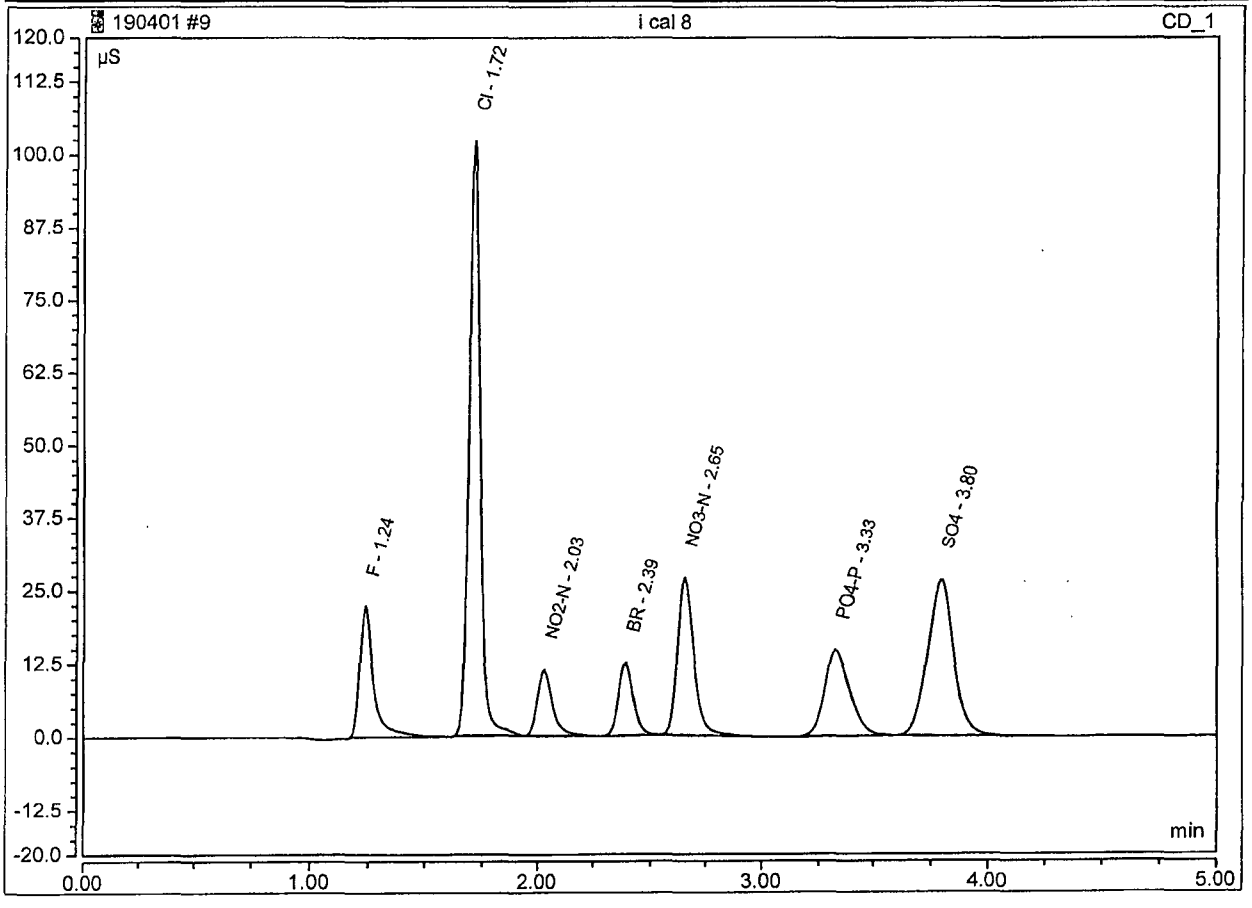
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB	1.037	14.883	8.76	8.7500	100.1%
2	1.72	Cl	BMB	3.736	67.756	35.07	35.0000	100.2%
3	2.03	NO2-N	BMB	0.621	7.719	3.48	3.5000	99.4%
4	2.39	BR	BMB	0.618	8.268	17.35	17.5000	99.1%
5	2.66	NO3-N	BMB	1.534	17.727	6.95	7.0000	99.3%
6	3.34	PO4-P	BMB	1.263	9.506	17.38	17.5000	99.3%
7	3.79	SO4	BMB	2.375	17.528	34.76	35.0000	99.3%



Peak Integration Report

Sample Name:	i cal 8	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:26	*Run Time:*	5.00

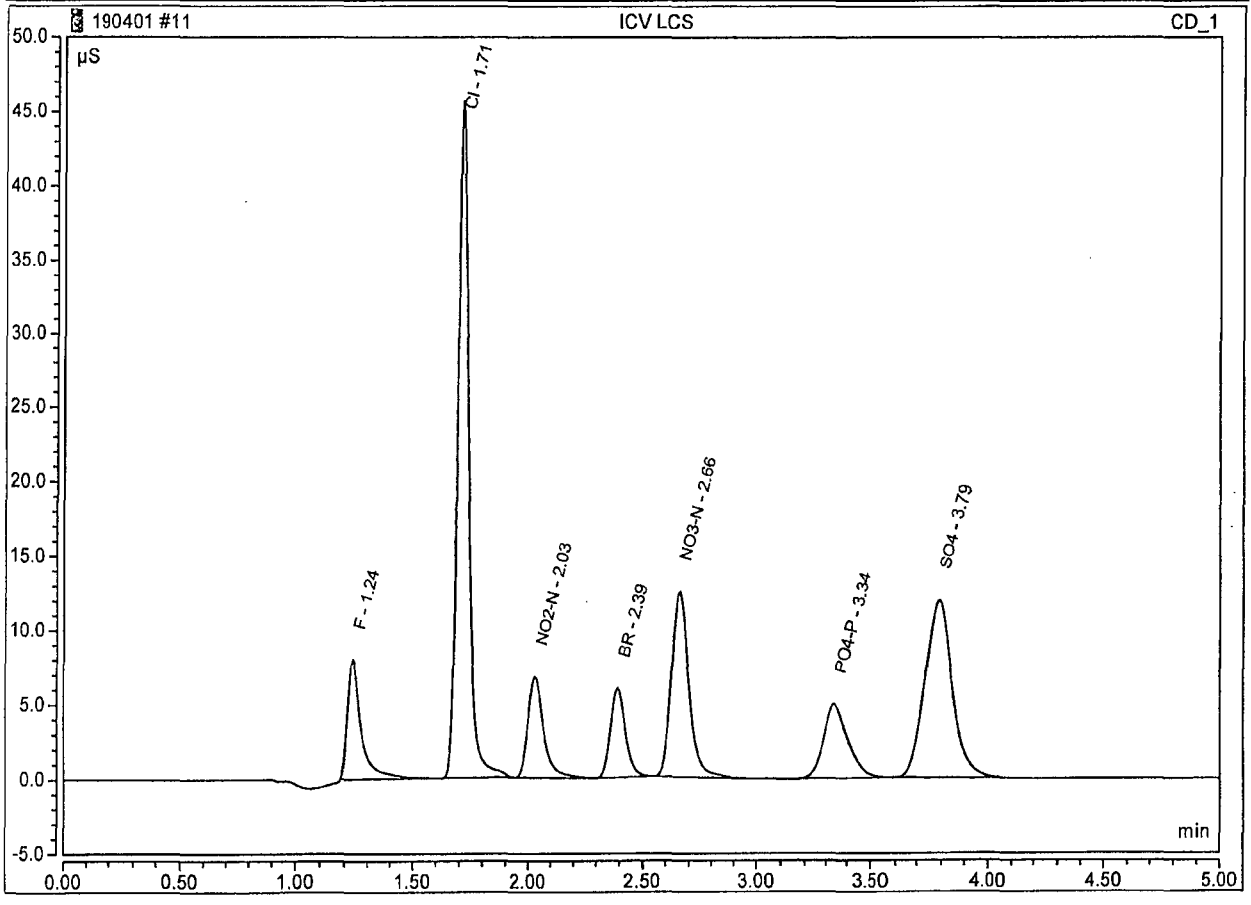
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB	1.571	22.280	13.19	12.5000	105.5%
2	1.72	Cl	BMB	5.677	102.036	53.15	50.0000	106.3%
3	2.03	NO2-N	BMB	0.913	11.224	5.11	5.0000	102.3%
4	2.39	BR	BMB	0.921	12.428	25.84	25.0000	103.4%
5	2.65	NO3-N	BMB	2.324	26.884	10.51	10.0000	105.1%
6	3.33	PO4-P	BMB	1.951	14.669	26.62	25.0000	106.5%
7	3.80	SO4	BMB	3.588	26.635	52.42	50.0000	104.8%



Peak Integration Report

Sample Name:	ICV LCS	*Inj. Vol.:*	25uL
Injection Type:	Check Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:41	*Run Time:*	5.00

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB	0.555	8.015	4.75	5.0000	95.0%
2	1.71	Cl	BMB	2.510	45.585	23.64	25.0000	94.6%
3	2.03	NO2-N	BMB	0.545	6.798	3.06	3.0400	100.6%
4	2.39	BR	BMB	0.450	5.995	12.66	12.5000	101.3%
5	2.66	NO3-N	BMB	1.085	12.464	4.92	5.0000	98.5%
6	3.34	PO4-P	BMB	0.666	4.985	9.37	10.0000	93.7%
7	3.79	SO4	BMB	1.623	11.942	23.81	25.0000	95.2%



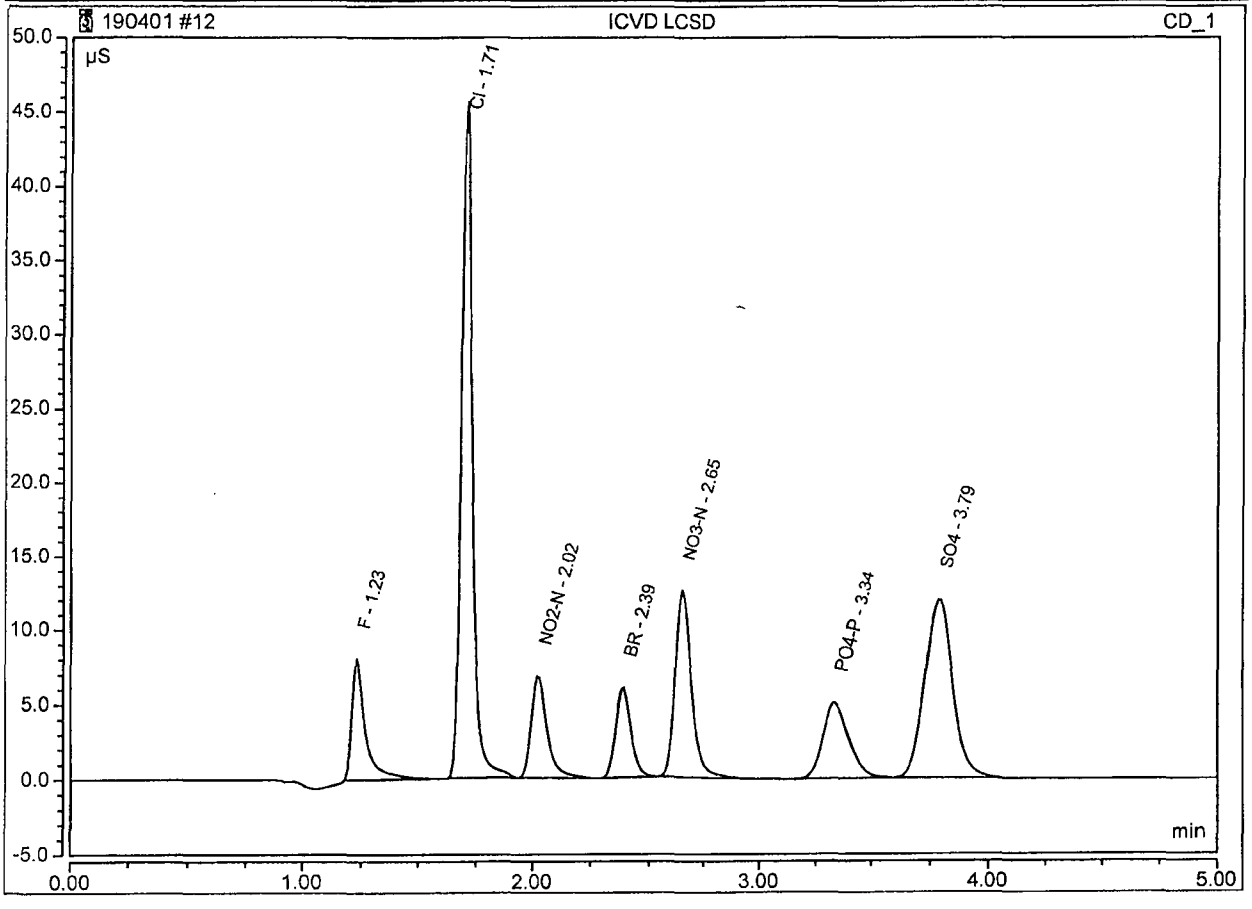
Algortith Check:
y = Peak Area
x = mg/L S04

y = 0.0687 x + -0.0115
y = 1.6231 therefor x = 23.8071 190406 HH

Peak Integration Report

Sample Name:	**ICVD LCSD**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-Apr-2019 / 19:48**	*Run Time:*	**5.00**

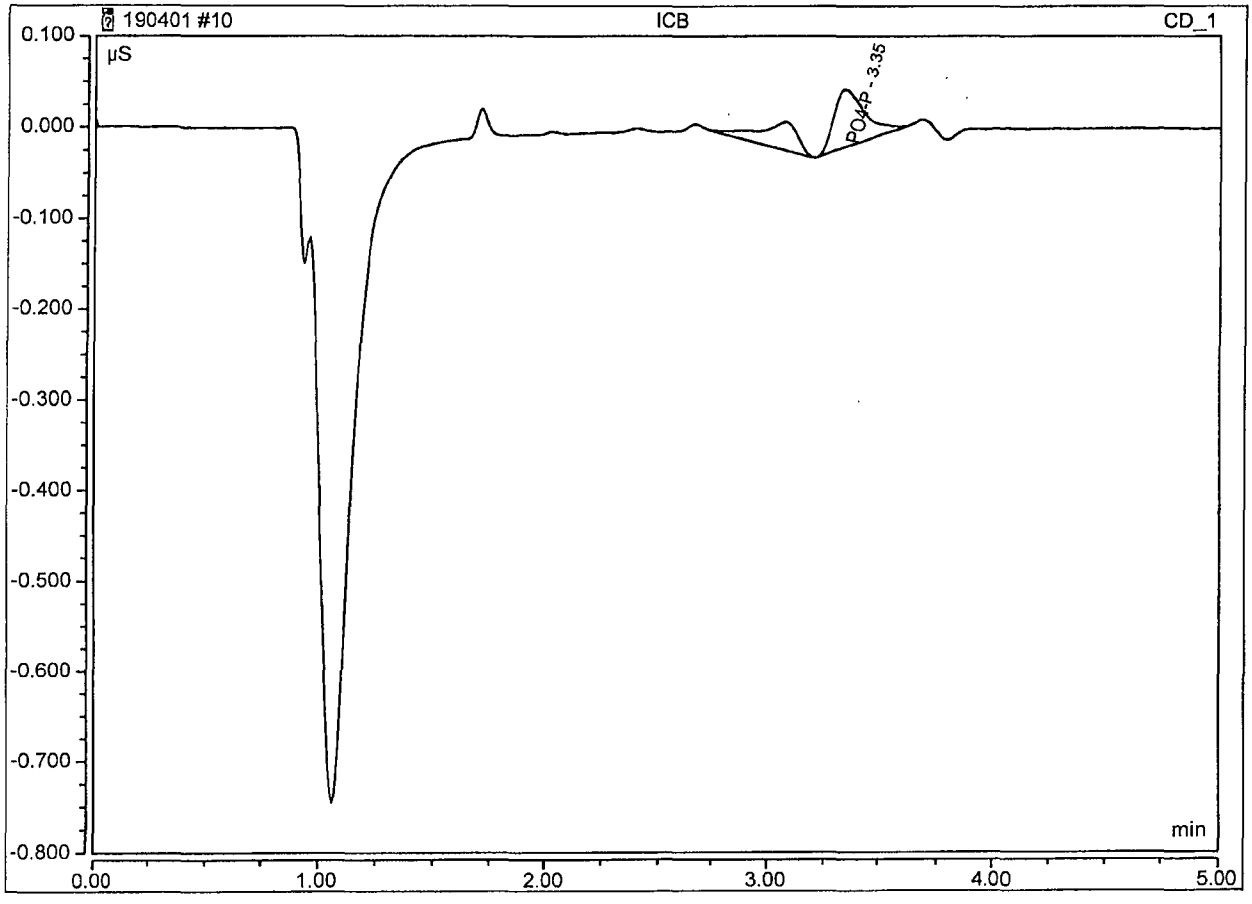
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.558	8.048	4.78	5.0000	95.6%
2	1.71	Cl	BMB	2.509	45.546	23.64	25.0000	94.6%
3	2.02	NO2-N	BMB	0.545	6.797	3.06	3.0400	100.6%
4	2.39	BR	BMB	0.450	5.991	12.66	12.5000	101.3%
5	2.65	NO3-N	BMB	1.085	12.462	4.92	5.0000	98.5%
6	3.34	PO4-P	BMB	0.676	5.055	9.50	10.0000	95.0%
7	3.79	SO4	BMB	1.624	11.941	23.83	25.0000	95.3%



Peak Integration Report

Sample Name:	ICB	*Inj. Vol.:*	25uL
Injection Type:	Unknown	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:33	*Run Time:*	5.00

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
2	3.35	PO4-P	BMB	0.010	0.062	0.56		

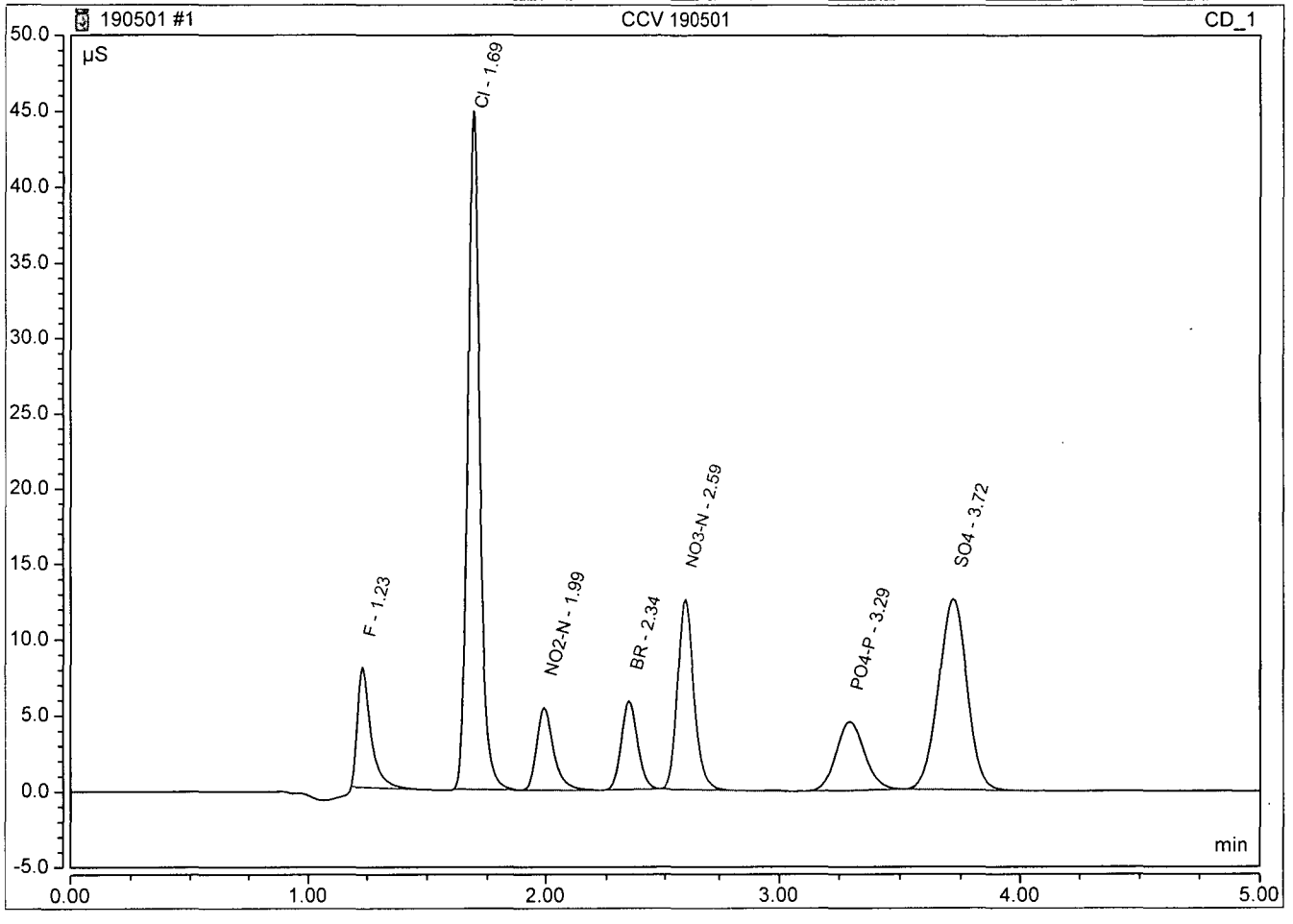


Chromeleon (c) Dionex 1996-2009
Version 7.2.4.8340

Peak Integration Report

Sample Name:	**CCV 190501**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-May-2019 / 18:21**	*Run Time:*	**5.00**

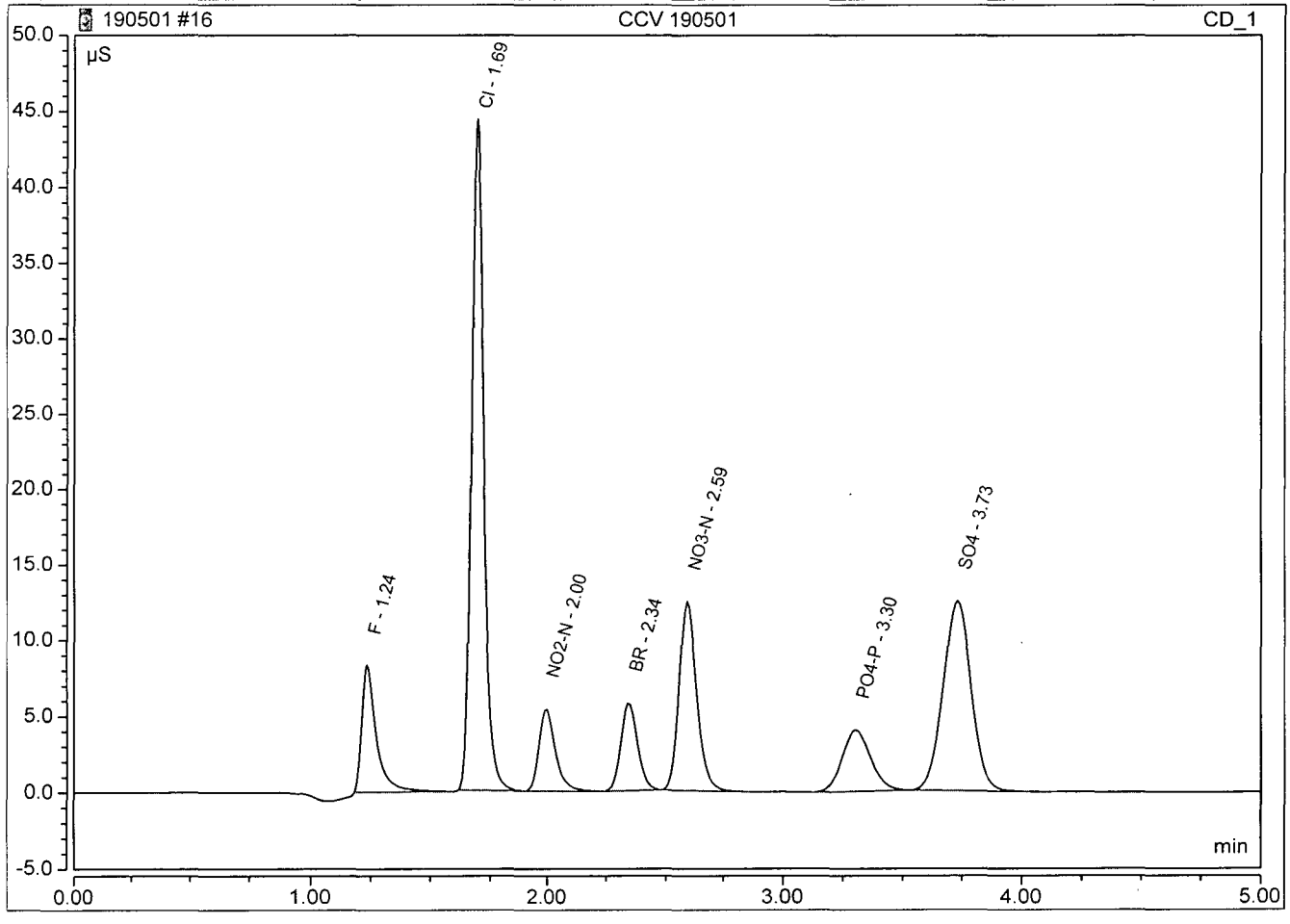
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.23	F	BMB	0.520	7.885	4.46	5	89.3%
2	1.69	Cl	BMB	2.631	44.836	24.78	25	99.1%
3	1.99	NO2-N	BMB	0.453	5.447	2.54	2.5	101.5%
4	2.34	BR	BMB	0.459	5.816	12.89	12.5	103.2%
5	2.59	NO3-N	BMB	1.106	12.533	5.02	5	100.4%
7	3.29	PO4-P	BMB	0.616	4.515	8.70	10	87.0%
8	3.72	SO4	BMB	1.711	12.542	25.09	25	100.4%



Peak Integration Report

Sample Name:	**CCV 190501**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-May-2019 / 20:12**	*Run Time:*	**5.00**

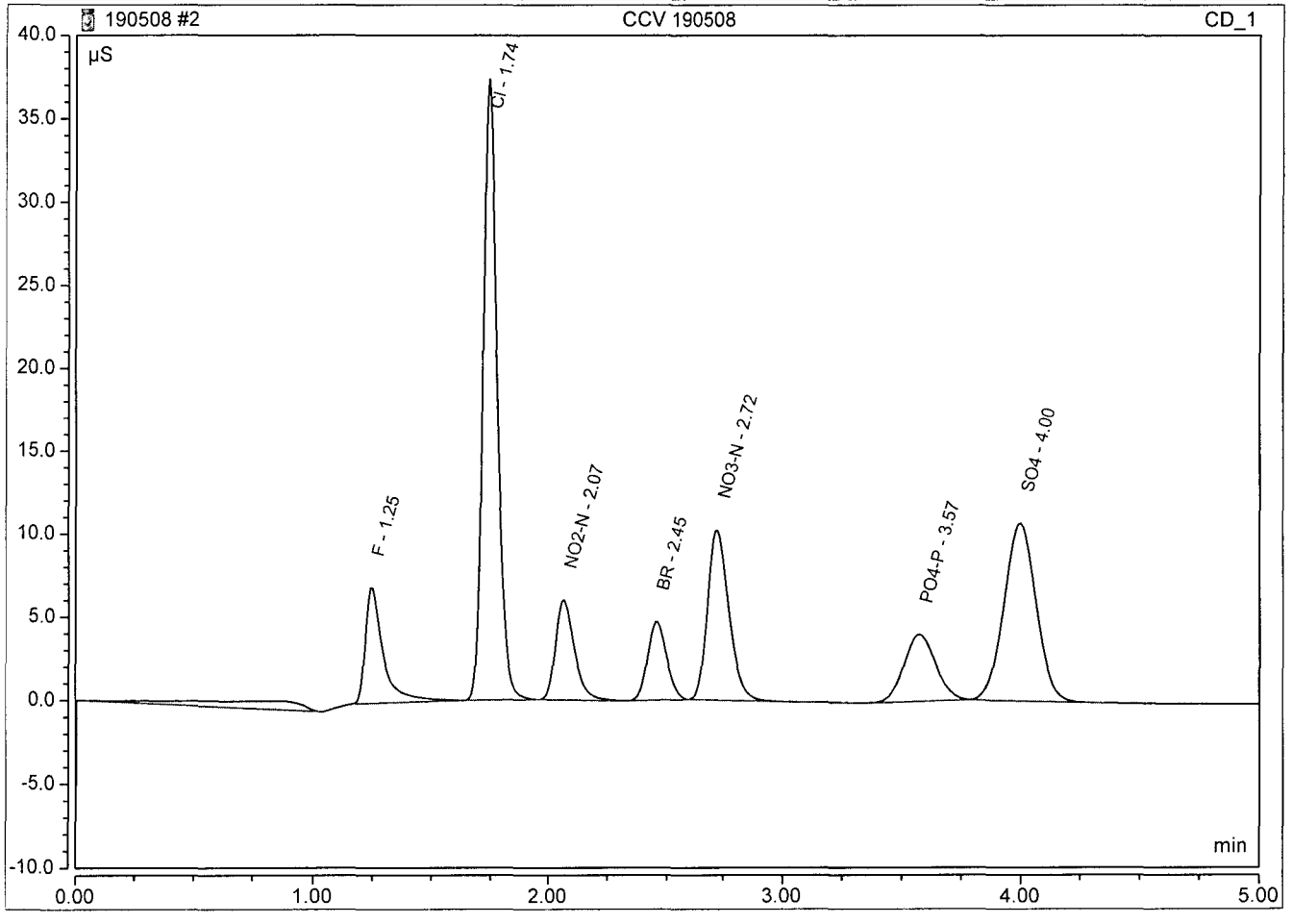
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.24	**F**	BMB	0.590	8.338	5.05	5	100.9%
2	1.69	**Cl**	BMB	2.621	44.330	24.68	25	98.7%
3	2.00	**NO2-N**	BMB	0.449	5.385	2.52	2.5	100.6%
4	2.34	**BR**	BMB	0.457	5.761	12.83	12.5	102.7%
5	2.59	**NO3-N**	BMB	1.101	12.445	5.00	5	99.9%
6	3.30	**PO4-P**	BMB	0.556	4.026	7.89	10	78.9%
7	3.73	**SO4**	BMB	1.707	12.496	25.03	25	100.1%



Peak Integration Report

Sample Name:	**CCV 190508**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 08:23**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
2	1.25	**F**	BMB	0.619	6.996	5.29	5	105.7%
3	1.74	**Cl**	BMB	2.618	37.357	24.65	25	98.6%
4	2.07	**NO2-N**	BMB	0.563	6.018	3.16	3.04	103.9%
5	2.45	**BR**	BMB	0.446	4.721	12.54	12.5	100.4%
6	2.72	**NO3-N**	BMB	1.091	10.246	4.95	5	99.0%
8	3.57	**PO4-P**	BMB	0.615	4.013	8.69	10	86.9%
9	4.00	**SO4**	BMB	1.666	10.698	24.43	25	97.7%

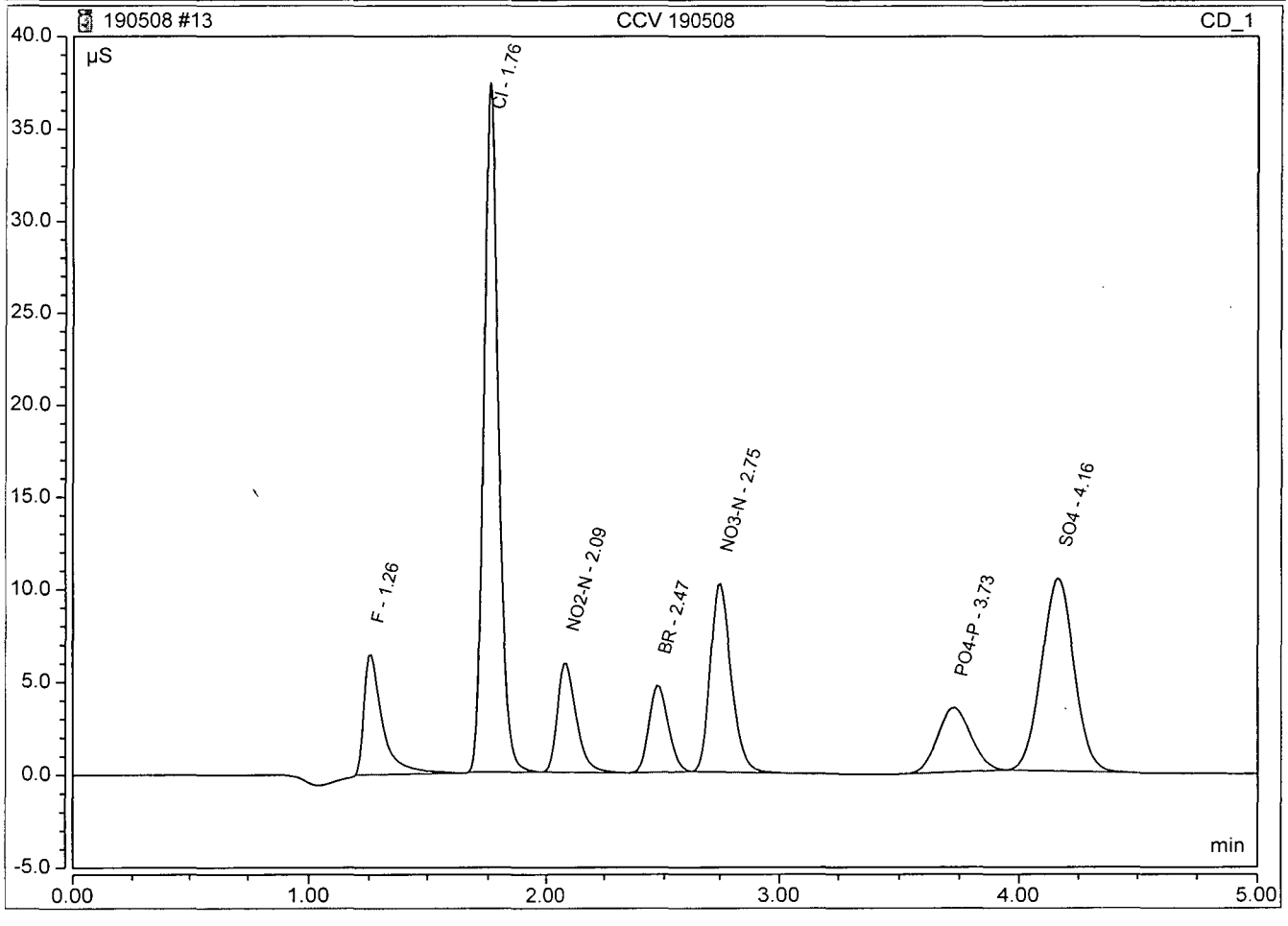


Chromeleon (c) Dionex 1996-2009
Version 7.2.4.8340

Peak Integration Report

Sample Name:	**CCV 190508**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 10:08**	*Run Time:*	**5.00**

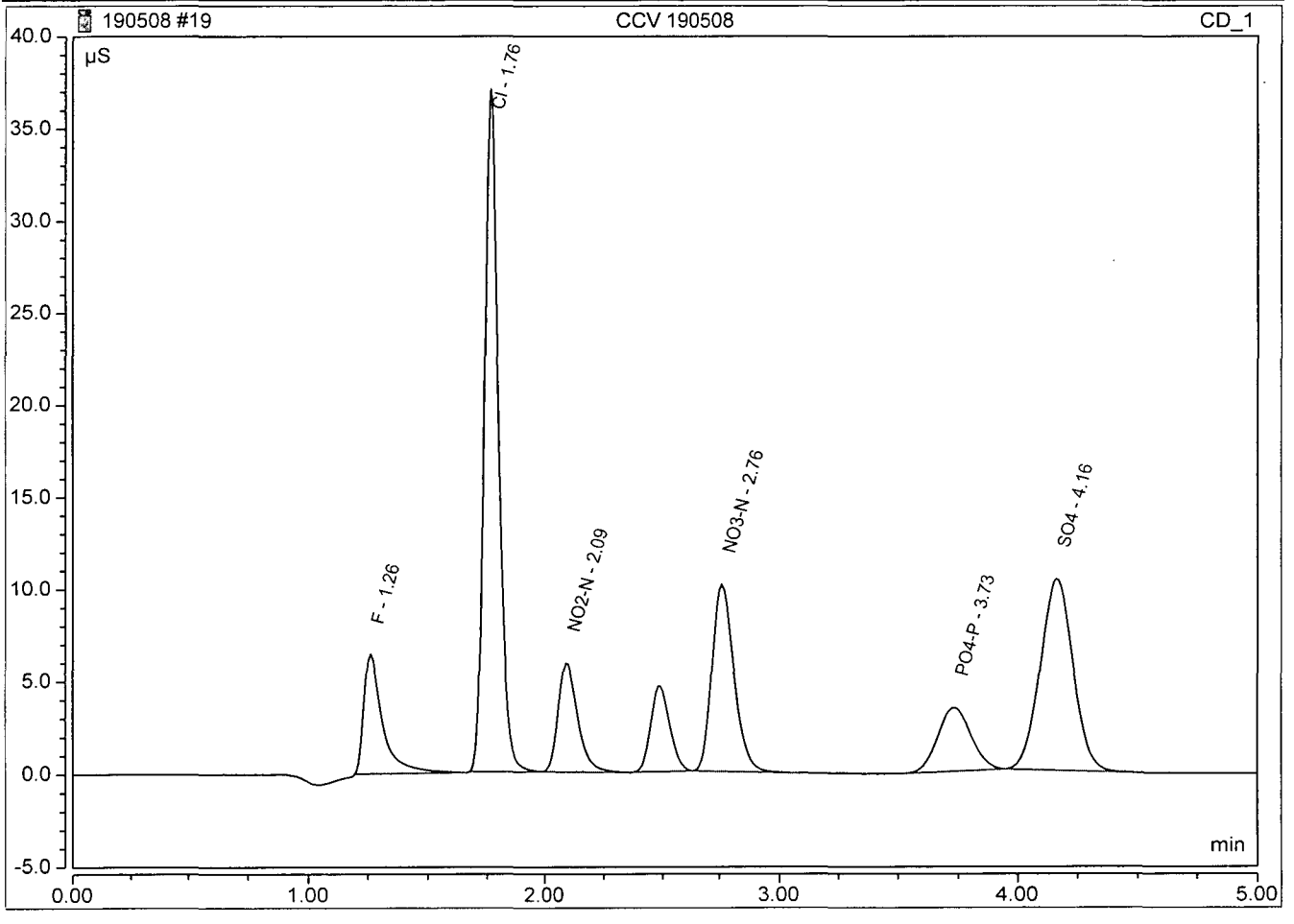
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.26	**F**	BMB	0.595	6.527	5.09	5	101.7%
2	1.76	**Cl**	BMB	2.608	37.328	24.56	25	98.2%
3	2.09	**NO2-N**	BMB	0.562	5.921	3.15	3.04	103.6%
4	2.47	**BR**	BMB	0.446	4.689	12.53	12.5	100.2%
5	2.75	**NO3-N**	BMB	1.086	10.189	4.93	5	98.5%
6	3.73	**PO4-P**	BMB	0.555	3.463	7.88	10	78.8%
7	4.16	**SO4**	BMB	1.653	10.411	24.24	25	96.9%



Peak Integration Report

Sample Name:	**CCV 190508**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 10:52**	*Run Time:*	**5.00**

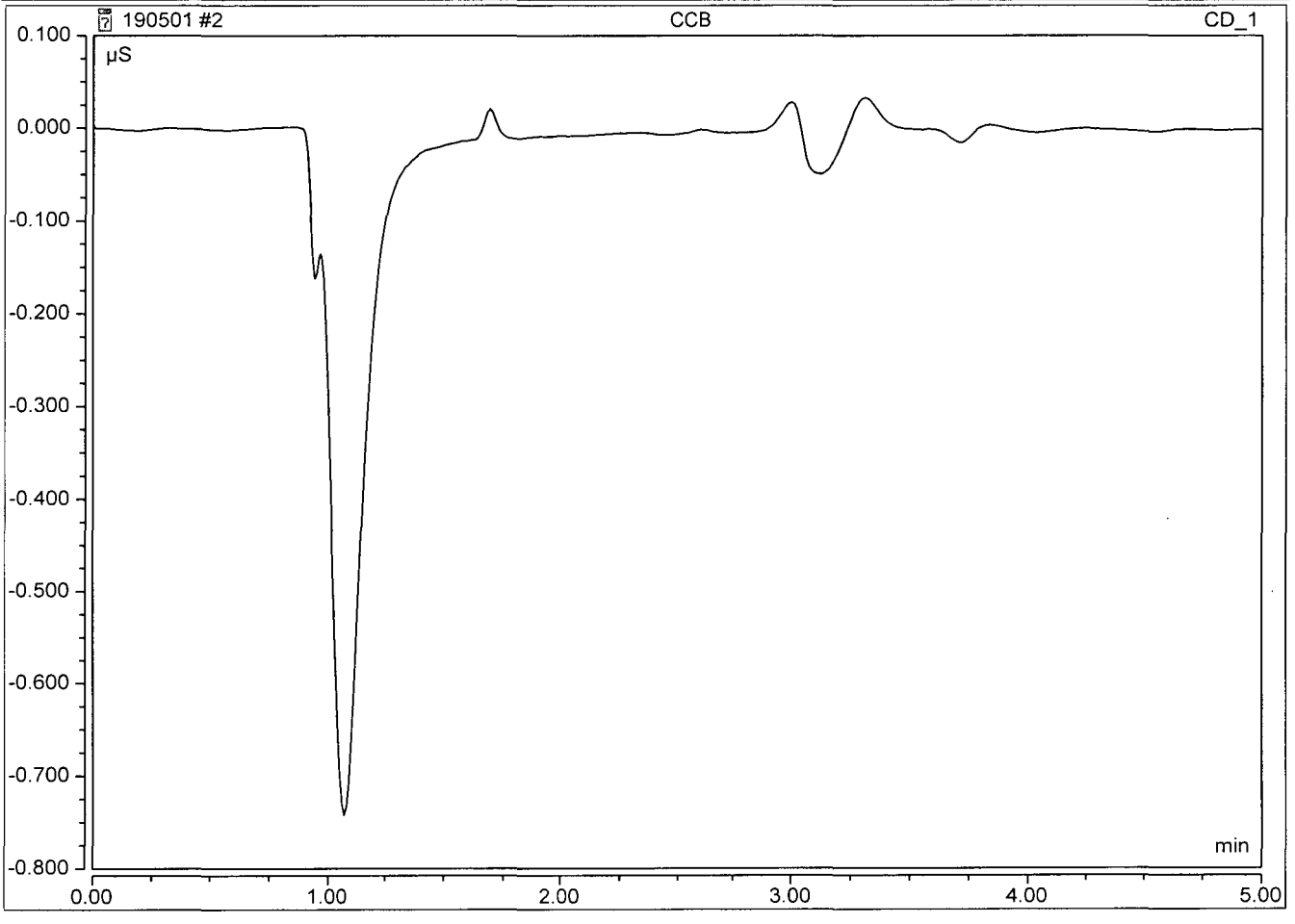
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.26	**F**	BMB	0.595	6.444	5.08	5	101.7%
2	1.76	**Cl**	BMB	2.607	36.997	24.55	25	98.2%
3	2.09	**NO2-N**	BMB	0.562	5.866	3.15	3.04	103.6%
5	2.76	**NO3-N**	BMB	1.084	10.114	4.92	5	98.3%
6	3.73	**PO4-P**	BMB	0.552	3.442	7.83	10	78.3%
7	4.16	**SO4**	BMB	1.649	10.358	24.18	25	96.7%



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-May-2019 / 18:29**	*Run Time:*	**5.00**

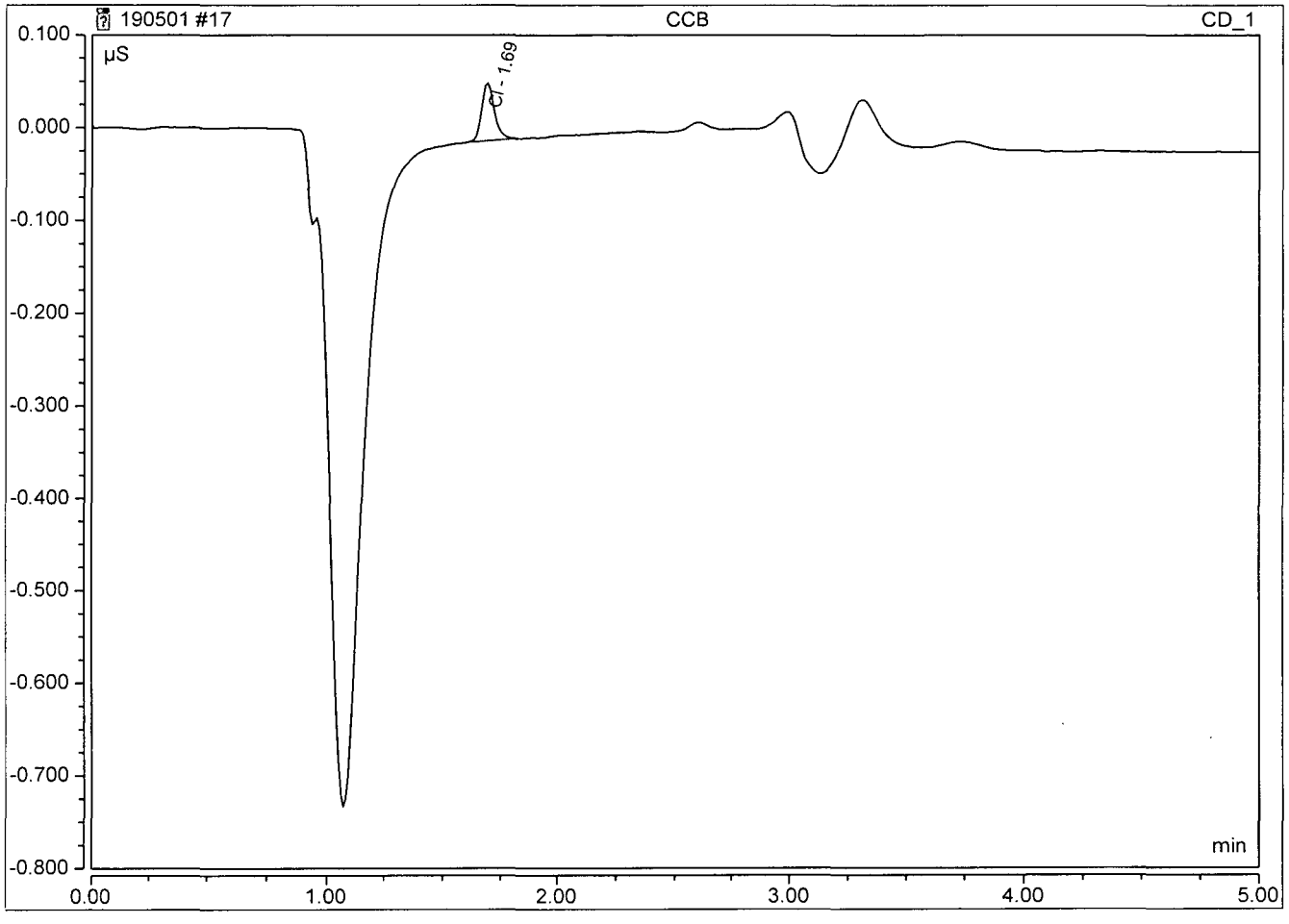
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-May-2019 / 20:19**	*Run Time:*	**5.00**

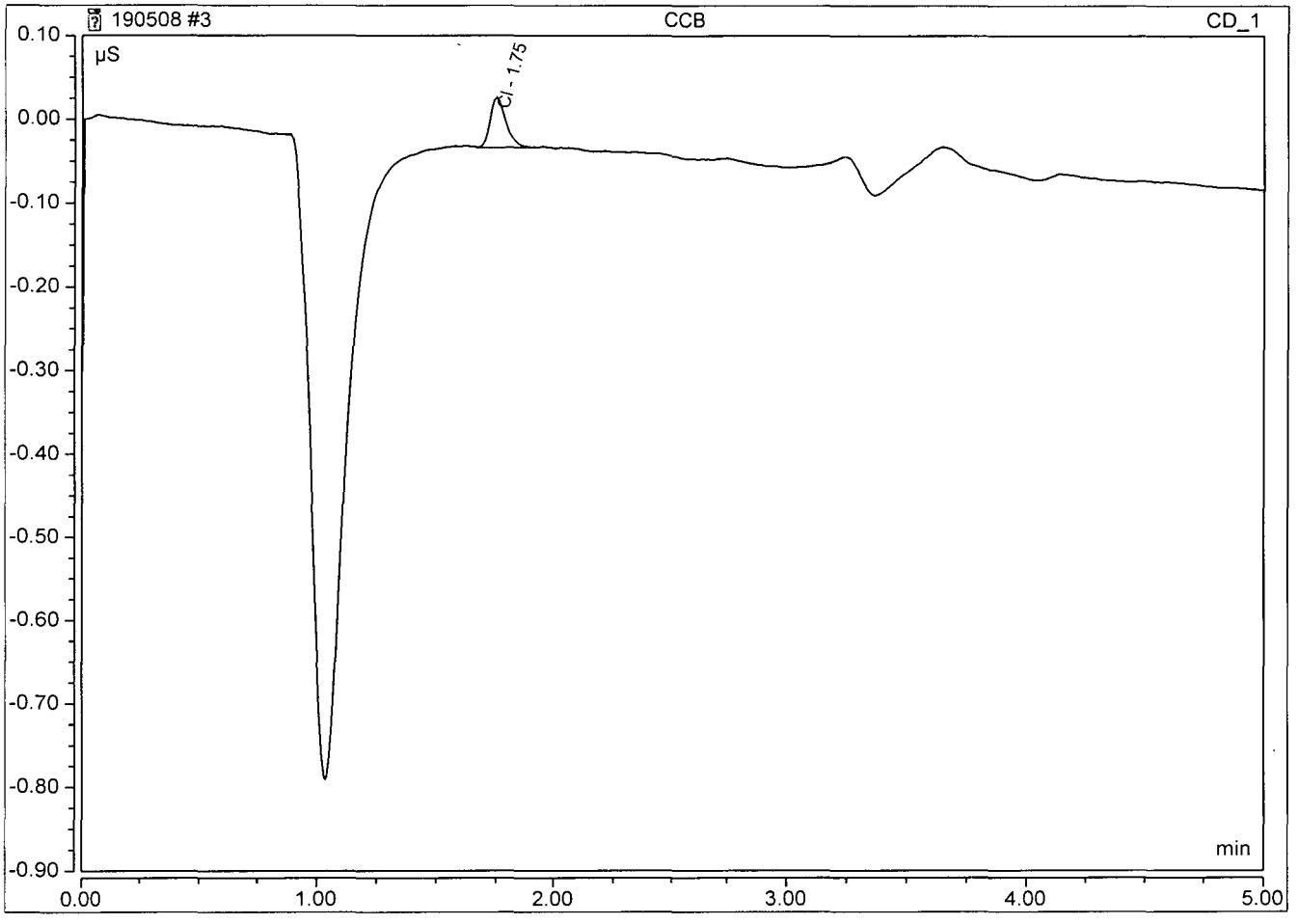
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.69	Cl	BMB	0.004	0.063	0.30		



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 08:31**	*Run Time:*	**5.00**

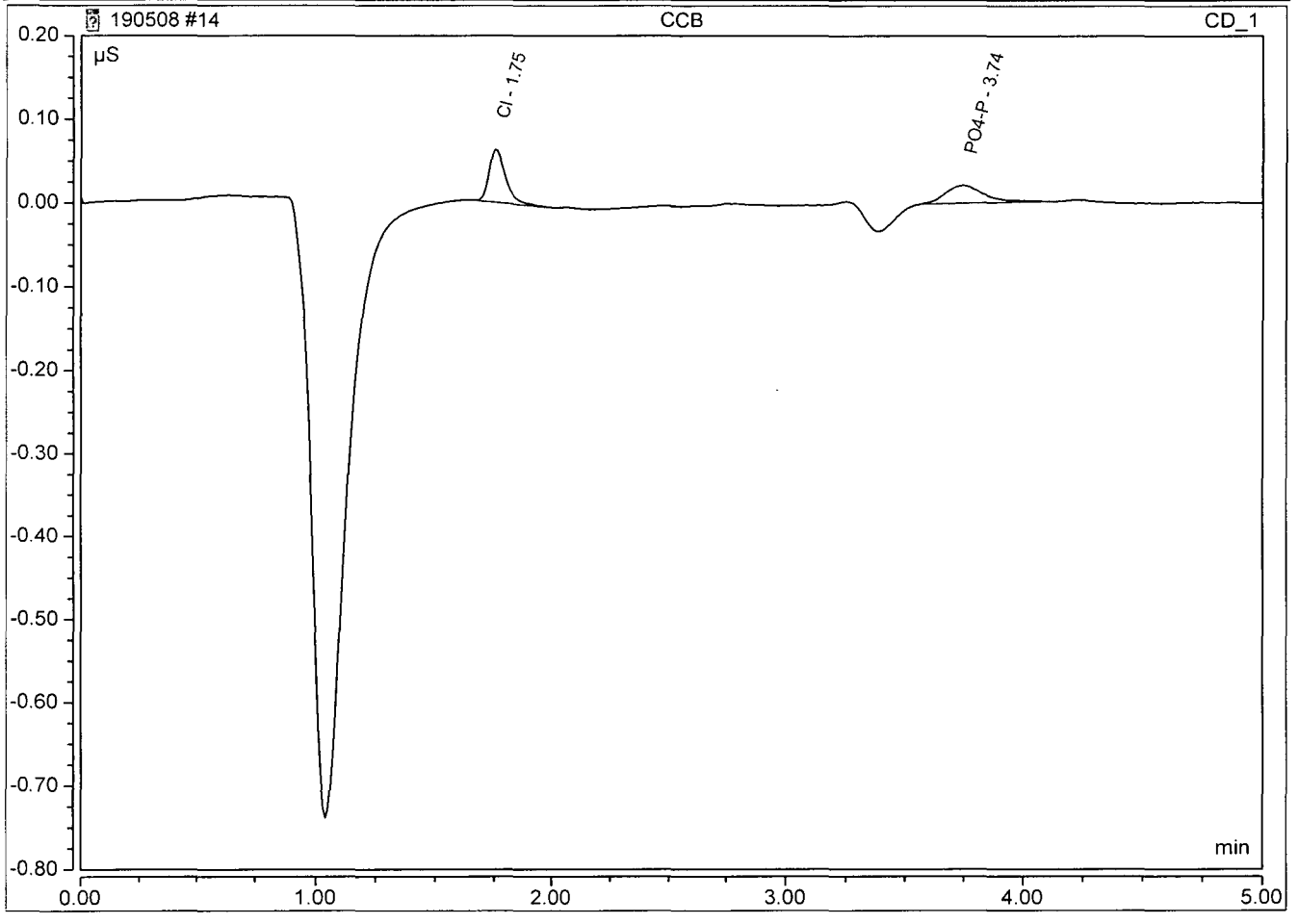
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.75	Cl	BMB	0.005	0.060	0.30		



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 10:15**	*Run Time:*	**5.00**

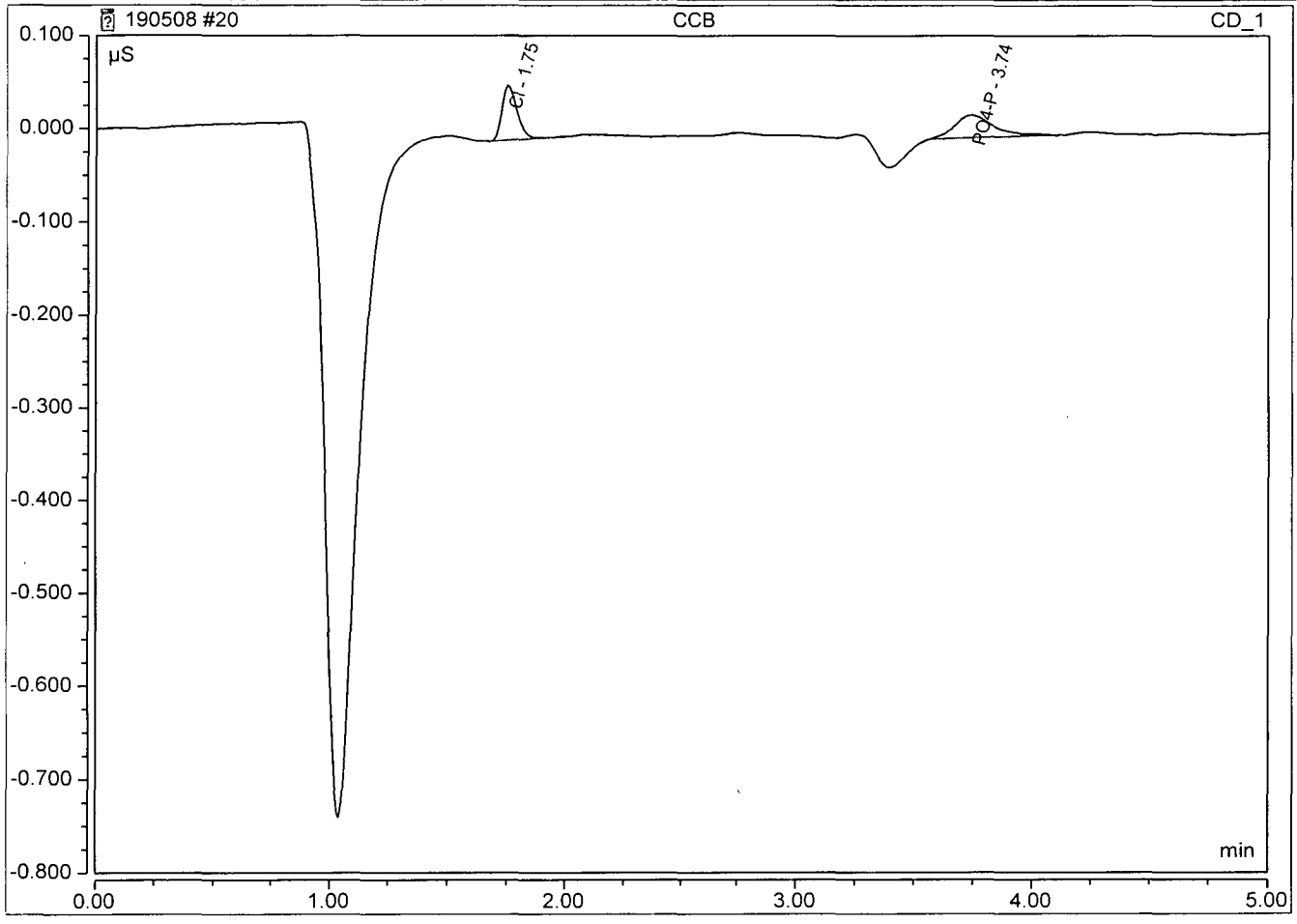
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.75	**Cl**	BMB	0.005	0.063	0.31		
2	3.74	**PO4-P**	BMB	0.004	0.021	0.49		



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 11:00**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.75	Cl	BMB	0.004	0.059	0.30		
2	3.74	PO4-P	BMB	0.005	0.024	0.49		



INORGANIC ANALYSIS
Raw Data

Metrohm 814/809 Titrando Data

Sample ID	Analysis Date/Time	Method	Titration Volume (to 8.3)	Titration Volume (total)	OH	CO3	HCO3	Total Alk	Unit	Sample Vol	N	Batch	Initials
AZ90450W13	2019-05-06 20:53:43 UTC-7	Alkalinity	0.000	2.716	0.00	0.00	114.07	114.07	mg/L	25 mL	0.0210	190506A	AR
190506A LCSD	2019-05-06 15:31:02 UTC-7	Alkalinity	0.374	6.264	0.00	31.42	231.67	263.09	mg/L	25 mL	0.0210	190506A	AR
190506A LCS	2019-05-06 15:20:06 UTC-7	Alkalinity	0.352	6.040	0.00	29.57	224.11	253.68	mg/L	25 mL	0.0210	190506A	AR
190506A BLK	2019-05-06 15:16:58 UTC-7	Alkalinity	0.000	0.082	0.00	0.00	3.44	3.44	mg/L	25 mL	0.0210	190506A	AR

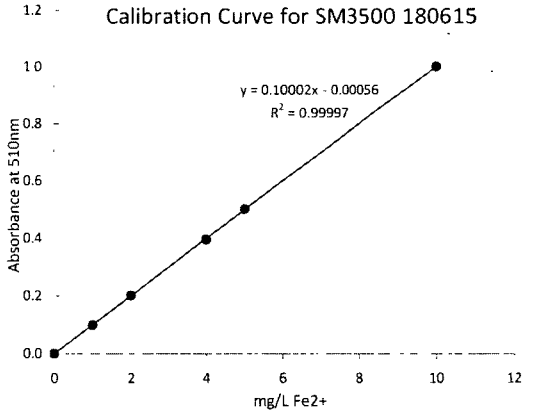
Ferrous Iron — Rev 2, 04-05-19

Method SM3500Fe | Units mg/L | Instrument: Genisis Spectrometer
Analyte Fe2+ | QCG: 190503 | Wavelength: 510 nm
Analyist FJR | Final Volume: 50mL | Units: mg/L

Date	Time	Appl ID	[Fe2+]	Absorbance	% Recovery
06/15/18	12:27	ICB	0.00	0.000	
06/15/18	12:27	Ical 1	1.00	0.099	99.5%
06/15/18	12:28	Ical 2	2.00	0.201	100.8%
06/15/18	12:28	Ical 3	4.00	0.396	99.1%
06/15/18	12:29	Ical 4	5.00	0.501	100.3%
06/15/18	12:30	Ical 5	10.00	1.000	100.0%
06/15/18	12:31	ICV	3.00	0.316	105.5%
06/15/18	12:32	ICB	0.00	0.000	

Slope	0.100015306
Intercept	-0.000556122
Coefficient of Determination	0.999973247

Algortithm Check:	Appl ID	Absorbance	Result
	190503A LCS	0.307	3.08
Result = (Absorbance-Raw Blk-Intercept)/ Slope			
Test:	FJR	05/03/19	3.08



Date	Time	Appl ID	DF	Raw Result	SubSample Amount	Raw BLK	Calc Conc	Result	QC True	% Recovery
05/03/19	15:44	CCV 4.0 190503	1	0.384	25mL		3.84	3.84	4.00	96.1%
05/03/19	15:45	CCB 190503	1	0.000	25mL		0.01	0.01		
05/03/19	15:46	190503A LCS	1	0.307	25mL		3.08	3.08	3.00	102.5%
05/03/19	15:47	190503A LCSD	1	0.300	25mL		3.01	3.01	3.00	100.2%
05/03/19	15:48	AZ88911M01	1	0.041	25mL		0.42	0.42		
05/03/19	15:49	AZ90450W15	1	0.024	25mL		0.25	0.25		
05/03/19	15:50	AZ90450W15 MS	1	0.318	25mL		3.19	3.19		
05/03/19	15:51	AZ90450W15 MSD	1	0.321	25mL		3.22	3.22		
05/03/19	15:52	CCV 4.0 190503	1	0.388	25mL		3.88	3.88	4.00	97.1%
05/03/19	15:53	CCB 190503	1	0.003	25mL		0.04	0.04		

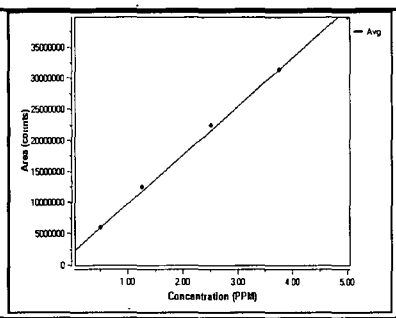
TOTAL ORGANIC CARBON

Method: WetChem | Units mg/L | Instrument: Tic Toc

Analyte: TOC | QCG: 190506A

Analyist: AR | Final Volume: 40mL

Date	Time	Appl ID	[TOC]	Raw	% Recovery
02/23/19	12:37	QC blank	0.00	2073066.000	
02/23/19	13:11	Ical 1	0.50	6066781.000	
02/23/19	13:43	Ical 2	1.25	12451764.000	
02/23/19	14:15	Ical 3	2.50	22465756.000	
02/23/19	14:48	Ical 4	3.75	31457150.000	
02/23/19	15:21	Ical 5	5.00	39864495.000	
02/23/19	15:56	ICB	0.25	1917909.000	
02/23/19	16:30	ICV	2.97	23239734.000	118.9%
r^2=	0.9984				



Date	Time	Appl ID	DF	Raw Result	SubSample Amount	Calc Conc	Result	QC True	% Recovery
2019-05-07	06:02 PM	CCV	1	21940997	40mL	2.455	2.46	2.50	98.2%
2019-05-07	06:37 PM	CCB	1	937340	40mL	0	0.00		
2019-05-07	07:11 PM	190506A LCS	1	21565896	40mL	2.407	2.41	2.50	96.3%
2019-05-07	07:46 PM	190506A LCSD	1	21627304	40mL	2.416	2.42	2.50	96.6%
2019-05-07	08:21 PM	AZ90450W12	1	3386923	40mL	0.383	0.38		
2019-05-07	08:52 PM	AZ90450W12 DUP	1	6042856	40mL	0.723	0.72		
2019-05-07	09:24 PM	AZ90450W06 MS	1	22108222	40mL	2.777	2.78		
2019-05-07	09:57 PM	AZ90450W06 MSD	1	22740256	40mL	2.858	2.86		
2019-05-07	10:29 PM	AZ90450W08	1	3732262	40mL	0.427	0.43		
2019-05-07	11:00 PM	AZ90450W08 DUP	1	3865616	40mL	0.444	0.44		
2019-05-07	11:32 PM	AZ90450W05 MS	1	16355040	40mL	2.041	2.04		
2019-05-08	12:04 AM	AZ90450W05 MSD	1	23794786	40mL	2.993	2.99		
2019-05-08	12:37 AM	CCV	1	21986053	40mL	2.461	2.46	2.50	98.4%
2019-05-08	01:12 AM	CCB	1	1000079	40mL	0	0.00		

AQ2 Report

Serial Number:	190170
Software Version:	2.1.0
Report Requested By:	Eve V
Date & Time:	2019-05-02 09:25:07
Tray Number:	3
Tray Name:	190501A TOXN CCV

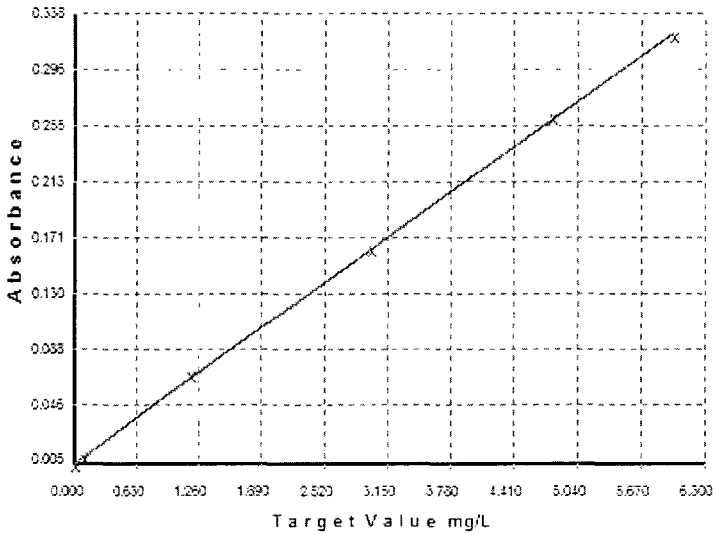
TOXN

Calibration Chart

Type	Absorbance	Calc mg/L	Target mg/L	% Error
S1	0.0045	-0.0187	0.0000	
S90	0 0100	0.0854	0.1000	-14.60
S91	0.0708	1.2299	1.2000	2.49
S92	0.1649	3 0029	3.0000	0.10
S93	0.2623	4.8388	4.8000	0.81
S94	0.3219	5.9618	6.0000	-0.64
S0	0.0054	-0.0029	0 0000	

Polynomial Order:	1
Correlation Coefficient:	0.9999
Carryover(%):	0 3
Calibration equation:	y = bx + a
y =:	Concentration mg/L
x =:	Measured absorbance
a =:	-1.038605E-001
b =:	1.884315E+001
Date & Time.	2019-05-01 16:47:29

Calibration Graph



Reagents

Name	Batch	Prepared By	Expiry Date
NO3 W Buffer	Algorithm check	Joel	
Sulfa-NEDD	y = 18.84315 x 0.162897 - 0.1038605	Joel	

y = 2.97 EV 5/20/19

Cup	Type	ID	Result	Units	QC Pro	Raw Data	Auto Dil.	Man Dil.	User	Time/Date
	S1	Standard 1	0 0045			0.004518			Ev	2019-05-01 16:37:54
	S90	Standard 90	0.0100			0.010044			Ev	2019-05-01 16:40:05
	S91	Standard 91	0 0708			0.070781			Ev	2019-05-01 16:42:17
	S92	Standard 92	0.1649			0.164873			Ev	2019-05-01 16:44:30
	S93	Standard 93	0.2623			0.262303			Ev	2019-05-01 16:45:36
	S94	Standard 94	0.3219			0.321904			Ev	2019-05-01 16:46:33
	S0	Standard 0	0.0054			0.005359			Ev	2019-05-01 16:47:29
	CCV	CCV	2.9088	mg/L		0.159881			Ev	2019-05-01 16:48:25
	CCB	CCB	-0.0233	mg/L		0.004274			Ev	2019-05-01 16:49:21
3	U1	✓ICV TOXN	2.9656	mg/L		0.162897			Ev	2019-05-01 16:50:17
4	U2	ICB TOXN	-0.0075	mg/L		0.005115			Ev	2019-05-01 16 51:13
	CCV	CCV	2.8375	mg/L		0.156098			Ev	2019-05-01 16:52:09
	CCB	CCB	-0.0134	mg/L		0.004803			Ev	2019-05-01 16:53:05

AQ2 Report

Serial Number:	190170
Software Version:	2.1.0
Report Requested By:	Eve V
Date & Time:	2019-05-02 09:21:44
Tray Number:	5
Tray Name:	190501B TOXN

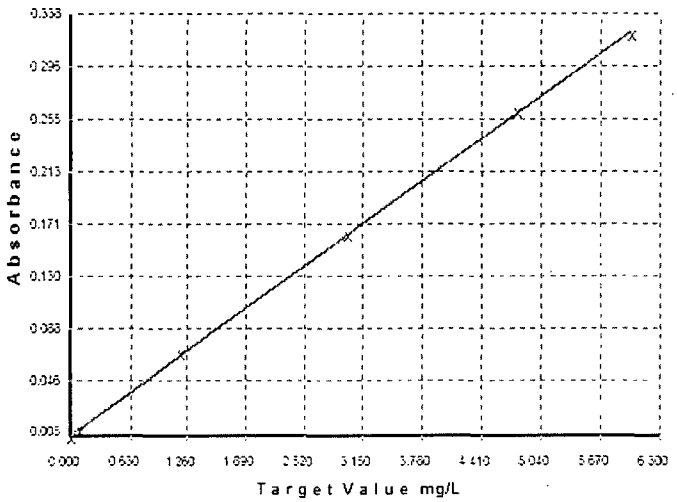
TOXN

Calibration Chart

Type	Absorbance	Calc mg/L	Target mg/L	% Error
S1	0 0045	-0.0187	0.0000	
S90	0.0100	0.0854	0.1000	-14.60
S91	0.0708	1.2299	1.2000	2.49
S92	0.1649	3 0029	3.0000	0.10
S93	0.2623	4.8388	4.8000	0.81
S94	0.3219	5.9618	6.0000	-0.64
S0	0.0054	-0.0029	0.0000	

Polynomial Order:	1
Correlation Coefficient:	0.9999
Carryover(%):	0.3
Calibration equation:	y = bx + a
y =:	Concentration mg/L
x =:	Measured absorbance
a =:	-1.038605E-001
b =:	1.884315E+001
Date & Time	2019-05-01 16:47:29

Calibration Graph



Reagents

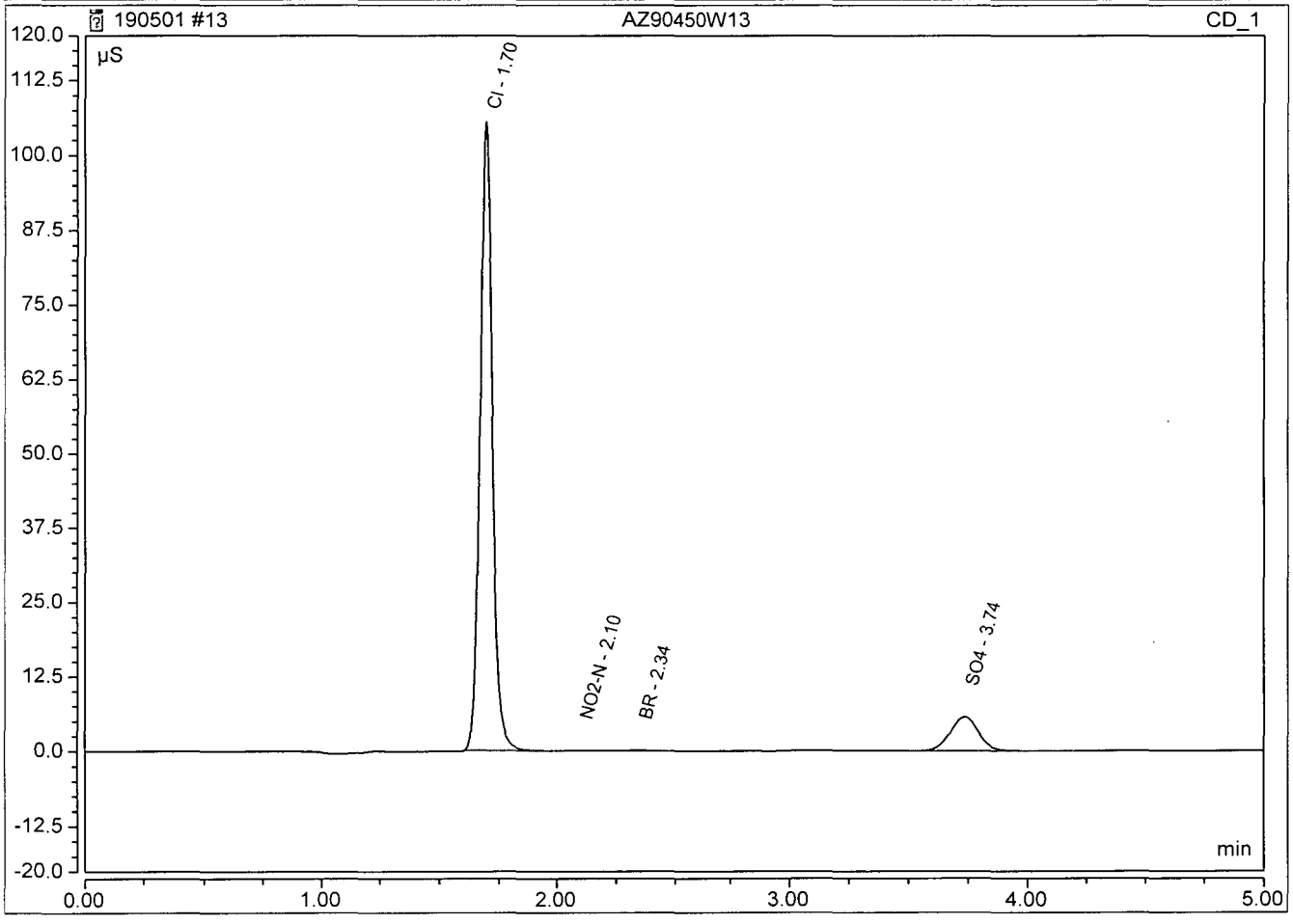
Name	Batch	Prepared By	Expiry Date
NO3 W Buffer		Joel	
Sulfa-NEDD		Joel	

Cup	Type	ID	Result	Units	QC Pro	Raw Data	Auto Dil.	Man Dil.	User	Time/Date
	CCV	CCV	3.0092	mg/L		0.165207			Ev	2019-05-01 18:12:39
	CCB	CCB	-0.0024	mg/L		0.005387			Ev	2019-05-01 18:14:51
3	U1	190501A BLK	-0.0044	mg/L		0.005278			Ev	2019-05-01 18:17:03
4	U2	190501A LCS	3.1419	mg/L		0.172251			Ev	2019-05-01 18:19:14
5	U3	190501A LCSD	3.1186	mg/L		0.171016			Ev	2019-05-01 18:21:28
6	U4	AZ90051W18	0.6235	mg/L		0.038603			Ev	2019-05-01 18:23:40
7	U5	AZ90051W18 MS	3.0373	mg/L		0.166701			Ev	2019-05-01 18:25:52
8	U6	AZ90051W18 MSD	3.1909	mg/L		0.174852			Ev	2019-05-01 18:28:04
9	U7	AZ90054W14	0.8207	mg/L		0.049066			Ev	2019-05-01 18:30:16
10	U8	AZ90056W14	0.5902	mg/L		0.036832			Ev	2019-05-01 18:32:28
11	U9	AZ90058W14	1.1029	mg/L		0.064043			Ev	2019-05-01 18:34:41
12	U10	AZ90060W14	1.2224	mg/L		0.070386			Ev	2019-05-01 18:36:53
	CCV	CCV	3.0459	mg/L		0.167154			Ev	2019-05-01 18:39:06
	CCB	CCB	-0.0121	mg/L		0.004871			Ev	2019-05-01 18:41:18
13	U11	AZ90100W14	0.0017	mg/L		0.005604			Ev	2019-05-01 18:43:31
14	U12	AZ90102W14	0.0015	mg/L		0.005590			Ev	2019-05-01 18:44:38
15	U13	AZ90105W14	1.7150	mg/L		0.096528			Ev	2019-05-01 18:45:34
16	U14	AZ90107W14	0.4616	mg/L		0.030007			Ev	2019-05-01 18:46:30
17	U15	AZ90109W14	0.4143	mg/L		0.027499			Ev	2019-05-01 18:47:26
18	U16	AZ90213W22	1.7632	mg/L		0.099082			Ev	2019-05-01 18:48:22
19	U17	AZ90215W22	0 2121	mg/L		0.016769			Ev	2019-05-01 18:49:18
20	U18	AZ90450W14	-0.0279	mg/L		0.004030			Ev	2019-05-01 18:50:14
	CCV	CCV	2.8702	mg/L		0.157831			Ev	2019-05-01 18:51:10
	CCB	CCB	-0.0154	mg/L		0.004694			Ev	2019-05-01 18:52:07

Peak Integration Report

Sample Name:	**AZ90450W13**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-May-2019 / 19:50**	*Run Time:*	**5.00**

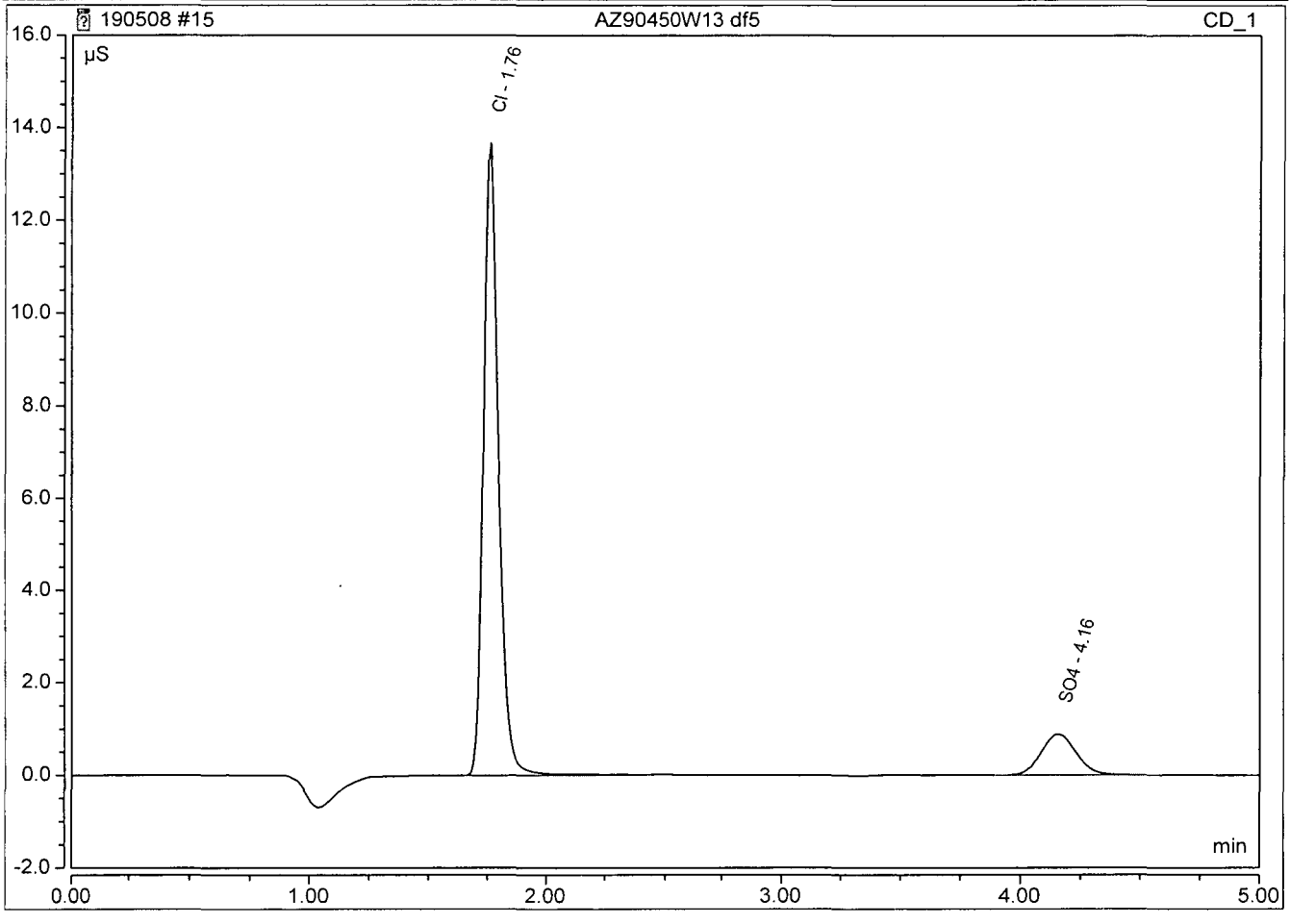
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.70	**Cl**	BMB	6.367	105.438	59.58		
2	2.10	**NO2-N**	BMB	0.005	0.031	0.03		
3	2.34	**BR**	BMB	0.006	0.079	0.22		
4	3.74	**SO4**	BMB	0.778	5.655	11.50		



Peak Integration Report

Sample Name:	**AZ90450W13 df5**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**5.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 10:23**	*Run Time:*	**5.00**

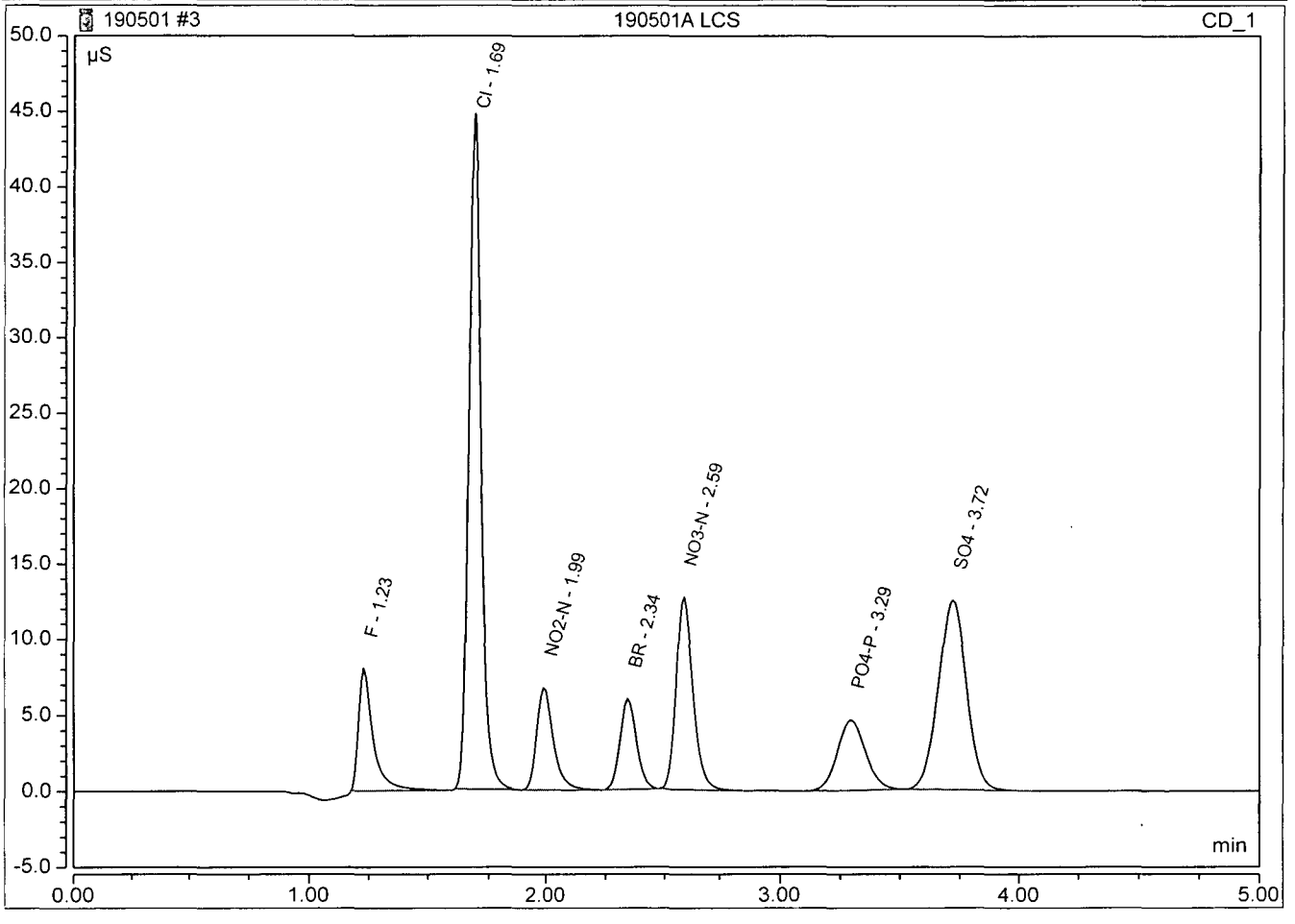
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.76	**Cl**	BMB	1.018	13.664	48.74		
2	4.16	**SO4**	BMB	0.148	0.884	11.60		



Peak Integration Report

Sample Name:	**190501A LCS**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-May-2019 / 18:36**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.23	F	BMB	0.575	8.053	4.92	5	98.4%
2	1.69	Cl	BMB	2.637	44.678	24.83	25	99.3%
3	1.99	NO2-N	BMB	0.561	6.717	3.14	3.04	103.4%
4	2.34	BR	BMB	0.469	5.933	13.19	12.5	105.6%
5	2.59	NO3-N	BMB	1.123	12.663	5.09	5	101.9%
6	3.29	PO4-P	BMB	0.632	4.634	8.91	10	89.1%
7	3.72	SO4	BMB	1.700	12.461	24.93	25	99.7%



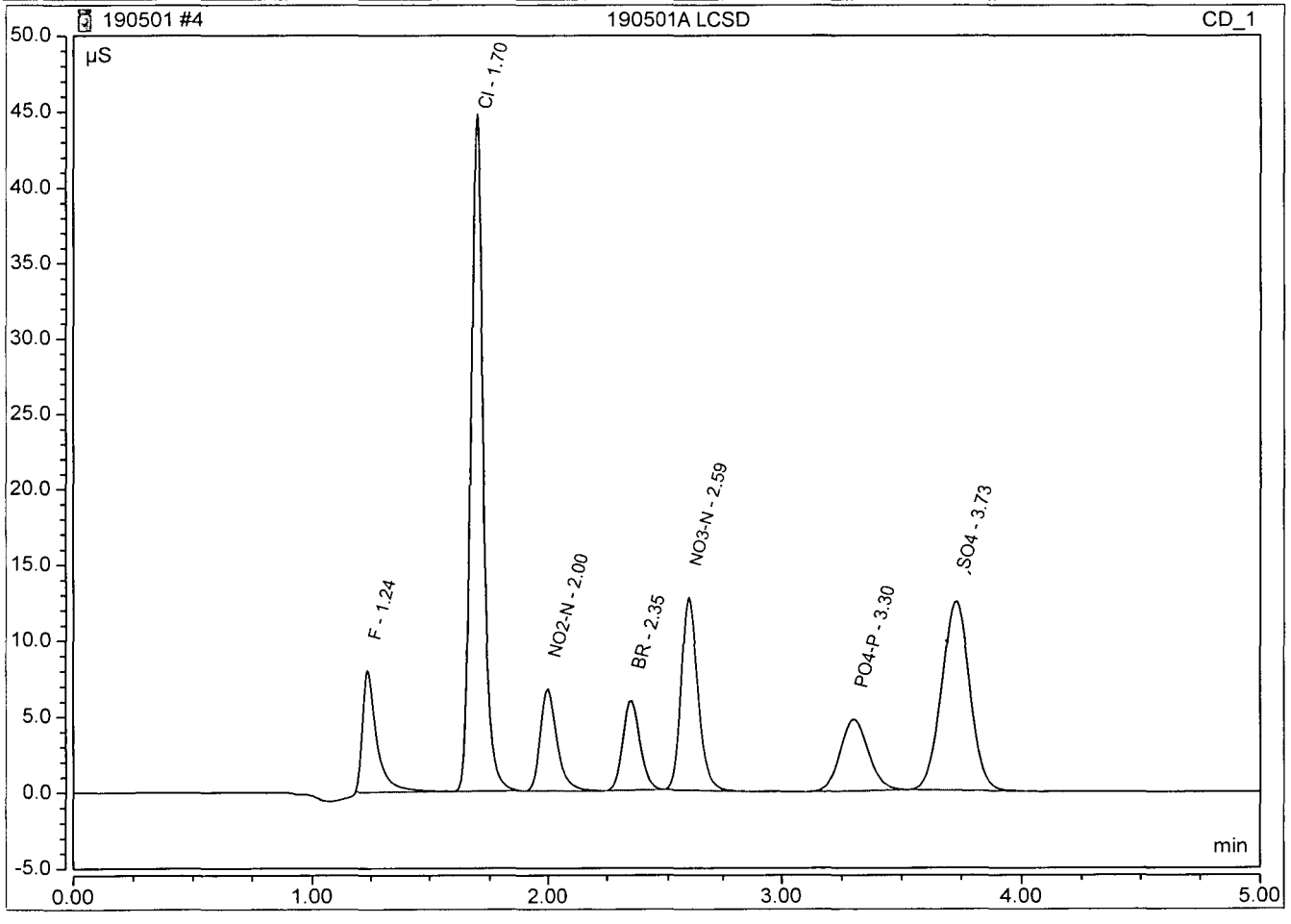
Algortith Check:
y = Peak Area
x = mg/L S04

y = 0.0687 x + -0.0115
y = 1.7004 therefor x = 24.91 HH 190508

Peak Integration Report

Sample Name:	**190501A LCSD**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-May-2019 / 18:43**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.24	F	BMB	0.575	8.009	4.92	5	98.4%
2	1.70	Cl	BMB	2.652	44.744	24.97	25	99.9%
3	2.00	NO2-N	BMB	0.561	6.714	3.15	3.04	103.5%
4	2.35	BR	BMB	0.470	5.934	13.20	12.5	105.6%
5	2.59	NO3-N	BMB	1.125	12.683	5.10	5	102.1%
6	3.30	PO4-P	BMB	0.644	4.727	9.07	10	90.7%
7	3.73	SO4	BMB	1.700	12.470	24.93	25	99.7%

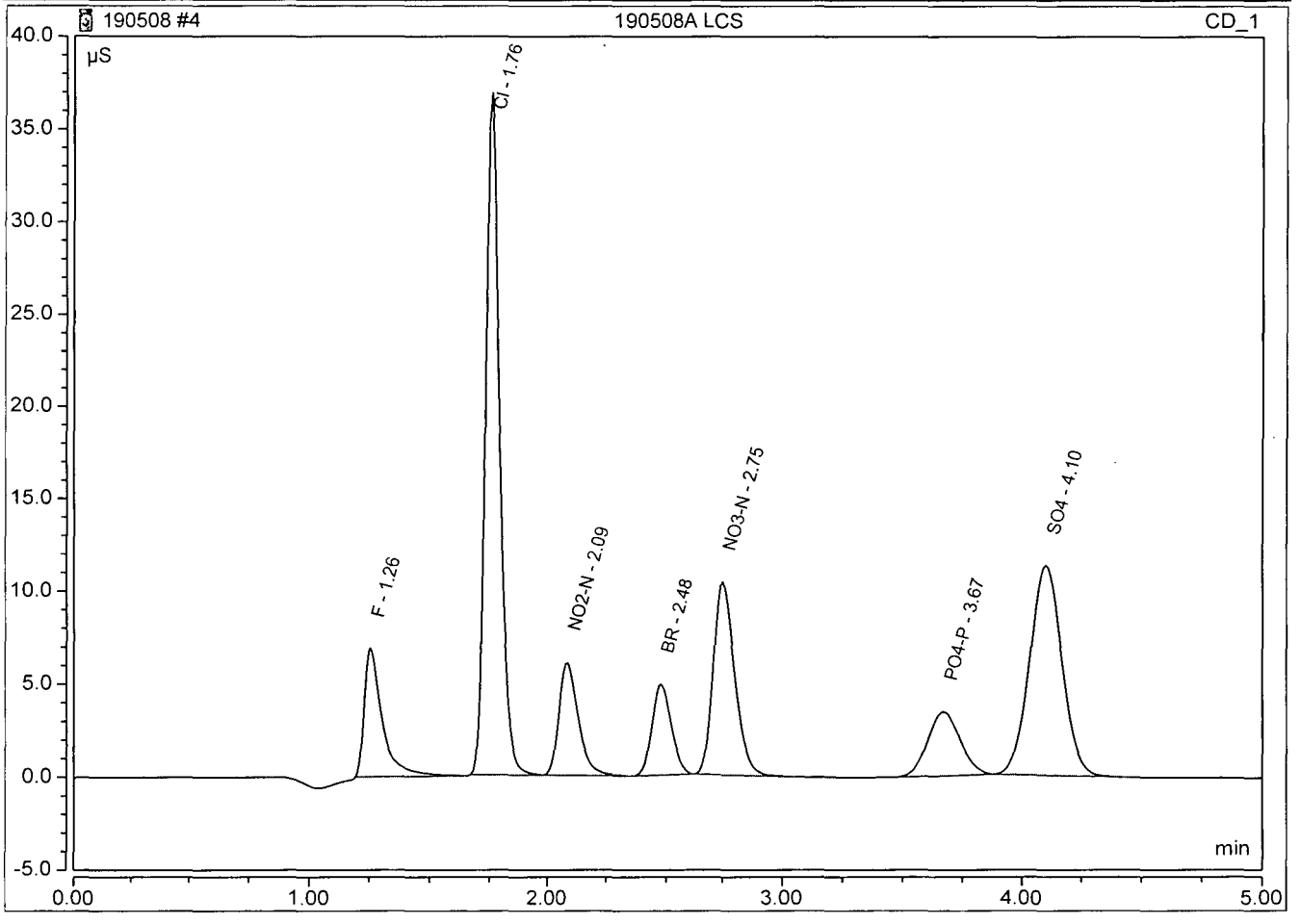


Chromeleon (c) Dionex 1996-2009
Version 7.2.4.8340

Peak Integration Report

Sample Name:	**190508A LCS**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 08:38**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.26	F	BMB	0.594	6.880	5.08	5	101.5%
2	1.76	Cl	BMB	2.589	36.827	24.38	25	97.5%
3	2.09	NO2-N	BMB	0.574	6.064	3.22	3.04	105.9%
4	2.48	BR	BMB	0.466	4.890	13.09	12.5	104.7%
5	2.75	NO3-N	BMB	1.112	10.385	5.04	5	100.9%
6	3.67	PO4-P	BMB	0.539	3.433	7.66	10	76.6%
7	4.10	SO4	BMB	1.777	11.279	26.05	25	104.2%



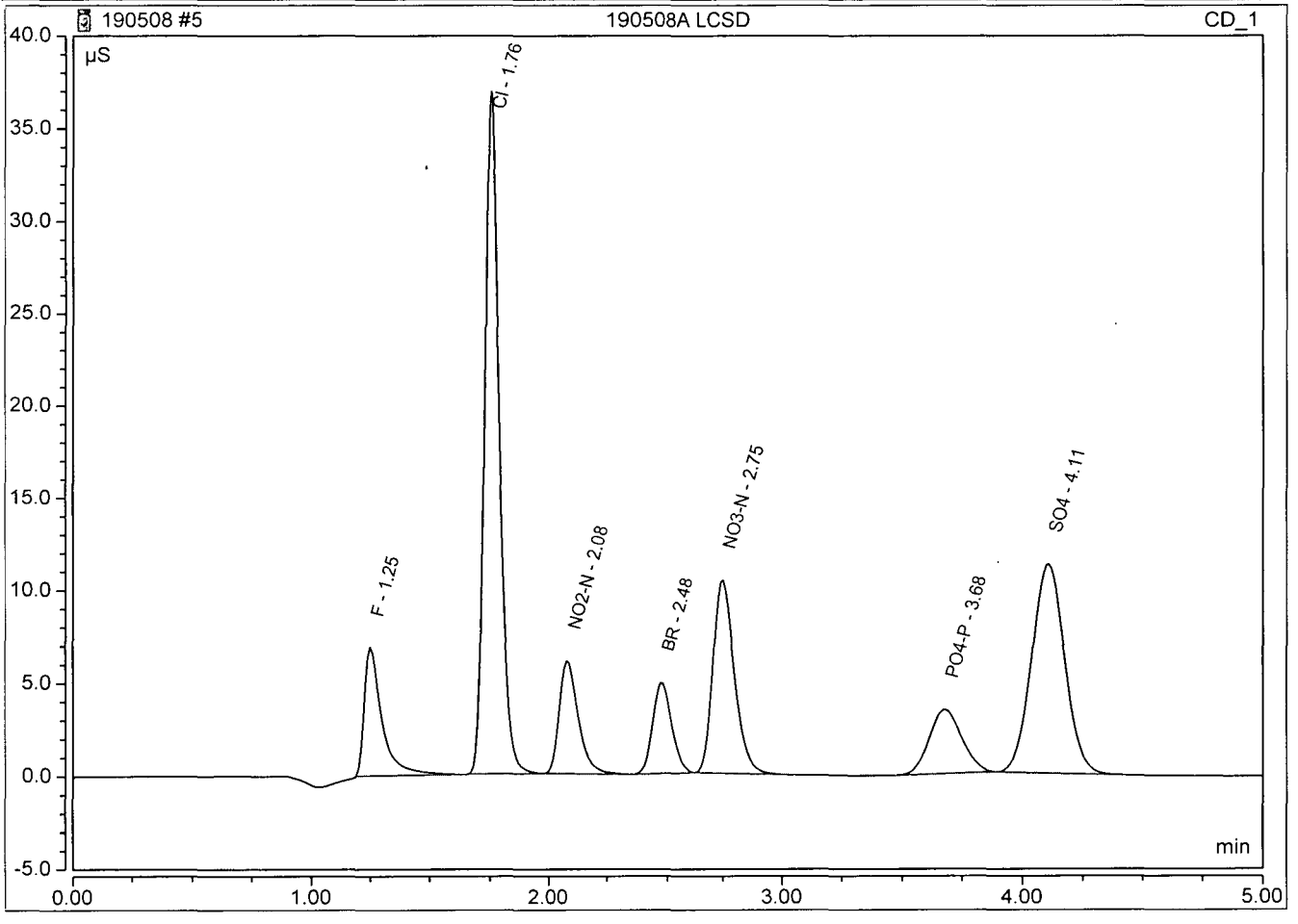
Algortith Check:
y = Peak Area
x = mg/L S04

y = 0.0687 x + -0.0115
y = 1.7769 therefor x = 26.03 HH 190508

Peak Integration Report

Sample Name:	**190508A LCSD**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 08:45**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.25	F	BMB	0.601	6.893	5.13	5	102.7%
2	1.76	Cl	BMB	2.594	36.850	24.42	25	97.7%
3	2.08	NO2-N	BMB	0.576	6.067	3.23	3.04	106.1%
4	2.48	BR	BMB	0.466	4.890	13.11	12.5	104.9%
5	2.75	NO3-N	BMB	1.115	10.401	5.06	5	101.1%
6	3.68	PO4-P	BMB	0.539	3.430	7.67	10	76.7%
7	4.11	SO4	BMB	1.775	11.274	26.02	25	104.1%



Standard Prep

	Ferrous Iron Standards		Prep'd By (Initials)		HH		
Prep Date	06/15/18						
Exp Date	06/15/19						
Stock Label	Supplier	Batch Number	Exp Date	Aliquot from Stock	Final Volume	Solvent	Ferrous Iron Concentration
Ferrous Ammonium Sulfate	J.T.Baker	0000184592	08/21/20	0.351	250mL	5ml H2SO4 (0000167828) Diluted with water	200ug/L
Ferrous Sulfate	Mallinckrodt	Lot 5056 KDRX	NA	0.249	250mL	5ml H2SO4 (0000167828) Diluted with water	200ug/L
Ferrous Iron CCV/LCS/MS/ICV			Prep'd By (Initials)		HH		
Prep Date	See Injection Log						
Exp Date	24 Hours						
Initial Standard Information	Supplier	Batch Number	Exp Date	Final Standard Information			
Ferrous Iron CCV	J T Baker	0000184592	06/14/19	500uL	25mL	Deionized water	4mg/L
Ferrous Iron ICV/LCS	Mallinckrodt	Lot 5056 KDRX	06/14/19	375uL	25mL	Deionized water	3mg/L
	Ferrous Iron Calibration Curve		Prep'd By (Initials)		HH		
Prep Date	06/15/18						
Exp Date	06/16/18						
Final Standard Information							
Point Label	Supplier	Batch Number	Exp Date	Aliquot from Stock (mL)	Final Volume	Solvent	Ferrous Iron Concentration
CCB	J.T.Baker	0000184592	06/14/19	0	25mL	Deionized water	0mg/L
Ical 1	J.T.Baker	0000184592	06/14/19	0.125	25mL	Deionized water	1mg/L
Ical 2	J.T.Baker	0000184592	06/14/19	0.25	25mL	Deionized water	2mg/L
Ical 3	J.T.Baker	0000184592	06/14/19	0.5	25mL	Deionized water	4mg/L
Ical 4	J.T.Baker	0000184592	06/14/19	0.625	25mL	Deionized water	5mg/L
Ical 5	J.T.Baker	0000184592	06/14/19	1.25	25mL	Deionized water	10mg/L
ICV	Mallinckrodt	Lot 5056 KDRX	06/14/19	0.375	25mL	Deionized water	3mg/L

Reagent Prep

Reagent	Chemical Lot #	Chemical	Chemical Expiration Date	Amount	Date Prep
Colorizer	0747C107	1,10-phenanthroline	na	0.20023	05/03/19
		10% HCL conc	na	enough to dissolve	01/15/19
Buffer	Z28B018	Ammonia Acetate	na	250.03	04/26/19
	2018071399	Glacial Acetic Acid	06/27/20	700mL	

Tiamo Alkalinity Standard Prep

Prep Date:

Exp Date:

Prep'd By (Initials): AR

Initial Standard Information							Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Unit	Conc	Lot Number - QA Number	Prep/Opened	Exp. Date	Aliquot from Stock	Final Volume	Solvent	Final Standard Conc
Sulfuric Acid (H2SO4)	J.T.Baker	NA	NA	**167828**	**NA**	**NA**	PURCHASED	NA	NA	NA
0.10N Sulfuric Acid (H2SO4)	J.T.Baker	Normality	0.1N	**167828**	**02/18/19**	**02/18/20**	3ml	1L	DI	0.10N
0.02N Sulfuric Acid (H2SO4)	J.T.Baker	Normality	0.02N	**167828**	**01/22/19**	**01/22/20**	200mL	1L	DI	0.02N
Inorganic Spike(NaHCO3)	BDH	NA	NA	**1575C510**	**10/18/18**	**08/14/20**	PURCHASED	NA	NA	NA
Inorganic Spike Solution	BDH	Milligrams/Liters	250mg/L	**1575C510**	**01/29/19**	**01/29/20**	3.5g	500mL	DI	250mg/L
Standarizing Solution(NaCO3)	J.T.Baker	Normality	1N	**178494**	**07/25/17**	**07/25/19**	PURCHASED	NA	NA	NA

Name of Final Standard	**TOC Calibration Curve**	**Prep'd By (Initials)**	**HH**
Prep Date	**02/11/19**		
Exp Date	**03/11/19**		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	20 uL	40 mL	**DI Water**	0.5 ppm
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	50 uL	40 mL	**DI Water**	1.25 ppm
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	100 uL	40 mL	**DI Water**	2.5 ppm
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	150 uL	40 mL	**DI Water**	3.75 ppm
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	200 uL	40 mL	**DI Water**	5 ppm

Name of Final Standard	**1000 PPM ICV TOC Intermediate**	**Prep'd By (Initials)**	**HH**
Prep Date	**02/11/19**		
Exp Date	**02/11/20**		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Sugar	Millenia	814-293	42% Carbon	**V298J-NA**	**NA**	2.3831 g	1 L	**DI Water**	1003.45 ppm

Name of Final Standard	**ICV (TOC)**	**Prep'd By (Initials)**	**HH**
Prep Date	**02/11/19**		
Exp Date	**03/11/19**		

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
1000 PPM ICV TOC Intermediate	APPL Inc.	Prep: 2/11/19	1000 mg/L	**Prep: 2/11/19**	**03/11/19**	100 uL	40mL	**DI Water**	2.5 ppm

Name of Final Standard CCV (TOC) **Prep'd By (Initials)** AR
Prep Date 05/06/19
Exp Date 06/03/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	Agilent	IQC-1 06-5	1000 mg/L	**CS-5157-40233**	**11/30/20**	100 uL	40 mL	**DI Water**	2.5 ppm

Name of Final Standard TOC LCS/LCSD **Prep'd By (Initials)** AR
Prep Date 05/06/19
Exp Date 06/03/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	ULTRA Scientific	IQC-106-5	1000 mg/L	**CR-0328-37639**	**02/28/19**	100 uL	40 mL	**DI Water**	2.5 ppm

Name of Final Standard TOC MS/MSD **Prep'd By (Initials)** AR
Prep Date 05/06/19
Exp Date 06/03/19

Initial Standard Information						Final Standard Information			
Name of Initial Standard (from contianer Label)	Supplier	Supplier P/N# (or APPL Mix Name)	Conc.(range)	Lot # with QA # (or reference to APPL prep date)	Exp Date	Aliquot from Stock	Final Volume	Final Solvent + Lot# (or APPL Prep Date)	Final Standard Conc (range)
Total Organic Carbon (TOC) Standard	ULTRA Scientific	IQC-106-5	1000 mg/L	**CR-0328-37639**	**02/28/19**	100 uL	40 mL	**sample**	2.5 ppm

Nitrite

High Point @ 1.5 mg/L
0.075 mL NO2 O2Si lot 142626-24 - 38408 exp: 4/20/19*
50 mL DI Water

CCV @ 0.75 mg/L
0.0375 mL NO2 O2Si lot 142626-24-38408 exp: 4/20/19*
50 mL DI Water

*Nitrite lot 142626-24 – 38408 (O2SI) expiration date was extended to 10/20/19 by in-house re-certification against Nitrite lot M2-NOX660562-39802 (Inorganic Ventures). SD 04/25/19

ICV/LCS @ 0.73 mg/L
0.12mL NO2 Inorganic Ventures lot M2-NOX660562-39802 exp: 10/23/19
50 mL DI Water

1 mg/L NO2
400 uL of High point and 200 uL of DI made directly into a sample cup

Prep 05/01/19
Exp 05/08/19
EV

Nitrate/TOXN

High Point @ 6 mg/L
0.300 mL NO3 O2Si lot 880117-39577 exp: 2/21/20
50 mL DI Water

CCV @ 3.0 mg/L
0.150 mL NO3 O2Si lot 880117-39577 exp: 2/21/20
50 mL DI Water

ICV/LCS @ 3.0 mg/L
0.150 mL NO3 Inorganic Ventures lot N2-NOX667147-39510 exp: 10/23/19
50 mL DI Water

1 mg/L NO3
100 uL of High point and 500 uL of DI made directly into a sample cup

MS @ 2.5 mg/L NO3 and 0.73 mg/L NO2
0.125 mL NO3 Inorganic Ventures lot N2-NOX667147-39510 exp: 10/23/19
and 0.12mL NO2 Inorganic Ventures lot M2-NOX660562-39802 exp: 10/23/19
Final volume 50 mL of sample

Prep 05/01/19
Exp 05/08/19
EV

Anion Chromatography Working Standard

Prep Date: 04/01/19
Exp Date: 04/02/19
Prep'd By (Initials): TH

Initial Standard Information						Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date	Aliquot from Stock	Final Volume	Solvent	Final Standard Conc (ug/mL)
Ion Chromatography Standard Fluoride 1000µg/mL in H2O	o2si	O2SI-062002-01-01	1000	142626-24-38407	04/20/19	312.5 µL	25 mL	Millipore Water	12.5
Ion Chromatography Standard Nitrite as N 1000 ug/mL in H2O	o2si	O2SI-062004-01-01	1000	142626-24-38408	04/20/19	125 µL	25 mL	Millipore Water	5
Ion Chromatography Standard Chloride, 500mL 5,000 mg/L in H2O	o2si	062001-08-03	5000	10084781-1-39578	02/21/20	250 µL	25 mL	Millipore Water	50
Ortho-Phosphate as P Standard	Ultra Scientific	ICC-005A	1000	G34-CP-3323-39057	08/31/23	625 µL	25 mL	Millipore Water	25
Ion Chromatography Standard Nitrate as N, 500mL 1,000 mg/L in H2O	o2si	062003-01-03	1000	880117-4-39577	02/21/20	250 µL	25 mL	Millipore Water	10
Bromide Standard	Ultra Scientific	ICC-001	1000	CR-5372-39521	12/31/21	625 µL	25 mL	Millipore Water	25
Sulfate Standard	Agilent	ICC-006	1000	CS-0688-40047	03/31/22	1250 µL	25 mL	Millipore Water	50

Anion Chromatography Calibration Curve

Prep Date: 04/01/19
Exp Date: 04/02/19
Prep'd By (Initials): TH

Initial Standard Information						Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. Range (ug/mL)	Reference To APPL Prep Date	Exp. Date	Aliquot from Stock	Final Volume	Solvent	Final Conc. Range (µg/mL)
Ical2	Varries	ICal1	5.0-50.0	Prepared 04/01/19	04/02/19	400 µL	1000 µL	Millipore Water	0.08-0.40
Anion Chromatography Working Standard	Varries	ICal2	5.0-50.0	Prepared 04/01/19	04/02/19	200 µL	1000 µL	Millipore Water	0.1-1.0
Anion Chromatography Working Standard	Varries	ICal3	5.0-50.0	Prepared 04/01/19	04/02/19	50 µL	1000 µL	Millipore Water	0.25-2.5
Anion Chromatography Working Standard	Varries	ICal4	5.0-50.0	Prepared 04/01/19	04/02/19	100 µL	1000 µL	Millipore Water	0.5-5.0
Anion Chromatography Working Standard	Varries	ICal5	5.0-50.0	Prepared 04/01/19	04/02/19	200 µL	1000 µL	Millipore Water	1.0-10.0
Anion Chromatography Working Standard	Varries	ICal6	5.0-50.0	Prepared 04/01/19	04/02/19	500 µL	1000 µL	Millipore Water	2.5-25.0
Anion Chromatography Working Standard	Varries	ICal7	5.0-50.0	Prepared 04/01/19	04/02/19	700 µL	1000 µL	Millipore Water	3.5-35.0
Anion Chromatography Working Standard	Varries	ICal8	5.0-50.0	Prepared 04/01/19	04/02/19	1000 µL	1000 µL	Millipore Water	5.0-50.0

Anion Chromatography LCS/ICV

Prep Date: See injection Log
Exp Date: 24 hours after prep
Prep'd By (Initials): TH

Initial Standard Information						Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. Range (ug/mL)	Lot Number - QA Number	Exp. Date	Aliquot from Stock	Final Volume	Solvent	Final Standard Conc (ug/mL)
Flouride	Inorganic Ventures	ICF1	993-999	K-P652018-39801	10/23/19	62.5 µL	25 mL	Millipore Water	5
Nitrite	Inorganic Ventures	ICNO21	993-1001	M2-NOX660562-39802	10/23/19	250 µL	25 mL	Millipore Water	3.04
Chloride	Inorganic Ventures	ICCL1	995-1001	NaCL664868-39904	11/26/19	500 µL	25 mL	Millipore Water	20
O-Phosphate as P	Inorganic Ventures	IPPO41	1001-1009	M2-POX655826-39803	10/23/19	125 µL	25 mL	Millipore Water	10
Nitrate as N	Inorganic Ventures	ICNNO31	994-1002	N2-NOX667147-39510	10/23/19	125 µL	25 mL	Millipore Water	5
Ion Chromatography Bromide Standard	CPI International	4400-IC8M	1000	161681-8-39539	02/06/20	312.5 µL	25 mL	Millipore Water	12.5
Sulfate	Inorganic Ventures	ICSO41	998-1006	K2-SOX01111-38875	08/13/19	500 µL	25 mL	Millipore Water	20

Anion Chromatography CCV

Prep Date: See injection Log
Exp Date: 24 hours after prep
Prep'd By (Initials): TH

Initial Standard Information						Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date	Aliquot from Stock	Final Volume	Solvent	Final Standard Conc (µg/mL)
Ion Chromatography Standard Fluoride 1000µg/mL in H2O	o2si	O2SI-062002-01-01	1000	142626-24-38407	04/20/19	125 µL	25 mL	Millipore Water	5
Ion Chromatography Standard Nitrite as N 1000 ug/mL in H2O	o2si	O2SI-062004-01-01	1000	142626-24-38408	04/20/19	62.5 µL	25 mL	Millipore Water	2.5
Ion Chromatography Standard Chloride, 500mL 5,000 mg/L in H2O	o2si	062001-08-03	5000	10084781-1-39578	02/21/20	125 µL	25 mL	Millipore Water	25
Ortho-Phosphate as P Standard	Ultra Scientific	ICC-005A	1000	G34-CP-3323-39057	08/31/23	250 µL	25 mL	Millipore Water	10
Ion Chromatography Standard Nitrate as N, 500mL 1,000 mg/L in H2O	o2si	062003-01-03	1000	880117-4-39577	02/21/20	125 µL	25 mL	Millipore Water	5
Bromide Standard	Ultra Scientific	ICC-001	1000	CR-5372-39521	12/31/21	312.5 µL	25 mL	Millipore Water	12.5
Sulfate Standard	Agilent	ICC-006	1000	CS-0688-40047	03/31/22	625 µL	25 mL	Millipore Water	25

EPA 353.2 Injection Log

Directory: I:\EVE\Export\2019\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
1	01 May 2019	16:37	Standard 1 TOXN/NO3		190501B TO	1.
2	01 May 2019	16:40	Standard 90 TOXN/NO3		190501B TO	1.
3	01 May 2019	16:42	Standard 91 TOXN/NO3		190501B TO	1.
4	01 May 2019	16:44	Standard 92 TOXN/NO3		190501B TO	1.
5	01 May 2019	16:45	Standard 93 TOXN/NO3		190501B TO	1.
6	01 May 2019	16:46	Standard 94 TOXN/NO3		190501B TO	1.
7	01 May 2019	16:47	Standard 0 TOXN/NO3		190501B TO	1.
10	01 May 2019	16:50	ICV TOXN		190501B TO	1.
11	01 May 2019	16:51	ICB TOXN		190501B TO	1.

EPA 353.2 Injection Log

Directory: I:\EVE\Export\2019\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
16	01 May 2019	18:17	190501A BLK TOXN/NO3		190501B TO	1.
17	01 May 2019	18:19	190501A LCS TOXN/NO3		190501B TO	1.
18	01 May 2019	18:21	190501A LCSD TOXN/NO3		190501B TO	1.
26	01 May 2019	18:39	CCV TOXN/NO3		190501B TO	1.
27	01 May 2019	18:41	CCB TOXN/NO3		190501B TO	1.
35	01 May 2019	18:50	AZ90450W14 TOXN/NO3		190501B TO	1.
36	01 May 2019	18:51	CCV TOXN/NO3		190501B TO	1.
37	01 May 2019	18:52	CCB TOXN/NO3		190501B TO	1.

EPA 300.0 Injection Log

Directory: I:\Dionex\Charlie\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
1	01 Apr 2019	18:27	CCB		Anions	1.
2	01 Apr 2019	18:34	i cal 1		Anions	1.
3	01 Apr 2019	18:42	i cal 2		Anions	1.
4	01 Apr 2019	18:49	i cal 3		Anions	1.
5	01 Apr 2019	18:56	i cal 4		Anions	1.
6	01 Apr 2019	19:04	i cal 5		Anions	1.
7	01 Apr 2019	19:11	i cal 6		Anions	1.
8	01 Apr 2019	19:19	i cal 7		Anions	1.
9	01 Apr 2019	19:26	i cal 8		Anions	1.
10	01 Apr 2019	19:33	ICB		Anions	1.
11	01 Apr 2019	19:41	ICV LCS		Anions	1.
12	01 Apr 2019	19:48	ICVD LCSD		Anions	1.

EPA 300.0 Injection Log

Directory: I:\Dionex\Charlie\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
1	01 May 2019	18:21	CCV 190501		Anions	1.
2	01 May 2019	18:29	CCB		Anions	1.
3	01 May 2019	18:36	190501A LCS		Anions	1.
4	01 May 2019	18:43	190501A LCSD		Anions	1.
13	01 May 2019	19:50	AZ90450W13		Anions	1.
16	01 May 2019	20:12	CCV 190501		Anions	1.
17	01 May 2019	20:19	CCB		Anions	1.

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908 North Temperance Ave. ∇ Clovis, CA 93611 ∇ Phone 559-275-2175 ∇ Fax 559-275-4422

Certification Number: CA1312
NELAP Certification number: CA00046
DoD-ELAP Certificate number: 4064.01

Data Validatable Report

May 22, 2019

AECOM
1001 Bishop Street, Suite 1600
Honolulu, Hawaii 96813

Attn: Margie Pascua

Title: Report of Data: Case 88775

Project: 60571032 CV18F0126 Red Hill Fuel Storage. HI

Contract #: Prime contract # for DoD: NAVY CLEAN N62742-17-F-1800, CV18F0126
Subcontract: 18S-22209-HI27

Dear Ms. Pascua:

Three water samples were received May 1,2019. Written results for the requested analyses are being provided on this May 22, 2019.

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

If you have any questions or require further information, please contact your APPL Project Manager, Libby Cheeseborough, libby@applinc.com, at your convenience. Thank you for choosing APPL, Inc.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC and DoD QSM. Release of the hard copy has been authorized by the Laboratory Manager or her designee, as verified by the following signature.

Paula McCartney, Laboratory Director
APPL, Inc.

PM/lac
Enclosure
cc: File

Data Validation Package
for
60571032 CV18F0126 Red Hill Fuel Storage
APPL SDG 88775

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CASE NARRATIVE

Case Narrative

ARF: 88775

Project: 60571032 CV18F0126 Red Hill Fuel Storage. HI

Sample Receipt Information:

Five water samples were received May 1,2019, at 2.0°C, 3.5°C, and 2.5°C. The sample group was assigned Analytical Request Form (ARF) number 88775.

Sample Preparation and Analysis Information:

For the EPA 300.0, and SM 2320B, analyses, the samples were prepared according to the methods.

Only the portion of the injection log relative to these samples is included. A full sequence log is available upon request. Measurement uncertainty can be reported upon request.

Analytical Exceptions, Deviations and Abnormalities.

None.

SDG	Received	Client ID	APPL ID	Collected DateTime	Matrix	Method	Method Description
88775	05/01/19	ERH817	AZ90451	04/29/19 8:50:00 AM	WATER	SM 2320B	Wetlab 2320B - Water
88775	05/01/19	ERH817	AZ90451	04/29/19 8:50:00 AM	WATER	EPA 300.0	Wetlab 300.0 - Water
88775	05/01/19	ERH817	AZ90451	04/29/19 8:50:00 AM	WATER	EPA 300.0	Wetlab 300.0 - Water
88775	05/01/19	ERH818	AZ90452	04/29/19 10:15:00 AM	WATER	SM 2320B	Wetlab 2320B - Water
88775	05/01/19	ERH818	AZ90452	04/29/19 10:15:00 AM	WATER	EPA 300.0	Wetlab 300.0 - Water
88775	05/01/19	ERH818	AZ90452	04/29/19 10:15:00 AM	WATER	EPA 300.0	Wetlab 300.0 - Water
88775	05/01/19	ERH819	AZ90453	04/29/19 12:50:00 PM	WATER	SM 2320B	Wetlab 2320B - Water
88775	05/01/19	ERH819	AZ90453	04/29/19 12:50:00 PM	WATER	EPA 300.0	Wetlab 300.0 - Water
88775	05/01/19	ERH819	AZ90453	04/29/19 12:50:00 PM	WATER	EPA 300.0	Wetlab 300.0 - Water

APPL Inc.
Abbreviations and Flags

FLAG	DESCRIPTION
#	Recovery or RPD outside control limits
*	Recovery or RPD outside control limits
B	Analyte detected in associated method blank
C1	Reason for correction: wrote incorrect response
C2	Reason for correction: calculated incorrectly
C3	Reason for correction: needs to be rechecked
C4	Reason for correction: data not usable
DO	Diluted out
E	Exceeds linear range
F	Estimated value
G1	Includes a wide range of hydrocarbons which does not match our gasoline standard
G10	Includes a match to hydrocarbon profiles within the range of mineral spirits
G11	Includes a match to hydrocarbon profiles within the range of JP-4
G12	Pattern does not match the gasoline standard; the carbon range for this sample is consistent with JP8
G13	Closely resembles the hydrocarbon profile of aviation gasoline
G14	Analyte concentration may be biased due to carry over
G2	Closely resembles the boiling point hydrocarbon profile consistent with weathered gasoline
G3	Includes higher boiling hydrocarbons
G4	Includes dominant peak(s) not indicative of petroleum hydrocarbons
G5	Is mainly dominant peak(s) not indicative of petroleum hydrocarbons
G6	Contains recognizable contaminant peak(s) which has been removed from quantitation
G7	Is mainly a match to hydrocarbons within the range of gasoline
G8	Closely resembles the boiling point hydrocarbon profile consistent with weathered gasoline
G9	Includes hydrocarbons within the range of kerosene
J	Estimated value
M	Matrix effect
MI1	Manual integration: integration does not follow baseline
MI2	Manual integration: non-target peak interference
MI3	Manual integration: to split a peak that was integrated as one peak by the computer.
MI4	Manual integration: to integrate a split peak
MI5	Manual integration: the whole peak or part of the peak was not integrated
MI6	Manual integration: computer integrated wrong peak
MI7	Manual integration: other – (See case narrative)
MDL	Method detection limit
ND	Not detected
NT	Non-target
Q	Acceptance criteria not met
T1 I	Includes wide range of hydrocarbons not indicative of diesel
T1 M	Is mainly wide range of hydrocarbons not necessarily indicative of diesel
T2 I	Includes lower boiling hydrocarbons, e.g. mineral spirits, kerosene, stoddard solvent, white gas
T2 M	Is mainly lower boiling hydrocarbons, e.g. mineral spirits, kerosene, stoddard solvent, white gas
T3 I	Includes higher boiling hydrocarbons, e.g. asphaltene, waste oil, motor oil, or weathered diesel fuel
T3 M	Is mainly higher boiling hydrocarbons, e.g. asphaltene, waste oil, motor oil, or weathered diesel fuel
T4 I	Includes dominant peak(s) not indicative of hydrocarbons
T4 M	Is mainly dominant peak(s) not indicative of hydrocarbons
T5	Contains recognizable contaminant peak(s) which has been removed from quantitation
T6	Is mainly a match to hydrocarbons within range of diesel fuel
T7	Closely resembles the boiling point hydrocarbon profile consistent with diesel fuel
T8	Includes a match to hydrocarbon profiles within range of diesel and kerosene fuel
T9 I	Includes non-diesel hydrocarbons within boiling point range of diesel fuel
T9 M	Is mainly non-diesel hydrocarbons within boiling point range of diesel fuel
U	Not detected
Y	Percent difference between primary and confirmation column > 40%

SAMPLE RECORDS MANAGEMENT

CHAIN OF CUSTODY,

ARF, CRF, AND

CLIENT COMMUNICATION

APPL - Analysis Request Form 88775

Client: **AECOM**
Address: **1001 Bishop Street, Suite 1600**
Honolulu, HI 96813
Attn: **Margie Pascua**
Phone: **808-356-5373** Fax: **808-523-8950**
Job: **60571032 CV18F0126 Red Hill Fuel Storage**
PO #: **18S-22209-HI27 PO# 102604**
Chain of Custody (Y/N): **Y** # **058,042,054,110RH**
RAD Screen (Y/N): **Y** pH (Y/N): **N**
Turn Around Type: **1 WEEK**

Received by: **AAR**
Date Received: **05/01/19** Time: **10:00**
Delivered by: **FEDEX**
Shuttle Custody Seals (Y/N): **Y** Time Zone: **-10**
Chest Temp(s): **2.0,3.5,2.5°C**
Color: **VOA/A-Grn**
Samples Chilled until Placed in Refrig/Freezer: **Y**
Project Manager: **Libby Cheesebor**
QC Report Type: **DVP4DOD/EQUIS/HI**
Due Date: **05/08/19**

Comments:
PM: login and F1s to Margie.Pascua@aecom.com

AN: 7 day TAT for Form 1s; 21 day TAT for PKG STYLE 1
DOD QSM ver 5.1; Forms: Special Forms: DOD Forms: LOD (from database)

FR: HC to LDC, 2 labeled CDs to Margie Pascua.

EDD: AECOM EQuIS EDD 2.5.3 Red Hill 87DMEE->3535A to Margie.Pascua@aecom.com &

Sample Distribution:
Wetlab: 3-$232W(HCO3,CO3,ALK), 3-$300W(NO3,CL,SO4)

Charges:

Invoice To:
ACCOUNTS PAYABLE
1001 Bishop Street, Ste 1600
USAPImaging@aecom.com
mary.basano@aecom.com

	Client ID		APPL ID	Sampled	Analyses Requested
1.	ERH817	LCSD	AZ90451W	04/29/19 08:50	$232W(HCO3,CO3,ALK), $300W(NO3,CL,SO4)
2.	ERH818	LCSD	AZ90452W	04/29/19 10:15	$232W(HCO3,CO3,ALK), $300W(NO3,CL,SO4)
3.	ERH819	LCSD	AZ90453W	04/29/19 12:50	$232W(HCO3,CO3,ALK), $300W(NO3,CL,SO4)

Note: All times, excluding sample collection times, are Pacific Time Zone unless noted otherwise. Collection times are in: -10 UTC
Page 1 Client Code: AECOM-REDHILL *Printed 05/06/19 3:13:06 PM* Computer: APPL-LC **# 88775**

APPL Sample Receipt Form

ARF# **88775**

Sample	Container Type	Count	p
AZ90451	3 PL 250mL	1	na
AZ90452	3 PL 250mL	1	na
AZ90453	3 PL 250mL	1	na

Sample	Container Type	Count	p

88775

APPL, Inc.
908 N Temperance Ave
Clovis, CA 93611
www.applinc.com

Phone: (559) 275-2175
Fax: (559) 275-4422
coc@applinc.com

CHAIN OF CUSTODY RECORD

C.O.C. 110RH

Report to: PLEASE PRINT	Invoice to: PLEASE PRINT
Company Name: AECOM Phone: 808-356-5373	Company Name: AECOM Phone: 808-529-7249
Address: 1001 Bishop St, Suite 1600 Honolulu, HI 96813 Fax: 808-523-8950	Address: 1001 Bishop St, Suite 1600 Honolulu, HI 96813 Fax: 808-523-8950
Attn: Margie Pascua	Attn: Mary Basano
Email: margie.pascua@aecom.com	Email: mary.basano@aecom.com; usapimaging@aecom.com

Project Name/Number: ~~CIV 53 / 60481245~~ ~~CH18F0126 / 60571032~~
Purchase Order Number: ~~77265~~ 102604
Sampler (Print): JC for MH, GM, BM, BL
Sampler (Signature):

Date Shipped: 4/30/19
Carrier: FedEx
Waybill No.:
Comments:

Sample Identification	Location	Date Collected	Time Collected	Time Zone	No. of Containers	Matrix: Aq	Matrix: Sed.	Matrix: Soil	8260C BTEX,TPH-g	8260C DCA 8011 EDB	8015C TPH-d/o	3630/8015C TPH-d/o w/ SGT	8270DSIM PAHs short list	8270D Phenol, TICs	8270D 2-(2-methoxy ethoxy)-ethanol	RSK175M Methane	SM3500-Fe Ferrous Iron	353.2 Nitrate-Nitrite N	SM2320B Alkalinity 300.0 Nitrate,Sulfate,Chloride	300.0 Bromide/Fluoride 8010 Total Ca,Mg,Mn,K,Na SM4500 Total & Dissolved Silica	
ERH817	RHMW11-05 (A)	4/29/19	8:30	HST	1	X													X		
ERH818	RHMW11-05 (B)	4/29/19	10:15	HST	1	X													X		
ERH819	RHMW11-05(C)	4/29/19	12:50	HST	1	X													X		

Log-in these samples in own SDG.

4/30/19

*Analyze TPH w/SGT only if TPH-d/o detected.

TPH-d/o & PAHs need liquid-liquid extraction.

Shuttle Temperature: 2.0, 3.5, 2.5

Turnaround Requested: Check one
☐ Standard 2-3 wk ☒ One week ☐ 3 days ☐ 24/48 Hrs. ☐ Other:

Sample Disposal:
☐ Return to client ☒ Disposal by Lab (30-day retention)

Relinquished by sampler: AECOM	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
	4/30/19	1200					
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received at lab by:
					5-01-19	1000	

See page 2 for Container Preservative and Sampling Information

COOLER RECEIPT FORM

ARF: ~~88764~~ 88775 Volume from ARF 88764

1) Project: 60571032 CV18F0126 Red Hill Fuel Storage Date Received: 05/01/19

2) Coolers: Number of Coolers: 3

3) YES Were custody seals present and intact? How many? 9 Name/Date on seal? see below

4) YES Was there a shipping slip? Carrier name: FEDEX

5) Type of packing in cooler: X bubble wrap __ popcorn __ foam X plastic bags __ other X wet ice __ dry ice __ no ice __ gel ice

6) YES Were cooler temperatures acceptable?

7) Serial number of certified NIST thermometer use R1

8) Cooler temp(s): In °C

1: 2.0°C	2: 3.5°C	3: 2.5°C	4:	5:	6:
7:	8:	9:	10:	11:	12:

Chain of custody:

9) YES Was a chain of custody received?

10) YES Were the custody papers complete/signed in the appropriate places?

Sample Labels:

11) YES Were all sample labels complete (sample ID, date/time of sampling, etc.)?

12) YES Did all container labels agree with custody papers?

Sample Containers:

13) YES Were all containers sealed in separate bags?

14) YES Did all containers arrive in good condition:(unbroken, no leakage, no cracked

15) YES Were correct containers and preservatives used for the tests indicated?

16) YES Was a sufficient amount of sample sent for tests indicated?

17) Yes Were bubbles present in volatile samples?

If yes, the following were received with air bubbles:

Larger than a pea:

Smaller than a pea: az90449w01-4

CUSTODY SEAL AECOM (808) 521-3051 Initials BL Date 4/30/19

Preservation Hold time:

18) Yes Was a sufficient amount of holding time remaining to analyze the samples?

19) Yes Was the pH taken of all non-VOA preserved samples and written on the sample

20) Yes Was the pH of acid preserved non-VOA samples < 2?

21) NA Was the pH of sodium hydroxide preserved samples for Cyanide > 12 and Sulfi

22) NO Were unpreserved VOA Vials received?

23) NA Are unpreserved VOA vials noted in the ADD TEST FIELD on the ARF?

pH strip lot number: 90b2031

Lab notified if pH was not adequate:

Notes/Deficiencies:

Sample ERH812 COC lists 4 containers we received only 3

Personnel receiving samples: ZG Second reviewer: AA

Personnel labeling samples: ZG

Project manager notified: ZG Date/Time of notification 05/01/19

Name of client notified: Date/Time of notification

AA 5/2/19

Revision: 22, November 5, 2013

SAMPLE RESULTS

Wet Lab Analysis

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage
Sample ID: ERH817
Sample Collection Date: 04/29/19

APPL ID: AZ90451
ARF: 88775

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
EPA 300.0	CHLORIDE	46.1	5.0	1.00	0.40	mg/L	5	05/08/19	05/08/19
EPA 300.0	NITRATE	0.18 U	0.5	0.18	0.04	mg/L	1	05/01/19	05/01/19
EPA 300.0	SULFATE	11.3	1.0	0.20	0.09	mg/L	1	05/01/19	05/01/19
SM 2320B	BICARBONATE AS CACO3	112	2.0	1.70	0.85	mg/L	1	05/06/19	05/06/19
SM 2320B	CARBONATE AS CACO3	1.70 U	2.0	1.70	0.85	mg/L	1	05/06/19	05/06/19
SM 2320B	TOTAL ALKALINITY AS CACO	112	2.0	1.70	0.85	mg/L	1	05/06/19	05/06/19

Printed: 05/17/19 7:29:36 AM

APPL-F1-SC-NoMC-REG MDLs

Wet Lab Analysis

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

Sample ID: ERH818

APPL ID: AZ90452

Sample Collection Date: 04/29/19

ARF: 88775

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
EPA 300.0	CHLORIDE	48.6	5.0	1.00	0.40	mg/L	5	05/08/19	05/08/19
EPA 300.0	NITRATE	0.18 U	0.5	0.18	0.04	mg/L	1	05/02/19	05/02/19
EPA 300.0	SULFATE	11.4	1.0	0.20	0.09	mg/L	1	05/02/19	05/02/19
SM 2320B	BICARBONATE AS CACO3	144	2.0	1.70	0.85	mg/L	1	05/06/19	05/06/19
SM 2320B	CARBONATE AS CACO3	1.70 U	2.0	1.70	0.85	mg/L	1	05/06/19	05/06/19
SM 2320B	TOTAL ALKALINITY AS CACO	144	2.0	1.70	0.85	mg/L	1	05/06/19	05/06/19

Printed: 05/17/19 7:29:36 AM

APPL-F1-SC-NoMC-REG MDLs

Wet Lab Analysis

AECOM
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Margie Pascua

Project: 60571032 CV18F0126 Red Hill Fuel Storage

Sample ID: ERH819

APPL ID: AZ90453

Sample Collection Date: 04/29/19

ARF: 88775

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
EPA 300.0	CHLORIDE	48.3	5.0	1.00	0.40	mg/L	5	05/08/19	05/08/19
EPA 300.0	NITRATE	0.18 U	0.5	0.18	0.04	mg/L	1	05/01/19	05/01/19
EPA 300.0	SULFATE	11.4	1.0	0.20	0.09	mg/L	1	05/01/19	05/01/19
SM 2320B	BICARBONATE AS CACO3	115	2.0	1.70	0.85	mg/L	1	05/06/19	05/06/19
SM 2320B	CARBONATE AS CACO3	1.70 U	2.0	1.70	0.85	mg/L	1	05/06/19	05/06/19
SM 2320B	TOTAL ALKALINITY AS CACO	115	2.0	1.70	0.85	mg/L	1	05/06/19	05/06/19

Printed: 05/17/19 7:29:36 AM

APPL-F1-SC-NoMC-REG MDLs

QC FORMS

EPA 300.0

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88775

Case No: 88775 Date Analyzed: 05/01/19

Matrix: WATER Instrument: Charlie

Blank ID: 190501A3-BLK Time Analyzed: 1829

APPL ID.	Client Sample No.	File ID.	Date Analyzed
AZ90451	ERH817	14	05/01/19 1957
AZ90453	ERH819	19	05/01/19 2034
190501A3-BLK	Blank	2	05/01/19 1829
190501A3-LCS	Lab Control Spike	3	05/01/19 1836
190501A3-LCSD	Lab Control SpikeD	4	05/01/19 1843

Comments: Batch: #300W-190501A3

EPA 300.0

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88775

Case No: 88775 Date Analyzed: 05/02/19

Matrix: WATER Instrument: Charlie

Blank ID: 190502A-BLK Time Analyzed: 1429

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190502A-BLK	Blank	39	05/02/19 1429
190502A-LCS	Lab Control Spike	40	05/02/19 1436
190502A-LCSD	Lab Control SpikeD	41	05/02/19 1443
AZ90452	ERH818	48	05/02/19 1535

Comments: Batch: #300W-190502A

EPA 300.0

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88775

Case No: 88775 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Charlie

Blank ID: 190508A2-BLK Time Analyzed: 0831

APPL ID.	Client Sample No.	File ID.	Date Analyzed
AZ90451	ERH817	16	05/08/19 1030
AZ90452	ERH818	17	05/08/19 1037
AZ90453	ERH819	18	05/08/19 1045
190508A2-BLK	Blank	3	05/08/19 0831
190508A2-LCS	Lab Control Spike	4	05/08/19 0838
190508A2-LCSD	Lab Control SpikeD	5	05/08/19 0845

Comments: Batch: #300WD-190508A2

SM 2320B

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 88775

Case No: 88775 Date Analyzed: 05/06/19

Matrix: WATER Instrument: Tiamo

Blank ID: 190506A-BLK Time Analyzed: 2129

APPL ID.	Client Sample No.	File ID.	Date Analyzed
AZ90451	ERH817	19	05/06/19 2101
AZ90452	ERH818	20	05/06/19 2109
AZ90453	ERH819	21	05/06/19 2122
190506A-BLK	Blank	22	05/06/19 2129
190506A-LCS	Lab Control Spike	23	05/06/19 2132
190506A-LCSD	Lab Control SpikeD	24	05/06/19 2143

Comments: Batch: #232W-190506A

WETLAB BLANK

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Analyte	Result	LOQ	LOD	DL	Units	Prep Date	Analysis Date	QC Group
SM 2320B	BICARBONATE AS	4.6	2.0	1.70	0.85	mg/L	05/06/19	05/06/19	#232W-190506A-AZ90450
SM 2320B	CARBONATE AS C	1.70 U	2.0	1.70	0.85	mg/L	05/06/19	05/06/19	#232W-190506A-AZ90450
SM 2320B	TOTAL ALKALINITY	4.6	2.0	1.70	0.85	mg/L	05/06/19	05/06/19	#232W-190506A-AZ90450
EPA 300.0	NITRATE	0.18 U	0.5	0.18	0.04	mg/L	05/01/19	05/01/19	#300W-190501A3-AZ90451
EPA 300.0	SULFATE	0.20 U	1.0	0.20	0.09	mg/L	05/01/19	05/01/19	#300W-190501A3-AZ90451
EPA 300.0	CHLORIDE	0.30 J	1.0	0.20	0.08	mg/L	05/08/19	05/08/19	#300WD-190508A2-AZ90451
EPA 300.0	NITRATE	0.18 U	0.5	0.18	0.04	mg/L	05/02/19	05/02/19	#300W-190502A-AZ90452
EPA 300.0	SULFATE	0.20 U	1.0	0.20	0.09	mg/L	05/02/19	05/02/19	#300W-190502A-AZ90452

Wetlab SC-Blank-REG MDLs
Printed: 05/17/19 7:29:15 AM

EPA 300.0

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88775

Case No: 88775 Date Analyzed: 05/01/19

Matrix: WATER Instrument: Charlie

LCS ID: 190501A3-LCS Time Analyzed: 1836

APPL ID.	Client Sample No.	File ID.	Date Analyzed
AZ90451	ERH817	14	05/01/19 1957
AZ90453	ERH819	19	05/01/19 2034
190501A3-BLK	Blank	2	05/01/19 1829
190501A3-LCS	Lab Control Spike	3	05/01/19 1836
190501A3-LCSD	Lab Control SpikeD	4	05/01/19 1843

Comments: Batch: #300W-190501A3

EPA 300.0

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88775

Case No: 88775 Date Analyzed: 05/02/19

Matrix: WATER Instrument: Charlie

LCS ID: 190502A-LCS Time Analyzed: 1436

APPL ID.	Client Sample No.	File ID.	Date Analyzed
190502A-BLK	Blank	39	05/02/19 1429
190502A-LCS	Lab Control Spike	40	05/02/19 1436
190502A-LCSD	Lab Control SpikeD	41	05/02/19 1443
AZ90452	ERH818	48	05/02/19 1535

Comments: Batch: #300W-190502A

EPA 300.0

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88775

Case No: 88775 Date Analyzed: 05/08/19

Matrix: WATER Instrument: Charlie

LCS ID: 190508A2-LCS Time Analyzed: 0838

APPL ID.	Client Sample No.	File ID.	Date Analyzed
AZ90451	ERH817	16	05/08/19 1030
AZ90452	ERH818	17	05/08/19 1037
AZ90453	ERH819	18	05/08/19 1045
190508A2-BLK	Blank	3	05/08/19 0831
190508A2-LCS	Lab Control Spike	4	05/08/19 0838
190508A2-LCSD	Lab Control SpikeD	5	05/08/19 0845

Comments: Batch: #300WD-190508A2

SM 2320B

Form 4

LCS Summary

Lab Name: APPL, Inc. SDG No: 88775

Case No: 88775 Date Analyzed: 05/06/19

Matrix: WATER Instrument: Tiamo

LCS ID: 190506A-LCS Time Analyzed: 2132

APPL ID.	Client Sample No.	File ID.	Date Analyzed
AZ90451	ERH817	19	05/06/19 2101
AZ90452	ERH818	20	05/06/19 2109
AZ90453	ERH819	21	05/06/19 2122
190506A-BLK	Blank	22	05/06/19 2129
190506A-LCS	Lab Control Spike	23	05/06/19 2132
190506A-LCSD	Lab Control SpikeD	24	05/06/19 2143

Comments: Batch: #232W-190506A

Laboratory Control Spike Recoveries

WETLAB

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Compound Name	Spike Lvl mg/L	SPK Res mg/L	DUP Res mg/L	SPK % Recov	DUP % Recov	RPD	RPD Max	QC Limits	Extract Date-Spk	Analysis Date-Spk	Extract Date-Dup	Analysis Date-Dup	QC Group
EPA 300.0	CHLORIDE	25.0	24.4	24.4	97.6	97.6	0.0	20	90-110	05/08/19	05/08/19	05/08/19	05/08/19	#300WD-190508A2-AZ904
EPA 300.0	NITRATE	22.1	22.6	22.6	102	102	0.0	20	90-110	05/01/19	05/01/19	05/01/19	05/01/19	#300W-190501A3-AZ9045
EPA 300.0	SULFATE	25.0	24.9	24.9	99.6	99.6	0.0	20	90-110	05/01/19	05/01/19	05/01/19	05/01/19	#300W-190501A3-AZ9045
SM 2320B	BICARBONATE AS CACO3	250	251	251	100	100	0.0	20	90-110	05/06/19	05/06/19	05/06/19	05/06/19	#232W-190506A-AZ90450
SM 2320B	TOTAL ALKALINITY AS CA	250	251	251	100	100	0.0	20	90-110	05/06/19	05/06/19	05/06/19	05/06/19	#232W-190506A-AZ90450

Comments:

Laboratory Control Spike Recoveries

WETLAB

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Compound Name	Spike Lvl mg/L	SPK Res mg/L	DUP Res mg/L	SPK % Recov	DUP % Recov	RPD	RPD Max	QC Limits	Extract Date-Spk	Analysis Date-Spk	Extract Date-Dup	Analysis Date-Dup	QC Group
EPA 300.0	NITRATE	22.1	22.7	22.7	103	103	0.0	20	90-110	05/02/19	05/02/19	05/02/19	05/02/19	#300W-190502A-AZ90452
EPA 300.0	SULFATE	25.0	25.1	25.2	100	101	0.40	20	90-110	05/02/19	05/02/19	05/02/19	05/02/19	#300W-190502A-AZ90452

Comments: _____

INORGANIC ANALYSIS
Calibration Data

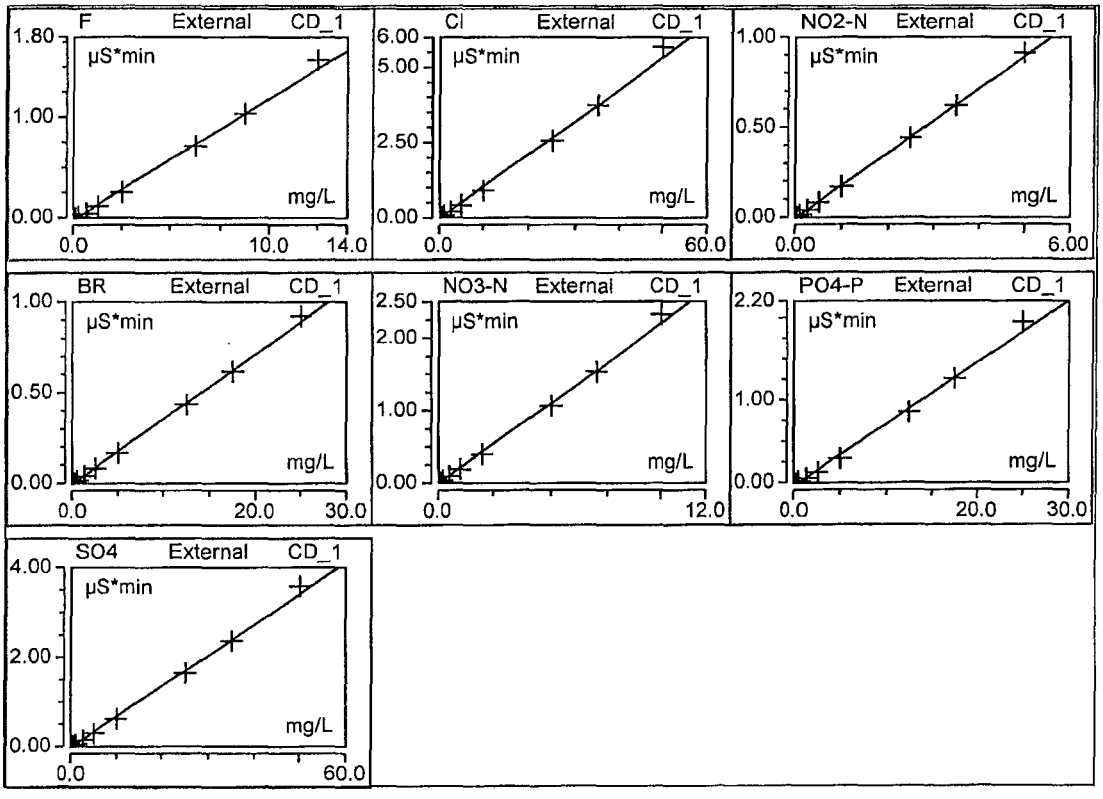
Calibration Batch Report

Sequence:	190401	*Injection Volume:*	25.00
Instrument Method:	Anions IM	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:26	*Run Time:*	5

Calibration Summary

Peak Name	Eval.Type	Cal.Type	Points	Offset (C0)	Slope (C1)	Curve (C2)	Coeff.Det. %
F	Area	Lin, WithOffset, 1/A	8.000	-0.017	0.120	0.000	99.4806
Cl	Area	Lin, WithOffset, 1/A	8.000	-0.028	0.107	0.000	99.4166
NO2-N	Area	Lin, WithOffset, 1/A	8.000	-0.001	0.179	0.000	99.9419
BR	Area	Lin, WithOffset, 1/A	8.000	-0.002	0.036	0.000	99.8824
NO3-N	Area	Lin, WithOffset, 1/A	8.000	-0.007	0.222	0.000	99.7096
PO4-P	Area	Lin, WithOffset, 1/A	7.000	-0.032	0.075	0.000	99.3402
SO4	Area	Lin, WithOffset, 1/A	8.000	-0.012	0.069	0.000	99.7352

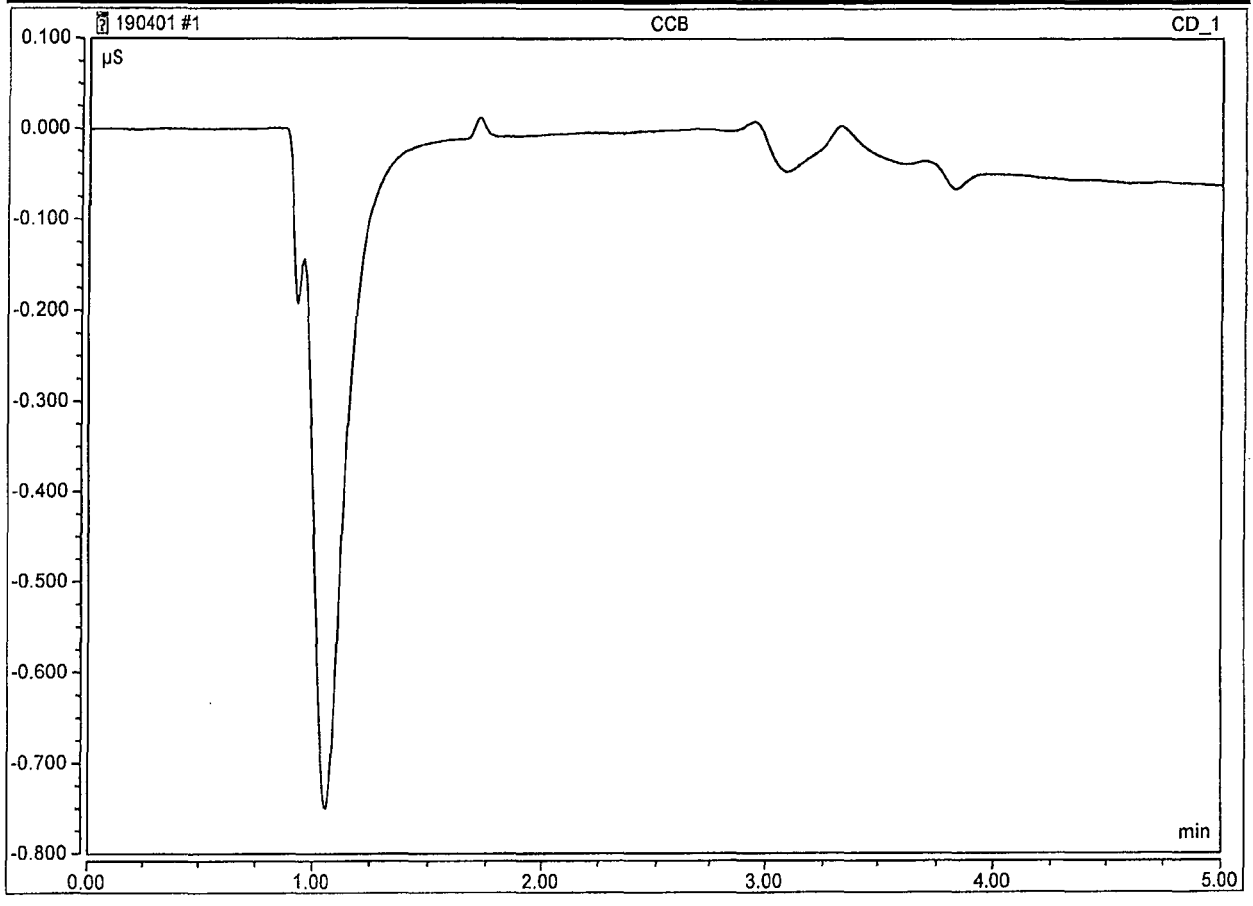
Injection Name	Amount mg/L CD_1 F	Amount mg/L CD_1 Cl	Amount mg/L CD_1 NO2-N	Amount mg/L CD_1 BR	Amount mg/L CD_1 NO3-N	Amount mg/L CD_1 PO4-P	Amount mg/L CD_1 SO4
l cal 1	0.152	0.5642	0.0447	0.2325	0.1005	0.4778	0.4991
l cal 2	0.223	1.0054	0.1008	0.5019	0.2020	0.6726	1.0108
i cal 3	0.498	2.1345	0.2378	1.1759	0.4556	1.1460	2.2782
i cal 4	1.078	4.1718	0.4757	2.3481	0.8983	2.1327	4.5095
i cal 5	2.245	8.6460	0.9640	4.7379	1.8243	4.3601	9.1640
i cal 6	6.079	24.1535	2.4749	12.2599	4.8399	11.9336	24.2601
i cal 7	8.756	35.0732	3.4778	17.3494	6.9503	17.3831	34.7622
i cal 8	13.194	53.1515	5.1141	25.8443	10.5090	26.6219	52.4162



Peak Integration Report

Sample Name:	CCB	*Inj. Vol.:*	25uL
Injection Type:	Unknown	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:27	*Run Time:*	5.00

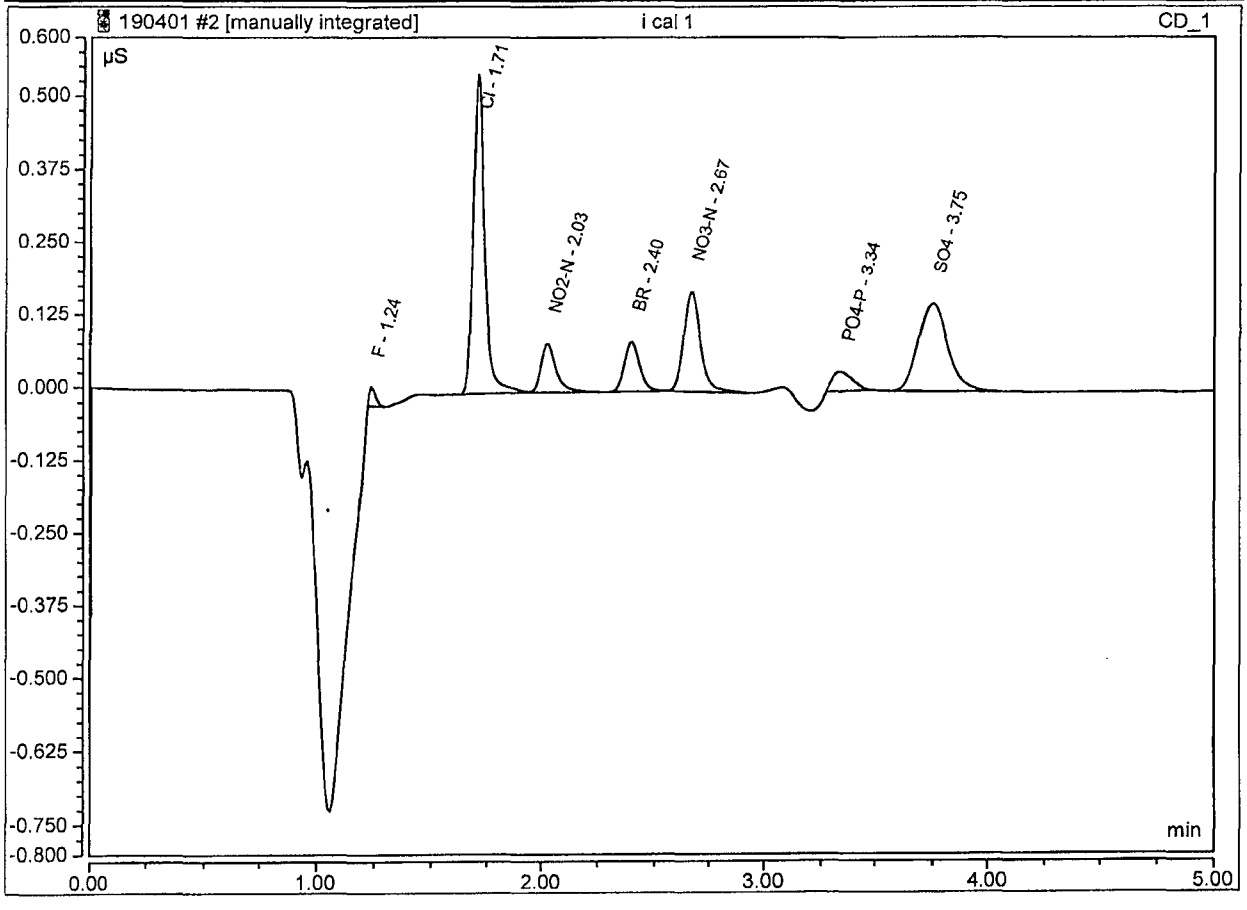
No.	Time (min)	Peak Name	Peak Type	Area (µS*min)	Height (µS)	Amount	Amount	Recovery
	min			µS*min	µS	n.a.	n.a.	



Peak Integration Report

Sample Name:	i cal 1	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:34	*Run Time:*	5.00

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB*	0.001	0.032	0.15	0.1000	152.1%
2	1.71	Cl	BMB	0.033	0.547	0.56	0.4000	141.1%
3	2.03	NO2-N	BMB	0.007	0.084	0.04	0.0400	111.8%
4	2.40	BR	BMB	0.007	0.086	0.23	0.2000	116.3%
5	2.67	NO3-N	BMB	0.016	0.173	0.10	0.0800	125.7%
6	3.34	PO4-P	BMB*	0.004	0.034	0.48	0.2000	238.9%
7	3.75	SO4	BMB	0.023	0.151	0.50	0.4000	124.8%

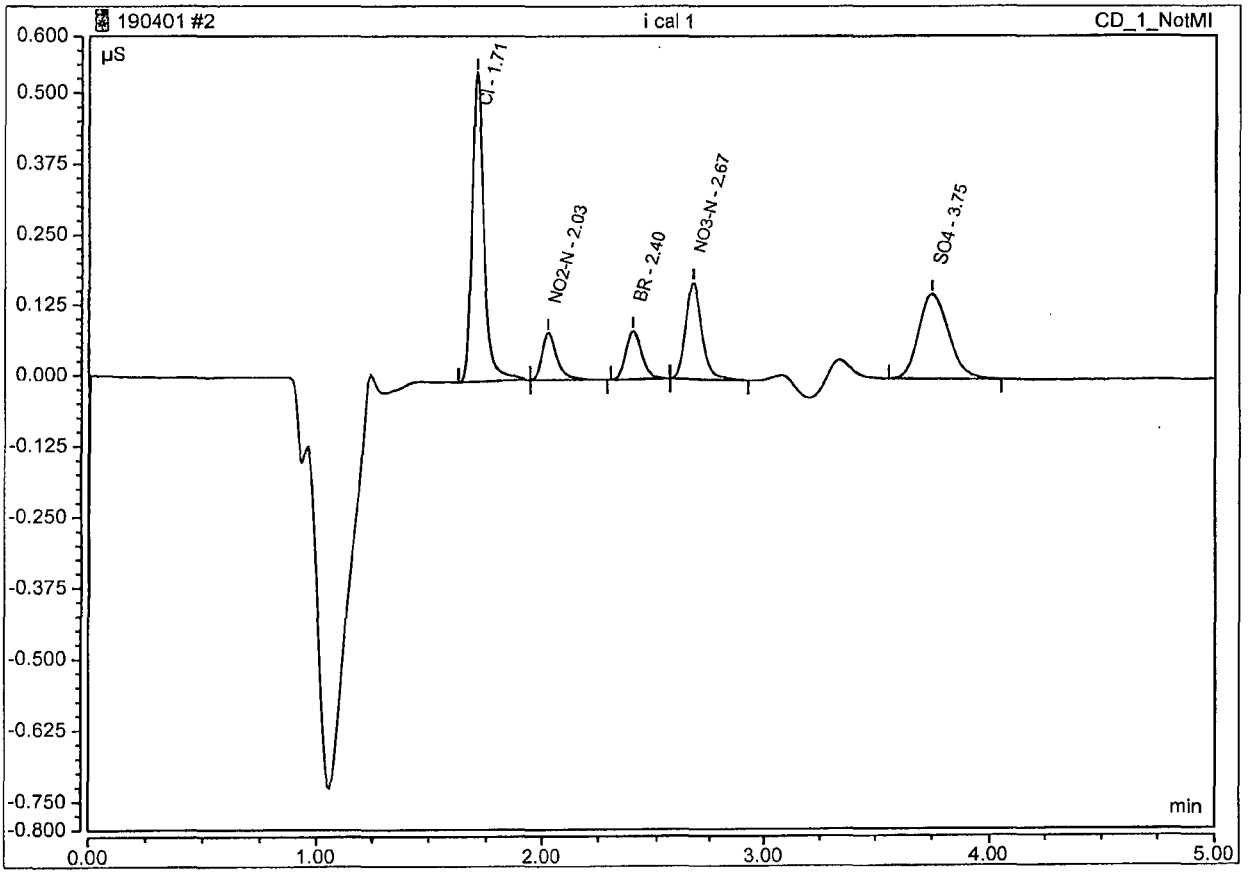


F mi1 HH 190405

Not Manipulated Peak Integration Report

Sample Name:	i cal 1	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:34	*Run Time:*	5.00

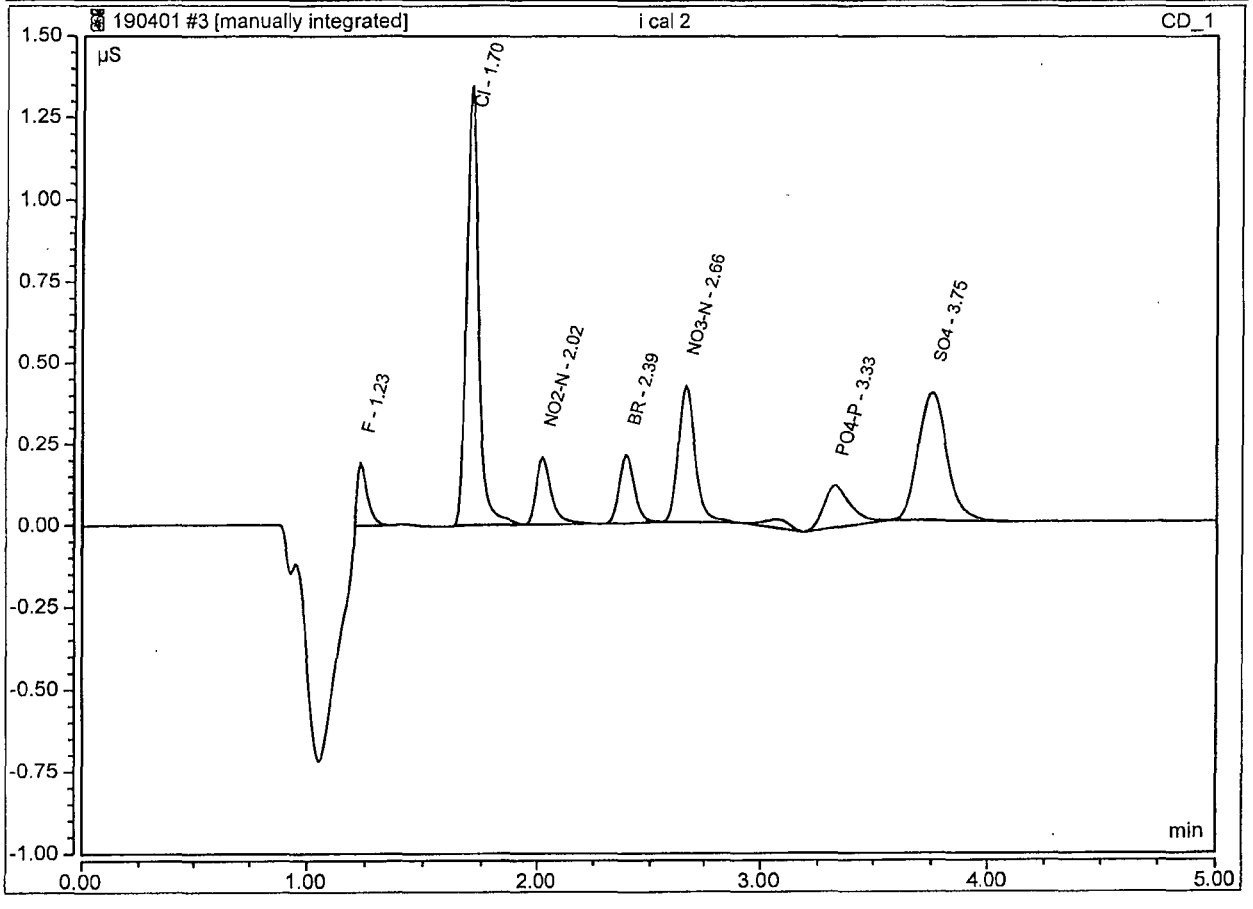
No.	Time min	Peak Name	Peak Type	Area µS*min	Height µS	Ammount mg/L
1	n.a.	F	BMB*	n.a.	n.a.	n.a.
2	1.71	Cl	BMB	0.033	0.547	0.5642
3	2.03	NO2-N	BMB	0.007	0.084	0.0447
4	2.40	BR	BMB	0.007	0.086	0.2325
5	2.67	NO3-N	BMB	0.016	0.173	0.1005
6	n.a.	PO4-P	BMB*	n.a.	n.a.	n.a.
7	3.75	SO4	BMB	0.023	0.151	0.4991



Peak Integration Report

Sample Name:	i cal 2	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:42	*Run Time:*	5.00

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB*	0.010	0.194	0.22	0.2500	89.3%
2	1.70	Cl	BMB	0.080	1.346	1.01	1.0000	100.5%
3	2.02	NO2-N	BMB	0.017	0.208	0.10	0.1000	100.8%
4	2.39	BR	BMB	0.016	0.211	0.50	0.5000	100.4%
5	2.66	NO3-N	BMB	0.038	0.421	0.20	0.2000	101.0%
7	3.33	PO4-P	BMB	0.018	0.129	0.67	0.5000	134.5%
8	3.75	SO4	BMB	0.058	0.395	1.01	1.0000	101.1%

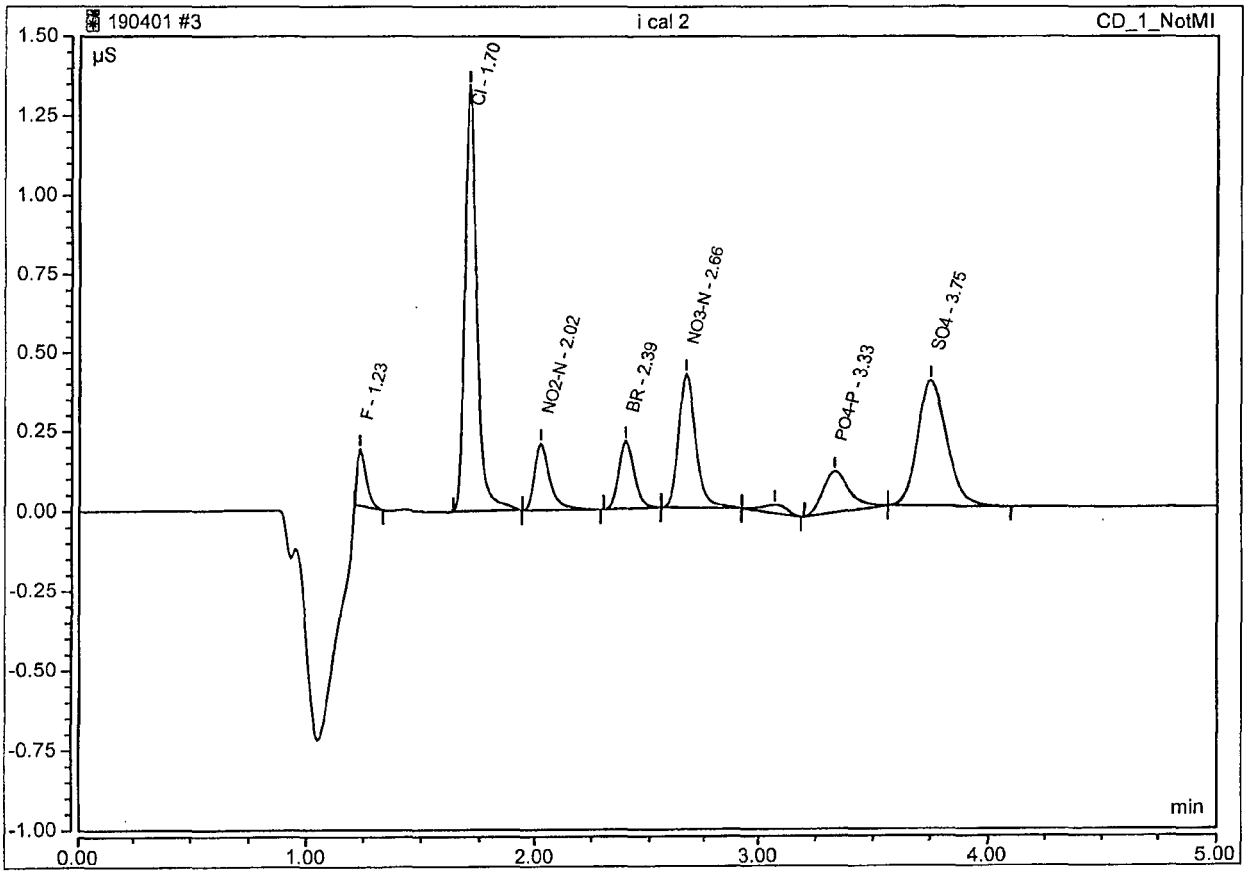


F mi1 HH 190405

Not Manipulated Peak Integration Report

Sample Name:	i cal 2	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:42	*Run Time:*	5.00

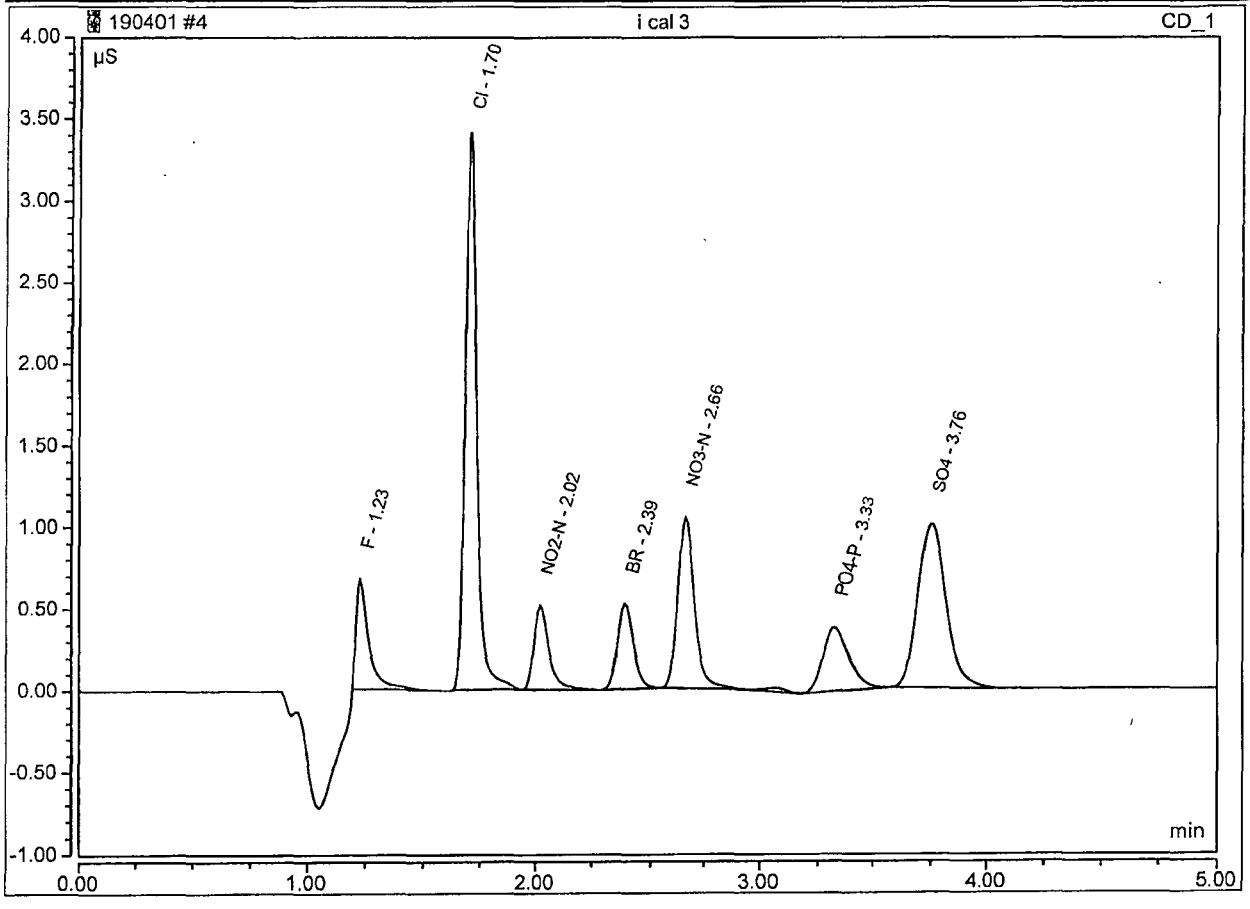
No.	Time min	Peak Name	Peak Type	Area µS*min	Height µS	Ammount mg/L
1	1.23	F	BMB*	0.008	0.177	0.3039
2	1.70	Cl	BMB	0.080	1.346	1.0054
3	2.02	NO2-N	BMB	0.017	0.208	0.1008
4	2.39	BR	BMB	0.016	0.211	0.5019
5	2.66	NO3-N	BMB	0.038	0.421	0.2020
7	3.33	PO4-P	BMB	0.018	0.129	0.6726
8	3.75	SO4	BMB	0.058	0.395	1.0108



Peak Integration Report

Sample Name:	i cal 3	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:49	*Run Time:*	5.00

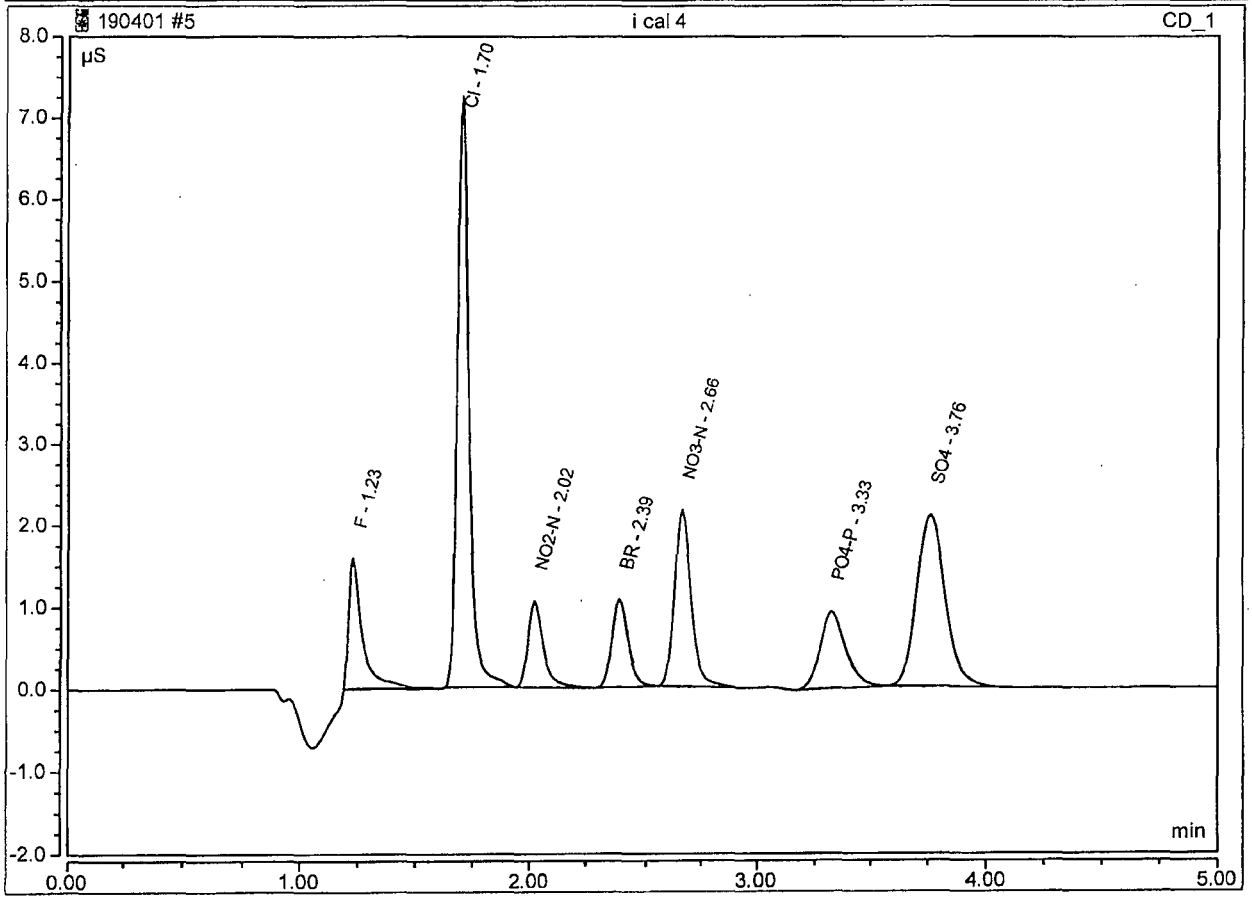
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.043	0.673	0.50	0.6250	79.7%
2	1.70	Cl	BMB	0.201	3.411	2.13	2.5000	85.4%
3	2.02	NO2-N	BMB	0.041	0.518	0.24	0.2500	95.1%
4	2.39	BR	BMB	0.040	0.524	1.18	1.2500	94.1%
5	2.66	NO3-N	BMB	0.094	1.046	0.46	0.5000	91.1%
7	3.33	PO4-P	BMB	0.053	0.392	1.15	1.2500	91.7%
8	3.76	SO4	BMB	0.145	1.005	2.28	2.5000	91.1%



Peak Integration Report

Sample Name:	i cal 4	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 18:56	*Run Time:*	5.00

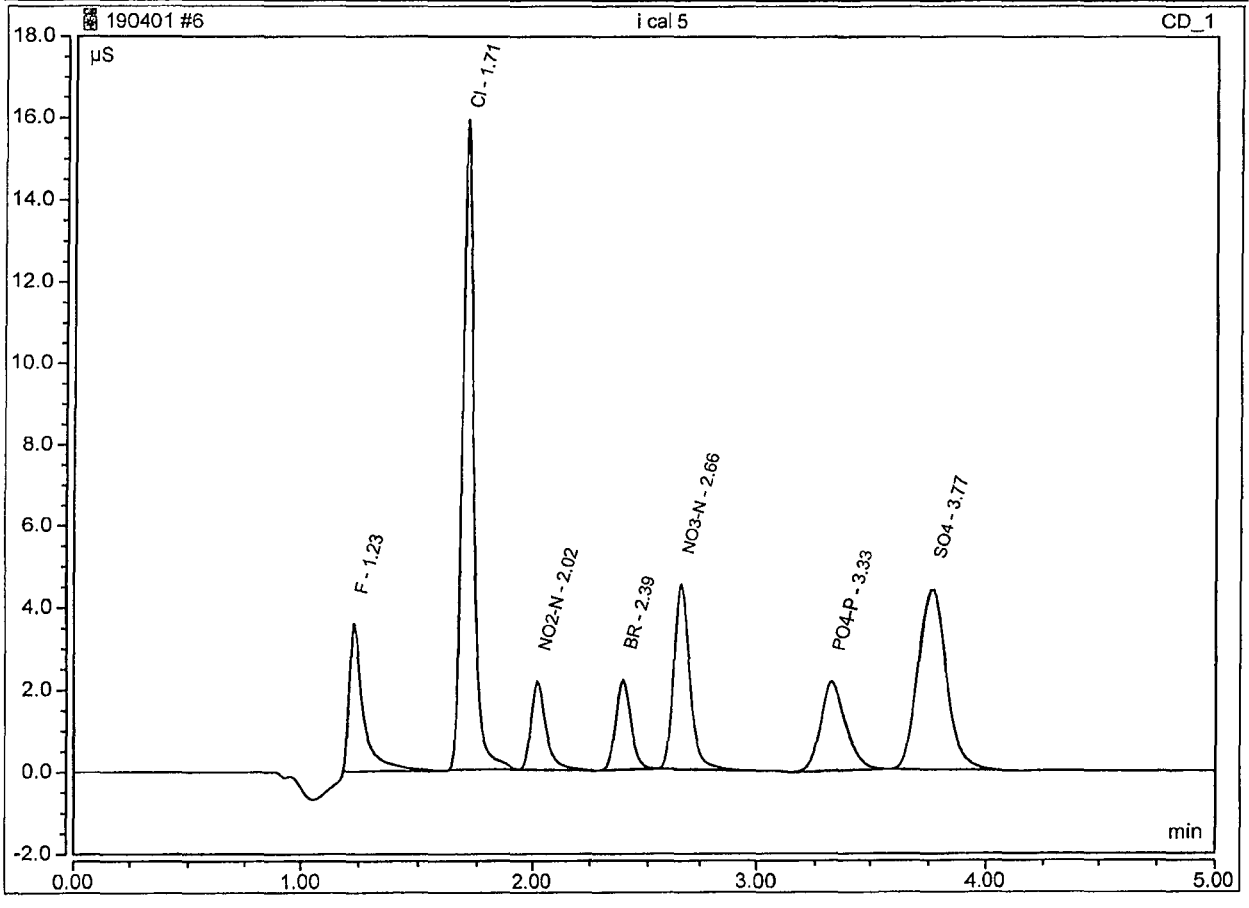
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.112	1.593	1.08	1.2500	86.2%
2	1.70	Cl	BMB	0.420	7.239	4.17	5.0000	83.4%
3	2.02	NO2-N	BMB	0.084	1.054	0.48	0.5000	95.1%
4	2.39	BR	BMB	0.082	1.069	2.35	2.5000	93.9%
5	2.66	NO3-N	BMB	0.193	2.151	0.90	1.0000	89.8%
6	3.33	PO4-P	BMB	0.127	0.939	2.13	2.5000	85.3%
7	3.76	SO4	BMB	0.298	2.093	4.51	5.0000	90.2%



Peak Integration Report

Sample Name:	i cal 5	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:04	*Run Time:*	5.00

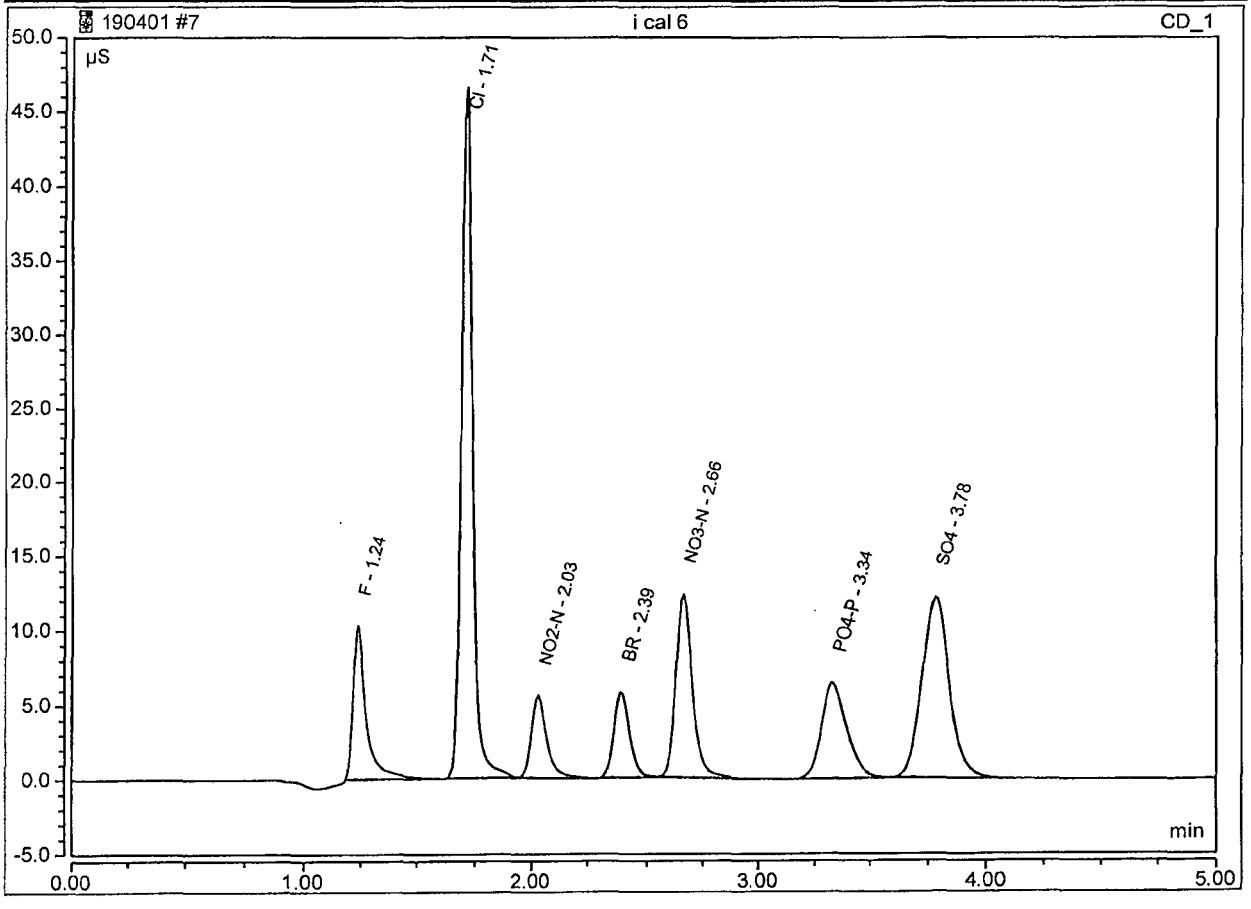
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.253	3.584	2.24	2.5000	89.8%
2	1.71	Cl	BMB	0.900	15.899	8.65	10.0000	86.5%
3	2.02	NO2-N	BMB	0.171	2.155	0.96	1.0000	96.4%
4	2.39	BR	BMB	0.167	2.196	4.74	5.0000	94.8%
5	2.66	NO3-N	BMB	0.398	4.491	1.82	2.0000	91.2%
6	3.33	PO4-P	BMB	0.293	2.182	4.36	5.0000	87.2%
7	3.77	SO4	BMB	0.618	4.399	9.16	10.0000	91.6%



Peak Integration Report

Sample Name:	i cal 6	*Inj. Vol.:*	25uL
Injection Type:	Calibration Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:11	*Run Time:*	5.00

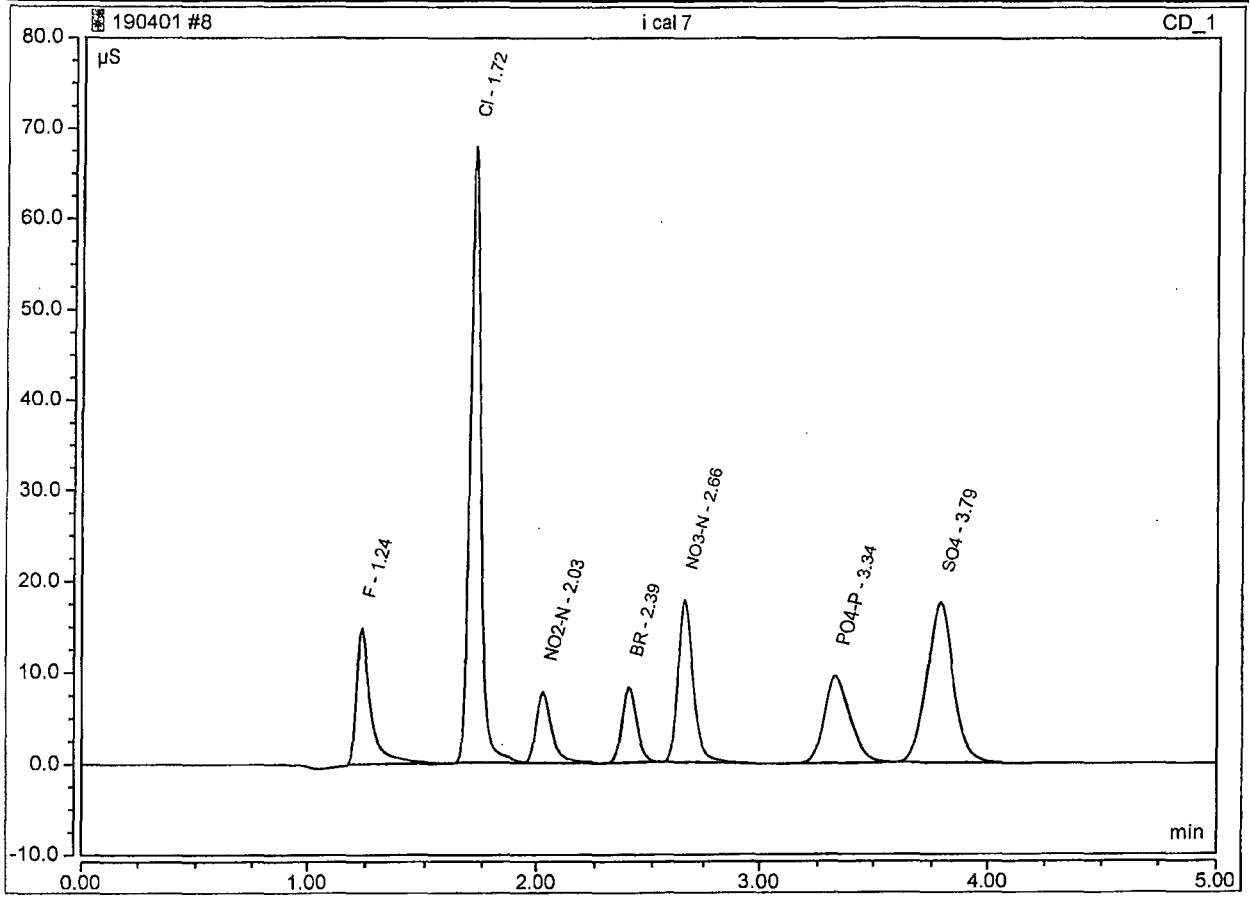
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB	0.715	10.279	6.08	6.2500	97.3%
2	1.71	Cl	BMB	2.565	46.518	24.15	25.0000	96.6%
3	2.03	NO2-N	BMB	0.441	5.520	2.47	2.5000	99.0%
4	2.39	BR	BMB	0.436	5.795	12.26	12.5000	98.1%
5	2.66	NO3-N	BMB	1.067	12.256	4.84	5.0000	96.8%
6	3.34	PO4-P	BMB	0.857	6.441	11.93	12.5000	95.5%
7	3.78	SO4	BMB	1.654	12.099	24.26	25.0000	97.0%



Peak Integration Report

Sample Name:	**I cal 7**	*Inj. Vol.:*	**25uL**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-Apr-2019 / 19:19**	*Run Time:*	**5.00**

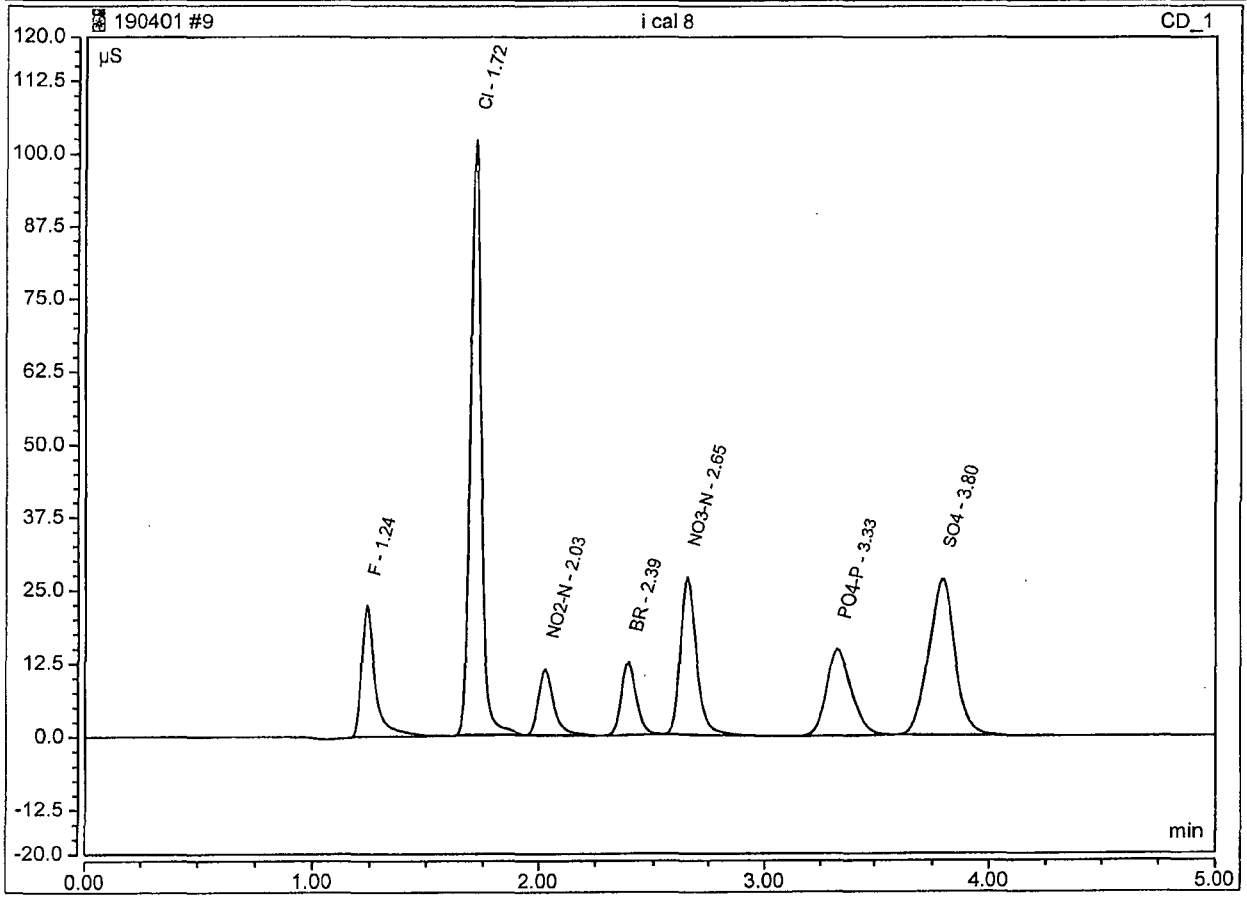
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB	1.037	14.883	8.76	8.7500	100.1%
2	1.72	Cl	BMB	3.736	67.756	35.07	35.0000	100.2%
3	2.03	NO2-N	BMB	0.621	7.719	3.48	3.5000	99.4%
4	2.39	BR	BMB	0.618	8.268	17.35	17.5000	99.1%
5	2.66	NO3-N	BMB	1.534	17.727	6.95	7.0000	99.3%
6	3.34	PO4-P	BMB	1.263	9.506	17.38	17.5000	99.3%
7	3.79	SO4	BMB	2.375	17.528	34.76	35.0000	99.3%



Peak Integration Report

Sample Name:	**i cal 8**	*Inj. Vol.:*	**25uL**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-Apr-2019 / 19:26**	*Run Time:*	**5.00**

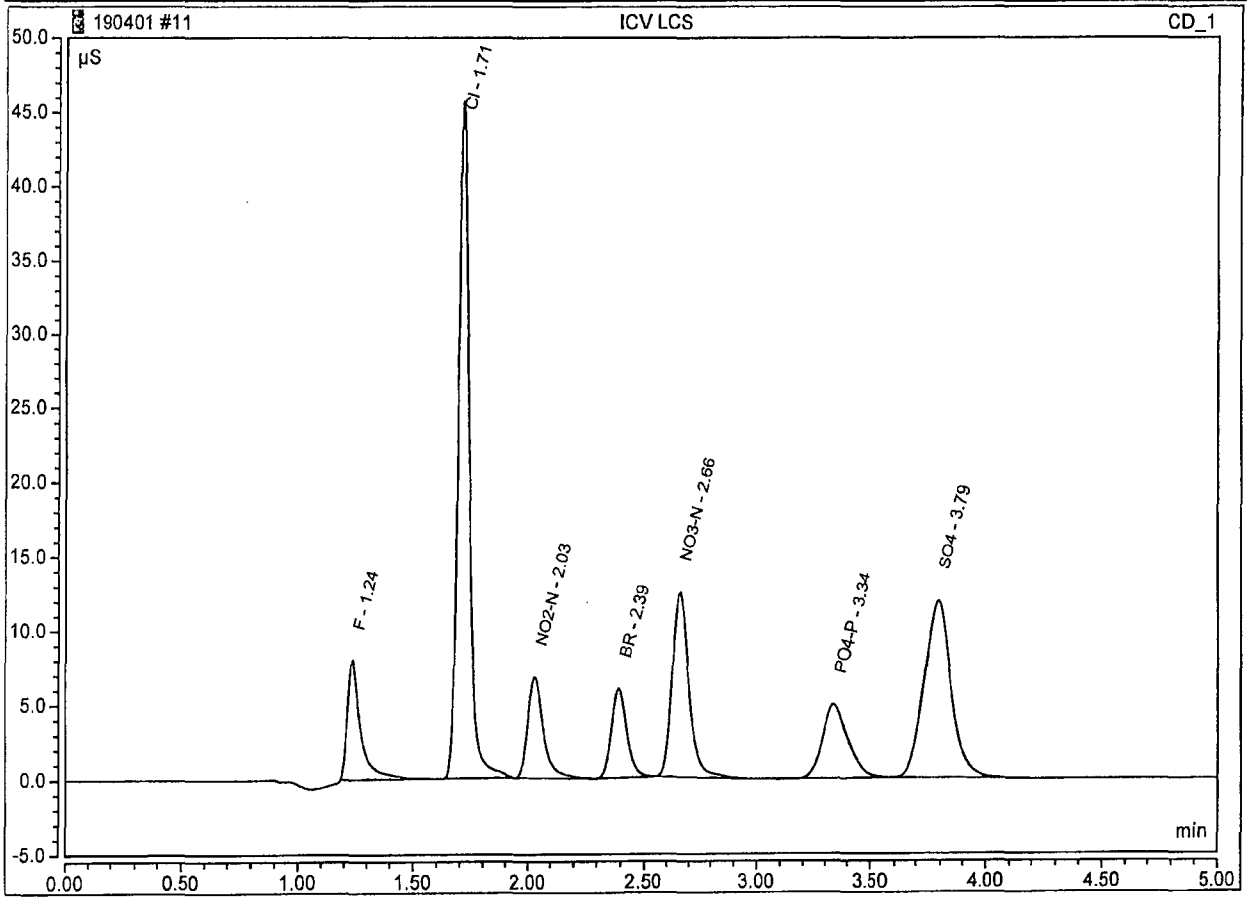
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB	1.571	22.280	13.19	12.5000	105.5%
2	1.72	Cl	BMB	5.677	102.036	53.15	50.0000	106.3%
3	2.03	NO2-N	BMB	0.913	11.224	5.11	5.0000	102.3%
4	2.39	BR	BMB	0.921	12.428	25.84	25.0000	103.4%
5	2.65	NO3-N	BMB	2.324	26.884	10.51	10.0000	105.1%
6	3.33	PO4-P	BMB	1.951	14.669	26.62	25.0000	106.5%
7	3.80	SO4	BMB	3.588	26.635	52.42	50.0000	104.8%



Peak Integration Report

Sample Name:	ICV LCS	*Inj. Vol.:*	25uL
Injection Type:	Check Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:41	*Run Time:*	5.00

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.24	F	BMB	0.555	8.015	4.75	5.0000	95.0%
2	1.71	Cl	BMB	2.510	45.585	23.64	25.0000	94.6%
3	2.03	NO2-N	BMB	0.545	6.798	3.06	3.0400	100.6%
4	2.39	BR	BMB	0.450	5.995	12.66	12.5000	101.3%
5	2.66	NO3-N	BMB	1.085	12.464	4.92	5.0000	98.5%
6	3.34	PO4-P	BMB	0.666	4.985	9.37	10.0000	93.7%
7	3.79	SO4	BMB	1.623	11.942	23.81	25.0000	95.2%



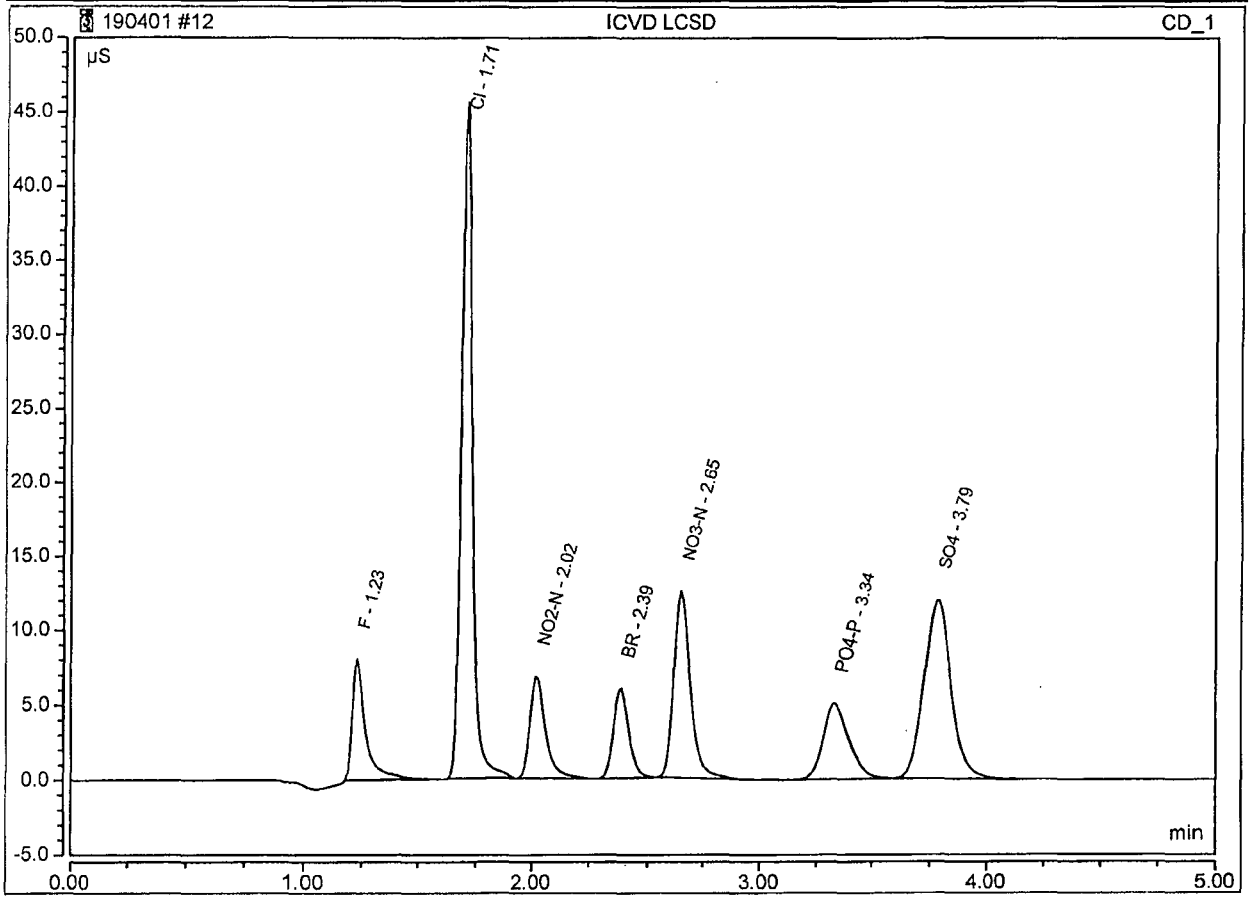
Algortith Check:
y = Peak Area
x = mg/L S04

y = 0.0687 x + -0.0115
y = 1.6231 therefor x = 23.8071 190406 HH

Peak Integration Report

Sample Name:	ICVD LCSD	*Inj. Vol.:*	25uL
Injection Type:	Check Standard	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:48	*Run Time:*	5.00

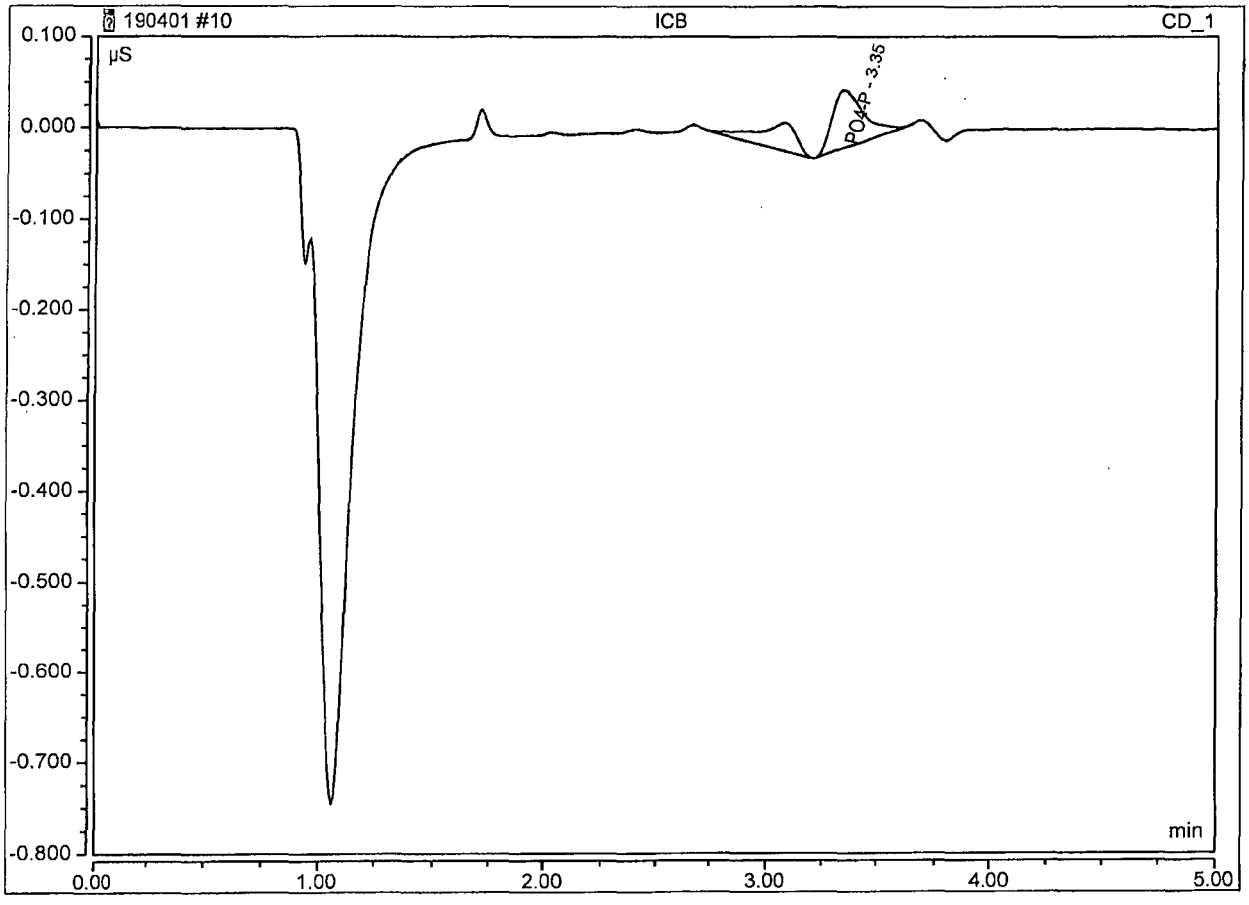
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
1	1.23	F	BMB	0.558	8.048	4.78	5.0000	95.6%
2	1.71	Cl	BMB	2.509	45.546	23.64	25.0000	94.6%
3	2.02	NO2-N	BMB	0.545	6.797	3.06	3.0400	100.6%
4	2.39	BR	BMB	0.450	5.991	12.66	12.5000	101.3%
5	2.65	NO3-N	BMB	1.085	12.462	4.92	5.0000	98.5%
6	3.34	PO4-P	BMB	0.676	5.055	9.50	10.0000	95.0%
7	3.79	SO4	BMB	1.624	11.941	23.83	25.0000	95.3%



Peak Integration Report

Sample Name:	ICB	*Inj. Vol.:*	25uL
Injection Type:	Unknown	*Dilution Factor:*	1.0000
Program:	Anion APM 190401A	*Operator:*	chemist_wetlab
Inj. Date / Time:	01-Apr-2019 / 19:33	*Run Time:*	5.00

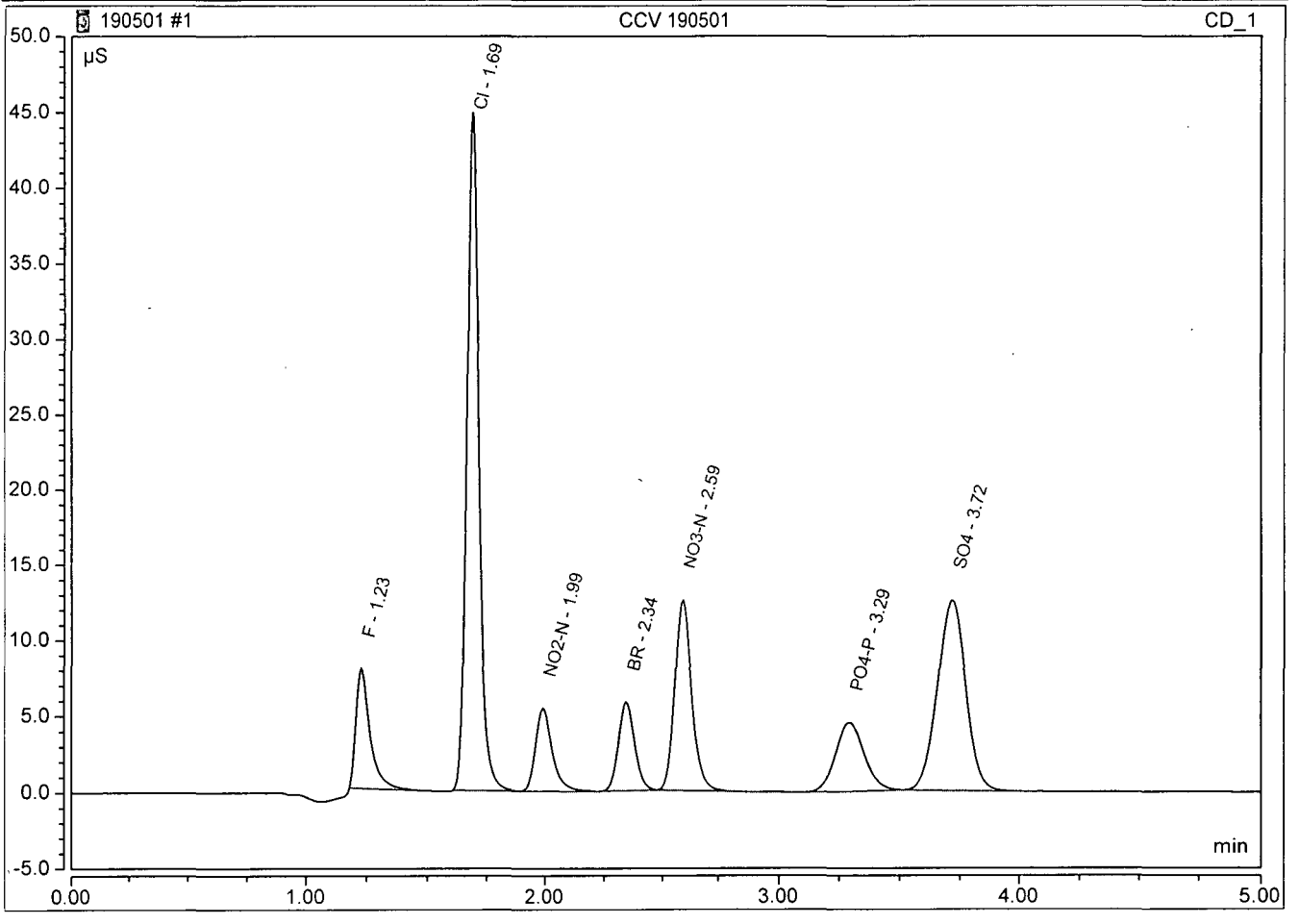
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Amount mg/L	Recovery
2	3.35	PO4-P	BMB	0.010	0.062	0.56		



Peak Integration Report

Sample Name:	**CCV 190501**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-May-2019 / 18:21**	*Run Time:*	**5.00**

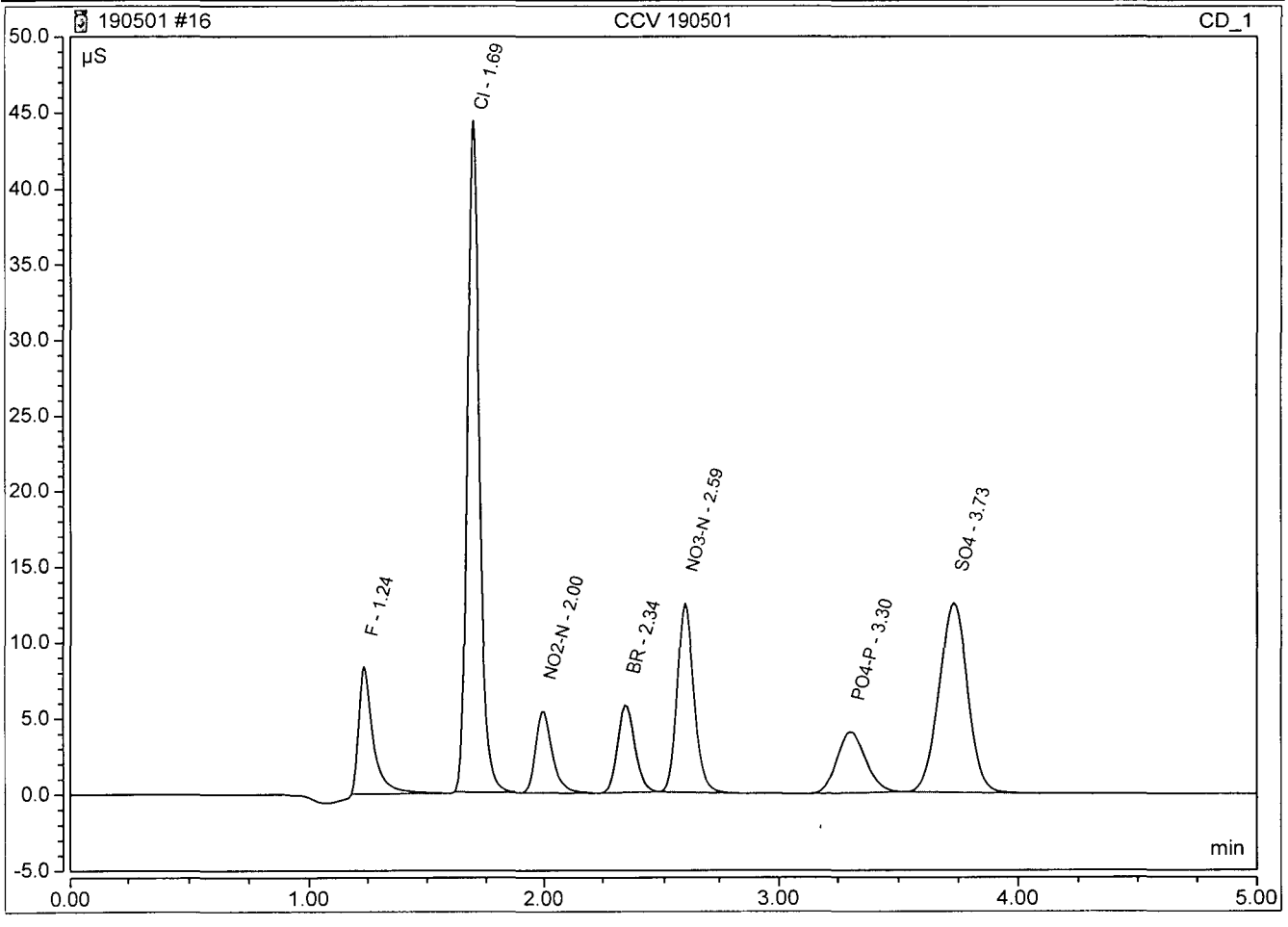
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.23	**F**	BMB	0.520	7.885	4.46	5	89.3%
2	1.69	**Cl**	BMB	2.631	44.836	24.78	25	99.1%
3	1.99	**NO2-N**	BMB	0.453	5.447	2.54	2.5	101.5%
4	2.34	**BR**	BMB	0.459	5.816	12.89	12.5	103.2%
5	2.59	**NO3-N**	BMB	1.106	12.533	5.02	5	100.4%
7	3.29	**PO4-P**	BMB	0.616	4.515	8.70	10	87.0%
8	3.72	**SO4**	BMB	1.711	12.542	25.09	25	100.4%



Peak Integration Report

Sample Name:	**CCV 190501**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-May-2019 / 20:12**	*Run Time:*	**5.00**

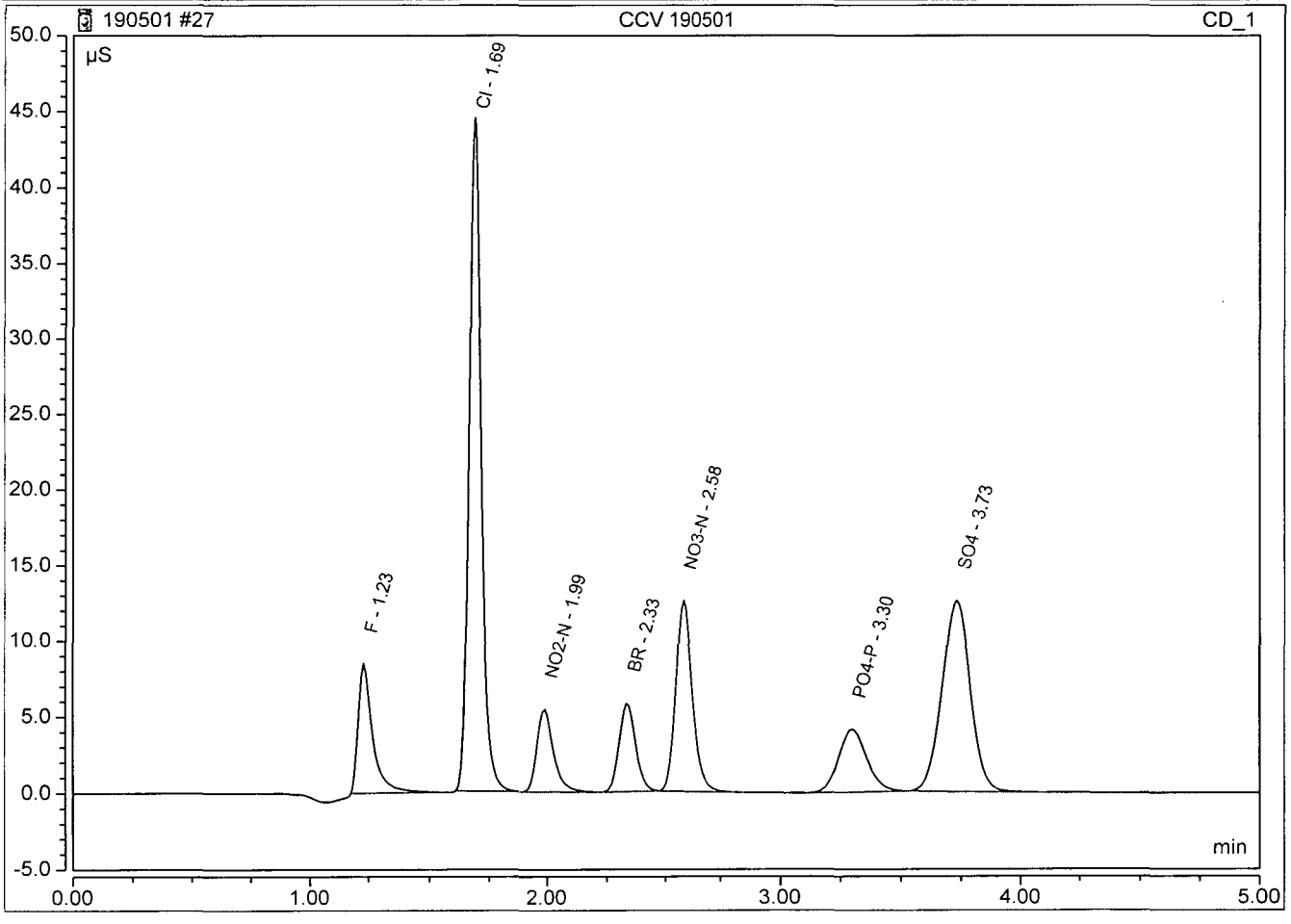
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.24	**F**	BMB	0.590	8.338	5.05	5	100.9%
2	1.69	**Cl**	BMB	2.621	44.330	24.68	25	98.7%
3	2.00	**NO2-N**	BMB	0.449	5.385	2.52	2.5	100.6%
4	2.34	**BR**	BMB	0.457	5.761	12.83	12.5	102.7%
5	2.59	**NO3-N**	BMB	1.101	12.445	5.00	5	99.9%
6	3.30	**PO4-P**	BMB	0.556	4.026	7.89	10	78.9%
7	3.73	**SO4**	BMB	1.707	12.496	25.03	25	100.1%



Peak Integration Report

Sample Name:	**CCV 190501**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-May-2019 / 21:33**	*Run Time:*	**5.00**

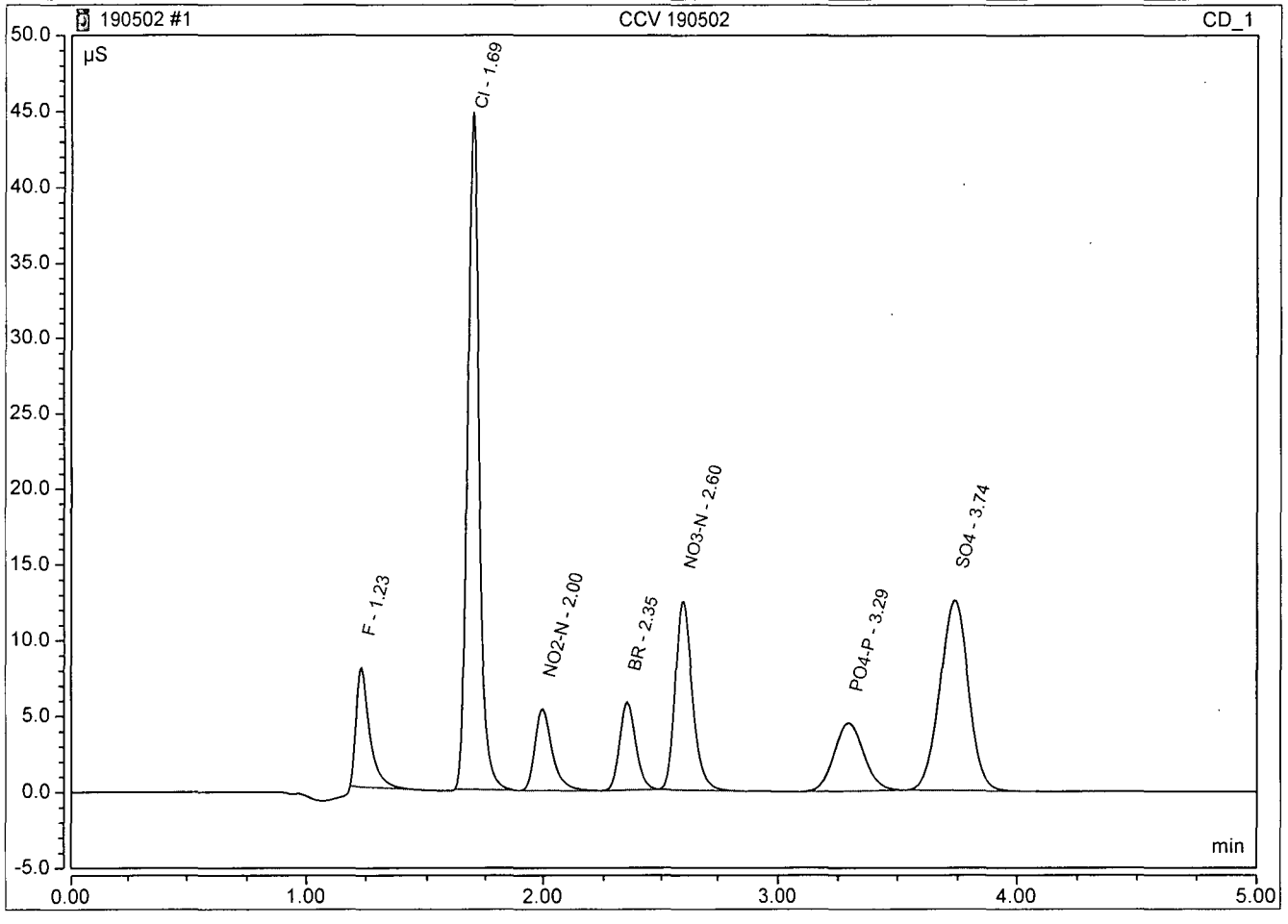
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.23	F	BMB	0.595	8.497	5.08	5	101.7%
2	1.69	Cl	BMB	2.616	44.438	24.64	25	98.5%
3	1.99	NO2-N	BMB	0.449	5.413	2.52	2.5	100.7%
4	2.33	BR	BMB	0.457	5.808	12.85	12.5	102.8%
5	2.58	NO3-N	BMB	1.102	12.543	5.00	5	100.0%
6	3.30	PO4-P	BMB	0.565	4.128	8.02	10	80.2%
7	3.73	SO4	BMB	1.708	12.561	25.04	25	100.1%



Peak Integration Report

Sample Name:	**CCV 190502**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**02-May-2019 / 14:21**	*Run Time:*	**5.00**

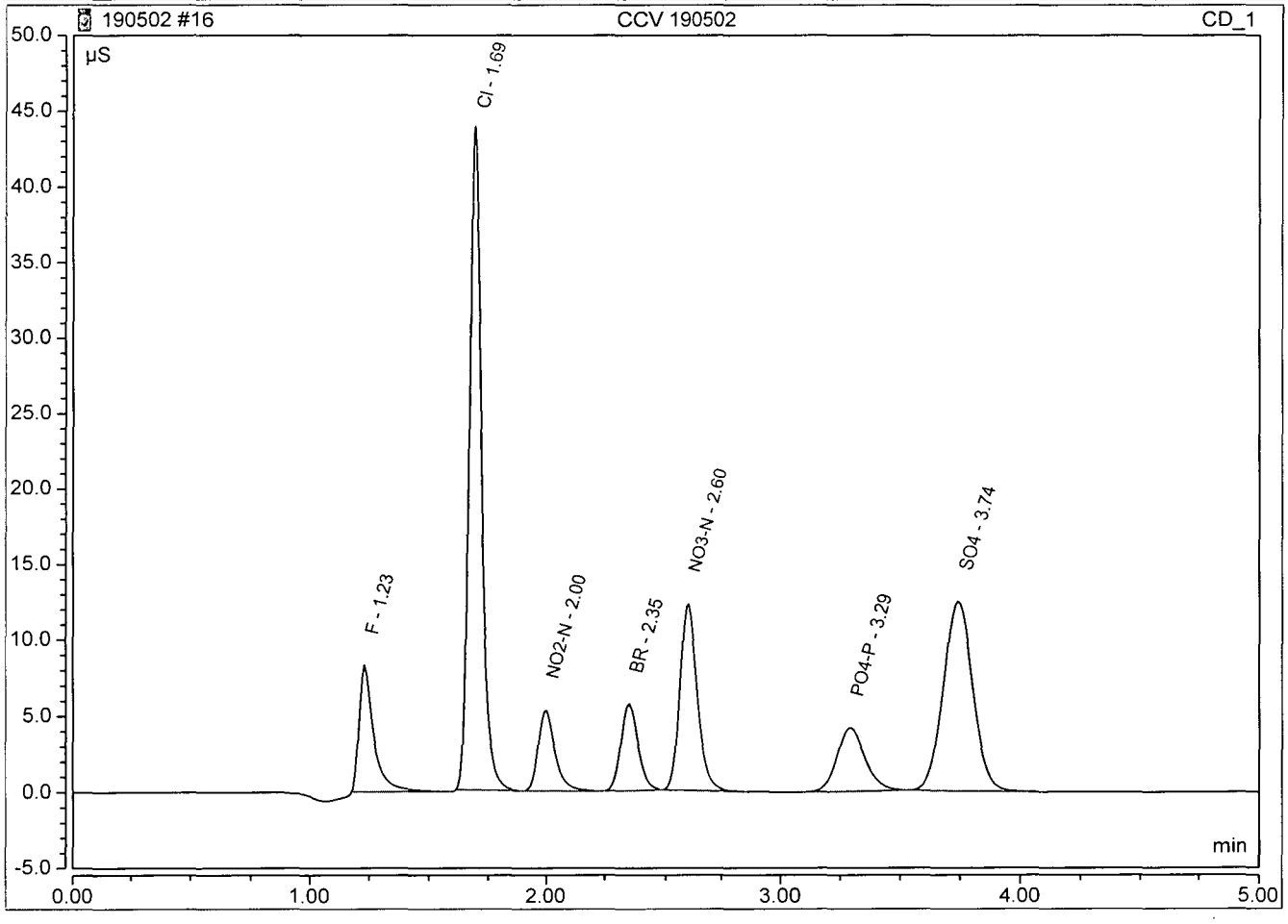
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.23	**F**	BMB	0.516	7.933	4.43	5	88.6%
2	1.69	**Cl**	BMB	2.635	44.751	24.81	25	99.2%
3	2.00	**NO2-N**	BMB	0.453	5.412	2.54	2.5	101.6%
4	2.35	**BR**	BMB	0.460	5.807	12.92	12.5	103.4%
5	2.60	**NO3-N**	BMB	1.109	12.497	5.03	5	100.7%
6	3.29	**PO4-P**	BMB	0.618	4.495	8.73	10	87.3%
7	3.74	**SO4**	BMB	1.722	12.543	25.25	25	101.0%



Peak Integration Report

Sample Name:	**CCV 190502**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**02-May-2019 / 16:12**	*Run Time:*	**5.00**

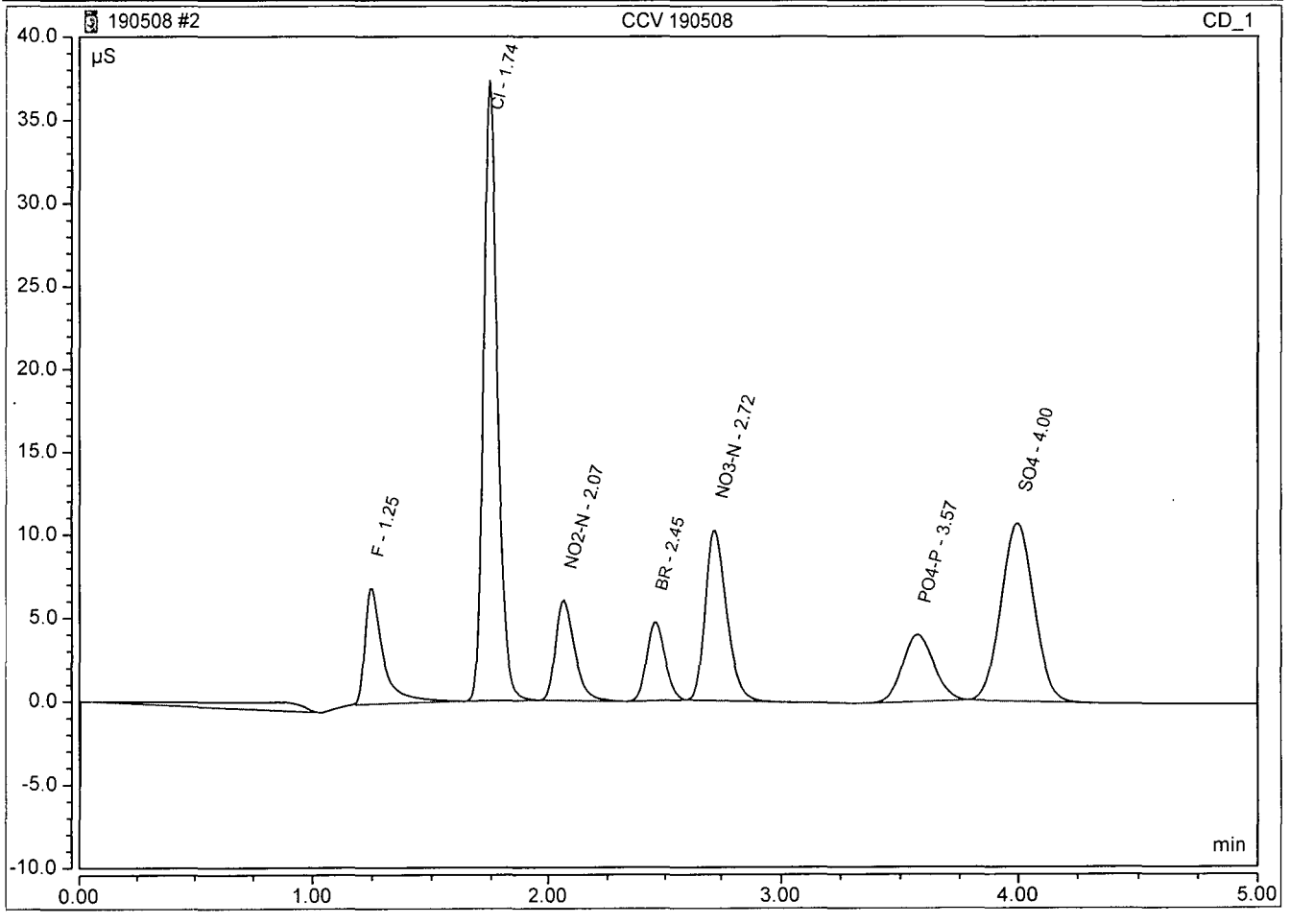
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.23	**F**	BMB	0.589	8.304	5.04	5	100.7%
2	1.69	**Cl**	BMB	2.621	43.821	24.68	25	98.7%
3	2.00	**NO2-N**	BMB	0.449	5.311	2.52	2.5	100.7%
4	2.35	**BR**	BMB	0.455	5.688	12.80	12.5	102.4%
5	2.60	**NO3-N**	BMB	1.100	12.267	4.99	5	99.8%
6	3.29	**PO4-P**	BMB	0.583	4.171	8.26	10	82.6%
7	3.74	**SO4**	BMB	1.718	12.445	25.19	25	100.8%



Peak Integration Report

Sample Name:	**CCV 190508**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 08:23**	*Run Time:*	**5.00**

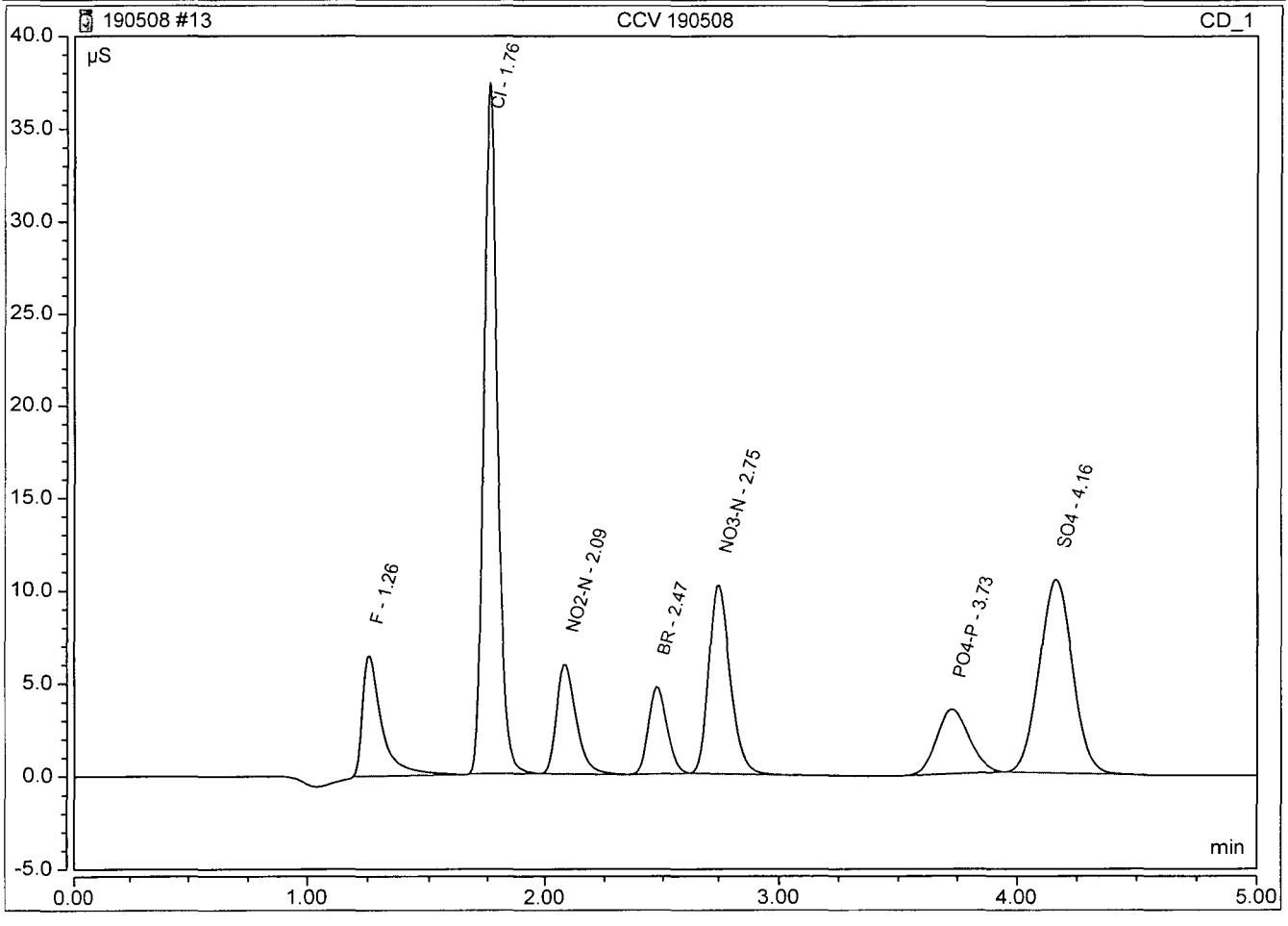
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
2	1.25	**F**	BMB	0.619	6.996	5.29	5	105.7%
3	1.74	**Cl**	BMB	2.618	37.357	24.65	25	98.6%
4	2.07	**NO2-N**	BMB	0.563	6.018	3.16	3.04	103.9%
5	2.45	**BR**	BMB	0.446	4.721	12.54	12.5	100.4%
6	2.72	**NO3-N**	BMB	1.091	10.246	4.95	5	99.0%
8	3.57	**PO4-P**	BMB	0.615	4.013	8.69	10	86.9%
9	4.00	**SO4**	BMB	1.666	10.698	24.43	25	97.7%



Peak Integration Report

Sample Name:	**CCV 190508**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 10:08**	*Run Time:*	**5.00**

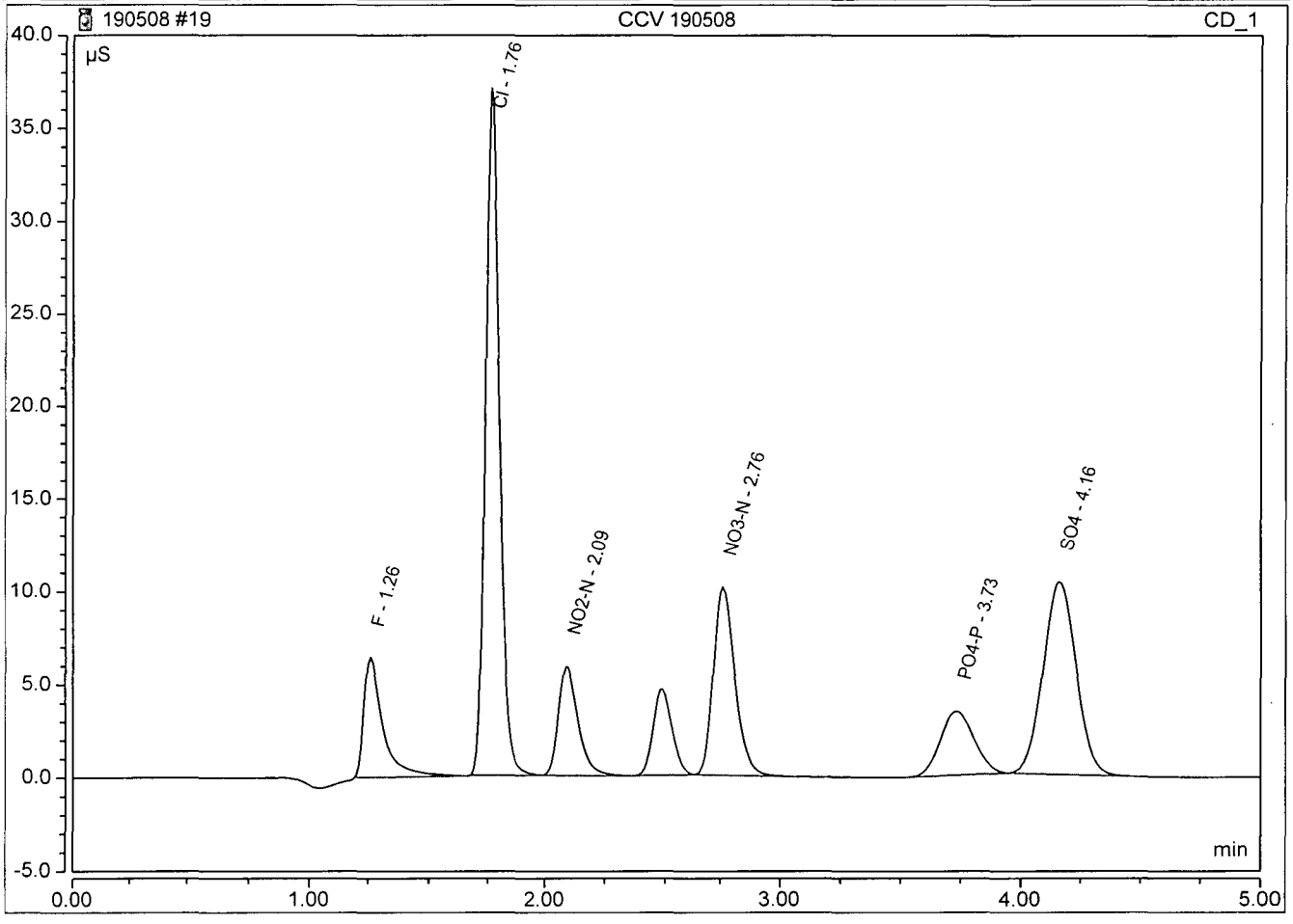
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.26	F	BMB	0.595	6.527	5.09	5	101.7%
2	1.76	Cl	BMB	2.608	37.328	24.56	25	98.2%
3	2.09	NO2-N	BMB	0.562	5.921	3.15	3.04	103.6%
4	2.47	BR	BMB	0.446	4.689	12.53	12.5	100.2%
5	2.75	NO3-N	BMB	1.086	10.189	4.93	5	98.5%
6	3.73	PO4-P	BMB	0.555	3.463	7.88	10	78.8%
7	4.16	SO4	BMB	1.653	10.411	24.24	25	96.9%



Peak Integration Report

Sample Name:	**CCV 190508**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 10:52**	*Run Time:*	**5.00**

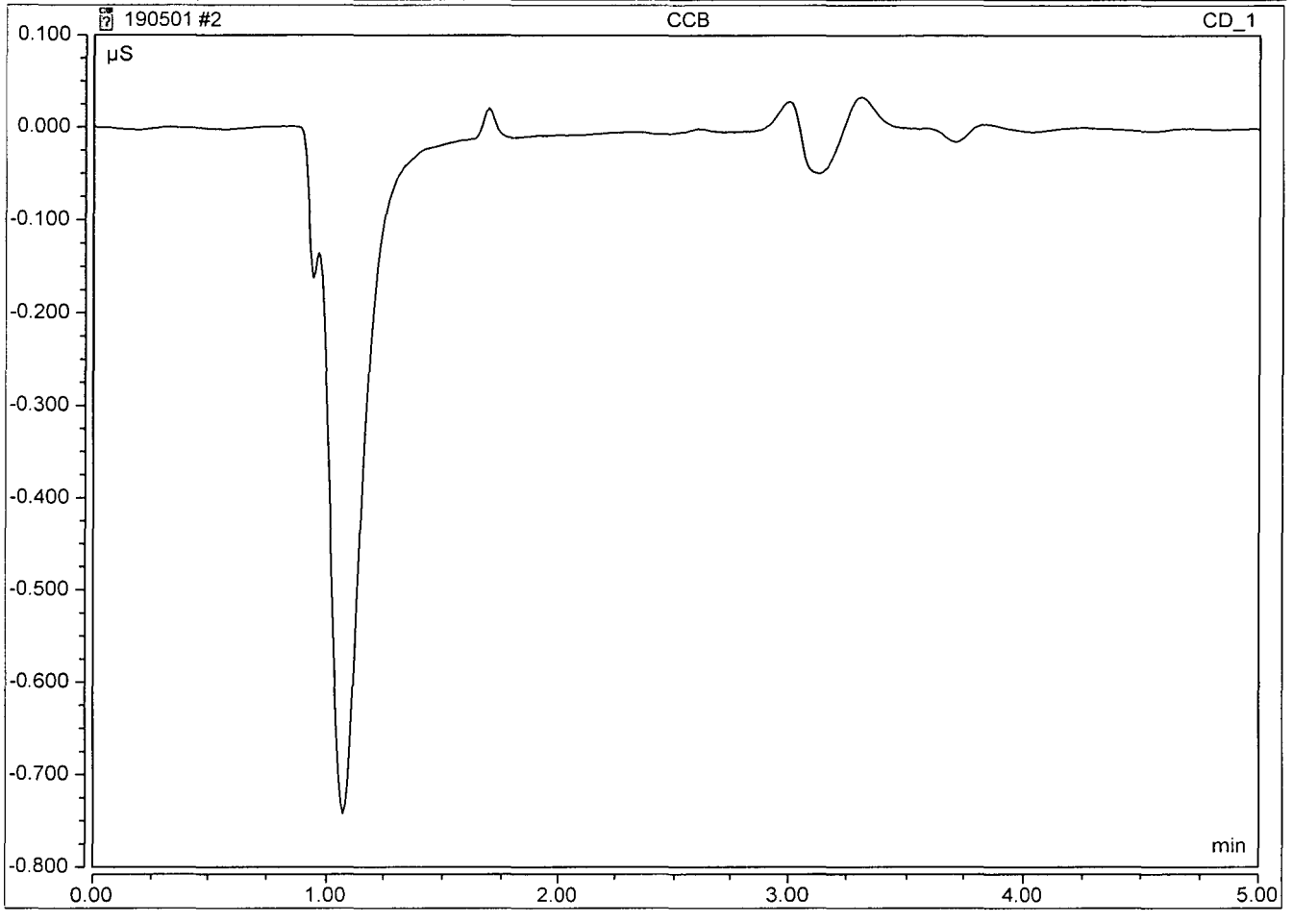
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.26	**F**	BMB	0.595	6.444	5.08	5	101.7%
2	1.76	**Cl**	BMB	2.607	36.997	24.55	25	98.2%
3	2.09	**NO2-N**	BMB	0.562	5.866	3.15	3.04	103.6%
5	2.76	**NO3-N**	BMB	1.084	10.114	4.92	5	98.3%
6	3.73	**PO4-P**	BMB	0.552	3.442	7.83	10	78.3%
7	4.16	**SO4**	BMB	1.649	10.358	24.18	25	96.7%



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-May-2019 / 18:29**	*Run Time:*	**5.00**

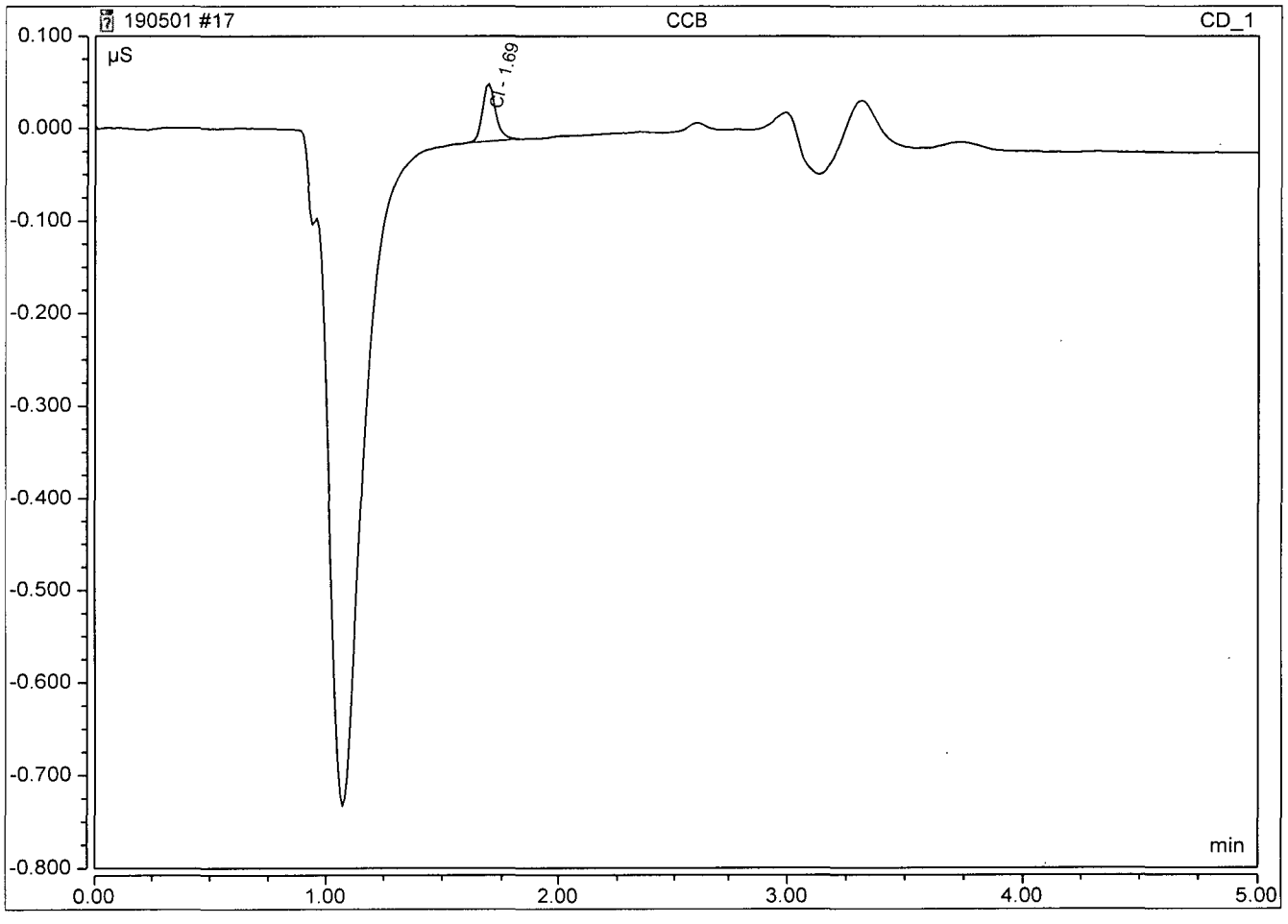
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-May-2019 / 20:19**	*Run Time:*	**5.00**

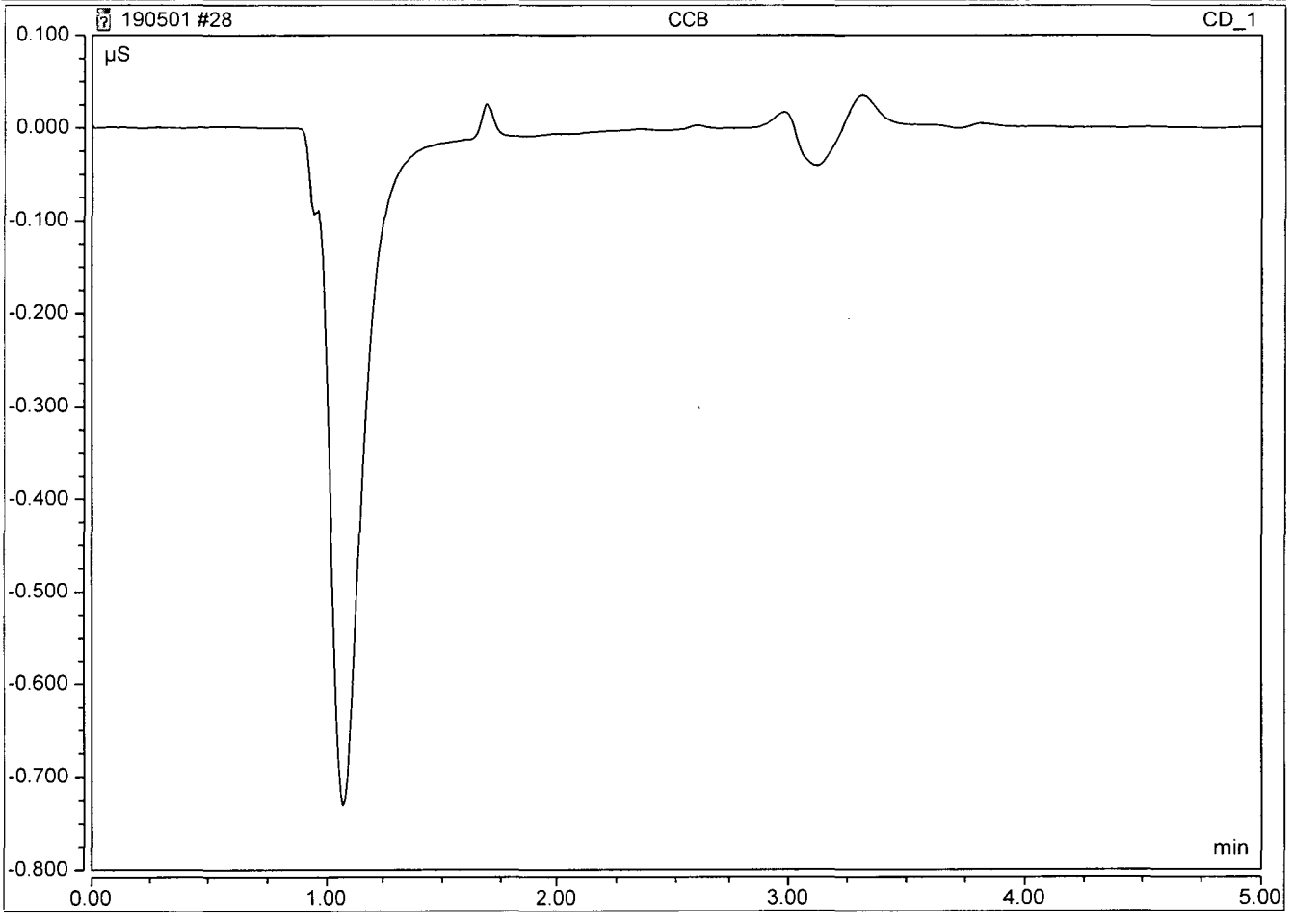
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.69	Cl	BMB	0.004	0.063	0.30		



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-May-2019 / 21:41**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery

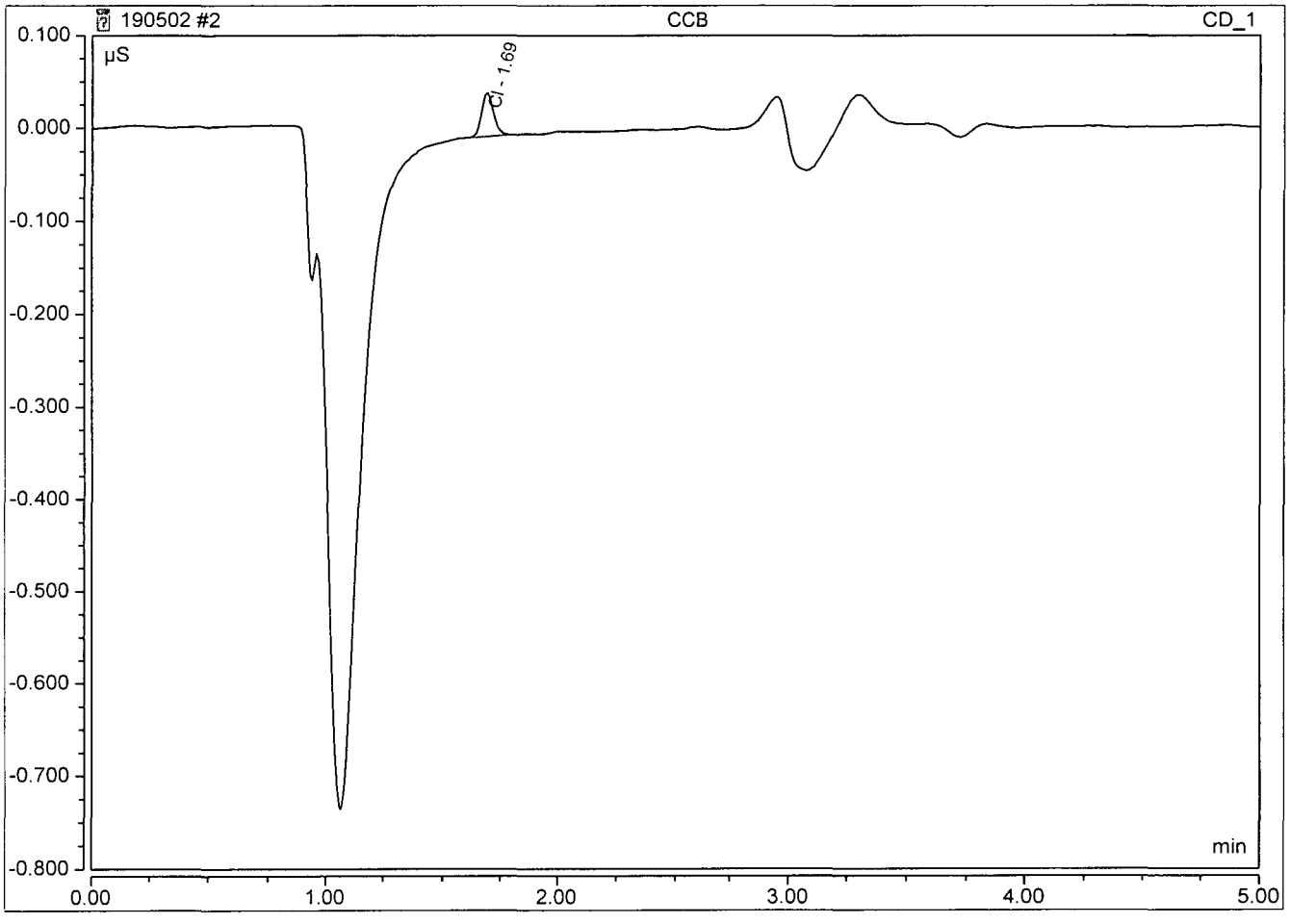


Chromeleon (c) Dionex 1996-2009
Version 7.2.4.8340

Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**02-May-2019 / 14:29**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.69	Cl	BMB	0.003	0.047	0.28		

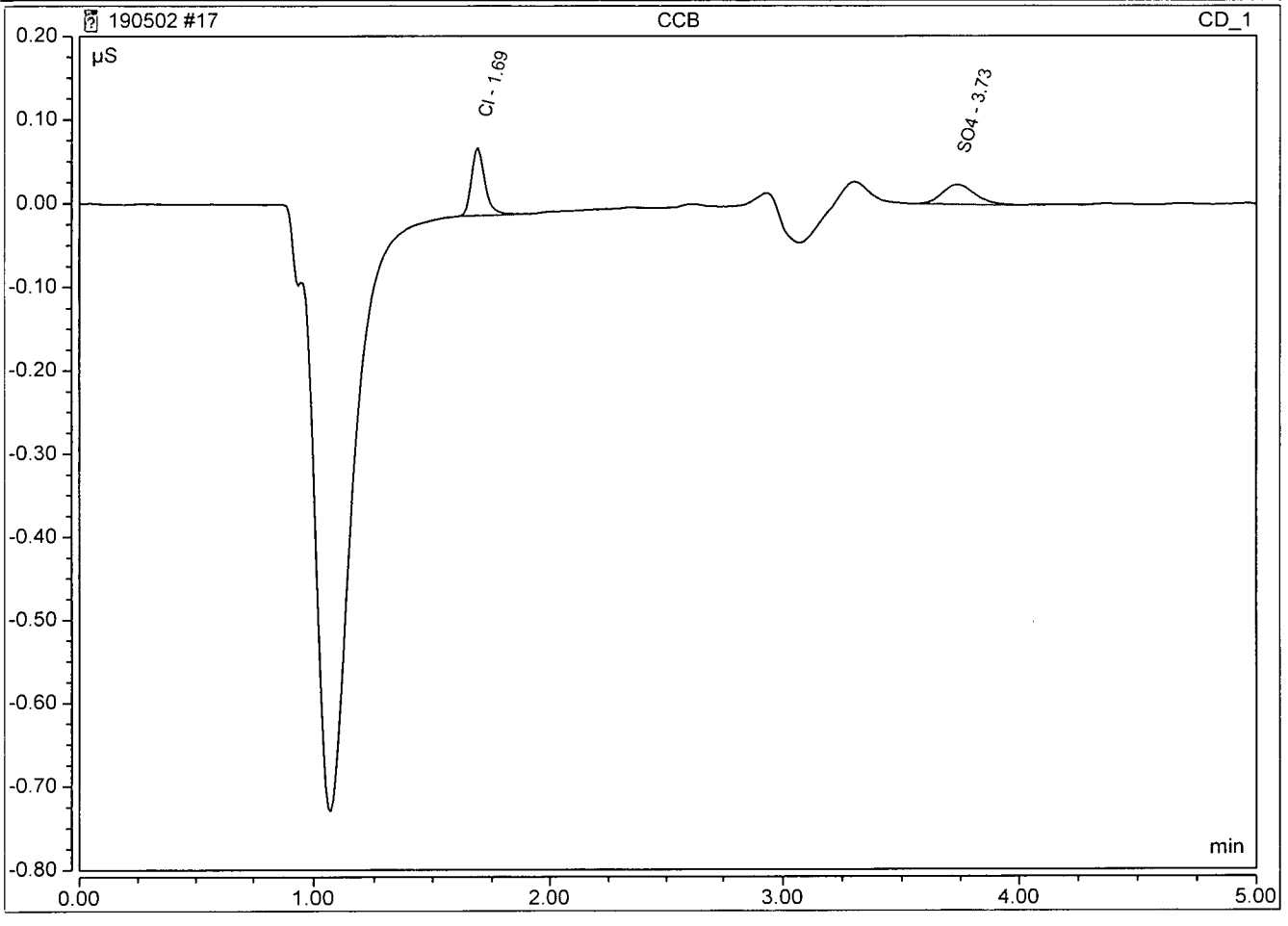


Chromeleon (c) Dionex 1996-2009
Version 7.2.4.8340

Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**02-May-2019 / 16:20**	*Run Time:*	**5.00**

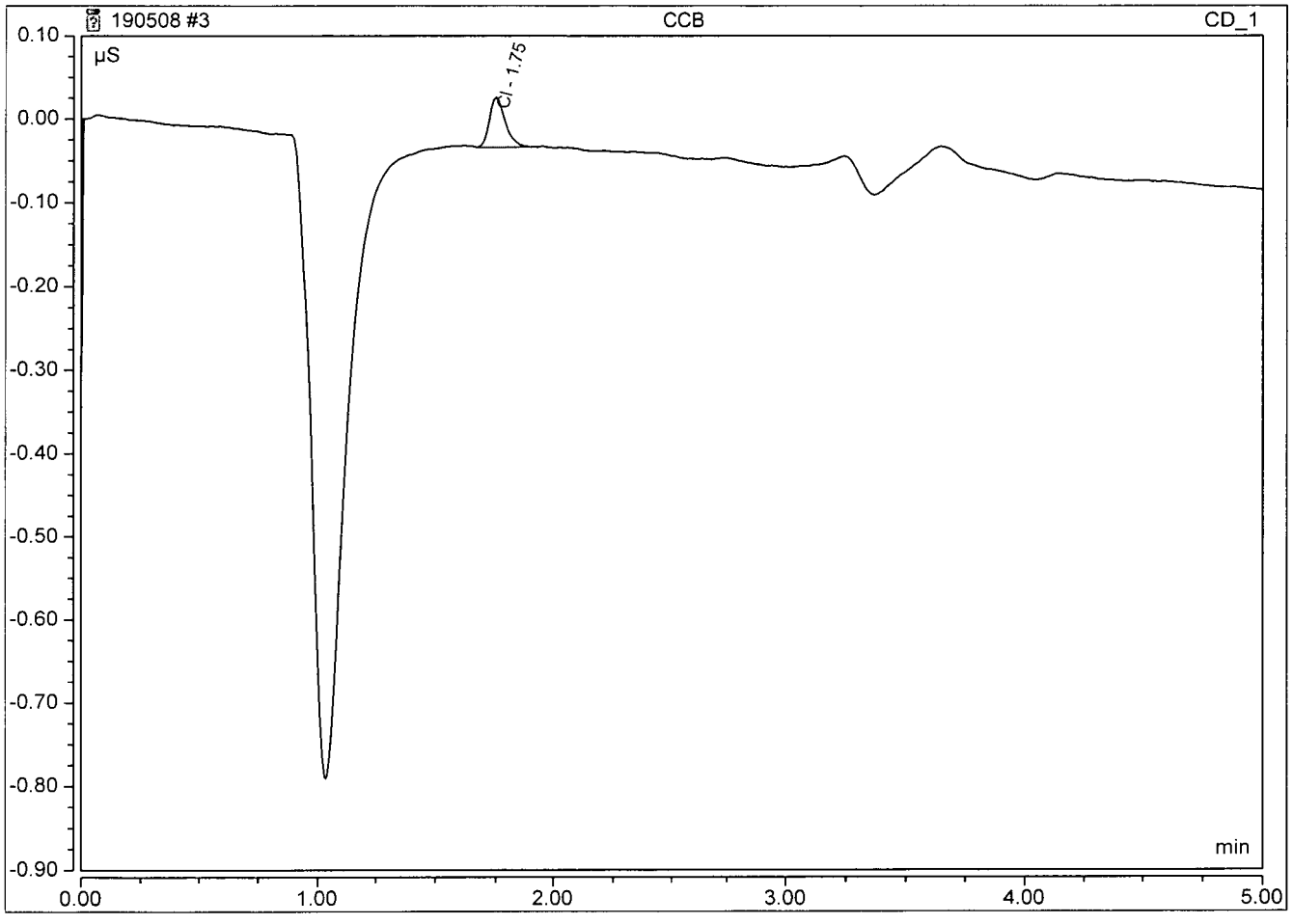
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.69	**Cl**	BMB	0.005	0.081	0.31		
2	3.73	**SO4**	BMB	0.004	0.024	0.22		



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 08:31**	*Run Time:*	**5.00**

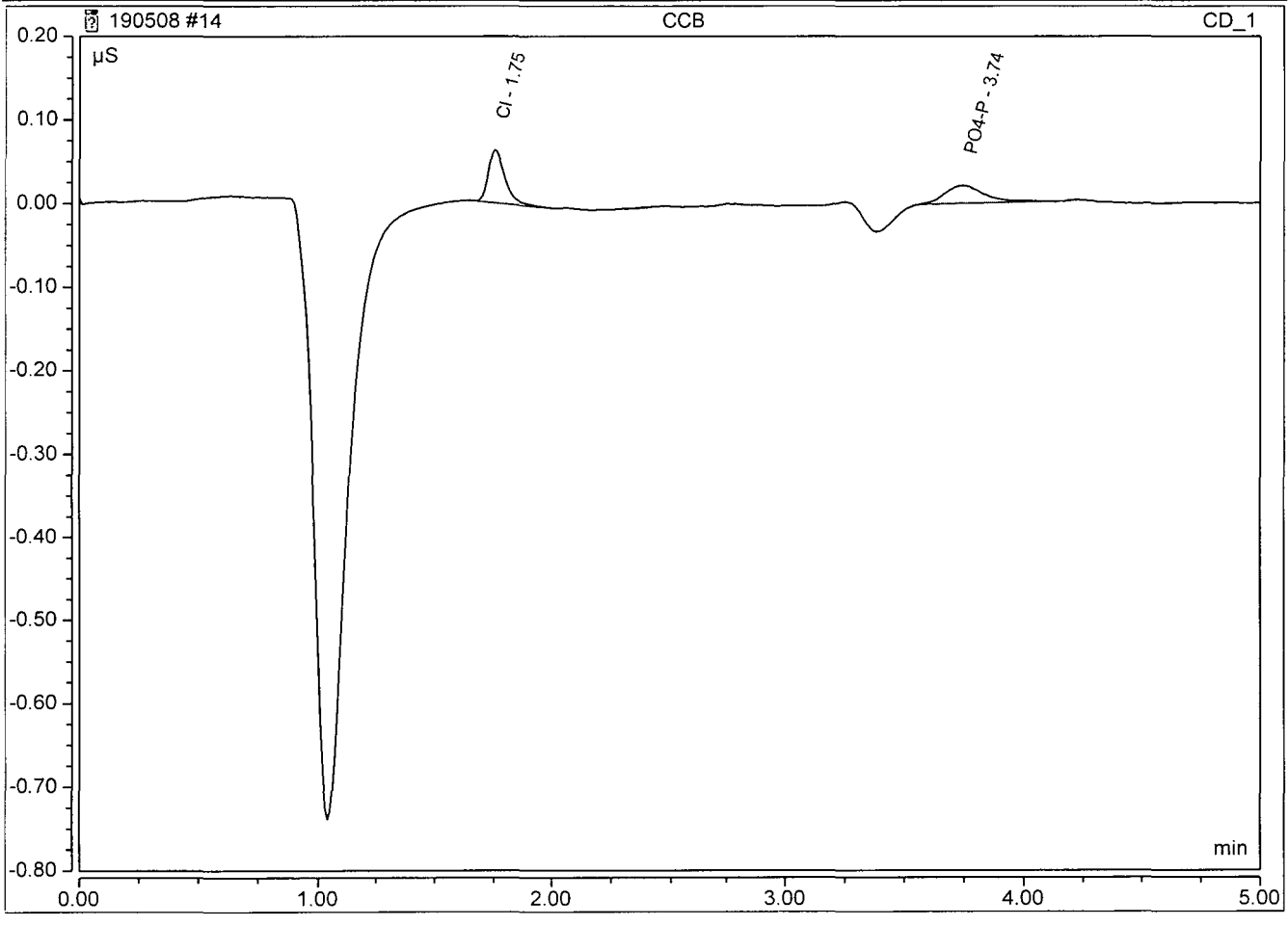
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.75	Cl	BMB	0.005	0.060	0.30		



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 10:15**	*Run Time:*	**5.00**

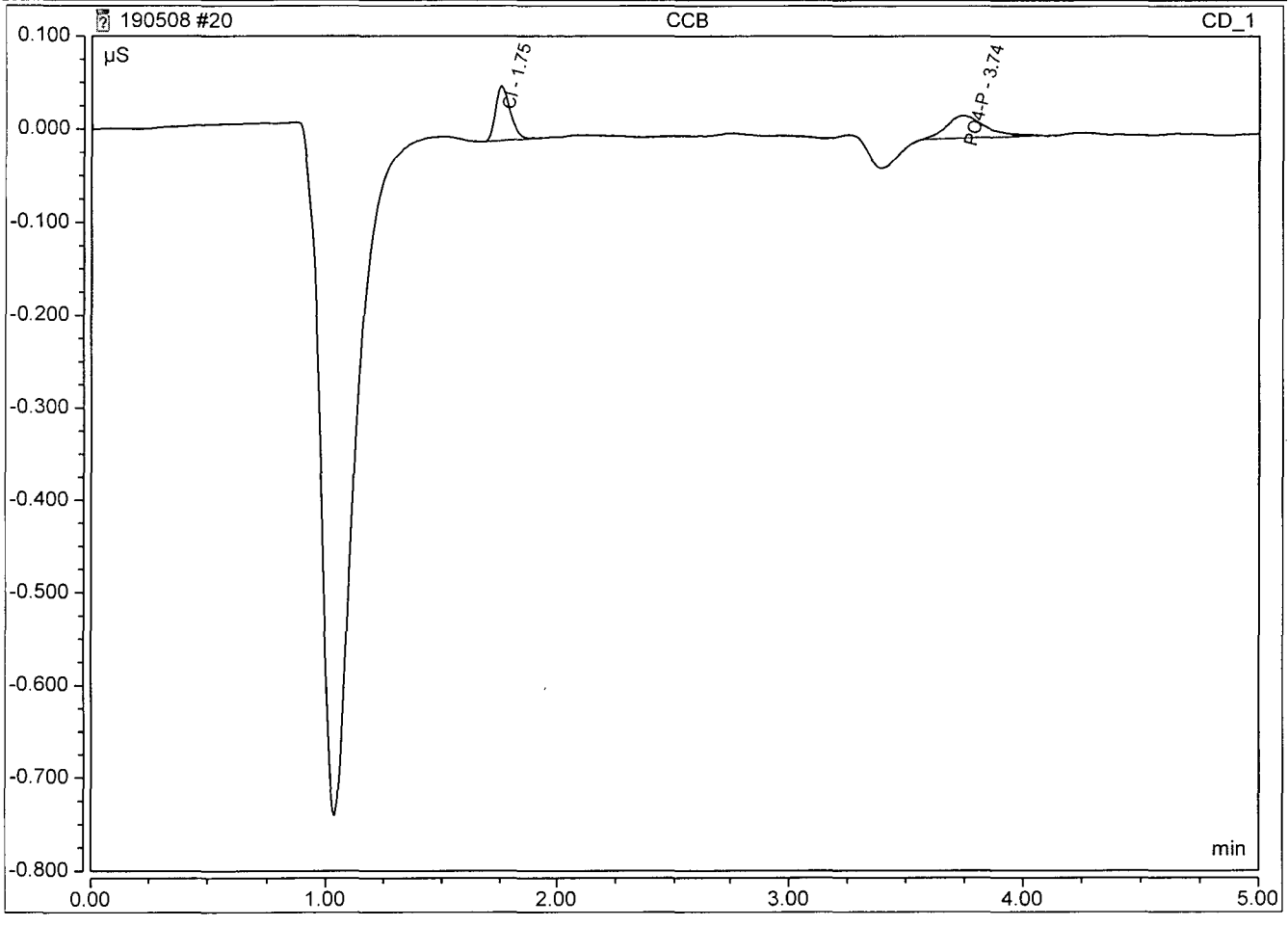
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.75	**Cl**	BMB	0.005	0.063	0.31		
2	3.74	**PO4-P**	BMB	0.004	0.021	0.49		



Peak Integration Report

Sample Name:	**CCB**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 11:00**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.75	**Cl**	BMB	0.004	0.059	0.30		
2	3.74	**PO4-P**	BMB	0.005	0.024	0.49		

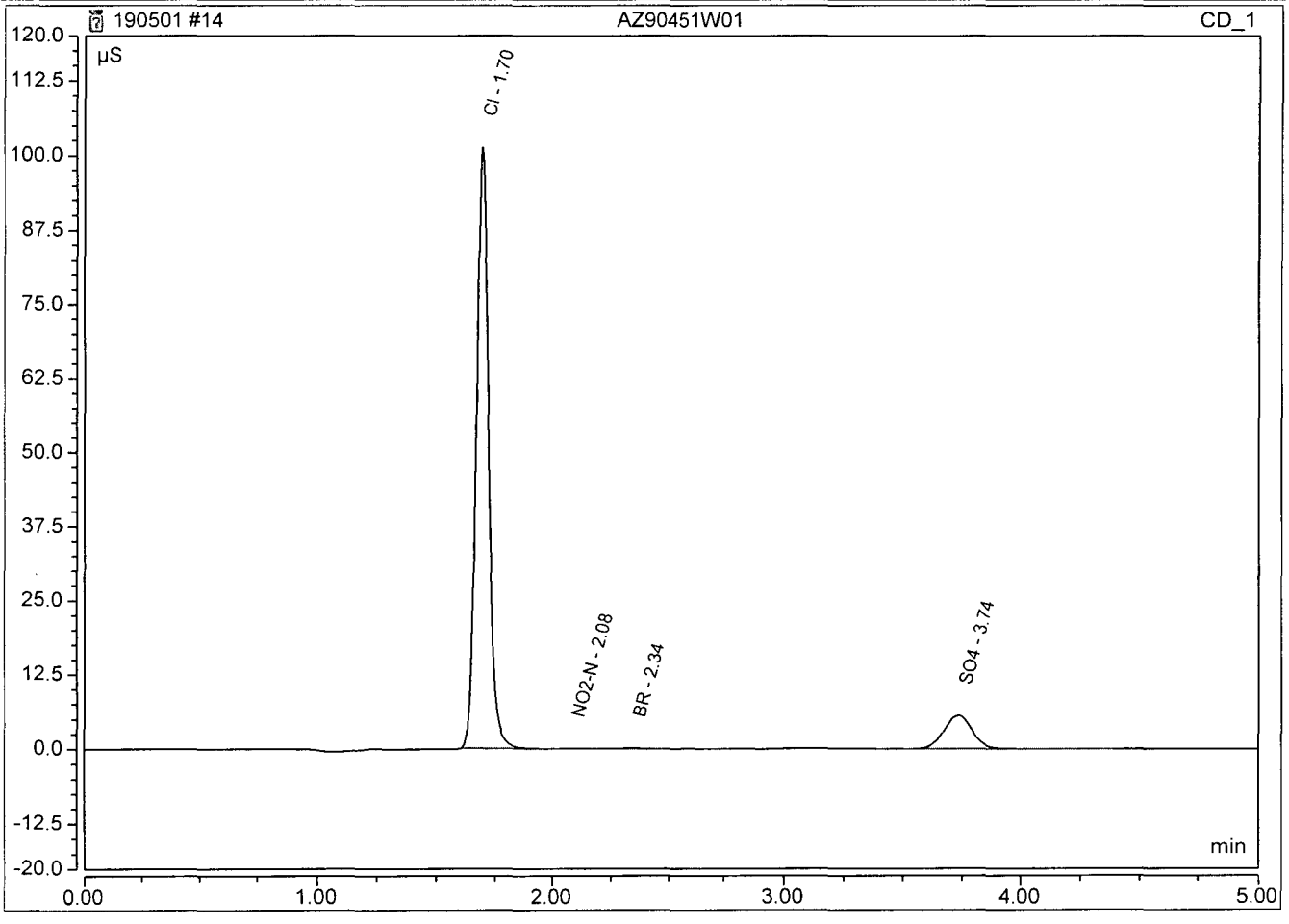


INORGANIC ANALYSIS
Raw Data

Peak Integration Report

Sample Name:	**AZ90451W01**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-May-2019 / 19:57**	*Run Time:*	**5.00**

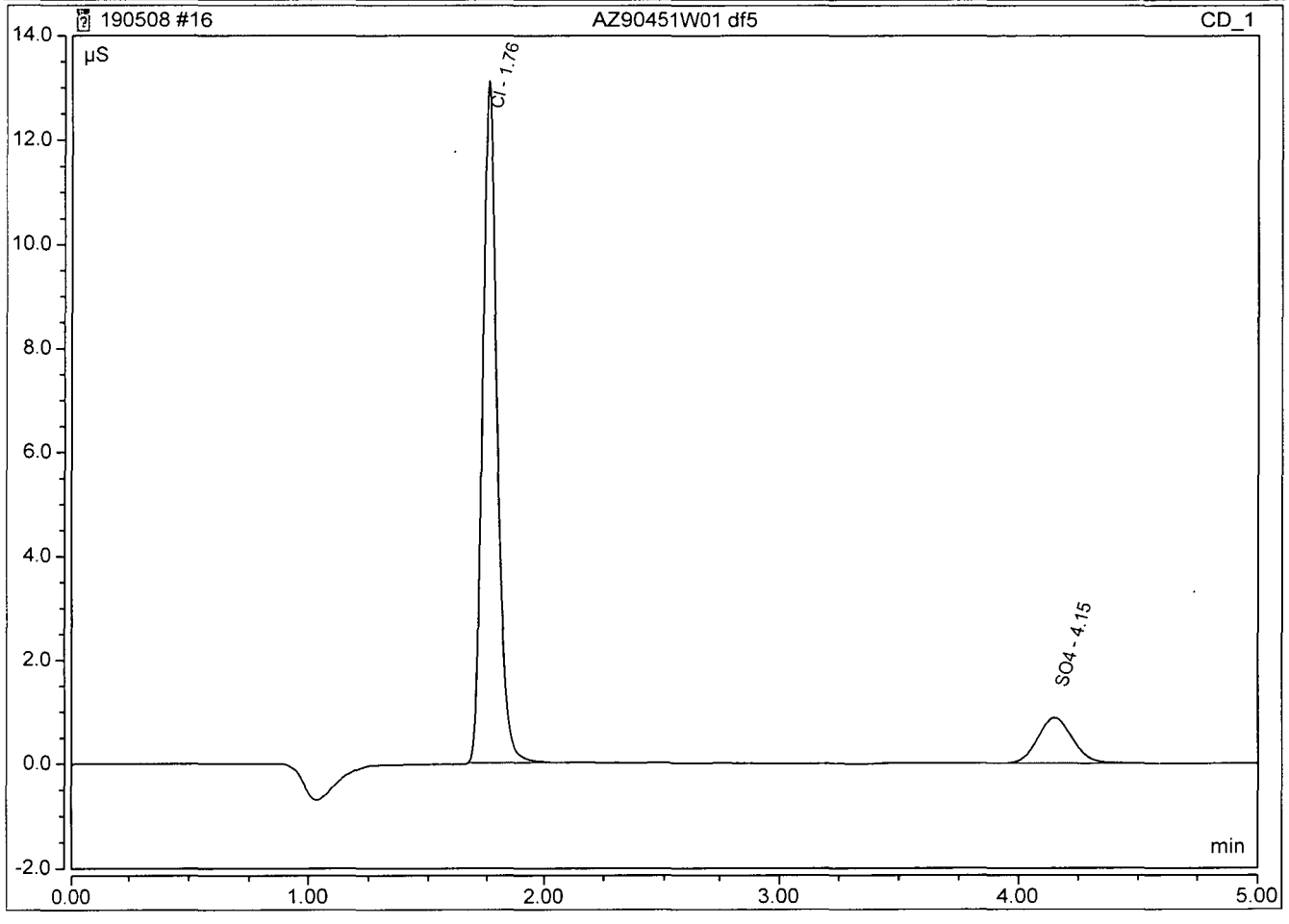
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.70	**Cl**	BMB	6.100	101.181	57.09		
2	2.08	**NO2-N**	BMB	0.005	0.032	0.03		
3	2.34	**BR**	BMB	0.006	0.080	0.23		
4	3.74	**SO4**	BMB	0.767	5.567	11.34		



Peak Integration Report

Sample Name:	**AZ90451W01 df5**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**5.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 10:30**	*Run Time:*	**5.00**

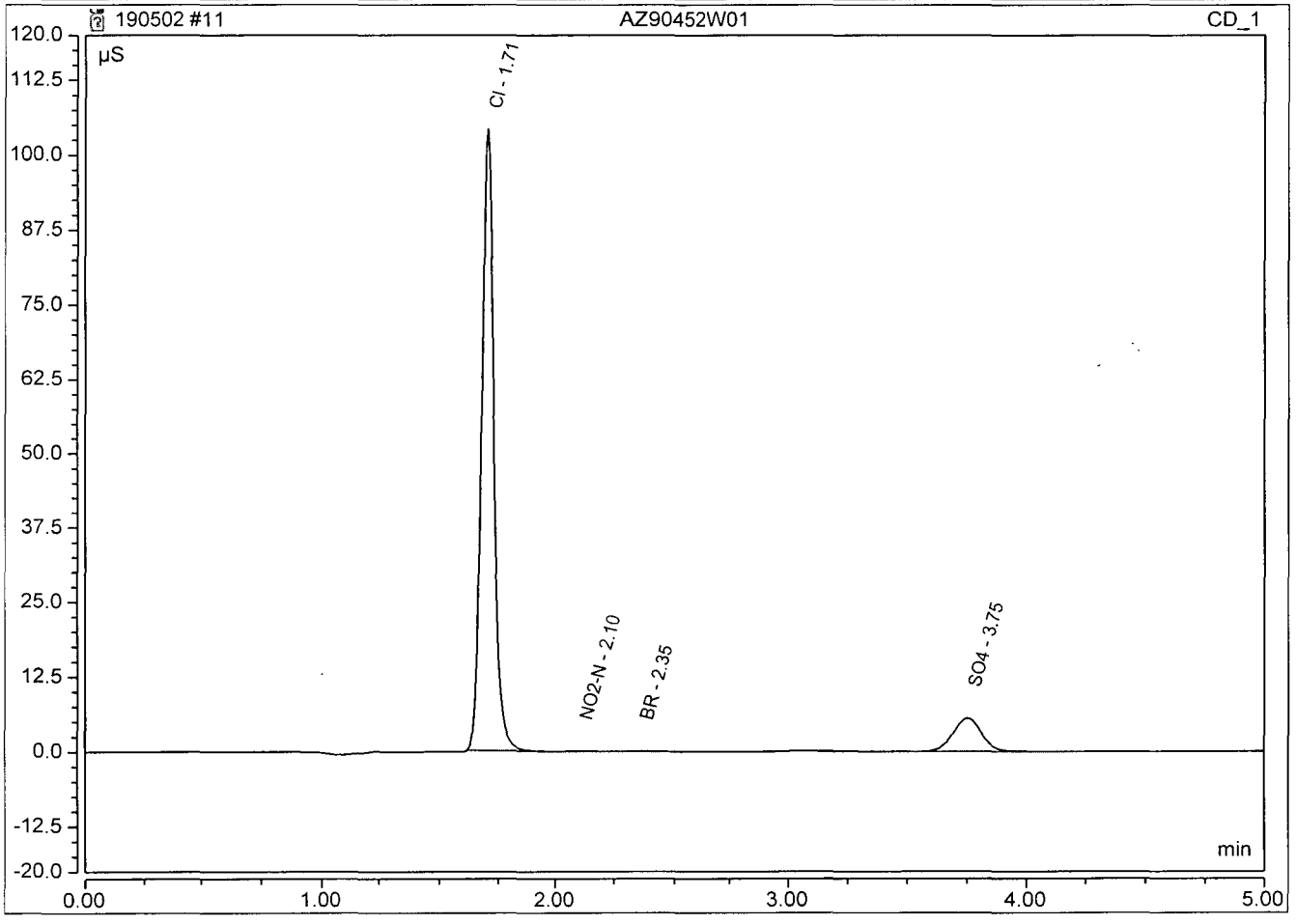
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.76	**Cl**	BMB	0.962	13.107	46.12		
2	4.15	**SO4**	BMB	0.148	0.880	11.59		



Peak Integration Report

Sample Name:	**AZ90452W01**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**02-May-2019 / 15:35**	*Run Time:*	**5.00**

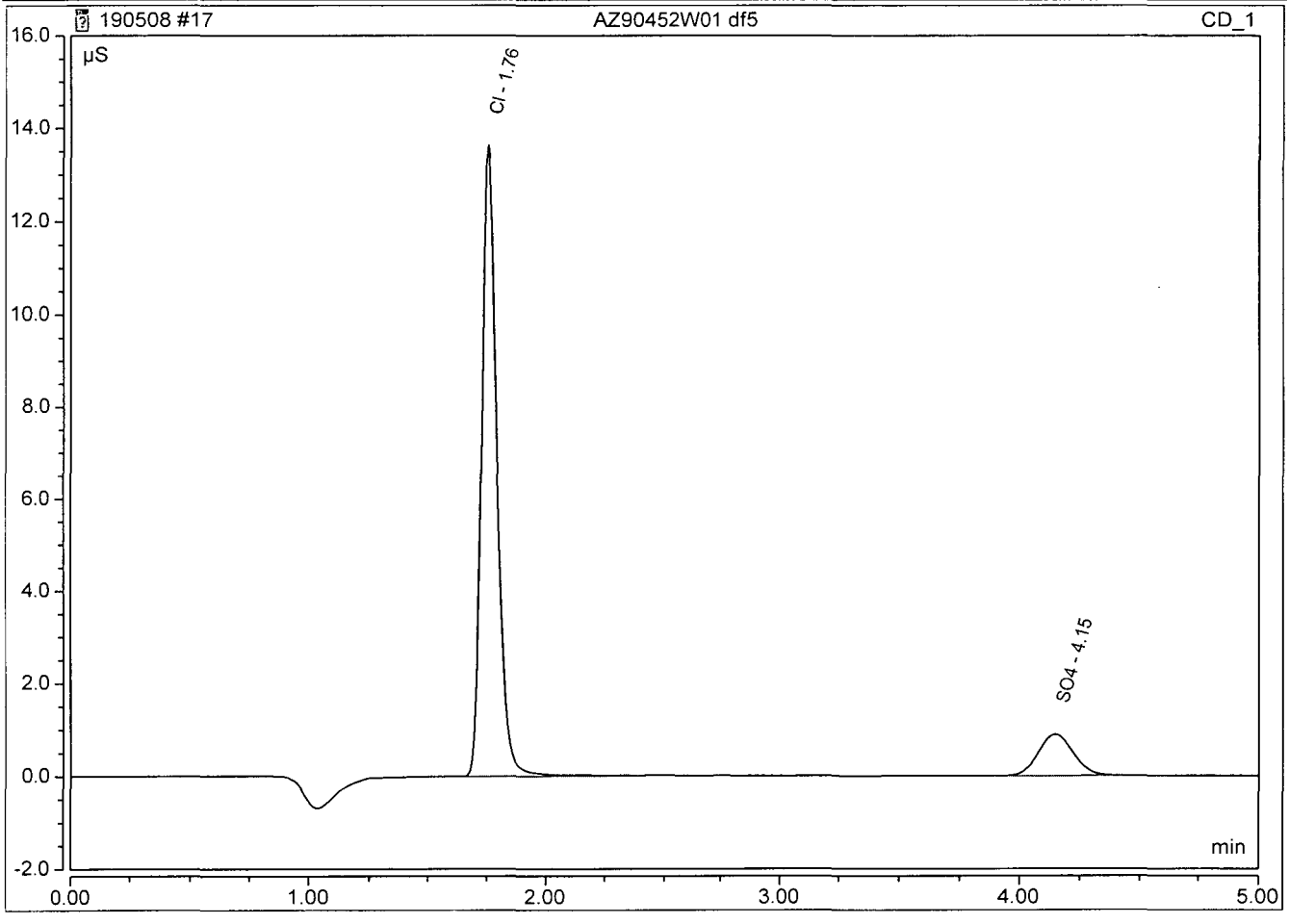
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.71	**Cl**	BMB	6.320	104.142	59.15		
2	2.10	**NO2-N**	BMB	0.005	0.034	0.04		
3	2.35	**BR**	BMB	0.006	0.079	0.22		
4	3.75	**SO4**	BMB	0.769	5.530	11.37		



Peak Integration Report

Sample Name:	**AZ90452W01 df5**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**5.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 10:37**	*Run Time:*	**5.00**

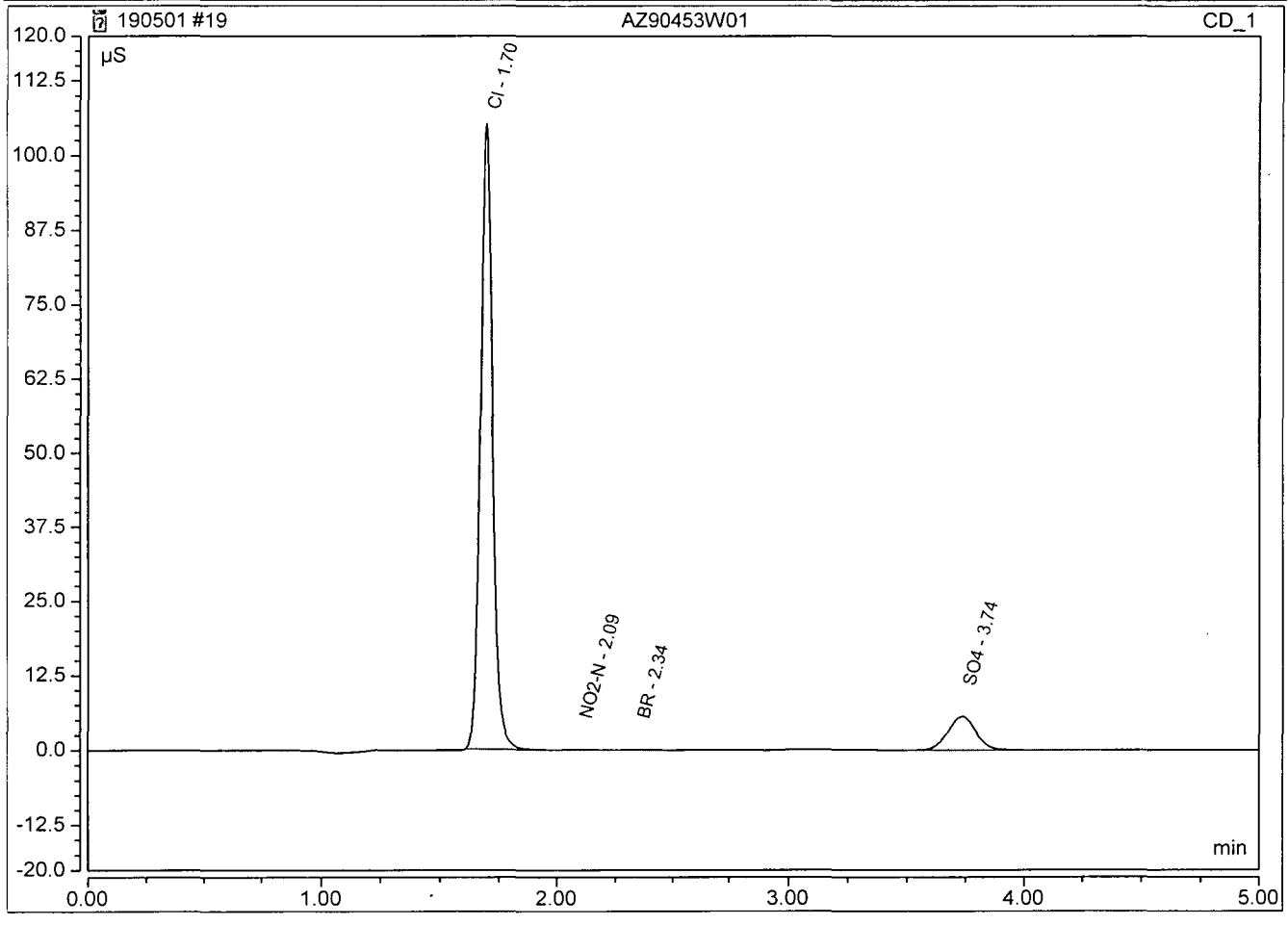
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.76	**Cl**	BMB	1.016	13.631	48.64		
2	4.15	**SO4**	BMB	0.149	0.891	11.71		



Peak Integration Report

Sample Name:	**AZ90453W01**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-May-2019 / 20:34**	*Run Time:*	**5.00**

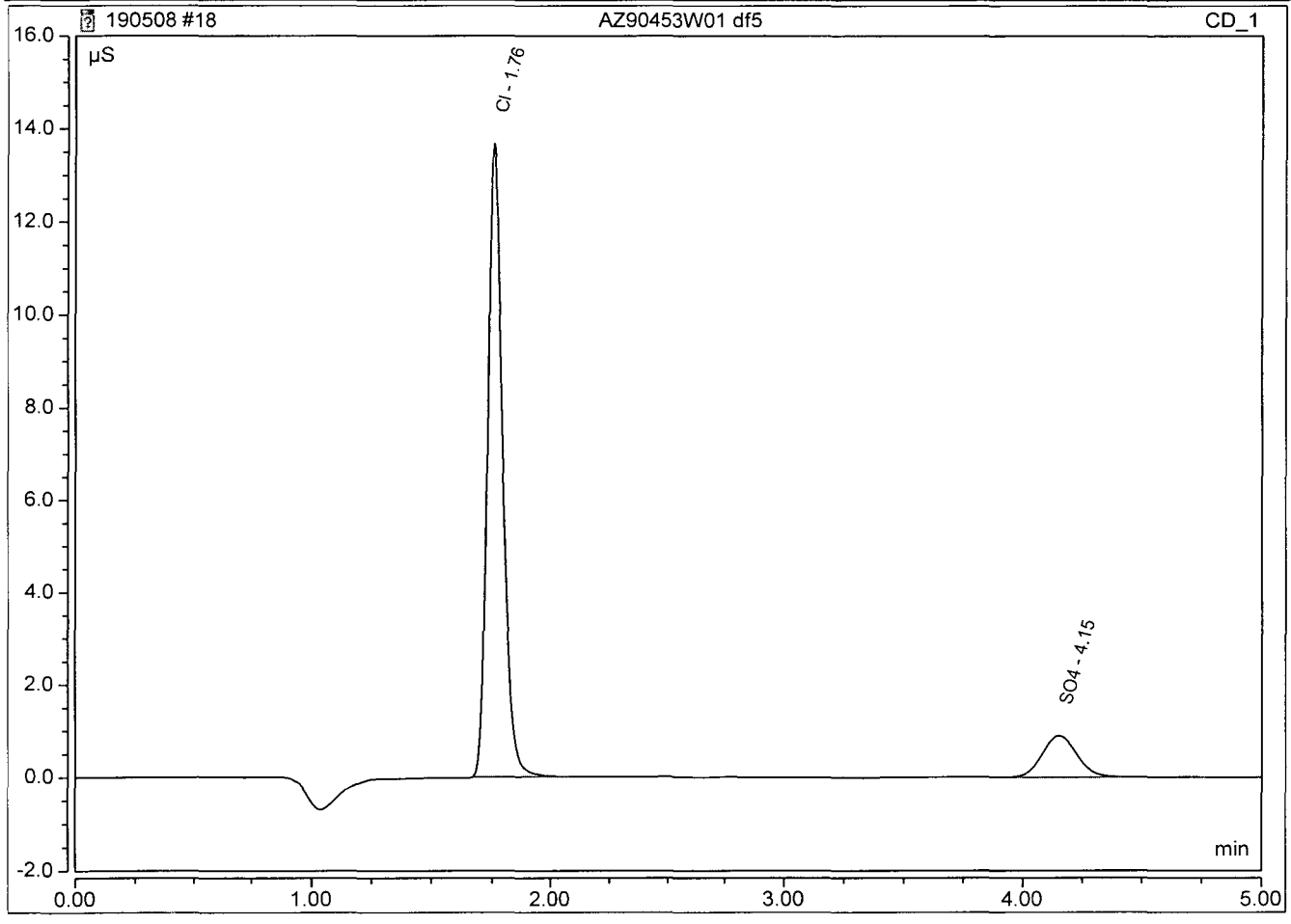
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.70	**Cl**	BMB	6.348	105.121	59.40		
2	2.09	**NO2-N**	BMB	0.005	0.031	0.03		
3	2.34	**BR**	BMB	0.006	0.081	0.23		
4	3.74	**SO4**	BMB	0.770	5.588	11.38		



Peak Integration Report

Sample Name:	**AZ90453W01 df5**	*Inj. Vol.:*	**25uL**
Injection Type:	**Unknown**	*Dilution Factor:*	**5.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 10:45**	*Run Time:*	**5.00**

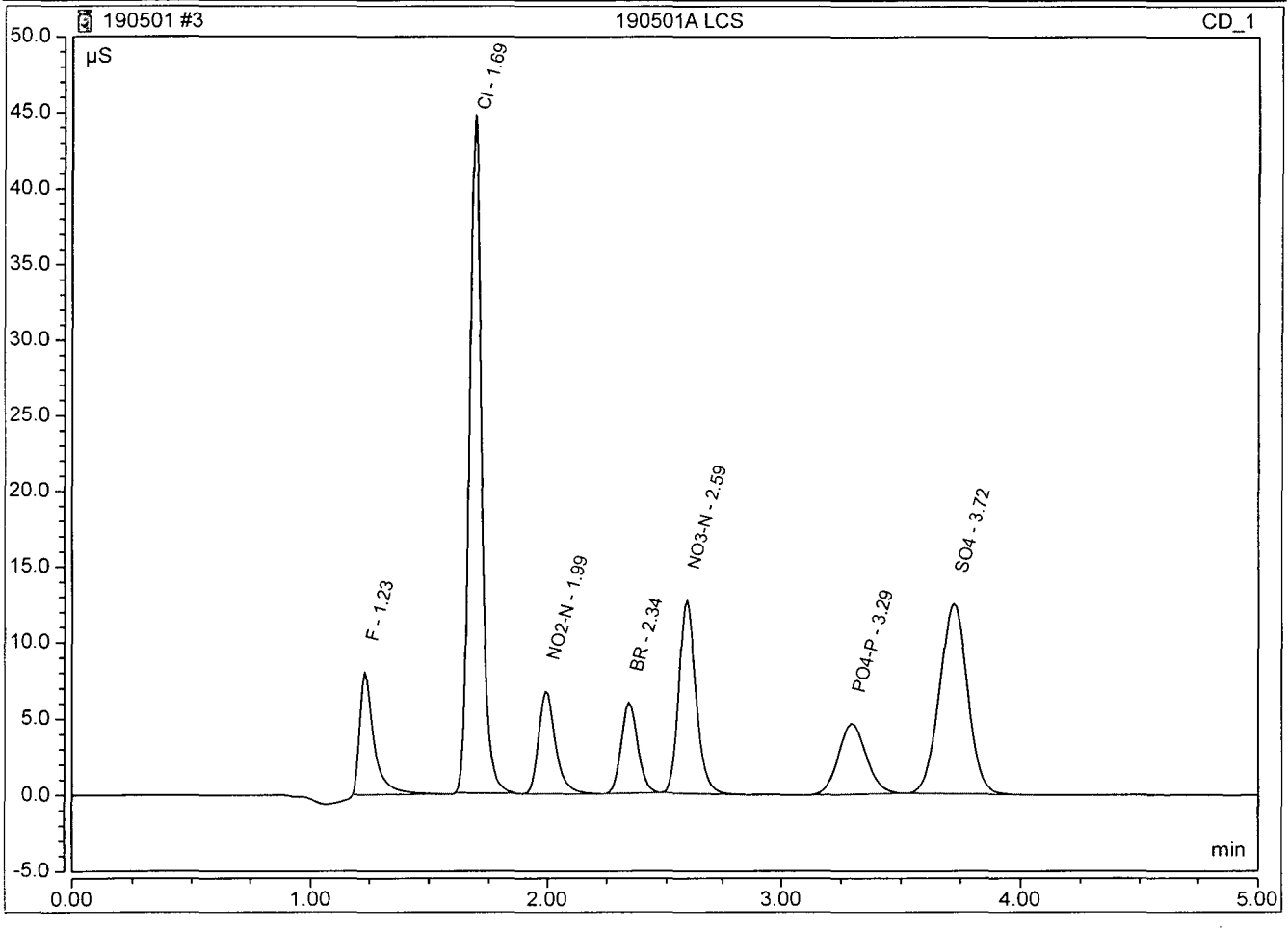
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.76	Cl	BMB	1.008	13.658	48.26		
2	4.15	SO4	BMB	0.151	0.897	11.86		



Peak Integration Report

Sample Name:	**190501A LCS**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-May-2019 / 18:36**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.23	F	BMB	0.575	8.053	4.92	5	98.4%
2	1.69	Cl	BMB	2.637	44.678	24.83	25	99.3%
3	1.99	NO2-N	BMB	0.561	6.717	3.14	3.04	103.4%
4	2.34	BR	BMB	0.469	5.933	13.19	12.5	105.6%
5	2.59	NO3-N	BMB	1.123	12.663	5.09	5	101.9%
6	3.29	PO4-P	BMB	0.632	4.634	8.91	10	89.1%
7	3.72	SO4	BMB	1.700	12.461	24.93	25	99.7%



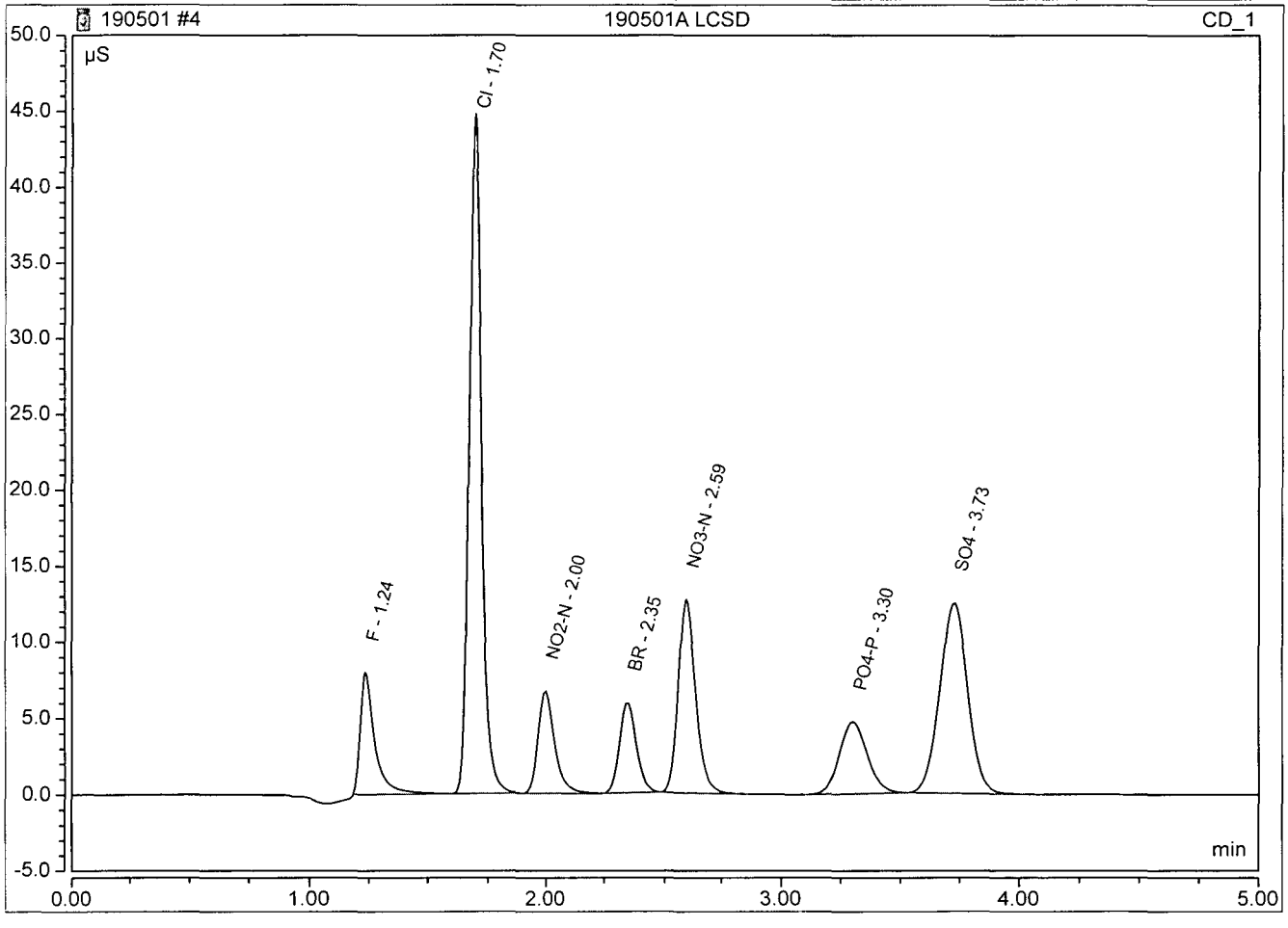
Algortith Check:
y = Peak Area
x = mg/L S04

y = 0.0687 x + -0.0115
y = 1.7004 therefor x = 24.918 HH 190508

Peak Integration Report

Sample Name:	**190501A LCSD**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**01-May-2019 / 18:43**	*Run Time:*	**5.00**

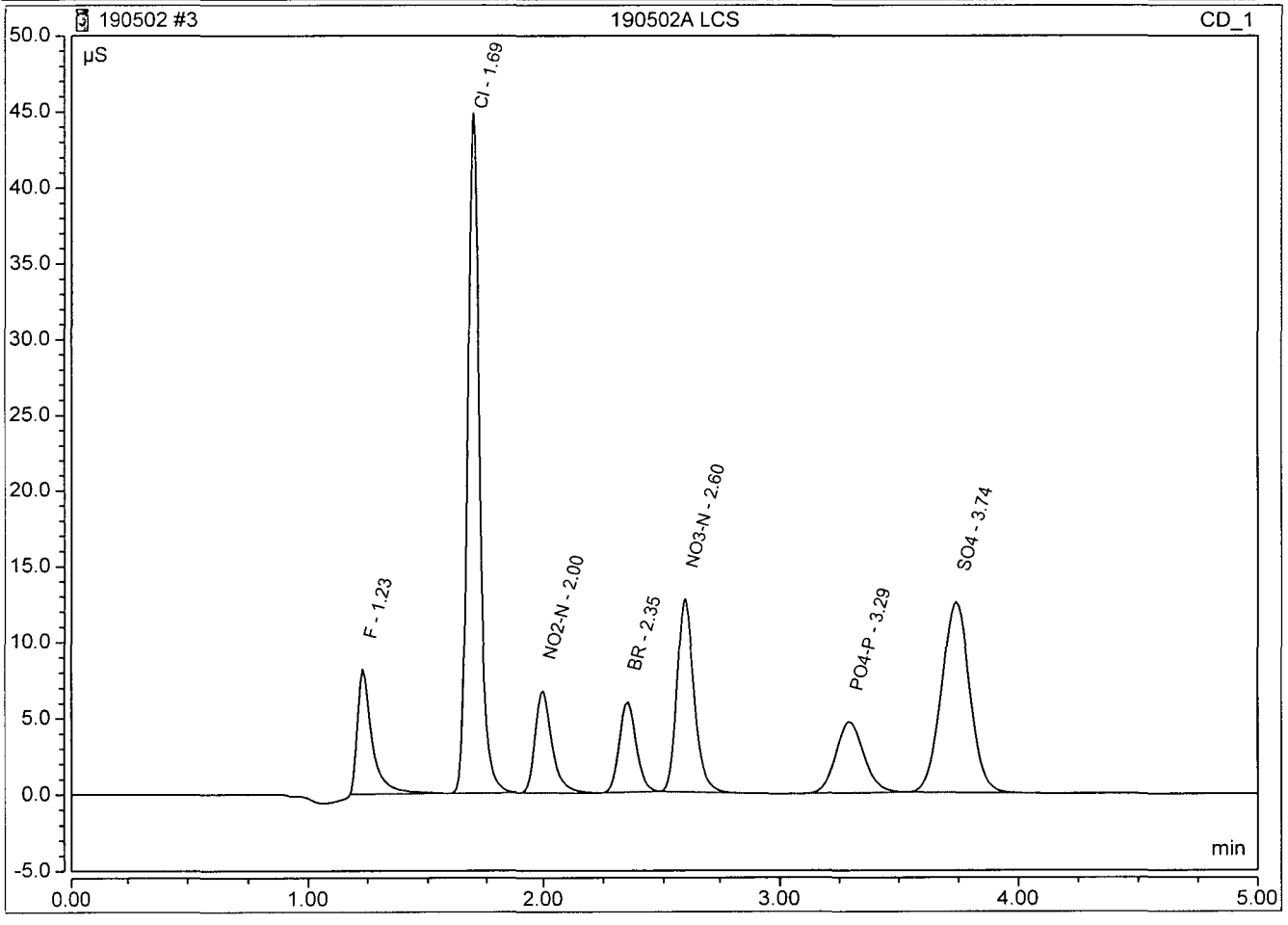
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.24	**F**	BMB	0.575	8.009	4.92	5	98.4%
2	1.70	**Cl**	BMB	2.652	44.744	24.97	25	99.9%
3	2.00	**NO2-N**	BMB	0.561	6.714	3.15	3.04	103.5%
4	2.35	**BR**	BMB	0.470	5.934	13.20	12.5	105.6%
5	2.59	**NO3-N**	BMB	1.125	12.683	5.10	5	102.1%
6	3.30	**PO4-P**	BMB	0.644	4.727	9.07	10	90.7%
7	3.73	**SO4**	BMB	1.700	12.470	24.93	25	99.7%



Peak Integration Report

Sample Name:	**190502A LCS**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**02-May-2019 / 14:36**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.23	F	BMB	0.587	8.189	5.02	5	100.4%
2	1.69	Cl	BMB	2.667	44.814	25.11	25	100.4%
3	2.00	NO2-N	BMB	0.564	6.699	3.16	3.04	104.1%
4	2.35	BR	BMB	0.471	5.941	13.24	12.5	105.9%
5	2.60	NO3-N	BMB	1.128	12.665	5.12	5	102.4%
6	3.29	PO4-P	BMB	0.640	4.663	9.02	10	90.2%
7	3.74	SO4	BMB	1.714	12.498	25.13	25	100.5%



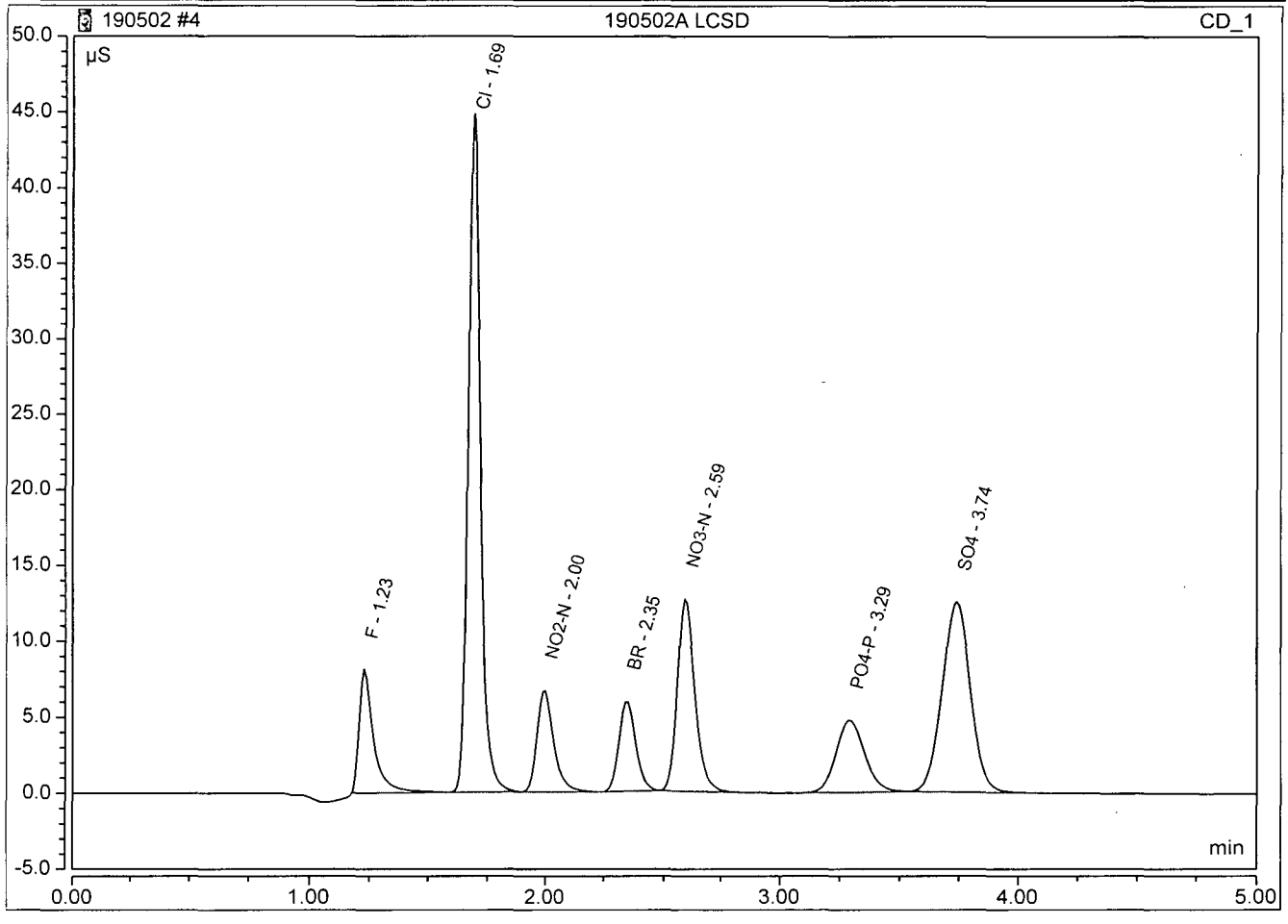
Algortith Check:
y = Peak Area
x = mg/L S04

y = 0.0687 x + -0.0115
y = 1.7141 therefor x = 25.12 190502 TH

Peak Integration Report

Sample Name:	**190502A LCSD**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**chemist_wetlab**
Inj. Date / Time:	**02-May-2019 / 14:43**	*Run Time:*	**5.00**

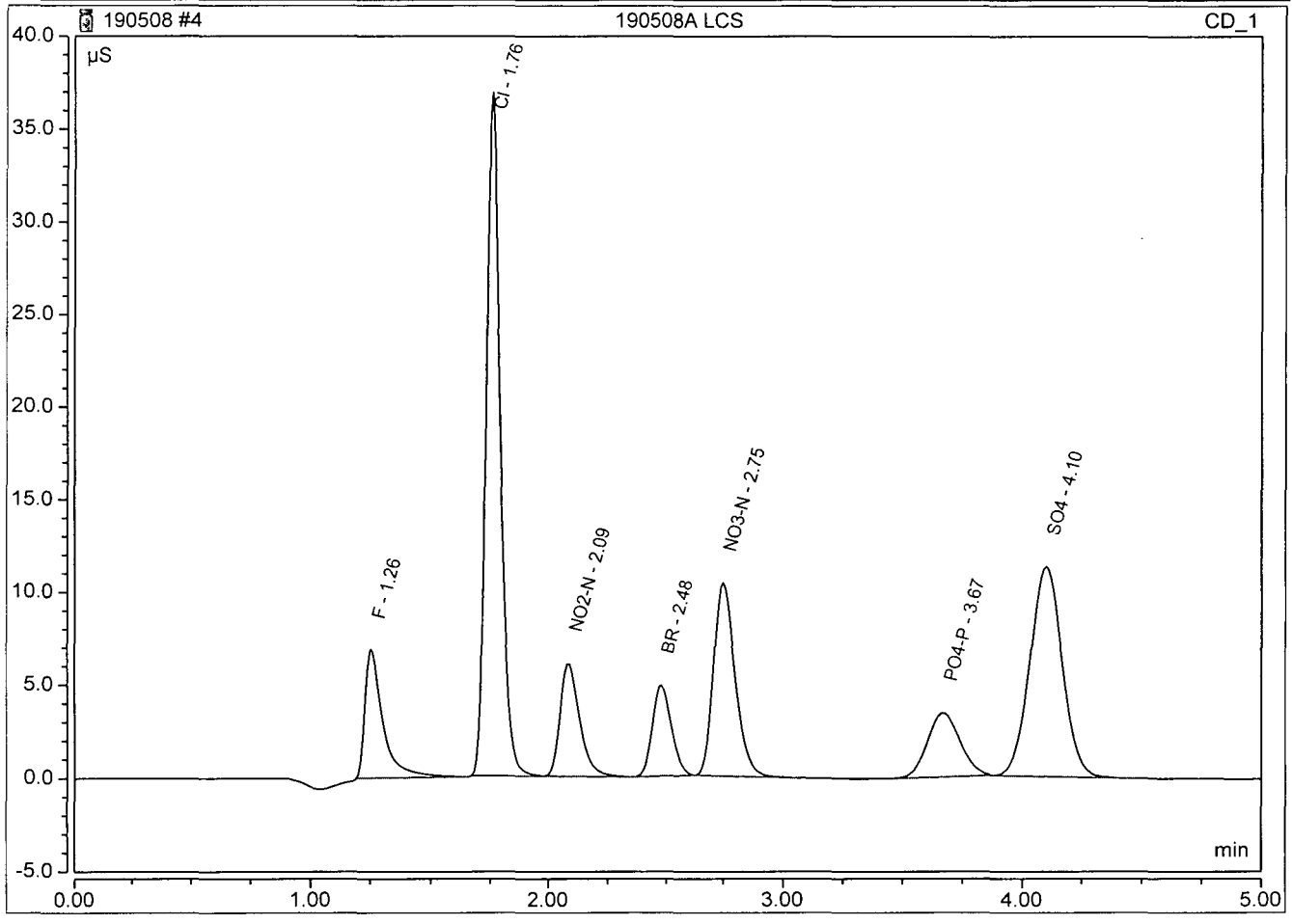
No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.23	**F**	BMB	0.585	8.149	5.00	5	100.1%
2	1.69	**Cl**	BMB	2.667	44.787	25.11	25	100.4%
3	2.00	**NO2-N**	BMB	0.564	6.699	3.16	3.04	104.0%
4	2.35	**BR**	BMB	0.471	5.942	13.23	12.5	105.9%
5	2.59	**NO3-N**	BMB	1.131	12.684	5.13	5	102.6%
6	3.29	**PO4-P**	BMB	0.653	4.758	9.19	10	91.9%
7	3.74	**SO4**	BMB	1.719	12.512	25.21	25	100.8%



Peak Integration Report

Sample Name:	**190508A LCS**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 08:38**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.26	F	BMB	0.594	6.880	5.08	5	101.5%
2	1.76	Cl	BMB	2.589	36.827	24.38	25	97.5%
3	2.09	NO2-N	BMB	0.574	6.064	3.22	3.04	105.9%
4	2.48	BR	BMB	0.466	4.890	13.09	12.5	104.7%
5	2.75	NO3-N	BMB	1.112	10.385	5.04	5	100.9%
6	3.67	PO4-P	BMB	0.539	3.433	7.66	10	76.6%
7	4.10	SO4	BMB	1.777	11.279	26.05	25	104.2%



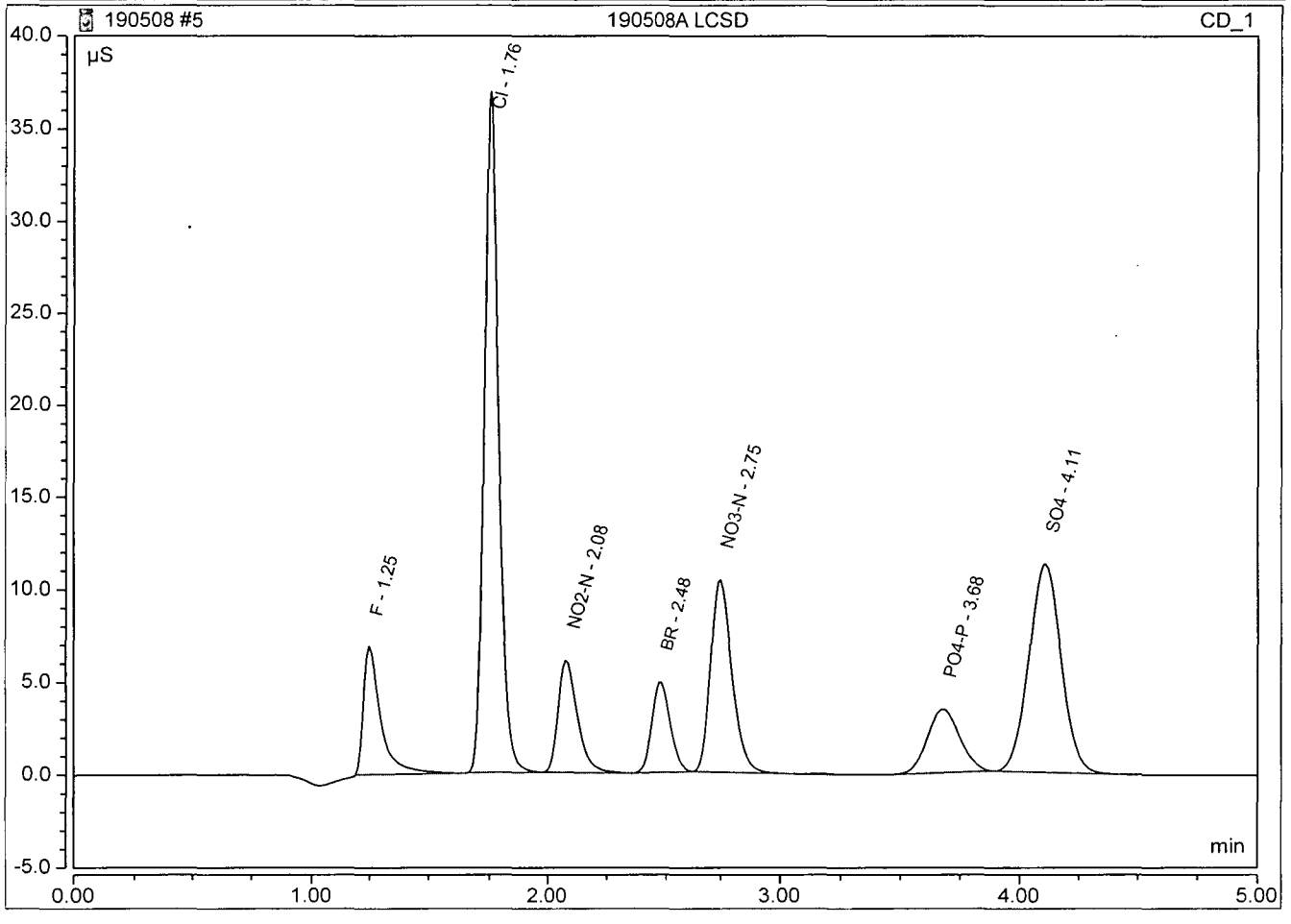
Algortith Check:
y = Peak Area
x = mg/L S04

y = 0.0687 x + -0.0115
y = 1.7769 therefor x = 26.03 HH 190508

Peak Integration Report

Sample Name:	**190508A LCSD**	*Inj. Vol.:*	**25uL**
Injection Type:	**Check Standard**	*Dilution Factor:*	**1.00**
Program:	**Anion APM 190401A**	*Operator:*	**Instrument Controller**
Inj. Date / Time:	**08-May-2019 / 08:45**	*Run Time:*	**5.00**

No.	Time (min) min	Peak Name	Peak Type	Area (µS*min) µS*min	Height (µS) µS	Amount mg/L	Spike Level mg/L	Recovery
1	1.25	F	BMB	0.601	6.893	5.13	5	102.7%
2	1.76	Cl	BMB	2.594	36.850	24.42	25	97.7%
3	2.08	NO2-N	BMB	0.576	6.067	3.23	3.04	106.1%
4	2.48	BR	BMB	0.466	4.890	13.11	12.5	104.9%
5	2.75	NO3-N	BMB	1.115	10.401	5.06	5	101.1%
6	3.68	PO4-P	BMB	0.539	3.430	7.67	10	76.7%
7	4.11	SO4	BMB	1.775	11.274	26.02	25	104.1%



Anion Chromatography Working Standard

Prep Date: 04/01/19
Exp Date: 04/02/19
Prep'd By (Initials): TH

Initial Standard Information						Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date	Aliquot from Stock	Final Volume	Solvent	Final Standard Conc (µg/mL)
Ion Chromatography Standard Fluoride 1000µg/mL in H2O	o2si	O2SI-062002-01-01	1000	142626-24-38407	04/20/19	312.5 µL	25 mL	Millipore Water	12.5
Ion Chromatography Standard Nitrite as N 1000 ug/mL in H2O	o2si	O2SI-062004-01-01	1000	142626-24-38408	04/20/19	125 µL	25 mL	Millipore Water	5
Ion Chromatography Standard Chloride, 500mL 5,000 mg/L in H2O	o2si	062001-08-03	5000	10084781-1-39578	02/21/20	250 µL	25 mL	Millipore Water	50
Ortho-Phosphate as P Standard	Ultra Scientific	ICC-005A	1000	G34-CP-3323-39057	08/31/23	625 µL	25 mL	Millipore Water	25
Ion Chromatography Standard Nitrate as N, 500mL 1,000 mg/L in H2O	o2si	062003-01-03	1000	880117-4-39577	02/21/20	250 µL	25 mL	Millipore Water	10
Bromide Standard	Ultra Scientific	ICC-001	1000	CR-5372-39521	12/31/21	625 µL	25 mL	Millipore Water	25
Sulfate Standard	Agilent	ICC-006	1000	CS-0688-40047	03/31/22	1250 µL	25 mL	Millipore Water	50

Anion Chromatography Calibration Curve

Prep Date: 04/01/19
Exp Date: 04/02/19
Prep'd By (Initials): TH

Initial Standard Information						Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	APPL Mix Name	Conc. Range (ug/mL)	Reference To APPL Prep Date	Exp. Date	Aliquot from Stock	Final Volume	Solvent	Final Conc Range (µg/mL)
Ical2	Varries	ICal1	5.0-50.0	Prepared 04/01/19	04/02/19	400 µL	1000 µL	Millipore Water	0.08-0.40
Anion Chromatography Working Standard	Varries	ICal2	5.0-50.0	Prepared 04/01/19	04/02/19	20 µL	1000 µL	Millipore Water	0.1-1.0
Anion Chromatography Working Standard	Varries	ICal3	5.0-50.0	Prepared 04/01/19	04/02/19	50 µL	1000 µL	Millipore Water	0.25-2.5
Anion Chromatography Working Standard	Varries	ICal4	5.0-50.0	Prepared 04/01/19	04/02/19	100 µL	1000 µL	Millipore Water	0.5-5.0
Anion Chromatography Working Standard	Varries	ICal5	5.0-50.0	Prepared 04/01/19	04/02/19	200 µL	1000 µL	Millipore Water	1.0-10.0
Anion Chromatography Working Standard	Varries	ICal6	5.0-50.0	Prepared 04/01/19	04/02/19	500 µL	1000 µL	Millipore Water	2.5-25.0
Anion Chromatography Working Standard	Varries	ICal7	5.0-50.0	Prepared 04/01/19	04/02/19	700 µL	1000 µL	Millipore Water	3.5-35.0
Anion Chromatography Working Standard	Varries	ICal8	5.0-50.0	Prepared 04/01/19	04/02/19	1000 µL	1000 µL	Millipore Water	5.0-50.0

Anion Chromatography LCS/ICV

Prep Date: See injection Log
Exp Date: 24 hours after prep
Prep'd By (Initials): TH

Initial Standard Information						Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. Range (ug/mL)	Lot Number - QA Number	Exp. Date	Aliquot from Stock	Final Volume	Solvent	Final Standard Conc (µg/mL)
Flouride	Inorganic Ventures	ICF1	993-999	K-F652018-39801	10/23/19	62.5 µL	25 mL	Millipore Water	5
Nitrite	Inorganic Ventures	ICNO21	993-1001	M2-NOX660562-39802	10/23/19	250 µL	25 mL	Millipore Water	3.04
Chloride	Inorganic Ventures	ICCL1	995-1001	N2CL664868-39904	11/26/19	500 µL	25 mL	Millipore Water	20
O-Phosphate as P	Inorganic Ventures	IPPO41	1001-1009	M2-POX655826-39803	10/23/19	125 µL	25 mL	Millipore Water	10
Nitrate as N	Inorganic Ventures	ICNNO31	994-1002	N2-NOX667147-39510	10/23/19	125 µL	25 mL	Millipore Water	5
Ion Chromatography Bromide Standard	CPI International	4400-IC8M	1000	161681-8-39539	02/06/20	312.5 µL	25 mL	Millipore Water	12.5
Sulfate	Inorganic Ventures	ICSO41	998-1006	K2-SOX01111-38875	08/13/19	500 µL	25 mL	Millipore Water	20

Anion Chromatography CCV

Prep Date: See injection Log
Exp Date: 24 hours after prep
Prep'd By (Initials): TH

Initial Standard Information						Final Standard Information			
Name of Initial Standard (QAU Label)	Supplier	Supplier Part No.	Conc. (ug/mL)	Lot Number - QA Number	Exp. Date	Aliquot from Stock	Final Volume	Solvent	Final Standard Conc (µg/mL)
Ion Chromatography Standard Fluoride 1000µg/mL in H2O	o2si	O2SI-062002-01-01	1000	142626-24-38407	04/20/19	125 µL	25 mL	Millipore Water	5
Ion Chromatography Standard Nitrite as N 1000 ug/mL in H2O	o2si	O2SI-062004-01-01	1000	142626-24-38408	04/20/19	62.5 µL	25 mL	Millipore Water	2.5
Ion Chromatography Standard Chloride, 500mL 5,000 mg/L in H2O	o2si	062001-08-03	5000	10084781-1-39578	02/21/20	125 µL	25 mL	Millipore Water	25
Ortho-Phosphate as P Standard	Ultra Scientific	ICC-005A	1000	G34-CP-3323-39057	08/31/23	250 µL	25 mL	Millipore Water	10
Ion Chromatography Standard Nitrate as N, 500mL 1,000 mg/L in H2O	o2si	062003-01-03	1000	880117-4-39577	02/21/20	125 µL	25 mL	Millipore Water	5
Bromide Standard	Ultra Scientific	ICC-001	1000	CR-5372-39521	12/31/21	312.5 µL	25 mL	Millipore Water	12.5
Sulfate Standard	Agilent	ICC-006	1000	CS-0688-40047	03/31/22	625 µL	25 mL	Millipore Water	25

EPA 300.0 Injection Log

Directory: I:\Dionex\Charlie\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
1	01 Apr 2019	18:27	CCB		Anions	1.
2	01 Apr 2019	18:34	i cal 1		Anions	1.
3	01 Apr 2019	18:42	i cal 2		Anions	1.
4	01 Apr 2019	18:49	i cal 3		Anions	1.
5	01 Apr 2019	18:56	i cal 4		Anions	1.
6	01 Apr 2019	19:04	i cal 5		Anions	1.
7	01 Apr 2019	19:11	i cal 6		Anions	1.
8	01 Apr 2019	19:19	i cal 7		Anions	1.
9	01 Apr 2019	19:26	i cal 8		Anions	1.
10	01 Apr 2019	19:33	ICB		Anions	1.
11	01 Apr 2019	19:41	ICV LCS		Anions	1.
12	01 Apr 2019	19:48	ICVD LCSD		Anions	1.

EPA 300.0 Injection Log

Directory: I:\Dionex\Charlie\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
1	01 May 2019	18:21	CCV 190501		Anions	1.
2	01 May 2019	18:29	CCB		Anions	1.
3	01 May 2019	18:36	190501A LCS		Anions	1.
4	01 May 2019	18:43	190501A LCSD		Anions	1.
14	01 May 2019	19:57	AZ90451W01		Anions	1.
16	01 May 2019	20:12	CCV 190501		Anions	1.
17	01 May 2019	20:19	CCB		Anions	1.
19	01 May 2019	20:34	AZ90453W01		Anions	1.
27	01 May 2019	21:33	CCV 190501		Anions	1.
28	01 May 2019	21:41	CCB		Anions	1.

EPA 300.0 Injection Log

Directory: I:\Dionex\Charlie\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
38	02 May 2019	14:21	CCV 190502		Anions	1.
39	02 May 2019	14:29	CCB		Anions	1.
40	02 May 2019	14:36	190502A LCS		Anions	1.
41	02 May 2019	14:43	190502A LCSD		Anions	1.
48	02 May 2019	15:35	AZ90452W01		Anions	1.
53	02 May 2019	16:12	CCV 190502		Anions	1.
54	02 May 2019	16:20	CCB		Anions	1.

EPA 300.0 Injection Log

Directory: I:\Dionex\Charlie\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
2	08 May 2019	08:23	CCV 190508		Anions	1.
3	08 May 2019	08:31	CCB		Anions	1.
4	08 May 2019	08:38	190508A LCS		Anions	1.
5	08 May 2019	08:45	190508A LCSD		Anions	1.
13	08 May 2019	10:08	CCV 190508		Anions	1.
14	08 May 2019	10:15	CCB		Anions	1.
16	08 May 2019	10:30	AZ90451W01 df5		Anions	5.
17	08 May 2019	10:37	AZ90452W01 df5		Anions	5.
18	08 May 2019	10:45	AZ90453W01 df5		Anions	5.
19	08 May 2019	10:52	CCV 190508		Anions	1.
20	08 May 2019	11:00	CCB		Anions	1.

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Appendix C.2:
Data Validation Reports

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LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

AECOM
1001 Bishop Street Suite 1600
Honolulu, HI 96813
ATTN: Ms. Margie Pascua
Margie.Pascua@aecom.com

July 8, 2019

SUBJECT: REVISED Red Hill Bulk Storage Facility, CTO 18F0126, Data Validation

Dear Ms. Pascua,

Enclosed are the revised validation reports for the fractions listed below. This SDG was received on May 15, 2019. Attachment 1 is a summary of the samples that were reviewed for each analysis.

- Revision: Sample table & DVR revised for Phenol analysis only. Removed TICs + MEE FD Section updated.

LDC Project #45048_RV1:

SDG #	Fraction
88687	Volatiles, Phenol, Polynuclear Aromatic Hydrocarbons, 2-(2-Methoxyethoxy)-ethanol, Wet Chemistry, Gasoline Range Organics, Total Petroleum Hydrocarbons as Extractables, Methane

The data validation was performed under Level C validation guidelines. The analyses were validated using the following documents and variances, as applicable to each method:

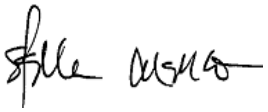
- Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 02; January 2017
- Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 01, April 2017
- Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 00, September 2017
- Sampling and Analysis Plan, Addendum 03 Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 00; June 2018
- Project Procedures Manual, U.S. Naval Facilities Engineering Command Environmental Restoration Program, NAVFAC Pacific, DON 2015
- U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.1, 2017

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIB, November 2004; update IV, February 2007; update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,



Stella Cuenco
scuenco@lab-data.com
Operations Manager/Senior Chemist

EDD 90/10 C/D

LDC #45048 (AECOM-Honolulu, HI / Red Hill Bulk Storage Facility, CTO 18F0126)

LDC	SDG#	DATE REC'D	(2) DATE DUE	BTEX (8260B)		Phenol (8270D)		PAHs (8270D -SIM)		2,2-MEE (8270D-M)		GRO (8260B)		TPH-E (8015B)		Methane (175)		Alk. (2320B)		Cl,SO_4 NO_3-N (300.0)		NO_3/ NO_2-N (353.2)		Fe II (3500-Fe B)		DOC (9060A)		TOC (9060A)					
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	88687	05/15/19	05/30/19	5	0	3	0	3	0	3	0	5	0	3	0	4	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0				
Total	J/SC			5	0	3	0	3	0	3	0	5	0	3	0	4	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0	0	0	0	38

Shaded cells indicate Level D validation (all other cells are Level C validation). These sample counts do not include MS/MSD, and DUPs

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: May 21, 2019

Parameters: Volatiles

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88687

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH781	AZ89957	Water	04/22/19
ERH782	AZ89958	Water	04/22/19
ERH783	AZ89959	Water	04/22/19
ERH794	AZ89960	Water	04/22/19
ERH795	AZ89961	Water	04/22/19
ERH782MS	AZ89958MS	Water	04/22/19
ERH782MSD	AZ89958MSD	Water	04/22/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) which are Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) by Environmental Protection Agency (EPA) SW 846 Method 8260B

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For compounds where average relative response factors (RRFs) were utilized, the percent relative standard deviations (%RSD) were less than or equal to 15.0%.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Samples ERH781 and ERH794 were identified as trip blanks. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

Samples ERH782 and ERH783 were identified as field duplicates. No results were detected in any of the samples.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XIV. System Performance

Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Volatiles - Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Volatiles - Laboratory Blank Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Volatiles - Field Blank Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

LDC #: 45048A1a
SDG #: 88687
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 5/19/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (BTEX)(EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	%RSD ≤ 15, r² ICV ≤ 20
IV.	Continuing calibration closing CW	A	CCV ≤ 20/20
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB = 1, 4
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	A	
IX.	Laboratory control samples	A	LCS ID
X.	Field duplicates	ND	D = 2, 3
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID		Lab ID	Matrix	Date
1 2	ERH781	TB	AZ89957	Water	04/22/19
2 2	ERH782	D	AZ89958	Water	04/22/19
3 1	ERH783	D	AZ89959	Water	04/22/19
4 2	ERH794	TB	AZ89960	Water	04/22/19
5 2	ERH795		AZ89961	Water	04/22/19
6 2	ERH782MS		AZ89958MS	Water	04/22/19
7 2	ERH782MSD		AZ89958MSD	Water	04/22/19
8					

Notes:

1	190423AL-BLK						
2	190424AT-BLK						

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: July 5, 2019

Parameters: Phenol

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88687

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH782	AZ89958	Water	04/22/19
ERH783	AZ89959	Water	04/22/19
ERH795	AZ89961	Water	04/22/19
ERH782MS	AZ89958MS	Water	04/22/19
ERH782MSD	AZ89958MSD	Water	04/22/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Phenol by Environmental Protection Agency (EPA) SW 846 Method 8270D

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0%.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits.

Relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
ERH782MS/MSD (ERH782)	Phenol	29.1 (≤20)	NA	-

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

Samples ERH782 and ERH783 were identified as field duplicates. No results were detected in any of the samples.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XIV. System Performance

Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Phenol - Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Phenol - Laboratory Blank Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Phenol - Field Blank Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

LDC #: 45048A2a
SDG #: 88687
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 5/19/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Phenol & TICs (EPA SW 846 Method 8270D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	%D RSD ≤ 15 ICV ≤ 20
IV.	Continuing calibration [closing ccv]	A	ccv ≤ 20/50
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	SW	
IX.	Laboratory control samples	A	LCS ID
X.	Field duplicates	ND	D = 1,2
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH782	AZ89958	Water	04/22/19
2	ERH783	AZ89959	Water	04/22/19
3	ERH795	AZ89961	Water	04/22/19
4	ERH782MS	AZ89958MS	Water	04/22/19
5	ERH782MSD	AZ89958MSD	Water	04/22/19
6				
7				
8				

Notes:

	190424A - BLK						

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	CC. Dimethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	GGGG. C30-Hopane	I1. Methyl methanesulfonate
B. Bis (2-chloroethyl) ether	DD. Acenaphthylene	FFF. Di-n-octylphthalate	HHHH. 1-Methylphenanthrene	J1. Ethyl methanesulfonate
C. 2-Chlorophenol	EE. 2,6-Dinitrotoluene	GGG. Benzo(b)fluoranthene	IIII. 1,4-Dioxane	K1. o,o',o''-Triethylphosphorothioate
D. 1,3-Dichlorobenzene	FF. 3-Nitroaniline	HHH. Benzo(k)fluoranthene	JJJJ. Acetophenone	L1. n-Phenylene diamine
E. 1,4-Dichlorobenzene	GG. Acenaphthene	III. Benzo(a)pyrene	KKKK. Atrazine	M1. 1,4-Naphthoquinone
F. 1,2-Dichlorobenzene	HH. 2,4-Dinitrophenol	JJJ. Indeno(1,2,3-cd)pyrene	LLLL. Benzaldehyde	N1. N-Nitro-o-toluidine
G. 2-Methylphenol	II. 4-Nitrophenol	KKK. Dibenz(a,h)anthracene	MMMM. Caprolactam	O1. 1,3,5-Trinitrobenzene
H. 2,2'-Oxybis(1-chloropropane)	JJ. Dibenzofuran	LLL. Benzo(g,h,i)perylene	NNNN. 2,6-Dichlorophenol	P1. Pentachlorobenzene
I. 4-Methylphenol	KK. 2,4-Dinitrotoluene	MMM. Bis(2-Chloroisopropyl)ether	OOOO. 1,2-Diphenylhydrazine	Q1. 4-Aminobiphenyl
J. N-Nitroso-di-n-propylamine	LL. Diethylphthalate	NNN. Aniline	PPPP. 3-Methylphenol	R1. 2-Naphthylamine
K. Hexachloroethane	MM. 4-Chlorophenyl-phenyl ether	OOO. N-Nitrosodimethylamine	QQQQ. 3&4-Methylphenol	S1. Triphenylene
L. Nitrobenzene	NN. Fluorene	PPP. Benzoic Acid	RRRR. 4-Dimethyldibenzothiophene (4MDT)	T1. Octachlorostyrene
M. Isophorone	OO. 4-Nitroaniline	QQQ. Benzyl alcohol	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	U1. Famphur
N. 2-Nitrophenol	PP. 4,6-Dinitro-2-methylphenol	RRR. Pyridine	TTTT. 1-Methyldibenzothiophene (1MDT)	V1. 1,4-phenylenediamine
O. 2,4-Dimethylphenol	QQ. N-Nitrosodiphenylamine	SSS. Benzidine	UUUU.. 2,3,4,6-Tetrachlorophenol	W1. Methapyrilene
P. Bis(2-chloroethoxy)methane	RR. 4-Bromophenyl-phenylether	TTT. 1-Methylnaphthalene	VVVV. 1,2,4,5-Tetrachlorobenzene	X1. Pentachloroethane
Q. 2,4-Dichlorophenol	SS. Hexachlorobenzene	UUU.Benzo(b)thiophene	WWWW.. 2-Picoline	Y1. 3,3'-Dimethylbenzidine
R. 1,2,4-Trichlorobenzene	TT. Pentachlorophenol	VVV.Benzonaphthothiophene	XXXX. 3-Methylcholanthrene	Z1. o-Toluidine
S. Naphthalene	UU. Phenanthrene	WWW.Benzo(e)pyrene	YYYY. a,a-Dimethylphenethylamine	A2. 1-Naphthylamine
T. 4-Chloroaniline	VV. Anthracene	XXX. 2,6-Dimethylnaphthalene	ZZZZ. Hexachloropropene	B2. 4-Aminobiphenyl
U. Hexachlorobutadiene	WW. Carbazole	YYY. 2,3,5-Trimethylnaphthalene	A1. N-Nitrosodiethylamine	C2. 4-Nitroquinoline-1-oxide
V. 4-Chloro-3-methylphenol	XX. Di-n-butylphthalate	ZZZ. Perylene	B1. N-Nitrosodi-n-butylamine	D2. Hexachloropene
W. 2-Methylnaphthalene	YY. Fluoranthene	AAAA. Dibenzothiophene	C1. N-Nitrosomethylethylamine	E2. Bis (2-chloro-1-methylethyl) ether
X. Hexachlorocyclopentadiene	ZZ. Pyrene	BBBB. Benzo(a)fluoranthene	D1. N-Nitrosomorpholine	F2. Bifenthrin
Y. 2,4,6-Trichlorophenol	AAA. Butylbenzylphthalate	CCCC. Benzo(b)fluorene	E1. N-Nitrosopyrrolidine	G2. Cyfluthrin
Z. 2,4,5-Trichlorophenol	BBB. 3,3'-Dichlorobenzidine	DDDD. cis/trans-Decalin	F1. Phenacetin	H2. Cypermethrin
AA. 2-Chloronaphthalene	CCC. Benzo(a)anthracene	EEEE. Biphenyl	G1. 2-Acetylaminofluorene	I2. Permethrin (cis/trans)
BB. 2-Nitroaniline	DDD. Chrysene	FFFF. Retene	H1. Pronamide	J2. 5-Nitro-o-toluidine

LDC #: 45048A2a

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: FT
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	4+5	A	( )	( )	29.1 (20)	1	J (all) / A ND
			( )	( )	( )		
			( )	( )			
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: May 21, 2019

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88687

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH782	AZ89958	Water	04/22/19
ERH783	AZ89959	Water	04/22/19
ERH795	AZ89961	Water	04/22/19
ERH782MS	AZ89958MS	Water	04/22/19
ERH782MSD	AZ89958MSD	Water	04/22/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polynuclear Aromatic Hydrocarbons (PAHs) which are 1-Methylnaphthalene, 2-Methylnaphthalene, and Naphthalene by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

Samples ERH782 and ERH783 were identified as field duplicates. No results were detected in any of the samples.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XIV. System Performance

Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

LDC #: 45048A2b
SDG #: 88687
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 5/19/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	% RSD ≤ 15 KV ≤ 20
IV.	Continuing calibration / closing CCV	A	CCV ≤ 20/50
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	~~N~~ A	~~CS~~ M
IX.	Laboratory control samples	A	LCS IP
X.	Field duplicates	ND	D = 1,2
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH782 D	AZ89958	Water	04/22/19
2	ERH783 D	AZ89959	Water	04/22/19
3	ERH795	AZ89961	Water	04/22/19
4	ERH782MS	AZ89958MS	Water	04/22/19
5	ERH782MSD	AZ89958MSD	Water	04/22/19
6				
7				
8				

Notes:

	190424A - BLK						

TTT, W, S only

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: July 5, 2019

Parameters: 2-(2-Methoxyethoxy)-ethanol

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88687

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH782	AZ89958	Water	04/22/19
ERH783	AZ89959	Water	04/22/19
ERH795	AZ89961	Water	04/22/19
ERH782MS	AZ89958MS	Water	04/22/19
ERH782MSD	AZ89958MSD	Water	04/22/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

2-(2-Methoxyethoxy)-ethanol by Environmental Protection Agency (EPA) SW 846 Method 8270D Modified

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were not added to all samples as required by the method. Using professional judgment, no data were qualified, since the MS/MSD/LCS percent recoveries were within QC limits. Additionally, all base surrogate percent recoveries were within QC limits in the phenol analysis.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	Flag	A or P
190429A-LCS/D (All samples in SDG 88687)	2-(2-Methoxyethoxy)-ethanol	-	155 (30-130)	NA	-

Relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
190429A-LCS/D (All samples in SDG 88687)	2-(2-Methoxyethoxy)-ethanol	28.3 (≤20)	UJ (all non-detects)	P

X. Field Duplicates

Samples ERH782 and ERH783 were identified as field duplicates. No results were detected in any of the samples.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XIV. System Performance

Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method with the exception noted in Section VII. No results were rejected in this SDG.

Due to LCS/LCSD RPD, data were qualified as estimated in three samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
2-(2-Methoxyethoxy)-ethanol - Data Qualification Summary - SDG 88687

Sample	Compound	Flag	A or P	Reason (Code)
ERH782 ERH783 ERH795	2-(2-Methoxyethoxy)-ethanol	UJ (all non-detects)	P	Laboratory control samples (RPD) (L)

Red Hill Bulk Storage Facility, CTO 18F0126
2-(2-Methoxyethoxy)-ethanol - Laboratory Blank Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
2-(2-Methoxyethoxy)-ethanol - Field Blank Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

LDC #: 45048A2c
SDG #: 88687
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 5/19/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS 2-(2-Methoxyethoxy)-Ethanol (EPA SW 846 Method 8270D-Modified)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	12 ICV ≤ 30
IV.	Continuing calibration closing ccv	A	CCV ≤ 20/50
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	SW	
VIII.	Matrix spike/Matrix spike duplicates	A	
IX.	Laboratory control samples	SW	LCS/D
X.	Field duplicates	ND	D = 1,2
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH782	AZ89958	Water	04/22/19
2	ERH783	AZ89959	Water	04/22/19
3	ERH795	AZ89961	Water	04/22/19
4	ERH782MS	AZ89958MS	Water	04/22/19
5	ERH782MSD	AZ89958MSD	Water	04/22/19
6				
7				
8				

Notes:

	190429A - BLK						

LDC #: 45048A2c

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Reviewer: FT
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
Please see qualification below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were percent recoveries (%R) for surrogates within QC limits?
Y N N/A If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?
Y N N/A If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Sample ID	Surrogate	%R (Limits)	Qualifications
	all	Surrogates were not added to all samples as required by the method. Using professional judgment, no data were qualified. Although the ~~LCS/~~LCSD percent recoveries and ~~percent relative percent difference~~ RPD were outside the QC limits QC limits, the MS/MSD met both the criteria. Additionally, all base surrogate percent recoveries were within QC limits in the phenol analysis.		Text
			( )	
			( )	
			( )	
			( )	
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			( )	
			( )	
			( )	

(NBZ) = Nitrobenzene - d5
(FBP) = 2-Fluorobiphenyl
(TPH) = Terphenyl - d14
(2FP) = 2-Fluorophenol
(TBP) = 2,4,6 -Tribromophenol
(2CP) = 2-Chlorophenol - d4

LDC #: 45048 A2C

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: FT
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a LCS required?
Y N N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

(L)

#	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	90429A-LCS ID	*	( )	155 (30-130)	( )	All	J (all) / P ND
		*	( )	( )	28.3 (20)	↓	J (all) / P ↓
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
	* 2-(2-Methoxyethoxy)-Ethanol		( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: May 29, 2019

Parameters: Wet Chemistry

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88687

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH782	AZ89958	Water	04/22/19
ERH795	AZ89961	Water	04/22/19
ERH782MS	AZ89958MS	Water	04/22/19
ERH782MSD	AZ89958MSD	Water	04/22/19
ERH782DUP	AZ89958DUP	Water	04/22/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Alkalinity by Standard Method 2320B
Chloride, Nitrate, and Sulfate by Environmental Protection Agency (EPA) Method 300.0
Ferrous Iron by Standard Method 3500-Fe B
Nitrate/Nitrite as Nitrogen by EPA Method 353.2
Dissolved Organic Carbon and Total Organic Carbon by EPA SW 846 Method 9060A

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S The sequence or number of standards used for the calibration was incorrect.

C Correlation coefficient is <0.995.

R %R for calibration is not within control limits.

B Presumed contamination from preparation (method) blank or calibration blank.

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD or difference was high.

I ICP ICS results were unsatisfactory.

A ICP Serial Dilution %D were not within control limits.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Post Digestion Spike recovery was not within control limits.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Limit of Quantitation	Associated Samples
PB (prep blank)	Chloride Sulfate Total alkalinity Bicarbonate alkalinity	0.27 mg/L 0.19 mg/L 2.9 mg/L 2.9 mg/L	1.0 mg/L 1.0 mg/L 2.0 mg/L 2.0 mg/L	All samples in SDG 88687
ICB/CCB	Chloride Sulfate	0.29 mg/L 0.21 mg/L	1.0 mg/L 1.0 mg/L	All samples in SDG 88687
PB (prep blank)	Total organic carbon Dissolved organic carbon	0.27 mg/L 0.27 mg/L	0.93 mg/L 0.93 mg/L	ERH795
ICB/CCB	Total organic carbon Dissolved organic carbon	0.251 mg/L 0.251 mg/L	0.93 mg/L 0.93 mg/L	ERH795

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Limit of Quantitation	Modified Final Concentration
ERH795	Total organic carbon Dissolved organic carbon	0.47 mg/L 0.57 mg/L	0.93 mg/L 0.93 mg/L	0.47U mg/L 0.57U mg/L

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
ERH782MS/MSD (ERH782)	Total alkalinity Bicarbonate alkalinity	- -	89.3 (90-110) 89.3 (90-110)	J (all detects) J (all detects)	A

For ERH782MS/MSD, no data were qualified for chloride percent recoveries (%R) outside the QC limits since the parent sample results were greater than 4X the spike concentration.

Relative percent differences (RPD) were within QC limits.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Analyte	LCS %R (Limits)	LCSD %R (Limits)	Flag	A or P
LCS/LCSD (ERH795)	Total organic carbon	84.4 (90-110)	83.6 (90-110)	J (all detects)	P

Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Sample Result Verification

Raw data were not reviewed for Level C validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to MS/MSD %R and LCS/LCSD %R, data were qualified as estimated in two samples.

Due to laboratory blank contamination, data were qualified as not detected in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Wet Chemistry- Data Qualification Summary - SDG 88687

Sample	Analyte	Flag	A or P	Reason (Code)
ERH782	Total alkalinity Bicarbonate alkalinity	J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
ERH795	Total organic carbon	J (all detects)	P	Laboratory control samples (%R) (L)

Red Hill Bulk Storage Facility, CTO 18F0126
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 88687

Sample	Analyte	Modified Final Concentration	A or P	Code
ERH795	Total organic carbon Dissolved organic carbon	0.47U mg/L 0.57U mg/L	A	B

Red Hill Bulk Storage Facility, CTO 18F0126
Wet Chemistry - Field Blank Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

LDC #: 45048A6
SDG #: 88687
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 5/28/19
Page: 1 of 1
Reviewer: ATV
2nd Reviewer: AC

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate, Sulfate (EPA Method 300.0), Ferrous Iron (SM3500-Fe B), Nitrate/Nitrite-N (EPA Method 353.2), DOC (EPA SW846 Method 9060A), TOC (EPA SW846 Method 9060A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	SW	(3,4)
VII.	Duplicate sample analysis	A	5
VIII.	Laboratory control samples	SW	LCS/LCSD
IX.	Field duplicates	N	
X.	Sample result verification	N	
XI.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH782	AZ89958	Water	04/22/19
2	ERH795	AZ89961	Water	04/22/19
3	ERH782MS	AZ89958MS	Water	04/22/19
4	ERH782MSD	AZ89958MSD	Water	04/22/19
5	ERH782DUP	AZ89958DUP	Water	04/22/19
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Notes:

LDC #: 45048A6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: ATV
2nd reviewer: A

All circled methods are applicable to each sample.

Sample ID	Parameter
1, 2	pH TDS (Cl) F (N NO3) NO2 (SO4) O-PO4 (Alk) CN NH3 TKN (TOC) Cr6+ ClO4 (NO3/NO2-N) (DOC) (Fe2+)
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
QC	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
3, 4	pH TDS (Cl) F (N NO3) NO2 (SO4) O-PO4 (Alk) CN NH3 TKN TOC Cr6+ ClO4 (NO3/NO2-N)
5	pH TDS Cl F NO3 NO2 SO4 O-PO4 (Alk) CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4

Comments:

LDC #: 45048A6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: ATL
2nd Reviewer:

METHOD: Inorganics, Method See Cover

Conc. units: mg/L **Associated Samples:** All **Code:** B

Analyte	Blank ID		Blank ID	Blank Action Limit									
	PB	LOQ	ICB/CCB (mg/L)		No Qualifiers								
Chloride		1.0	0.29	1.45									
Sulfate		1.0	0.21	1.05									
Chloride	0.27	1.0		1.35									
Sulfate	0.19	1.0		0.95									
total Alkalinity	2.9	2.0		14.5									
Bicarbonate Alkalinity	2.9	2.0		14.5									

Conc. units: mg/L **Associated Samples:** 2

Analyte	Blank ID		Blank ID	Blank Action Limit									
	PB	LOQ	ICB/CCB (mg/L)		2								
TOC		0.93	0.251	1.255	see below								
DOC		0.93	0.251	1.255	see below								
TOC	0.27	0.93		1.35	0.47								
DOC	0.27	0.93		1.35	0.57								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 45048A6

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: ATL
2nd Reviewer: A

METHOD: Inorganics, EPA Method See cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y N N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

Y N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤35% for soil samples?

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications Code: Q
	3/4	W	Total alkalinity		89.3 (90-110)		all	J/UJ/A (detect)
			Bicarbonate Alkalinity		89.3 (90-110)		all	J/UJ/A (detect)

Comments: 3/4: Cl > 4X

LDC #: 45048A6

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: ATL
2nd Reviewer:

METHOD: Inorganics, Method see cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Was a laboratory control sample (LCS) analyzed for each matrix in this SDG?

Y (N) N/A Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

LEVEL IV ONLY:

Y N (N/A) Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	LCS/LCSD ID	Matrix	Analyte	LCS %R (limits)	LCSD %R (limits)	RPD (limits)	Associated Samples	Qualifications
	LCS/LCSD	W	TOC	84.4 (90-110)	83.6 (90-110)		2	J/UJ/P (detect) Code: L

Comments:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: May 21, 2019

Parameters: Gasoline Range Organics

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88687

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH781	AZ89957	Water	04/22/19
ERH782	AZ89958	Water	04/22/19
ERH783	AZ89959	Water	04/22/19
ERH794	AZ89960	Water	04/22/19
ERH795	AZ89961	Water	04/22/19
ERH782MS	AZ89958MS	Water	04/22/19
ERH782MSD	AZ89958MSD	Water	04/22/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Gasoline Range Organics by Environmental Protection Agency (EPA) SW 846 Method 8260B

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

III. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

Samples ERH781 and ERH794 were identified as trip blanks. No contaminants were found.

VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

Samples ERH782 and ERH783 were identified as field duplicates. No results were detected in any of the samples.

X. Compound Quantitation

Raw data were not reviewed for Level C validation.

XI. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Gasoline Range Organics - Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Gasoline Range Organics - Laboratory Blank Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Gasoline Range Organics - Field Blank Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

LDC #: 45048A7
SDG #: 88687
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 5/19/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Gasoline Range Organics (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	r² ICV ≤ 20
IV.	Continuing calibration	A	CCV ≤ 20
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB = 1,4
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	A	
IX.	Laboratory control samples	A	LCS ID
X.	Field duplicates	ND	D = 2,3
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID		Lab ID	Matrix	Date
1	ERH781	TB	AZ89957	Water	04/22/19
2	ERH782	D	AZ89958	Water	04/22/19
3	ERH783	D	AZ89959	Water	04/22/19
4	ERH794	TB	AZ89960	Water	04/22/19
5	ERH795		AZ89961	Water	04/22/19
6	ERH782MS		AZ89958MS	Water	04/22/19
7	ERH782MSD		AZ89958MSD	Water	04/22/19
8					

Notes:

	190423AM BLK						

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: June 4, 2019

Parameters: Total Petroleum Hydrocarbons as Extractables

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88687

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH782	AZ89958	Water	04/22/19
ERH782RE	AZ89958RE	Water	04/22/19
ERH783	AZ89959	Water	04/22/19
ERH783RE	AZ89959RE	Water	04/22/19
ERH795	AZ89961	Water	04/22/19
ERH795RE	AZ89961RE	Water	04/22/19
ERH782MS	AZ89958MS	Water	04/22/19
ERH782MSD	AZ89958MSD	Water	04/22/19
ERH782REMS	AZ89958REMS	Water	04/22/19
ERH782REMSD	AZ89958REMSD	Water	04/22/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Total Petroleum Hydrocarbons (TPH) as Extractables by Environmental Protection Agency (EPA) SW 846 Method 8015B

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met with the following exceptions:

Sample	Compound	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	A or P
ERH782RE ERH783RE ERH795RE	All compounds	10	7	UJ (all non-detects)	A

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

III. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

Relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
190502A2LCS/D (ERH782RE ERH783RE ERH795RE)	Diesel (C10-C24)	31.3 (≤30)	UJ (all non-detects)	P

IX. Field Duplicates

Samples ERH782 and ERH783 were identified as field duplicates. No results were detected in any of the samples.

X. Compound Quantitation

Raw data were not reviewed for Level C validation.

XI. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

In the case where more than one result was reported for an individual sample, the least technically acceptable results were deemed unusable as follows:

Sample	Compound	Reason	Flag	A or P
ERH782RE ERH783RE ERH795RE	All compounds	Extracted outside holding time.	R	A

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Based upon the data validation all other results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG 88687

Sample	Compound	Flag	A or P	Reason (Code)
ERH782RE ERH783RE ERH795RE	All compounds	R	A	Overall assessment of data (D)

Red Hill Bulk Storage Facility, CTO 18F0126
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

LDC #: 45048A8
SDG #: 88687
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 5/19/19
Page: 1 of 1
Reviewer: EJ
2nd Reviewer: JK

METHOD: GC TPH as Extractables (EPA SW 846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A SW	
II.	Initial calibration/ICV	A/A	%RSD/ICV ≤ 20
III.	Continuing calibration	A	CCV ≤ 20
IV.	Laboratory Blanks	A	
V.	Field blanks	N	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	SW	LCS ID
IX.	Field duplicates	ND	D = 1,2
X.	Compound quantitation RL/LOQ/LODs	N	
XI.	Target compound identification	N	
XII.	Overall assessment of data	SW	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID		Lab ID	Matrix	Date
1	ERH782	D	AZ89958	Water	04/22/19
2	ERH783	D	AZ89959	Water	04/22/19
3	ERH795		AZ89961	Water	04/22/19
4	ERH782MS		AZ89958MS	Water	04/22/19
5	ERH782MSD		AZ89958MSD	Water	04/22/19
6	#1 RE		AZ89958RE	↓	↓
7	#2 RE		-959RE		
8	#3 RE		-961RE	↓	↓
9	#4 RE		-958MSRE		
10	#5 RE		-958MSDRE	↓	↓
11					

Notes:

1	190426A-BLK						
2	190502A2-BLK						

LDC #: 45048A8

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer: FT
2nd Reviewer: A

All circled dates have exceeded the technical holding times.
(Y) N N/A Were all cooler temperatures within validation criteria?

METHOD : ✓ GC ___ HPLC (H)

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
6→8, 9,10	W		4/22/18	5/2/19	5/6/19	10	J/UJ/A (ND)

TECHNICAL HOLDING TIME CRITERIA

VOLATILES:	Water unpreserved:	Aromatic within 7 days, non-aromatic within 14 days of sample collection.
	Water preserved:	Both within 14 days of sample collection.
	Soils:	Both within 14 days of sample collection.
	Encores unpreserved:	Both within 48 hours of sample collection.
	Encores preserved:	Both within 14 days of sample collection.
EXTRACTABLES:		
	Water:	Extracted within 7 days, analyzed within 40 days.
	Soil:	Extracted within 14 days, analyzed within 40 days.

LDC #: 45048A8

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: FT
2nd Reviewer:

METHOD: V GC __ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a laboratory control samples (LCS) and laboratory control sample duplicate (LCSD) analyzed for each matrix in this SDG?

Y N N/A Were the LCS percent recoveries (%R) and relative percent differences (RPD) within the QC limits?

Level IV/D Only

Y N N/A Was an LCS analyzed every 20 samples for each matrix or whenever a sample extraction was performed?

(1)

#	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	190502A2 LCS/D	Diesel (C10-C24)	( )	( )	31.3 (30)	6-8, 190502A2-BLK	J/UJ/P (ND)
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

LDC #: 45048A8

VALIDATION FINDINGS WORKSHEET
Overall Assessment of Data

Page: 1 of 1
Reviewer: FT
2nd Reviewer:

METHOD: ✓ GC ___ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

All available information pertaining to the data were reviewed using professional judgement to compliment the determination of the overall quality of the data.

Y N N/A Was the overall quality and usability of the data acceptable? (D)

#	Associated samples	Compounds	Findings	Qualifications
	6-8	All	extracted outside H.T.	R/A

Comments: _____

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: May 21, 2019

Parameters: Methane

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88687

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH781	AZ89957	Water	04/22/19
ERH783	AZ89959	Water	04/22/19
ERH794	AZ89960	Water	04/22/19
ERH795	AZ89961	Water	04/22/19
ERH783MS	AZ89959MS	Water	04/22/19
ERH783MSD	AZ89959MSD	Water	04/22/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Methane by Method RSK-175

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

III. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

Samples ERH781 and ERH794 were identified as trip blanks. No contaminants were found.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VIII. Field Duplicates

No field duplicates were identified in this SDG.

IX. Compound Quantitation

Raw data were not reviewed for Level C validation.

X. Target Compound Identification

Raw data were not reviewed for Level C validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Methane - Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Methane - Laboratory Blank Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Methane - Field Blank Data Qualification Summary - SDG 88687

No Sample Data Qualified in this SDG

LDC #: 45048A51
SDG #: 88687
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 5/19/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC Methane (Method RSK-175)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A A	
II.	Initial calibration/ICV	A A	1st ICV ≤ 20
III.	Continuing calibration	A	CCV ≤ 20
IV.	Laboratory Blanks	A	
V.	Field blanks	ND	TB = 1, 3
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	LCS 1P
VIII.	Field duplicates	N	
IX.	Compound quantitation RL/LOQ/LODs	N	
X.	Target compound identification	N	
XI.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH781 TB	AZ89957	Water	04/22/19
2	ERH783	AZ89959	Water	04/22/19
3	ERH794 TB	AZ89960	Water	04/22/19
4	ERH795	AZ89961	Water	04/22/19
5	ERH783MS	AZ89959MS	Water	04/22/19
6	ERH783MSD	AZ89959MSD	Water	04/22/19
7				
8				
9				
10				
11				
12				

Notes:

1	190429A-BLK						
	190503A-BLK						

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **2320B**													
ERH782	AZ89958	1	ALKALINITY, TOTAL (AS CACO3)	4/22/2019 9:30:00 AM	4/24/2019 5:50:00 PM	C	58.7	MG_L		2.0	1.70	J	q
ERH782	AZ89958	1	BICARBONATE	4/22/2019 9:30:00 AM	4/24/2019 5:50:00 PM	C	58.7	MG_L		2.0	1.70	J	q
ERH782	AZ89958	1	CARBONATE (AS CO3)	4/22/2019 9:30:00 AM	4/24/2019 5:50:00 PM	C	1.70	MG_L	U	2.0	1.70	U	
ERH795	AZ89961	1	ALKALINITY, TOTAL (AS CACO3)	4/22/2019 10:20:00 AM	4/24/2019 9:26:00 PM	C	74.2	MG_L		2.0	1.70		
ERH795	AZ89961	1	BICARBONATE	4/22/2019 10:20:00 AM	4/24/2019 9:26:00 PM	C	74.2	MG_L		2.0	1.70		
ERH795	AZ89961	1	CARBONATE (AS CO3)	4/22/2019 10:20:00 AM	4/24/2019 9:26:00 PM	C	1.70	MG_L	U	2.0	1.70	U	
METHOD: **300.0**													
ERH782	AZ89958	5	CHLORIDE (AS CL)	4/22/2019 9:30:00 AM	4/24/2019 12:12:00 PM	C	108	MG_L	D	5.0	1.00		
ERH782	AZ89958	1	NITROGEN, NITRATE (AS N)	4/22/2019 9:30:00 AM	4/24/2019 12:41:00 PM	C	2.6	MG_L		0.5	0.18		
ERH782	AZ89958	1	SULFATE (AS SO4)	4/22/2019 9:30:00 AM	4/24/2019 12:41:00 PM	C	17.1	MG_L		1.0	0.20		
ERH795	AZ89961	5	CHLORIDE (AS CL)	4/22/2019 10:20:00 AM	4/24/2019 12:34:00 PM	C	74.1	MG_L	D	5.0	1.00		
ERH795	AZ89961	1	NITROGEN, NITRATE (AS N)	4/22/2019 10:20:00 AM	4/24/2019 12:49:00 PM	C	2.4	MG_L		0.5	0.18		
ERH795	AZ89961	1	SULFATE (AS SO4)	4/22/2019 10:20:00 AM	4/24/2019 12:49:00 PM	C	10.4	MG_L		1.0	0.20		
METHOD: **3500-FE-B**													
ERH782	AZ89958	1	Iron, Ion (Fe2+)	4/22/2019 9:30:00 AM	4/23/2019 4:14:00 PM	C	0.32	MG_L	U	1.0	0.32	U	
ERH795	AZ89961	1	Iron, Ion (Fe2+)	4/22/2019 10:20:00 AM	4/23/2019 4:17:00 PM	C	0.32	MG_L	U	1.0	0.32	U	
METHOD: **353.2**													
ERH782	AZ89958	1	NITROGEN, NITRATE-NITRITE	4/22/2019 9:30:00 AM	4/24/2019 3:52:00 PM	C	0.66	MG_L		0.10	0.090		
ERH795	AZ89961	1	NITROGEN, NITRATE-NITRITE	4/22/2019 10:20:00 AM	4/24/2019 3:58:00 PM	C	0.57	MG_L		0.10	0.090		
METHOD: **8015B_E**													
ERH782	AZ89958	1	C10-C24 DIESEL RANGE ORGANICS	4/22/2019 9:30:00 AM	4/29/2019 6:23:00 PM	C	25.00	UG_L	U	40.0	25.00	U	
ERH782	AZ89958	1	C10-C24 DIESEL RANGE ORGANICS	4/22/2019 9:30:00 AM	5/6/2019 7:09:00 PM	C	25.00	UG_L	U	40.0	25.00	R	d
ERH782	AZ89958	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RAN	4/22/2019 9:30:00 AM	4/29/2019 6:23:00 PM	C	40.00	UG_L	U	40.0	40.00	U	
ERH782	AZ89958	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RAN	4/22/2019 9:30:00 AM	5/6/2019 7:09:00 PM	C	40.00	UG_L	U	40.0	40.00	R	d
ERH783	AZ89959	1	C10-C24 DIESEL RANGE ORGANICS	4/22/2019 9:30:00 AM	5/6/2019 7:29:00 PM	C	25.00	UG_L	U	40.0	25.00	R	d
ERH783	AZ89959	1	C10-C24 DIESEL RANGE ORGANICS	4/22/2019 9:30:00 AM	4/29/2019 7:23:00 PM	C	25.00	UG_L	U	40.0	25.00	U	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **8015B_E**													
ERH783	AZ89959	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RAN	4/22/2019 9:30:00 AM	4/29/2019 7:23:00 PM	C	40.00	UG_L	U	40.0	40.00	U	
ERH783	AZ89959	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RAN	4/22/2019 9:30:00 AM	5/6/2019 7:29:00 PM	C	40.00	UG_L	U	40.0	40.00	R	d
ERH795	AZ89961	1	C10-C24 DIESEL RANGE ORGANICS	4/22/2019 10:20:00 AM	5/6/2019 7:49:00 PM	C	25.00	UG_L	U	40.0	25.00	R	d
ERH795	AZ89961	1	C10-C24 DIESEL RANGE ORGANICS	4/22/2019 10:20:00 AM	4/29/2019 7:43:00 PM	C	25.00	UG_L	U	40.0	25.00	U	
ERH795	AZ89961	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RAN	4/22/2019 10:20:00 AM	5/6/2019 7:49:00 PM	C	40.00	UG_L	U	40.0	40.00	R	d
ERH795	AZ89961	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RAN	4/22/2019 10:20:00 AM	4/29/2019 7:43:00 PM	C	40.00	UG_L	U	40.0	40.00	U	
METHOD: **8260B**													
ERH781	AZ89957	1	BENZENE	4/22/2019 8:42:00 AM	4/25/2019 3:54:00 AM	C	0.30	UG_L	U	1.0	0.30	U	
ERH781	AZ89957	1	ETHYLBENZENE	4/22/2019 8:42:00 AM	4/25/2019 3:54:00 AM	C	0.50	UG_L	U	1.0	0.50	U	
ERH781	AZ89957	1	PETROLEUM HYDROCARBONS C6-C10	4/22/2019 8:42:00 AM	4/23/2019 3:59:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH781	AZ89957	1	TOLUENE	4/22/2019 8:42:00 AM	4/25/2019 3:54:00 AM	C	0.30	UG_L	U	1.0	0.30	U	
ERH781	AZ89957	1	Xylenes	4/22/2019 8:42:00 AM	4/25/2019 3:54:00 AM	C	0.30	UG_L	U	2.0	0.30	U	
ERH782	AZ89958	1	BENZENE	4/22/2019 9:30:00 AM	4/25/2019 4:51:00 AM	C	0.30	UG_L	U	1.0	0.30	U	
ERH782	AZ89958	1	ETHYLBENZENE	4/22/2019 9:30:00 AM	4/25/2019 4:51:00 AM	C	0.50	UG_L	U	1.0	0.50	U	
ERH782	AZ89958	1	PETROLEUM HYDROCARBONS C6-C10	4/22/2019 9:30:00 AM	4/23/2019 4:56:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH782	AZ89958	1	TOLUENE	4/22/2019 9:30:00 AM	4/25/2019 4:51:00 AM	C	0.30	UG_L	U	1.0	0.30	U	
ERH782	AZ89958	1	Xylenes	4/22/2019 9:30:00 AM	4/25/2019 4:51:00 AM	C	0.30	UG_L	U	2.0	0.30	U	
ERH783	AZ89959	1	BENZENE	4/22/2019 9:30:00 AM	4/24/2019 3:49:00 AM	C	0.30	UG_L	U	1.0	0.30	U	
ERH783	AZ89959	1	ETHYLBENZENE	4/22/2019 9:30:00 AM	4/24/2019 3:49:00 AM	C	0.50	UG_L	U	1.0	0.50	U	
ERH783	AZ89959	1	PETROLEUM HYDROCARBONS C6-C10	4/22/2019 9:30:00 AM	4/23/2019 5:24:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH783	AZ89959	1	TOLUENE	4/22/2019 9:30:00 AM	4/24/2019 3:49:00 AM	C	0.30	UG_L	U	1.0	0.30	U	
ERH783	AZ89959	1	Xylenes	4/22/2019 9:30:00 AM	4/24/2019 3:49:00 AM	C	0.30	UG_L	U	2.0	0.30	U	
ERH794	AZ89960	1	BENZENE	4/22/2019 9:10:00 AM	4/25/2019 4:23:00 AM	C	0.30	UG_L	U	1.0	0.30	U	
ERH794	AZ89960	1	ETHYLBENZENE	4/22/2019 9:10:00 AM	4/25/2019 4:23:00 AM	C	0.50	UG_L	U	1.0	0.50	U	
ERH794	AZ89960	1	PETROLEUM HYDROCARBONS C6-C10	4/22/2019 9:10:00 AM	4/23/2019 4:27:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH794	AZ89960	1	TOLUENE	4/22/2019 9:10:00 AM	4/25/2019 4:23:00 AM	C	0.30	UG_L	U	1.0	0.30	U	
ERH794	AZ89960	1	Xylenes	4/22/2019 9:10:00 AM	4/25/2019 4:23:00 AM	C	0.30	UG_L	U	2.0	0.30	U	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **8260B**													
ERH795	AZ89961	1	BENZENE	4/22/2019 10:20:00 AM	4/25/2019 5:20:00 AM	C	0.30	UG_L	U	1.0	0.30	U	
ERH795	AZ89961	1	ETHYLBENZENE	4/22/2019 10:20:00 AM	4/25/2019 5:20:00 AM	C	0.50	UG_L	U	1.0	0.50	U	
ERH795	AZ89961	1	PETROLEUM HYDROCARBONS C6-C10	4/22/2019 10:20:00 AM	4/23/2019 5:53:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH795	AZ89961	1	TOLUENE	4/22/2019 10:20:00 AM	4/25/2019 5:20:00 AM	C	0.30	UG_L	U	1.0	0.30	U	
ERH795	AZ89961	1	Xylenes	4/22/2019 10:20:00 AM	4/25/2019 5:20:00 AM	C	0.30	UG_L	U	2.0	0.30	U	
METHOD: **8270D**													
ERH782	AZ89958	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/22/2019 9:30:00 AM	4/30/2019 3:24:00 PM	C	80.0	UG_L	U	100	80.0	UJ	l
ERH782	AZ89958	1	PHENOL	4/22/2019 9:30:00 AM	4/26/2019 7:09:00 PM	C	4.00	UG_L	U	5.0	4.00	U	
ERH783	AZ89959	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/22/2019 9:30:00 AM	4/30/2019 3:48:00 PM	C	80.0	UG_L	U	100	80.0	UJ	l
ERH783	AZ89959	1	PHENOL	4/22/2019 9:30:00 AM	4/26/2019 8:33:00 PM	C	4.00	UG_L	U	5.0	4.00	U	
ERH795	AZ89961	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/22/2019 10:20:00 AM	4/30/2019 4:11:00 PM	C	80.0	UG_L	U	100	80.0	UJ	l
ERH795	AZ89961	1	PHENOL	4/22/2019 10:20:00 AM	4/26/2019 9:01:00 PM	C	4.00	UG_L	U	5.0	4.00	U	
METHOD: **8270DSIM**													
ERH782	AZ89958	1	1-METHYLNAPHTHALENE	4/22/2019 9:30:00 AM	4/26/2019 4:52:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH782	AZ89958	1	2-METHYLNAPHTHALENE	4/22/2019 9:30:00 AM	4/26/2019 4:52:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH782	AZ89958	1	NAPHTHALENE	4/22/2019 9:30:00 AM	4/26/2019 4:52:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH783	AZ89959	1	1-METHYLNAPHTHALENE	4/22/2019 9:30:00 AM	4/30/2019 11:19:00 AM	C	0.10	UG_L	U	0.2	0.10	U	
ERH783	AZ89959	1	2-METHYLNAPHTHALENE	4/22/2019 9:30:00 AM	4/30/2019 11:19:00 AM	C	0.10	UG_L	U	0.2	0.10	U	
ERH783	AZ89959	1	NAPHTHALENE	4/22/2019 9:30:00 AM	4/30/2019 11:19:00 AM	C	0.10	UG_L	U	0.2	0.10	U	
ERH795	AZ89961	1	1-METHYLNAPHTHALENE	4/22/2019 10:20:00 AM	4/26/2019 6:21:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH795	AZ89961	1	2-METHYLNAPHTHALENE	4/22/2019 10:20:00 AM	4/26/2019 6:21:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH795	AZ89961	1	NAPHTHALENE	4/22/2019 10:20:00 AM	4/26/2019 6:21:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
METHOD: **9060A**													
ERH782	AZ89958	1	DISSOLVED ORGANIC CARBON	4/22/2019 9:30:00 AM	5/3/2019 6:30:00 AM	C	0.21	MG_L	J	0.93	0.350	J	
ERH782	AZ89958	1	TOTAL ORGANIC CARBON	4/22/2019 9:30:00 AM	5/2/2019 7:24:00 PM	C	0.30	MG_L	J	0.93	0.350	J	
ERH795	AZ89961	1	DISSOLVED ORGANIC CARBON	4/22/2019 10:20:00 AM	4/25/2019 1:40:00 AM	C		MG_L	J	0.93	0.57	U	b
ERH795	AZ89961	1	TOTAL ORGANIC CARBON	4/22/2019 10:20:00 AM	4/25/2019 1:09:00 AM	C		MG_L	J	0.93	0.47	UJ	b,l
METHOD: **RSK175**													

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **RSK175**													
ERH781	AZ89957	1	METHANE	4/22/2019 8:42:00 AM	4/29/2019 11:14:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH783	AZ89959	1	METHANE	4/22/2019 9:30:00 AM	5/3/2019 10:41:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH794	AZ89960	1	METHANE	4/22/2019 9:10:00 AM	4/29/2019 11:17:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH795	AZ89961	1	METHANE	4/22/2019 10:20:00 AM	4/29/2019 11:21:00 AM	C	1.00	UG_L	U	5.0	1.00	U	

LDC #: 45048

EDD POPULATION COMPLETENESS WORKSHEET

Date: 6/5
Page: 1 of 1
2nd Reviewer:

The LDC job number listed above was entered by JE.
Entered from Body or Summary

	EDD Process		Comments/Action
I.	EDD Completeness	-	
Ia.	- All methods present?	Y	
Ib.	- All samples present/match report?	Y	
Ic.	- All reported analytes present?	Y	
Id.	- 10% or 100% verification of EDD?	Y	
II.	EDD Preparation/Entry	-	
IIa.	- Carryover U/J?	Y	
IIb.	- Reason Codes used? If so, note which codes.	Y	
IIc.	- Additional Information (QC Level, Validator, Validated Y/N, etc.)	Y	
III.	Reasonableness Checks	-	
IIIa.	- Do all qualified ND results have ND qualifier (e.g. UJ)?	Y	
IIIb.	- Do all qualified detect results have detect qualifier (e.g. J)?	Y	
IIIc.	- If reason codes are used, do all qualified results have reason code field populated, and vice versa?	Y	
IIId.	-Does the detect flag require changing for blank qualifier? If so, are all U results marked ND?	Y/Y	
IIIe.	- Do blank concentrations in report match EDD where data was qualified due to blank contamination?	Y	
IIIf.	- Were multiple results reported due to dilutions/reanalysis? If so, were results qualified appropriately?	Y/Y	
IIIg.	-Are there any discrepancies between the data packet and the EDD?	N	

Notes: *see discrepancy sheet

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

AECOM
1001 Bishop Street Suite 1600
Honolulu, HI 96813
ATTN: Ms. Margie Pascua
Margie.Pascua@aecom.com

July 8, 2019

SUBJECT: REVISED Red Hill Bulk Storage Facility, CTO 18F0126, Data Validation

Dear Ms. Pascua,

Enclosed are the revised validation reports for the fractions listed below. This SDG was received on May 21, 2019. Attachment 1 is a summary of the samples that were reviewed for each analysis.

- Added ERH799 + ERH801 to Level D
- Phenol LCS/D section updated
- MEE FD section updated
- Sample Table + reports revised

LDC Project #45094_RV1:

SDG #	Fraction
88701	Volatiles, Phenol, Polynuclear Aromatic Hydrocarbons, 2-(2-Methoxyethoxy)-ethanol, Wet Chemistry, Gasoline Range Organics, Total Petroleum Hydrocarbons as Extractables, Methane

The data validation was performed under Level C & D validation guidelines. The analyses were validated using the following documents and variances, as applicable to each method:

- Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 02; January 2017
- Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 01, April 2017
- Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 00, September 2017
- Sampling and Analysis Plan, Addendum 03 Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 00; June 2018
- Project Procedures Manual, U.S. Naval Facilities Engineering Command Environmental Restoration Program, NAVFAC Pacific, DON 2015

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2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

- U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.1, 2017

- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIB, November 2004; update IV, February 2007; update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Stella Cuenco
scuenco@lab-data.com
Operations Manager/Senior Chemist

. HC_RV1 added 2 additional samples for Level D Attachment 1

EDD 90/10 C/D

LDC #45094 (AECOM-Honolulu, HI / Red Hill Bulk Storage Facility, CTO 18F0126)

LDC	SDG#	DATE REC'D	(2) DATE DUE	BTEX (8260B)		Phenol (8270D)		3 PAH (8270D -SIM)		2,2-MEE (8270D-M)		GRO (8260B)		TPH-E (8015B)		Methane (175)		Alk. (2320B)		Cl,SO_4 NO_3-N (300.0)		NO_3/ NO_2-N (353.2)		Fe II (3500-Fe B)		DOC (9060A)		TOC (9060A)					
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	88701	05/21/19	06/05/19	8	0	3	0	3	0	3	0	8	0	5	0	7	0	2	0	2	0	2	0	2	0	2	0	2	0				
A	88701	05/21/19	06/05/19	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0				
Total	J/SC			11	0	6	0	6	0	6	0	11	0	8	0	10	0	5	0	5	0	5	0	5	0	5	0	5	0	0	0	0	88

Shaded cells indicate Level D validation (all other cells are Level C validation). These sample counts do not include MS/MSD, and DUPs

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: July 5, 2019

Parameters: Volatiles

Validation Level: Level C & D

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88701

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH784	AZ90050	Water	04/23/19
ERH785	AZ90051	Water	04/23/19
ERH786	AZ90052	Water	04/23/19
ERH796	AZ90053	Water	04/22/19
ERH797**	AZ90054**	Water	04/22/19
ERH798	AZ90055	Water	04/22/19
ERH799**	AZ90056**	Water	04/22/19
ERH800	AZ90057	Water	04/22/19
ERH801**	AZ90058**	Water	04/22/19
ERH802	AZ90059	Water	04/23/19
ERH803	AZ90060	Water	04/23/19
ERH785MS	AZ90051MS	Water	04/23/19
ERH785MSD	AZ90051MSD	Water	04/23/19

**Indicates sample underwent Level D validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) which are Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) by Environmental Protection Agency (EPA) SW 846 Method 8260B

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level D data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Samples ERH784, ERH796, ERH798, ERH800, and ERH802 were identified as trip blanks. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
ERH785MS/MSD (ERH785)	Ethylbenzene Toluene Xylenes, total	125 (79-121) 157 (80-121) 132 (79-121)	- - -	NA	-

Relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
ERH785MS/MSD (ERH785)	Benzene Ethylbenzene Toluene Xylenes, total	35.4 (≤20) 34.2 (≤20) 31.7 (≤20) 32.5 (≤20)	NA	-

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

Samples ERH785 and ERH786 were identified as field duplicates. No results were detected in any of the samples.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XIV. System Performance

The system performance was acceptable for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Volatiles - Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Volatiles - Laboratory Blank Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Volatiles - Field Blank Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

LDC #: 45094A1a
SDG #: 88701
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C/D

Date: 5/30/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (BTEX)(EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	%D ≤ 15 ICV ≤ 20
IV.	Continuing calibration / closing ccv	A	ccv ≤ 20/50
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB = 1, 4, 6, 8, 10
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	SW	
IX.	Laboratory control samples	A	LCS/D
X.	Field duplicates	ND	D = 2, 3
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level C validation
XIII.	Target compound identification	A	Not reviewed for Level C validation
XIV.	System performance	A	Not reviewed for Level C validation
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

**Indicates samples underwent Level D review

	Client ID		Lab ID	Matrix	Date
1	ERH784	TB	AZ90050	Water	04/23/19
2	ERH785	D	AZ90051	Water	04/23/19
3	ERH786	D	AZ90052	Water	04/23/19
4	ERH796	TB	AZ90053	Water	04/22/19
5	ERH797**		AZ90054**	Water	04/22/19
6	ERH798	TB	AZ90055	Water	04/22/19
7	ERH799	**	AZ90056	Water	04/22/19
8	ERH800	TB	AZ90057	Water	04/22/19
9	ERH801	**	AZ90058	Water	04/22/19
10	ERH802	TB	AZ90059	Water	04/23/19
11	ERH803		AZ90060	Water	04/23/19
12	ERH785MS		AZ90051MS	Water	04/23/19
13	ERH785MSD		AZ90051MSD	Water	04/23/19

LDC #: 45094A1a
SDG #: 88701
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C/D

Date: 5/30/19
Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS Volatiles (BTEX)(EPA SW 846 Method 8260B)

14				
15				
16				

Notes:

	190425AM						

LDC #: 45094A|a

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: A

Method: Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
Were all percent relative standard deviations (%RSD) ≤ 30% (15%) and relative response factors (RRF) ≥ 0.05?	✓			
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 20%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) ≥ 0.05?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
VI. Field blanks				
Were field blanks were identified in this SDG?	✓			
Were target compounds detected in the field blanks?		✓		
VII. Surrogate spikes				
Were all surrogate percent recovery (%R) within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	

Validation Area	Yes	No	NA	Findings/Comments
VIII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
IX. Laboratory control samples				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓	NA		
Were target compounds detected in the field duplicates?		✓		
XI. Internal standards				
Were internal standard area counts within -50% to +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XII. Compound quantitation				
Did the laboratory LOQs/RLs meet the QAPP LOQs/RLs?	✓			
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane
C. Vinyl choride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO.1,1-Difluoroethane	O1. 3-Methylpentane
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methyl cyclohexane	T1. 2-Methylhexane
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.

LDC #: 45294A1a

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: FT
2nd Reviewer:

METHOD: ✓ **GC** __ **HPLC**

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG?

Y N N/A Was an MS/MSD analyzed every 20 samples for each matrix or whenever a sample extraction was performed?

Y N N/A Were the MS/MSD percent recoveries (%R) and relative percent differences (RPD) within QC limits?

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	12 + 13	EE	125 (79-121)	( )	( )	2 (Q)	J det /A and MD
		CC	157 (80-121)	( )	( )		
		GG	132 (79-121)	( )	( )		
		V	( )	( )	35.4 (20)	(E)	
		EE	( )	( )	34.2 ( )		
		CC	( )	( )	31.7 ( )		
		GG	( )	( )	32.5 ( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

LDC #: 45094A1a

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GCMS 8260B

The calibration factors (RRFF), average RRFF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

RRF = (Ax)(Cis)/(Ais)(Cx)
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

Where:

Ax = Area of compound
Cx = Concentration of compound
S = Standard deviation of the RRFs
X = Mean of the RRFs
Ais = Area of associated internal standard
Cis = Concentration of internal Standard

#	Standard ID	Calibration Date	Compound	Reported (RRF 5 std)	Recalculated (RRF 5 std)	Reported AverageRRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
	ICAL Loki	3/24/2019	V (IS 1)	0.4619	0.4619	0.4494	0.4494	2.1	2.1
			EE (IS 2)	0.7466	0.7466	0.7104	0.7104	4.0	4.0

LDC #: 45294A1a

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	CCV 0425M03	4/25/19	√ (1st internal standard)	0.4494	0.4460	0.4460	0.77	0.77
			EE (2nd internal standard)	0.7104	0.6945	0.6945	2.2	2.2
			(3rd internal standard)					
			(4th internal standard)					
2			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					
3			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					
4			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45094A/a

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: FT
2nd reviewer: A

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 5

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane	25.0	24.854	99.4	99.4	0
1,2-Dichloroethane-d4	↓	23.035	92.1	92.1	
Toluene-d8		24.220	96.9	96.9	↓
Bromofluorobenzene		24.288	97.2	97.2	

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

LDC #: 45094A1a

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA

Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentration

RPD = | MSC - MSC | * 2/(MSC + MSDC)

MSC = Matrix spike concentration; MSDC = Matrix spike duplicate concentration

MS/MSD sample: 12 + 13

Compound	Spike Added (ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration (ug/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
1,1-Dichloroethene											
Trichloroethene											
Benzene	10.0	10.0	ND	12.0	8.39	120	120	83.9	83.9	35.4	35.4
Toluene											
Chlorobenzene											

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45094A1a

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer: FT
2nd Reviewer:

METHOD: GC/MS VOA (EPA Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA Where: SSC = Spiked sample concentration; SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboraotry control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: 190425AM lcs 1D

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene										
Trichloroethene										
Benzene	10.0	10.0	9.99	10.0	99.9	99.9	100	100	0.10	0.10
Toluene										
Chlorobenzene										

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45094A1a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: FT
2nd reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were all reported results recalculated and verified for all level IV samples?

Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. 190425A LCS Benzene

Conc. = $\frac{131011\ (25.0)}{729105\ (0.4494)}$

= 9.99 ug/l

#	Sample ID	Compound	Reported Concentration (ug/l)	Calculated Concentration (ug/l)	Qualification
	LCS	V	9.99	9.99	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: July 5, 2019

Parameters: Phenol

Validation Level: Level C & D

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88701

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH785	AZ90051	Water	04/23/19
ERH786	AZ90052	Water	04/23/19
ERH797**	AZ90054**	Water	04/22/19
ERH799**	AZ90056**	Water	04/22/19
ERH801**	AZ90058**	Water	04/22/19
ERH803	AZ90060	Water	04/23/19
ERH785MS	AZ90051MS	Water	04/23/19
ERH785MSD	AZ90051MSD	Water	04/23/19

**Indicates sample underwent Level D validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Phenol by Environmental Protection Agency (EPA) SW 846 Method 8270D

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level D data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0%.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits.

Relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
ERH785MS/MSD (ERH785)	Phenol	34.6 (≤20)	NA	-

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

Samples ERH785 and ERH786 were identified as field duplicates. No results were detected in any of the samples.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XIV. System Performance

The system performance was acceptable for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Phenol - Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Phenol - Laboratory Blank Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Phenol - Field Blank Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

LDC #: 45094A2a
SDG #: 88701
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C/D

Date: 5/30/19
Page: 1 of 1
Reviewer: FR
2nd Reviewer: C

METHOD: GC/MS Phenol & ~~TICs~~ (EPA SW 846 Method 8270D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	% RSD ≤ 15 ICV ≤ 20
IV.	Continuing calibration / closing CCV	A	CCV ≤ 20 / 50
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	SW	
IX.	Laboratory control samples	A	LCS ID
X.	Field duplicates	ND	D = 1, 2
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level C validation
XIII.	Target compound identification	A	Not reviewed for Level C validation
XIV.	System performance	A	Not reviewed for Level C validation
XV.	Overall assessment of data	A	

Note: A = Acceptable; ND = No compounds detected; D = Duplicate; SB=Source blank
N = Not provided/applicable; R = Rinsate; TB = Trip blank; OTHER:
SW = See worksheet; FB = Field blank; EB = Equipment blank
**Indicates samples underwent Level D review

	Client ID		Lab ID	Matrix	Date
1	ERH785	D	AZ90051	Water	04/23/19
2	ERH786	D	AZ90052	Water	04/23/19
3	ERH797**		AZ90054**	Water	04/22/19
~~4~~	ERH799	~~**~~	AZ90056	Water	04/22/19
~~5~~	ERH801	~~**~~	AZ90058	Water	04/22/19
6	ERH803		AZ90060	Water	04/23/19
7	ERH785MS		AZ90051MS	Water	04/23/19
8	ERH785MSD		AZ90051MSD	Water	04/23/19
9					
10					

Notes:

	19642A						

LDC #: 45094A2a

VALIDATION FINDINGS CHECKLIST

Reviewer: RJ
2nd Reviewer: MC

Method: Semivolatiles (EPA SW 846 Method 8270D)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS Instrument performance check				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 15% and relative response factors (RRF) within method criteria?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?	✓			
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 20%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) within method criteria?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks? If yes, please see the blanks validation findings worksheet.		✓		
VI. Field blanks				
Were field blanks were identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	
VII. Surrogate spikes				
Were all surrogate percent recovery (%R) within QC limits?	✓			
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any percent recoveries (%R) was less than 10%, was a reanalysis performed to confirm %R ?			✓	
VIII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?	✓			

LDC #: 45094A2a

VALIDATION FINDINGS CHECKLIST

Reviewer: EM
2nd Reviewer: AC

Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	N/A	✓		
IX. Laboratory control samples				
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?		✓		
XI. Internal standards				
Were internal standard area counts within -50% to +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XII. Compound quantitation				
Did the laboratory LOQs/RLs meet the QAPP LOQs/RLs?	✓			
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	CC. Dimethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	GGGG. C30-Hopane	I1. Methyl methanesulfonate
B. Bis (2-chloroethyl) ether	DD. Acenaphthylene	FFF. Di-n-octylphthalate	HHHH. 1-Methylphenanthrene	J1. Ethyl methanesulfonate
C. 2-Chlorophenol	EE. 2,6-Dinitrotoluene	GGG. Benzo(b)fluoranthene	IIII. 1,4-Dioxane	K1. o,o',o''-Triethylphosphorothioate
D. 1,3-Dichlorobenzene	FF. 3-Nitroaniline	HHH. Benzo(k)fluoranthene	JJJJ. Acetophenone	L1. n-Phenylene diamine
E. 1,4-Dichlorobenzene	GG. Acenaphthene	III. Benzo(a)pyrene	KKKK. Atrazine	M1. 1,4-Naphthoquinone
F. 1,2-Dichlorobenzene	HH. 2,4-Dinitrophenol	JJJ. Indeno(1,2,3-cd)pyrene	LLLL. Benzaldehyde	N1. N-Nitro-o-toluidine
G. 2-Methylphenol	II. 4-Nitrophenol	KKK. Dibenz(a,h)anthracene	MMMM. Caprolactam	O1. 1,3,5-Trinitrobenzene
H. 2,2'-Oxybis(1-chloropropane)	JJ. Dibenzofuran	LLL. Benzo(g,h,i)perylene	NNNN. 2,6-Dichlorophenol	P1. Pentachlorobenzene
I. 4-Methylphenol	KK. 2,4-Dinitrotoluene	MMM. Bis(2-Chloroisopropyl)ether	OOOO. 1,2-Diphenylhydrazine	Q1. 4-Aminobiphenyl
J. N-Nitroso-di-n-propylamine	LL. Diethylphthalate	NNN. Aniline	PPPP. 3-Methylphenol	R1. 2-Naphthylamine
K. Hexachloroethane	MM. 4-Chlorophenyl-phenyl ether	OOO. N-Nitrosodimethylamine	QQQQ. 3&4-Methylphenol	S1. Triphenylene
L. Nitrobenzene	NN. Fluorene	PPP. Benzoic Acid	RRRR. 4-Dimethyldibenzothiophene (4MDT)	T1. Octachlorostyrene
M. Isophorone	OO. 4-Nitroaniline	QQQ. Benzyl alcohol	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	U1. Famphur
N. 2-Nitrophenol	PP. 4,6-Dinitro-2-methylphenol	RRR. Pyridine	TTTT. 1-Methyldibenzothiophene (1MDT)	V1. 1,4-phenylenediamine
O. 2,4-Dimethylphenol	QQ. N-Nitrosodiphenylamine	SSS. Benzidine	UUUU.. 2,3,4,6-Tetrachlorophenol	W1. Methapyrilene
P. Bis(2-chloroethoxy)methane	RR. 4-Bromophenyl-phenylether	TTT. 1-Methylnaphthalene	VVVV. 1,2,4,5-Tetrachlorobenzene	X1. Pentachloroethane
Q. 2,4-Dichlorophenol	SS. Hexachlorobenzene	UUU.Benzo(b)thiophene	WWWW.. 2-Picoline	Y1. 3,3'-Dimethylbenzidine
R. 1,2,4-Trichlorobenzene	TT. Pentachlorophenol	VVV.Benzonaphthothiophene	XXXX. 3-Methylcholanthrene	Z1. o-Toluidine
S. Naphthalene	UU. Phenanthrene	WWW.Benzo(e)pyrene	YYYY. a,a-Dimethylphenethylamine	A2. 1-Naphthylamine
T. 4-Chloroaniline	VV. Anthracene	XXX. 2,6-Dimethylnaphthalene	ZZZZ. Hexachloropropene	B2. 4-Aminobiphenyl
U. Hexachlorobutadiene	WW. Carbazole	YYY. 2,3,5-Trimethylnaphthalene	A1. N-Nitrosodiethylamine	C2. 4-Nitroquinoline-1-oxide
V. 4-Chloro-3-methylphenol	XX. Di-n-butylphthalate	ZZZ. Perylene	B1. N-Nitrosodi-n-butylamine	D2. Hexachloropene
W. 2-Methylnaphthalene	YY. Fluoranthene	AAAA. Dibenzothiophene	C1. N-Nitrosomethylethylamine	E2. Bis (2-chloro-1-methylethyl) ether
X. Hexachlorocyclopentadiene	ZZ. Pyrene	BBBB. Benzo(a)fluoranthene	D1. N-Nitrosomorpholine	F2. Bifenthrin
Y. 2,4,6-Trichlorophenol	AAA. Butylbenzylphthalate	CCCC. Benzo(b)fluorene	E1. N-Nitrosopyrrolidine	G2.Cyfluthrin
Z. 2,4,5-Trichlorophenol	BBB. 3,3'-Dichlorobenzidine	DDDD. cis/trans-Decalin	F1. Phenacetin	H2.Cypermethrin
AA. 2-Chloronaphthalene	CCC. Benzo(a)anthracene	EEEE. Biphenyl	G1. 2-Acetylaminofluorene	I2.Permethrin (cis/trans)
BB. 2-Nitroaniline	DDD. Chrysene	FFFF. Retene	H1. Pronamide	J2. 5-Nitro-o-toluidine

LDC #: 45094A2a

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: FT
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits? (E)

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	7+8	A	( )	( )	34.6 (20)	1	J(NA) /A (ND)
			( )	( )	( )		
			( )	( )			
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

LDC #: 45094A2a

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: FT
2nd Reviewer:

METHOD: GCMS 8270D

The calibration factors (RRFF), average RRFF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

RRF = (Ax)(Cis)/(Ais)(Cx)
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

Where:
Ax = Area of compound
Cx = Concentration of compound
S = Standard deviation of the RRFs
X = Mean of the RRFs
Ais = Area of associated internal standard
Cis = Concentration of internal Standard

#	Standard ID	Calibration Date	Compound	Reported (RRF 40 std)	Recalculated (RRF40 std)	Reported AverageRRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
	ICAL	3/19/2019	A	2.046	2.046	2.163	2.163	2.20	2.20

LDC #: 45094A2a

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: FT
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Internal Standard)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	CCV 0411Y195	4/26/19	A (1st IS)	2.163	2.185	2.185	1.0	1.0
			(2nd IS)					
			(3rd IS)					
			(4th IS)					
			(5th IS)					
			(6th IS)					
2			(1st IS)					
			(2nd IS)					
			(3rd IS)					
			(4th IS)					
			(5th IS)					
			(6th IS)					
3			(1st IS)					
			(2nd IS)					
			(3rd IS)					
			(4th IS)					
			(5th IS)					
			(6th IS)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45094A2a

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: FT
2nd reviewer:

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270D)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 3

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5	125.0	91.5116	73.2	73.2	0
2-Fluorobiphenyl	125.0	82.1155	65.7	65.7	
Terphenyl-d14	125.0	85.4944	68.4	68.4	
Phenol-d5	250	191.1919	76.5	76.5	
2-Fluorophenol	250	200.2686	80.1	80.1	
2,4,6-Tribromophenol	250	201.4176	80.6	80.6	
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

LDC #: 45094A2a

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentation

RPD = | MSC - MSC | * 2/(MSC + MSDC) MSC = Matrix spike concentration MSDC = Matrix spike duplicate concentration

MS/MSD samples: 7 + 8

Compound	Spike Added (ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration (ug/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	-----	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalc
Phenol											
N-Nitroso-di-n-propylamine											
4-Chloro-3-methylphenol											
Acenaphthene											
Pentachlorophenol											
Pyrene											
Phenol	62.5	62.5	ND	71.2	50.2	114	114	80.3	80.3	34.6	34.6

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45094A2a

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: FT
2nd Reviewer: [signature]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: 190424A LCS 1D

Compound	Spike Added (ug/L)		Spike Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
Phenol	62.5	62.5	48.6	52.4	77.8	77.8	83.8	83.8	7.5	7.5
N-Nitroso-di-n-propylamine										
4-Chloro-3-methylphenol										
Acenaphthene										
Pentachlorophenol										
Pyrene										

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45094A2a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: FT
2nd reviewer: M

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example:

Sample I.D. LCS, Phenol

Conc. = $\frac{349146\ (40.0)\ (1)\ (1000)}{165950\ (2.163)\ (800)}$

= 48.6 ug/L

#	Sample ID	Compound	Reported Concentration (ug/L)	Calculated Concentration (ug/L)	Qualification
	190424A LCS	Phenol	48.6	48.6	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: July 5, 2019

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: Level C & D

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88701

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH785	AZ90051	Water	04/23/19
ERH786	AZ90052	Water	04/23/19
ERH797**	AZ90054**	Water	04/22/19
ERH799**	AZ90056**	Water	04/22/19
ERH801**	AZ90058**	Water	04/22/19
ERH803	AZ90060	Water	04/23/19
ERH785MS	AZ90051MS	Water	04/23/19
ERH785MSD	AZ90051MSD	Water	04/23/19

**Indicates sample underwent Level D validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polynuclear Aromatic Hydrocarbons (PAHs) which are 1-Methylnaphthalene, 2-Methylnaphthalene, and Naphthalene by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level D data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

Samples ERH785 and ERH786 were identified as field duplicates. No results were detected in any of the samples.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XIV. System Performance

The system performance was acceptable for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

LDC #: 45094A2b
SDG #: 88701
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C/D

Date: 5/30/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A /A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A /A	%D RSD ≤ 15 ICV ≤ 20
IV.	Continuing calibration /closing ccv	A	ccv ≤ 20 /50
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	A	
IX.	Laboratory control samples	A	LCS 1D
X.	Field duplicates	ND	D = 1,2
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level C validation
XIII.	Target compound identification	A	Not reviewed for Level C validation
XIV.	System performance	A	Not reviewed for Level C validation
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

**Indicates samples underwent Level D review

	Client ID		Lab ID	Matrix	Date
1	ERH785	D	AZ90051	Water	04/23/19
2	ERH786	D	AZ90052	Water	04/23/19
3	ERH797**		AZ90054**	Water	04/22/19
4	ERH799 **		AZ90056 **	Water	04/22/19
5	ERH801 **		AZ90058 **	Water	04/22/19
6	ERH803		AZ90060	Water	04/23/19
7	ERH785MS		AZ90051MS	Water	04/23/19
8	ERH785MSD		AZ90051MSD	Water	04/23/19
9					
10					

Notes:

	190424A-BLK							

TTT, W, S

LDC #: 45094A2b

VALIDATION FINDINGS CHECKLIST

Reviewer: EJ
2nd Reviewer: M

Method: PAH (EPA SW 846 Method 8270D-SIM)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS Instrument performance check (Not required)				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 15% and relative response factors (RRF) ≥ 0.05?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤20%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) ≥ 0.05?	✓			
Were all percent differences (%D) ≤ 50% for closing calibration verifications?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
VI. Field blanks				
Were field blanks identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	
VII. Surrogate spikes				
Were all surrogate percent differences (%R) within QC limits?	✓			
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any percent recoveries (%R) was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VIII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?	✓			

Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
IX. Laboratory control samples				
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?		✓		
XI. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 10 seconds of the associated calibration standard?	✓			
XII. Compound quantitation				
Did the laboratory LOQs/RLs meet the QAPP LOQs/RLs?	✓			
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Did compound quantitation limits meet QAPP limits?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	CC. Dimethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	GGGG. C30-Hopane	I1. Methyl methanesulfonate
B. Bis (2-chloroethyl) ether	DD. Acenaphthylene	FFF. Di-n-octylphthalate	HHHH. 1-Methylphenanthrene	J1. Ethyl methanesulfonate
C. 2-Chlorophenol	EE. 2,6-Dinitrotoluene	GGG. Benzo(b)fluoranthene	IIII. 1,4-Dioxane	K1. o,o',o''-Triethylphosphorothioate
D. 1,3-Dichlorobenzene	FF. 3-Nitroaniline	HHH. Benzo(k)fluoranthene	JJJJ. Acetophenone	L1. n-Phenylene diamine
E. 1,4-Dichlorobenzene	GG. Acenaphthene	III. Benzo(a)pyrene	KKKK. Atrazine	M1. 1,4-Naphthoquinone
F. 1,2-Dichlorobenzene	HH. 2,4-Dinitrophenol	JJJ. Indeno(1,2,3-cd)pyrene	LLLL. Benzaldehyde	N1. N-Nitro-o-toluidine
G. 2-Methylphenol	II. 4-Nitrophenol	KKK. Dibenz(a,h)anthracene	MMMM. Caprolactam	O1. 1,3,5-Trinitrobenzene
H. 2,2'-Oxybis(1-chloropropane)	JJ. Dibenzofuran	LLL. Benzo(g,h,i)perylene	NNNN. 2,6-Dichlorophenol	P1. Pentachlorobenzene
I. 4-Methylphenol	KK. 2,4-Dinitrotoluene	MMM. Bis(2-Chloroisopropyl)ether	OOOO. 1,2-Diphenylhydrazine	Q1. 4-Aminobiphenyl
J. N-Nitroso-di-n-propylamine	LL. Diethylphthalate	NNN. Aniline	PPPP. 3-Methylphenol	R1. 2-Naphthylamine
K. Hexachloroethane	MM. 4-Chlorophenyl-phenyl ether	OOO. N-Nitrosodimethylamine	QQQQ. 3&4-Methylphenol	S1. Triphenylene
L. Nitrobenzene	NN. Fluorene	PPP. Benzoic Acid	RRRR. 4-Dimethyldibenzothiophene (4MDT)	T1. Octachlorostyrene
M. Isophorone	OO. 4-Nitroaniline	QQQ. Benzyl alcohol	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	U1. Famphur
N. 2-Nitrophenol	PP. 4,6-Dinitro-2-methylphenol	RRR. Pyridine	TTTT. 1-Methyldibenzothiophene (1MDT)	V1. 1,4-phenylenediamine
O. 2,4-Dimethylphenol	QQ. N-Nitrosodiphenylamine	SSS. Benzidine	UUUU.. 2,3,4,6-Tetrachlorophenol	W1. Methapyrilene
P. Bis(2-chloroethoxy)methane	RR. 4-Bromophenyl-phenylether	TTT. 1-Methylnaphthalene	VVVV. 1,2,4,5-Tetrachlorobenzene	X1. Pentachloroethane
Q. 2,4-Dichlorophenol	SS. Hexachlorobenzene	UUU.Benzo(b)thiophene	WWWW.. 2-Picoline	Y1. 3,3'-Dimethylbenzidine
R. 1,2,4-Trichlorobenzene	TT. Pentachlorophenol	VVV.Benzonaphthothiophene	XXXX. 3-Methylcholanthrene	Z1. o-Toluidine
S. Naphthalene	UU. Phenanthrene	WWW.Benzo(e)pyrene	YYYY. a,a-Dimethylphenethylamine	A2. 1-Naphthylamine
T. 4-Chloroaniline	VV. Anthracene	XXX. 2,6-Dimethylnaphthalene	ZZZZ. Hexachloropropene	B2. 4-Aminobiphenyl
U. Hexachlorobutadiene	WW. Carbazole	YYY. 2,3,5-Trimethylnaphthalene	A1. N-Nitrosodiethylamine	C2. 4-Nitroquinoline-1-oxide
V. 4-Chloro-3-methylphenol	XX. Di-n-butylphthalate	ZZZ. Perylene	B1. N-Nitrosodi-n-butylamine	D2. Hexachloropene
W. 2-Methylnaphthalene	YY. Fluoranthene	AAAA. Dibenzothiophene	C1. N-Nitrosomethylethylamine	E2. Bis (2-chloro-1-methylethyl) ether
X. Hexachlorocyclopentadiene	ZZ. Pyrene	BBBB. Benzo(a)fluoranthene	D1. N-Nitrosomorpholine	F2. Bifenthrin
Y. 2,4,6-Trichlorophenol	AAA. Butylbenzylphthalate	CCCC. Benzo(b)fluorene	E1. N-Nitrosopyrrolidine	G2.Cyfluthrin
Z. 2,4,5-Trichlorophenol	BBB. 3,3'-Dichlorobenzidine	DDDD. cis/trans-Decalin	F1. Phenacetin	H2.Cypermethrin
AA. 2-Chloronaphthalene	CCC. Benzo(a)anthracene	EEEE. Biphenyl	G1. 2-Acetylaminofluorene	I2.Permethrin (cis/trans)
BB. 2-Nitroaniline	DDD. Chrysene	FFFF. Retene	H1. Pronamide	J2. 5-Nitro-o-toluidine

LDC #: 45094A26

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: FT
2nd Reviewer:

METHOD: GCMS 8270D

The calibration factors (RRFF), average RRFF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

RRF = (Ax)(Cis)/(Ais)(Cx)
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

Where:
Ax = Area of compound
Cx = Concentration of compound
S = Standard deviation of the RRFs
X = Mean of the RRFs
Ais = Area of associated internal standard
Cis = Concentration of internal Standard

#	Standard ID	Calibration Date	Compound	Reported (RRF1.0 std)	Recalculated (RRF1.0 std)	Reported AverageRRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
	ICAL Linus	3/26/2019	S	1.1630	1.1630	1.3140	1.3140	12.0	12.0

LDC #: 45094A26

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: FT
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Internal Standard)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	CCV 042619003	4/26/19	S (1st IS)	1.314	1.225	1.225	6.8	6.8
			(2nd IS)					
			(3rd IS)					
			(4th IS)					
			(5th IS)					
			(6th IS)					
2			(1st IS)					
			(2nd IS)					
			(3rd IS)					
			(4th IS)					
			(5th IS)					
			(6th IS)					
3			(1st IS)					
			(2nd IS)					
			(3rd IS)					
			(4th IS)					
			(5th IS)					
			(6th IS)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45294A2b

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: FT
2nd reviewer: A

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270D)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 3

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
~~Nitrobenzene-d5~~ W-d10	6.250	5.58516	89.4	89.4	0
2-Fluorobiphenyl YY-d10	6.250	5.71886	91.5	91.5	0
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
~~1,2-Dichlorobenzene-d4~~					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

LDC #: 45094A26

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentation

RPD = I MSC - MSC I * 2/(MSC + MSDC) MSC = Matrix spike concentration MSDC = Matrix spike duplicate concentration

MS/MSD samples: 7 + 8

Compound	Spike Added (ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration (ug/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalc
Phenol											
N-Nitroso-di-n-propylamine											
4-Chloro-3-methylphenol											
Acenaphthene											
Pentachlorophenol											
Pyrene											
S	6.25	6.25	ND	5.90	6.37	94.4	94.4	102	102	7.7	7.7

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45094A26

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration; SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: 190424A LCS 1P

Compound	Spike Added (ug/L)		Spike Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
Phenol										
N-Nitroso-di-n-propylamine										
4-Chloro-3-methylphenol										
Acenaphthene										
Pentachlorophenol										
Pyrene										
S	6.25	6.25	4.60	4.59	73.6	73.6	73.4	73.4	0.22	

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45294A2b

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: FT
2nd reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 190424A lcs S

Conc. = $\frac{119158\ (2.5)\ (1)\ (1000)}{61600\ (1.3140)\ (800)}$

=

4.60 ug/L

#	Sample ID	Compound	Reported Concentration (ug/L)	Calculated Concentration (ug/L)	Qualification
	lcs	S	4.60	4.60	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: July 5, 2019

Parameters: 2-(2-Methoxyethoxy)-ethanol

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88701

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH785	AZ90051	Water	04/23/19
ERH786	AZ90052	Water	04/23/19
ERH797**	AZ90054**	Water	04/22/19
ERH799**	AZ90056**	Water	04/22/19
ERH801**	AZ90058**	Water	04/22/19
ERH803	AZ90060	Water	04/23/19
ERH785MS	AZ90051MS	Water	04/23/19
ERH785MSD	AZ90051MSD	Water	04/23/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

2-(2-Methoxyethoxy)-ethanol by Environmental Protection Agency (EPA) SW 846 Method 8270D Modified

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were not added to all samples as required by the method. Using professional judgment, no data were qualified, since the MS/MSD/LCS percent recoveries were within QC limits. Additionally, all base surrogate percent recoveries were within QC limits in the phenol reextraction and reanalysis.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	Flag	A or P
190429A-LCS/D (All samples in SDG 88701)	2-(2-Methoxyethoxy)-ethanol	-	155 (30-130)	NA	-

Relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
190429A-LCS/D (All samples in SDG 88701)	2-(2-Methoxyethoxy)-ethanol	28.3 (≤20)	UJ (all non-detects)	P

X. Field Duplicates

Samples ERH785 and ERH786 were identified as field duplicates. No results were detected in any of the samples.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XIV. System Performance

Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method with the exception noted in Section VII. No results were rejected in this SDG.

Due to LCS/LCSD RPD, data were qualified as estimated in six samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
2-(2-Methoxyethoxy)-ethanol - Data Qualification Summary - SDG 88701

Sample	Compound	Flag	A or P	Reason (Code)
ERH785 ERH786 ERH797** ERH799** ERH801** ERH803	2-(2-Methoxyethoxy)-ethanol	UJ (all non-detects)	P	Laboratory control samples (RPD) (L)

Red Hill Bulk Storage Facility, CTO 18F0126
2-(2-Methoxyethoxy)-ethanol - Laboratory Blank Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
2-(2-Methoxyethoxy)-ethanol - Field Blank Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

LDC #: 45094A2c
SDG #: 88701
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C/D

Date: 5/30/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS 2-(2-Methoxyethoxy)-Ethanol (EPA SW 846 Method 8270D-Modified)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A /A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	1,2 ICV ≤ 20
IV.	Continuing calibration / closing ccv	A	ccv ≤ 20/20
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	SW	
VIII.	Matrix spike/Matrix spike duplicates	A	
IX.	Laboratory control samples	SW	LCS ID
X.	Field duplicates	AD	D = 1,2
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level C validation
XIII.	Target compound identification	A	Not reviewed for Level C validation
XIV.	System performance	A	Not reviewed for Level C validation
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

**Indicates samples underwent Level D review

	Client ID	Lab ID	Matrix	Date
1	ERH785 D	AZ90051	Water	04/23/19
2	ERH786 D	AZ90052	Water	04/23/19
3	ERH797**	AZ90054**	Water	04/22/19
4	ERH799 **	AZ90056	Water	04/22/19
5	ERH801 **	AZ90058	Water	04/22/19
6	ERH803	AZ90060	Water	04/23/19
7	ERH785MS	AZ90051MS	Water	04/23/19
8	ERH785MSD	AZ90051MSD	Water	04/23/19
9				
10				

Notes:

	190429A-BLK						

LDC #: 45094 A2a

VALIDATION FINDINGS CHECKLIST

Reviewer: FM
2nd Reviewer: [illegible]

Method: Semivolatiles (EPA SW 846 Method 8270D)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS Instrument performance check				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 15% and relative response factors (RRF) within method criteria?	NA		✓	
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?	✓			
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 20%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) within method criteria?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks? If yes, please see the blanks validation findings worksheet.		✓		
VI. Field blanks				
Were field blanks were identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	
VII. Surrogate spikes				
Were all surrogate percent recovery (%R) within QC limits?			✓	
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any percent recoveries (%R) was less than 10%, was a reanalysis performed to confirm %R ?			✓	
VIII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?	✓			

Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
IX. Laboratory control samples				
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?		✓		
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?		✓		
XI. Internal standards				
Were internal standard area counts within -50% to +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XII. Compound quantitation				
Did the laboratory LOQs/RLs meet the QAPP LOQs/RLs?	✓			
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	CC. Dimethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	GGGG. C30-Hopane	I1. Methyl methanesulfonate
B. Bis (2-chloroethyl) ether	DD. Acenaphthylene	FFF. Di-n-octylphthalate	HHHH. 1-Methylphenanthrene	J1. Ethyl methanesulfonate
C. 2-Chlorophenol	EE. 2,6-Dinitrotoluene	GGG. Benzo(b)fluoranthene	IIII. 1,4-Dioxane	K1. o,o',o''-Triethylphosphorothioate
D. 1,3-Dichlorobenzene	FF. 3-Nitroaniline	HHH. Benzo(k)fluoranthene	JJJJ. Acetophenone	L1. n-Phenylene diamine
E. 1,4-Dichlorobenzene	GG. Acenaphthene	III. Benzo(a)pyrene	KKKK. Atrazine	M1. 1,4-Naphthoquinone
F. 1,2-Dichlorobenzene	HH. 2,4-Dinitrophenol	JJJ. Indeno(1,2,3-cd)pyrene	LLLL. Benzaldehyde	N1. N-Nitro-o-toluidine
G. 2-Methylphenol	II. 4-Nitrophenol	KKK. Dibenz(a,h)anthracene	MMMM. Caprolactam	O1. 1,3,5-Trinitrobenzene
H. 2,2'-Oxybis(1-chloropropane)	JJ. Dibenzofuran	LLL. Benzo(g,h,i)perylene	NNNN. 2,6-Dichlorophenol	P1. Pentachlorobenzene
I. 4-Methylphenol	KK. 2,4-Dinitrotoluene	MMM. Bis(2-Chloroisopropyl)ether	OOOO. 1,2-Diphenylhydrazine	Q1. 4-Aminobiphenyl
J. N-Nitroso-di-n-propylamine	LL. Diethylphthalate	NNN. Aniline	PPPP. 3-Methylphenol	R1. 2-Naphthylamine
K. Hexachloroethane	MM. 4-Chlorophenyl-phenyl ether	OOO. N-Nitrosodimethylamine	QQQQ. 3&4-Methylphenol	S1. Triphenylene
L. Nitrobenzene	NN. Fluorene	PPP. Benzoic Acid	RRRR. 4-Dimethyldibenzothiophene (4MDT)	T1. Octachlorostyrene
M. Isophorone	OO. 4-Nitroaniline	QQQ. Benzyl alcohol	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	U1. Famphur
N. 2-Nitrophenol	PP. 4,6-Dinitro-2-methylphenol	RRR. Pyridine	TTTT. 1-Methyldibenzothiophene (1MDT)	V1. 1,4-phenylenediamine
O. 2,4-Dimethylphenol	QQ. N-Nitrosodiphenylamine	SSS. Benzidine	UUUU.. 2,3,4,6-Tetrachlorophenol	W1. Methapyrilene
P. Bis(2-chloroethoxy)methane	RR. 4-Bromophenyl-phenylether	TTT. 1-Methylnaphthalene	VVVV. 1,2,4,5-Tetrachlorobenzene	X1. Pentachloroethane
Q. 2,4-Dichlorophenol	SS. Hexachlorobenzene	UUU.Benzo(b)thiophene	WWWW.. 2-Picoline	Y1. 3,3'-Dimethylbenzidine
R. 1,2,4-Trichlorobenzene	TT. Pentachlorophenol	VVV.Benzonaphthothiophene	XXXX. 3-Methylcholanthrene	Z1. o-Toluidine
S. Naphthalene	UU. Phenanthrene	WWW.Benzo(e)pyrene	YYYY. a,a-Dimethylphenethylamine	A2. 1-Naphthylamine
T. 4-Chloroaniline	VV. Anthracene	XXX. 2,6-Dimethylnaphthalene	ZZZZ. Hexachloropropene	B2. 4-Aminobiphenyl
U. Hexachlorobutadiene	WW. Carbazole	YYY. 2,3,5-Trimethylnaphthalene	A1. N-Nitrosodiethylamine	C2. 4-Nitroquinoline-1-oxide
V. 4-Chloro-3-methylphenol	XX. Di-n-butylphthalate	ZZZ. Perylene	B1. N-Nitrosodi-n-butylamine	D2. Hexachloropene
W. 2-Methylnaphthalene	YY. Fluoranthene	AAAA. Dibenzothiophene	C1. N-Nitrosomethylethylamine	E2. Bis (2-chloro-1-methylethyl) ether
X. Hexachlorocyclopentadiene	ZZ. Pyrene	BBBB. Benzo(a)fluoranthene	D1. N-Nitrosomorpholine	F2. Bifenthrin
Y. 2,4,6-Trichlorophenol	AAA. Butylbenzylphthalate	CCCC. Benzo(b)fluorene	E1. N-Nitrosopyrrolidine	G2.Cyfluthrin
Z. 2,4,5-Trichlorophenol	BBB. 3,3'-Dichlorobenzidine	DDDD. cis/trans-Decalin	F1. Phenacetin	H2.Cypermethrin
AA. 2-Chloronaphthalene	CCC. Benzo(a)anthracene	EEEE. Biphenyl	G1. 2-Acetylaminofluorene	I2.Permethrin (cis/trans)
BB. 2-Nitroaniline	DDD. Chrysene	FFFF. Retene	H1. Pronamide	J2. 5-Nitro-o-toluidine

LDC #: 45097A2c

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Reviewer: FT
2nd Reviewer: AC

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualification below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were percent recoveries (%R) for surrogates within QC limits?
Y N N/A If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?
Y N N/A If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Sample ID	Surrogate	%R (Limits)	Qualifications
	all	Surrogates were not added to all samples as required by the method. Using professional judgment, no data were qualified. Although the LCSD percent recoveries and percent RPD were outside QC limits, the MS/MSD passed the QC criteria. Additionally, all base surrogate percent recoveries were within QC limits in the phenol analysis.		Text
			( )	
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LDC #: 45094A2c

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: FT
2nd Reviewer: AC

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a LCS required?
Y N N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits? (L)

#	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	190429A-LCS ID	*	( )	155 (30-130)	( )	All	J det/p all ND
		*	( )	( )	28.3 (20)	↓	J/UJ/p
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
	* 2-(2-Methoxyethoxy)-Ethanol		( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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			( )	( )	( )		
			( )	( )	( )		

LDC#: 45094A2c
SDG#: see cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

Method: 8270DM

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
4/30/2019	GCMS	2MEE	1	0.106871511	1.25
			2	2.145481715	12.5
			3	0.26773905	2.5
			4	0.600877104	5
			5	1.690411442	10
			6	2.265311117	15
			7	3.361865753	20
			8	3.931100065	25

Regression Output		***Reported***
Constant	*-0.106670*	*NR*
Std Err of Y Est		
R Squared	*0.991819*	*NR*
Degrees of Freedom		
X Coefficient(s)	*0.166828*	*NR*
Std Err of Coef.		
Correlation Coefficient	*0.995901*	
Coefficient of Determination (r^2)	*0.991819*	*NR*

LDC #: 45294A2c

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: FT
2nd Reviewer: AK

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Internal Standard)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	ICV 04304011	4/30/19	2-(2-MEE) (1st IS)	500	577.68	577.68	16	16
			(2nd IS)					
			(3rd IS)					
			(4th IS)					
			(5th IS)					
			(6th IS)					
2			(1st IS)					
			(2nd IS)					
			(3rd IS)					
			(4th IS)					
			(5th IS)					
			(6th IS)					
3			(1st IS)					
			(2nd IS)					
			(3rd IS)					
			(4th IS)					
			(5th IS)					
			(6th IS)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45094A2c

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: FT
2nd Reviewer: AC

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentation

RPD = | MSC - MSC | * 2/(MSC + MSDC) MSC = Matrix spike concentration MSDC = Matrix spike duplicate concentration

MS/MSD samples: 7 + 8

Compound	Spike Added (ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration (ug/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalc
Phenol											
N-Nitroso-di-n-propylamine											
4-Chloro-3-methylphenol											
Acenaphthene											
Pentachlorophenol											
Pyrene											
2-2 MEE	80.0	80.0	ND	71.9	86.1	89.9	89.9	108	108	18.0	18.0

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45094A2c

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: FT
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

RPD = | LCSC - LCSDC | * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: 190429A LCS ID

Compound	Spike Added (ug/L)		Spike Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
Phenol										
N-Nitroso-di-n-propylamine										
4-Chloro-3-methylphenol										
Acenaphthene										
Pentachlorophenol										
Pyrene										
2-(2ME)-Ethanol	80.0	80.0	93.3	124	117	117	155	155	28.3	28.3

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45094A2C

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: FT
2nd reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 190429A LCS: 2-2 MEE

Conc. = $\left(\frac{38771}{137259} + 0.106670\right)\frac{(40)}{(0.16628)}\frac{(2)}{(200)}$ FT

=

93.3 ug/L

#	Sample ID	Compound	Reported Concentration (ug/L)	Calculated Concentration (ug/L)	Qualification
	LCS	2-2 MEE	93.3	93.3	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: July 5, 2019

Parameters: Wet Chemistry

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88701

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH785	AZ90051	Water	04/23/19
ERH797**	AZ90054**	Water	04/22/19
ERH799**	AZ90056**	Water	04/22/19
ERH801**	AZ90058**	Water	04/22/19
ERH803	AZ90060	Water	04/23/19
ERH785MS	AZ90051MS	Water	04/23/19
ERH785MSD	AZ90051MSD	Water	04/23/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Alkalinity by Standard Method 2320B
Chloride, Nitrate, and Sulfate by Environmental Protection Agency (EPA) Method 300.0
Ferrous Iron by Standard Method 3500-Fe B
Nitrate/Nitrite as Nitrogen by EPA Method 353.2
Dissolved Organic Carbon and Total Organic Carbon by EPA SW 846 Method 9060A

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S The sequence or number of standards used for the calibration was incorrect.

C Correlation coefficient is <0.995.

R %R for calibration is not within control limits.

B Presumed contamination from preparation (method) blank or calibration blank.

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD or difference was high.

I ICP ICS results were unsatisfactory.

A ICP Serial Dilution %D were not within control limits.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Post Digestion Spike recovery was not within control limits.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
ERH785	Nitrate	14 days	48 hours	J (all detects)	P
ERH797** ERH799**	Nitrate	14.8 days	48 hours	J (all detects)	P
ERH797**	Ferrous iron	51.42 hours	48 hours	UJ (all non-detects)	P
ERH799**	Ferrous iron	51.52 hours	48 hours	UJ (all non-detects)	P
ERH801**	Nitrate	14.7 days	48 hours	J (all detects)	P
ERH803	Nitrate	13.9 days	48 hours	J (all detects)	P

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable with the following exceptions:

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
02/23/19	ICV (16:30)	Total organic carbon	118.9 (90-110)	All samples in SDG 88701	J (all detects)	P
02/23/19	ICV (16:30)	Dissolved organic carbon	118.9 (90-110)	ERH785 ERH797** ERH799** ERH801**	J (all detects)	P
02/23/19	ICV (16:30)	Dissolved organic carbon	118.9 (90-110)	ERH803	NA	-

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Limit of Quantitation	Associated Samples
PB (prep blank)	Chloride	0.30 mg/L	1.0 mg/L	All samples in SDG 88701
ICB/CCB	Chloride	0.31 mg/L	1.0 mg/L	All samples in SDG 88701
PB (prep blank)	Total alkalinity Bicarbonate Alkalinity	3.9 mg/L 3.9 mg/L	2.0 mg/L 2.0 mg/L	ERH785
PB (prep blank)	Total alkalinity Bicarbonate Alkalinity	2.9 mg/L 2.9 mg/L	2.0 mg/L 2.0 mg/L	ERH797** ERH799** ERH801** ERH803

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
ERH785MS/MSD (ERH785)	Total alkalinity Bicarbonate alkalinity	87.3 (90-110) 87.3 (90-110)	86.1 (90-110) 86.1 (90-110)	J (all detects) J (all detects)	A

Relative percent differences (RPD) were within QC limits.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Sample Result Verification

Raw data were not reviewed for Level C validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to technical holding time, ICV %R, and MS/MSD %R, data were qualified as estimated in five samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Wet Chemistry- Data Qualification Summary - SDG 88701

Sample	Analyte	Flag	A or P	Reason (Code)
ERH785 ERH797** ERH799** ERH801** ERH803	Nitrate	J (all detects)	P	Technical holding times (H)
ERH797** ERH799**	Ferrous iron	UJ (all non-detects)	P	Technical holding times (H)
ERH785 ERH797** ERH799** ERH801** ERH803	Total organic carbon	J (all detects)	P	Continuing calibration (ICV %R) (C)
ERH785 ERH797** ERH799** ERH801**	Dissolved organic carbon	J (all detects)	P	Continuing calibration (ICV %R) (C)
ERH785	Total alkalinity Bicarbonate alkalinity	J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)

Red Hill Bulk Storage Facility, CTO 18F0126
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Wet Chemistry - Field Blank Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

LDC #: 45094A6
SDG #: 88701
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C/D

Date: 5/31/19
Page: 1 of 1
Reviewer: ATV
2nd Reviewer: JC

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate, Sulfate (EPA Method 300.0), Ferrous Iron (SM3500-Fe B), Nitrate/Nitrite-N (EPA Method 353.2), DOC (EPA SW846 Method 9060A), TOC (EPA SW846 Method 9060A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/SW	
II	Initial calibration	A	
III.	Calibration verification	SW	
IV	Laboratory Blanks	SW	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	SW	(6,7)
VII.	Duplicate sample analysis	N	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Field duplicates	N	
X.	Sample result verification	A	Not reviewed for Level C validation
XI.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

**Indicates samples underwent Level D review

	Client ID	Lab ID	Matrix	Date
1	ERH785	AZ90051	Water	04/23/19
2	ERH797**	AZ90054**	Water	04/22/19
3	ERH799**	AZ90056**	Water	04/22/19
4	ERH801**	AZ90058**	Water	04/22/19
5	ERH803	AZ90060	Water	04/23/19
6	ERH785MS	AZ90051MS	Water	04/23/19
7	ERH785MSD	AZ90051MSD	Water	04/23/19
8				
9				
10				

Notes:

LDC #: 45094A6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Page: 1 of 1
Reviewer: ATV
2nd reviewer: AC

All circled methods are applicable to each sample.

Sample ID	Parameter
1-5	pH TDS (Cl) F (NO3) NO2 (SO4) O-PO4 (Alk) CN NH3 TKN (TOC) Cr6+ ClO4 (NO3/NO2-N) (Fe2+) (DOC)
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
QC	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
6,7	pH TDS Cl F NO3 NO2 SO4 O-PO4 (Alk) CN NH3 TKN TOC Cr6+ ClO4 (NO3/NO2-N) (Fe2+)
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4

Comments:

LDC #: 45094A6

VALIDATION FINDINGS CHECKLIST

Reviewer: AT
2nd Reviewer: AT

Method: Inorganics (EPA Method See cover)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.		✓		
II. Calibration				
Were all instruments calibrated daily, each set-up time?		✓		
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)	✓		✓	
Were balance checks performed as required? (Level IV only)			✓	
III. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
IV. Matrix spike/Matrix spike duplicates and Duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.		✓		
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of ≤ CRDL(≤ 2X CRDL for soil) was used for samples that were ≤ 5X the CRDL, including when only one of the duplicate sample values were ≤ 5X the CRDL.	✓			
V. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
VI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?		✓		

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.	\	✓		
Target analytes were detected in the field duplicates.			✓	
X. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 45094AG

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: AIC
2nd reviewer: AC

All circled dates have exceeded the technical holding time.
(Y) N N/A Were all samples preserved as applicable to each method ?
(Y) N N/A Were all cooler temperatures within validation criteria? Code: H

Method:	Nitrate (EPA 300.0)			Ferrous Iron (SM3500-Fe-B)		
Parameters:	water			water		
Technical holding time:	48hrs (2days)			48 hrs (2days)		
Sample ID	Sampling date	Analysis date	Total Time	Qualifier	Analysis date	Total Time	Qualifier
1	8:40 HST 04/23/19	11:29 → 8:29 05/07/19	14 days	J/R/P (detect)			
2	13:40 HST 04/22/19	11:36 → 8:36 05/07/19	14.8 days		20:05 → 17:05 04/24/19	51.42 hrs.	J/UJ/P (ND)
3	13:35 HST 04/22/19	11:43 → 8:43 05/07/19	14.8 days		20:06 → 17:06 04/24/19	51.52 hrs	↓
4	10:45 HST 04/22/19	11:51 → 8:51 05/07/19	14.7 days		20:07 → 17:07 04/24/19	48.37 hrs	no qual
5	10:45 HST 04/23/19	11:58 → 8:58 05/07/19	13.9 days	↓			

LDC #: 45094A6

VALIDATION FINDINGS WORKSHEET
Calibration

Reviewer: ATL
2nd Reviewer:

METHOD: Inorganics, EPA Method See cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were all instruments calibrated daily, each set-up time, and were the proper number of standards used?
Y (N) N/A Were all initial and continuing calibration verification percent recoveries (%R) within the control limits of 90-110% ?
(Y) N N/A Are all correlation coefficients ≥0.995 ?

LEVEL IV/D ONLY:

(Y) N N/A Were recalculated results acceptable? See Level IV Initial and Continuing Calibration Recaluculation Worksheet for recalulations.
Y N (N/A) Was a balance check conducted prior to the TDS analysis.?
(Y) N N/A Was the titrant normality checked?

#	Date	Calibration ID	Analyte	%R	Associated Samples	Qualifications
	02/23/19	ICV (16:30)	TOC	118.9 (90-110)	all	Jdet/P (all detect) Code: R
	02/23/19	ICV (16:30)	DOC	118.9 (90-110)	all	Jdet/P (non-detect=5) Code: R

Comments:

LDC #: 45094A6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: ATL
2nd Reviewer:

METHOD: Inorganics, Method See Cover

Conc. units: mg/L **Associated Samples:** All **Code:** B

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No Qualifiers								
Cl	0.30											
Cl		0.31										

Conc. units: mg/L **Associated Samples:** 1 **Code:** B

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No Qualifiers								
Total Alkalinity	3.9											
Bicarbonate Alkalinity	3.9											

Conc. units: mg/L **Associated Samples:** 2 to 5 **Code:** B

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No Qualifiers								
Total Alkalinity	2.9											
Bicarbonate Alkalinity	2.9											

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 45094A6

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: ATL
2nd Reviewer:

METHOD: Inorganics, EPA Method See cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a matrix spike analyzed for each matrix in this SDG? lab limits

Y (N) N/A Were matrix spike percent recoveries (%R) within the control limits of ~~75-125?~~ If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

(Y) N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤35% for soil samples?

LEVEL IV ONLY:

(Y) N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications Code: Q
	6/7	W	Total Alkalinity	87.3 (90-110)	86.1 (90-110)		1	J/UJ/A (detect)
		W	Bicarbonate Alkalinity	87.3 (90-110)	86.1 (90-110)		1	J/UJ/A (detect)

Comments:

LDC #: 45094A6

Validation Findings Worksheet
Initial and Continuing Calibration Calculation Verification

Reviewer: ATL
2nd Reviewer:

Method: Inorganics, Method See cover

The correlation coefficient (r) for the calibration of NO_3-N was recalculated. Calibration date: 04/01/19

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found} \times 100}{\text{True}}$$

Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution

True = concentration of each analyte in the ICV or CCV source

Type of analysis	Analyte	Standard	Conc. (mg/l)	Area	Recalculated r or r^2	Reported r or r^2	Acceptable (Y/N)
Initial calibration	NO_3-N	s1	0.1	0.016	*0.999027*	0.997096	Y
		s2	0.2	0.038			
		s3	0.5	0.094			
		s4	1	0.193			
		s5	2	0.398			
		s6	5	1.067			
		s7	7	1.534			
		s8	10	2.324			
CCV (5/8 @ 10:08) Calibration verification	SO_4^-	FOUND 24.13	TRUE 25.00		96.5	96.9	Y
CCV (5/3 @ 03:38) Calibration verification	TOC	2.48	2.50		99.2	95.7	Y
CCV (5/1 @ 18:39) Calibration verification	NO_3/NO_2-N	3.046	3.000		102	102	Y

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45094A6

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: ATL
2nd Reviewer: AC

METHOD: Inorganics, Method see cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

%R = Found / True x 100 Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

RPD = |S-D| / (S+D)/2 x 100 Where, S = Original sample concentration
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	mg/L Found / S (units)	mg/L True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
LCS	Laboratory control sample 04/24/19	Alkalinity	230.4	250	92.2	93.2	Y
6	Matrix spike sample	NO3/NO2-N	(SSR-SR) 2.41	2.50	96.6	96.8	Y
6/7	Duplicate sample	NO3/NO2-N	3.19	3.04	4.8	4.8	Y

Comments: _____

LDC #: 45094A6

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: ATV
2nd reviewer: AC

METHOD: Inorganics, Method See cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Have results been reported and calculated correctly?
(Y) N N/A Are results within the calibrated range of the instruments?
(Y) N N/A Are all detection limits below the CRQL?

Compound (analyte) results for NO_3/NO_2-N reported with a positive detect were recalculated and verified using the following equation:

Concentration = 18.84315 x (raw data) − 0.1038605

raw data = 0.049066

Recalculation: #2

$\Rightarrow$ 0.82069744

$\approx$ 0.82

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
	2	Cl^- (05/08 @ 09:24)	139	139	Y
	2	NO_3/NO_2-N (05/01 @ 18:30)	0.82	0.82	↓
	2	Alkalinity	91.5	90.6	↓
	2	Fe^{2+}	ND	ND	↓
	2	DOC (4/30 @ 05:47)	0.72	0.72	↓
	2	TOC (05/02 @ 11:55)	0.47	0.49	↓
	3	SO_4 (5/8 @ 09:31)	91.8	91.6	Y
	3	NO_3/NO_2-N	0.59	0.59	↓
	3	Alkalinity	105	105	↓
	3	Fe^{2+}	ND	ND	↓
	3	TOC (4/30 @ 6:18)	0.45	0.45	↓
	3	DOC (5/3 @ 11:04)	0.47	0.47	↓
	4	NO_3	4.4	4.4	↓
	4	NO_3/NO_2-N	1.1	1.1	↓
	4	Alkalinity	135	135	↓
	4	Fe^{2+}	ND	ND	↓
	4	DOC (4/30 @ 6:50)	0.89	0.89	↓
	4	TOC (5/3 @ 12:27 A.M)	0.51	0.51	↓

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: July 5, 2019

Parameters: Gasoline Range Organics

Validation Level: Level C & D

Laboratory: APPL. Inc

Sample Delivery Group (SDG): 88701

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH784	AZ90050	Water	04/23/19
ERH785	AZ90051	Water	04/23/19
ERH786	AZ90052	Water	04/23/19
ERH796	AZ90053	Water	04/22/19
ERH797**	AZ90054**	Water	04/22/19
ERH798	AZ90055	Water	04/22/19
ERH799**	AZ90056**	Water	04/22/19
ERH800	AZ90057	Water	04/22/19
ERH801**	AZ90058**	Water	04/22/19
ERH802	AZ90059	Water	04/23/19
ERH803	AZ90060	Water	04/23/19
ERH785MS	AZ90051MS	Water	04/23/19
ERH785MSD	AZ90051MSD	Water	04/23/19

**Indicates sample underwent Level D validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Gasoline Range Organics by Environmental Protection Agency (EPA) SW 846 Method 8260B

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level D data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

III. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

Samples ERH784, ERH796, ERH798, ERH800, and ERH802 were identified as trip blanks. No contaminants were found.

VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits.

Relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
ERH785MS/MSD (ERH785)	Gasoline range organics	25.9 (≤20)	NA	-

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

Samples ERH785 and ERH786 were identified as field duplicates. No results were detected in any of the samples.

X. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XI. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Gasoline Range Organics - Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Gasoline Range Organics - Laboratory Blank Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Gasoline Range Organics - Field Blank Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

LDC #: 45094A7
SDG #: 88701
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C/D

Date: 5/30/19
Page: 1 of 2
Reviewer: FQ
2nd Reviewer: PA

METHOD: GC/MS Gasoline Range Organics (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	r² ICV ≤ 20
IV.	Continuing calibration	A	CCV ≤ 20
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB = 1, 4, 6, 8, 10
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	SW	
IX.	Laboratory control samples	A	LCS ID
X.	Field duplicates	ND	D = 2, 3
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level C validation
XIII.	Target compound identification	A	Not reviewed for Level C validation
XIV.	System performance	A	Not reviewed for Level C validation
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

**Indicates samples underwent Level D review

	Client ID	Lab ID	Matrix	Date
1	ERH784 TB	AZ90050	Water	04/23/19
2	ERH785 D	AZ90051	Water	04/23/19
3	ERH786 D	AZ90052	Water	04/23/19
4	ERH796 TB	AZ90053	Water	04/22/19
5	ERH797**	AZ90054**	Water	04/22/19
6	ERH798 TB	AZ90055	Water	04/22/19
7	ERH799 **	AZ90056	Water	04/22/19
8	ERH800 TB	AZ90057	Water	04/22/19
9	ERH801 **	AZ90058	Water	04/22/19
10	ERH802 TB	AZ90059	Water	04/23/19
11	ERH803	AZ90060	Water	04/23/19
12	ERH785MS	AZ90051MS	Water	04/23/19
13	ERH785MSD	AZ90051MSD	Water	04/23/19

LDC #: 45094A7
SDG #: 88701
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C/D

Date: 5/30/19
Page: 2 of 2
Reviewer: FR
2nd Reviewer:

METHOD: GC/MS Gasoline Range Organics (EPA SW 846 Method 8260B)

14				
15				
16				

Notes:

	190425AM						

LDC #: 45094A7

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: A

Method: Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?			✓	
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?	✓			
Were all percent relative standard deviations (%RSD) ≤ 30%/15% and relative response factors (RRF) ≥ 0.05?			✓	
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 20%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?			✓	
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) ≥ 0.05?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
VI. Field blanks				
Were field blanks were identified in this SDG?	✓			
Were target compounds detected in the field blanks?		✓		
VII. Surrogate spikes				
Were all surrogate percent recovery (%R) within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	

LDC #: 45994A7

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: AC

Validation Area	Yes	No	NA	Findings/Comments
VIII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		✓		
IX. Laboratory control samples				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?		✓		
XI. Internal standards				
Were internal standard area counts within -50% to +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XII. Compound quantitation				
Did the laboratory LOQs/RLs meet the QAPP LOQs/RLs?	✓			
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane
C. Vinyl choride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO.1,1-Difluoroethane	O1. 3-Methylpentane
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methyl cyclohexane	T1. 2-Methylhexane
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.

.LDC #: 45094A7

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: FT
2nd Reviewer:

METHOD : GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

(E)

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	12 + 13	*	( )	( )	25.9 (20)	2	J (all) / A (ND)
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
		* Gasoline Range Organics	( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

LDC#: 45094A7
SDG#: see cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: EJ
2nd Reviewer: AC

Method: GRO (8260B)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
4/1/2019	GCMS max	Gasoline Range Organics	1	8.811326274	0.8
			2	9.297914454	2
			3	10.3892834	4
			4	14.47214333	12
			5	20.08333637	24
			6	23.0884449	32
			7	27.2267952	40

Regression Output		***Reported***
Constant	*8.542809*	*8.500000*
Std Err of Y Est		
R Squared	*0.998706*	*0.999000*
Degrees of Freedom		
X Coefficient(s)	*0.466634*	*0.467000*
Std Err of Coef.		
Correlation Coefficient	*0.999353*	
Coefficient of Determination (r^2)	*0.998706*	

LDC #: 45094A7

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	CCV 0426M06	4/26/19	Gasoline (1st internal standard)	300	307.111	307.	11	+ 2.4
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					
2			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					
3			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					
4			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45094A7

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: FT
2nd reviewer: [signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #5

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene	25.0	24.288	97.2	97.2	0

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

LDC #: 45294A7

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: FT
2nd Reviewer:

METHOD: GC/MS VOA (EPA Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA

Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentration

RPD = I MSC - MSC I * 2/(MSC + MSDC)

MSC = Matrix spike concentration; MSDC = Matrix spike duplicate concentration

MS/MSD sample: 12 + 13

Compound	Spike Added (ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration (ug/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
GRO ~~1,1-Dichloroethene~~	300	300	ND	249	323	83.0	83.0	108	108	25.9	25.9
Trichloroethene											
Benzene											
Toluene											
~~Chlorobenzene~~											

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45094A7

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer: FT
2nd Reviewer:

METHOD: GC/MS VOA (EPA Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA Where: SSC = Spiked sample concentration; SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboraotry control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: 190425AM lcs ID

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
GRO 1,1-Dichloroethene	300	300	352	330	117	117	110	110	6.5	6.5
Trichloroethene										
Benzene										
Toluene										
Chlorobenzene										

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45294A7

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: FT
2nd reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. 190425A LCS : gasoline

Conc. = $\frac{\left(\frac{11331608}{749625} - 8.542809\right)(25)}{(0.466634)}$

=

352 ug/L

#	Sample ID	Compound	Reported Concentration (ug/L)	Calculated Concentration (ug/L)	Qualification
	LCS	gasoline	352	352	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: July 5, 2019

Parameters: Total Petroleum Hydrocarbons as Extractables

Validation Level: Level C & D

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88701

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH785	AZ90051	Water	04/23/19
ERH785RE	AZ90051RE	Water	04/23/19
ERH786	AZ90052	Water	04/23/19
ERH786RE	AZ90052RE	Water	04/23/19
ERH797**	AZ90054**	Water	04/22/19
ERH799**	AZ90056**	Water	04/22/19
ERH801**	AZ90058**	Water	04/22/19
ERH803	AZ90060	Water	04/23/19
ERH785MS	AZ90051MS	Water	04/23/19
ERH785MSD	AZ90051MSD	Water	04/23/19
ERH785REMS	AZ90051REMS	Water	04/23/19
ERH785REMSD	AZ90051REMSD	Water	04/23/19

**Indicates sample underwent Level D validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Total Petroleum Hydrocarbons (TPH) as Extractables by Environmental Protection Agency (EPA) SW 846 Method 8015B

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level D data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met with the following exceptions:

Sample	Compound	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	A or P
ERH785RE ERH786RE	TPH as extractables	9	7	UJ (all non-detects)	A

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

III. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
ERH785MS/MSD (ERH785)	Oil (C24-C40)	114 (41-113)	-	NA	-

Relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

Relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
190502A2-LCS/D (ERH785RE ERH786RE)	Diesel (C10-C24)	31.3 (≤20)	UJ (all non-detects)	P

IX. Field Duplicates

Samples ERH785 and ERH786 and samples ERH785RE and ERH786RE were identified as field duplicates. No results were detected in any of the samples.

X. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XI. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

In the case where more than one result was reported for an individual sample, the least technically acceptable results were deemed unusable as follows:

Sample	Compound	Reason	Flag	A or P
ERH785RE ERH786RE	TPH as extractables	Extracted outside holding time.	R	A

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Based upon the data validation all other results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG 88701

Sample	Compound	Flag	A or P	Reason (Code)
ERH785RE ERH786RE	TPH as extractables	R	A	Overall assessment of data (D)

Red Hill Bulk Storage Facility, CTO 18F0126
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

LDC #: 45094A8
SDG #: 88701
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C/D

Date: 5/30/19
Page: 1 of 1
Reviewer: FJ
2nd Reviewer: AV

METHOD: GC TPH as Extractables (EPA SW 846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / SW	
II.	Initial calibration/ICV	A / A	%D PSD / ICV ≤ 20
III.	Continuing calibration	A	CCV ≤ 20
IV.	Laboratory Blanks	A	
V.	Field blanks	N	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	SW	LCS ID
IX.	Field duplicates	ND	D= 1,3 2,4
X.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level C validation
XI.	Target compound identification	A	Not reviewed for Level C validation
XII.	Overall assessment of data	SW	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

**Indicates samples underwent Level D review

	Client ID		Lab ID	Matrix	Date
1	ERH785	D	AZ90051	Water	04/23/19
2	ERH785RE	D1	AZ90051RE	Water	04/23/19
3	ERH786	D	AZ90052	Water	04/23/19
4	ERH786RE	D1	AZ90052RE	Water	04/23/19
5	ERH797**		AZ90054**	Water	04/22/19
6	ERH799**		AZ90056	Water	04/22/19
7	ERH801**		AZ90058	Water	04/22/19
8	ERH803		AZ90060	Water	04/23/19
9	ERH785MS		AZ90051MS	Water	04/23/19
10	ERH785MSD		AZ90051MSD	Water	04/23/19
11	ERH785REMS		AZ90051REMS	Water	04/23/19
12	ERH785REMSD		AZ90051REMSD	Water	04/23/19
13					
14					

Notes:

1	190426A2-BLK							
2	190502A2-BLK							

LDC #: 45094 A8

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer:

Method: ✓ GC ___ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?		✓		
Was cooler temperature criteria met?	✓			
IIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥0.990?			✓	
Were the RT windows properly established?	✓			
IIb. Initial calibration verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 20%?	✓			
III. Continuing calibration				
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20%?	✓			
Were all the retention times within the acceptance windows?	✓			
IV. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
V. Field Blanks				
Were field blanks identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	
VI. Surrogate spikes				
Were all surrogate percent recovery (%R) within the QC limits?	✓			
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		✓	✓	
VIII. Laboratory control samples				
Was an LCS analyzed per analytical or extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?		✓		

Validation Area	Yes	No	NA	Findings/Comments
IX. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?		✓		
X. Compound quantitation				
Did the laboratory LOQs/RLs meet the QAPP LOQs/RLs?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XI. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XIII. Overall assessment of data	✓			
Overall assessment of data was found to be acceptable.				

LDC #: 45094A8

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: FT
2nd Reviewer: AV

All circled dates have exceeded the technical holding times.
Y N N/A Were all cooler temperatures within validation criteria?

METHOD : ✓ GC ___ HPLC (H)

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
2,4	water		4/23/19	5/2/19	5/6/19	9	J/UJ/A (ND)

TECHNICAL HOLDING TIME CRITERIA

VOLATILES:	Water unpreserved:	Aromatic within 7 days, non-aromatic within 14 days of sample collection.
	Water preserved:	Both within 14 days of sample collection.
	Soils:	Both within 14 days of sample collection.
	Encores unpreserved:	Both within 48 hours of sample collection.
	Encores preserved:	Both within 14 days of sample collection.
EXTRACTABLES:		
	Water:	Extracted within 7 days, analyzed within 40 days.
	Soil:	Extracted within 14 days, analyzed within 40 days.

LDC #: 45094A8

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: FT
2nd Reviewer:

METHOD: ✓ **GC** __ **HPLC**

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG?
Y N N/A Was an MS/MSD analyzed every 20 samples for each matrix or whenever a sample extraction was performed?
Y N N/A Were the MS/MSD percent recoveries (%R) and relative percent differences (RPD) within QC limits? (Q)

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	9,10	Oil (C24-C40)	114 (41-113	( )	( )	1	Idet /A (ND)
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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			( )	( )	( )		
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LDC #: 45094A8

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: FT
2nd Reviewer:

METHOD: ✓ GC __ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a laboratory control samples (LCS) and laboratory control sample duplicate (LCSD) analyzed for each matrix in this SDG?

Y N N/A Were the LCS percent recoveries (%R) and relative percent differences (RPD) within the QC limits?

Level IV/D Only

Y N N/A Was an LCS analyzed every 20 samples for each matrix or whenever a sample extraction was performed?

(L)

#	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	190502A2-LCS ID	Diesel (C_{10}-C_{24})	( )	( )	31.3 (20)	2, 4, ~~11, 12~~	J/UJ/P and ND
			( )	( )	( )	190502A2-BLK	
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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LDC #: 45094A8

VALIDATION FINDINGS WORKSHEET
Overall Assessment of Data

Reviewer: FT
2nd Reviewer:

METHOD: ✓ **GC** __ **HPLC**

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

All available information pertaining to the data were reviewed using professional judgement to compliment the determination of the overall quality of the data.

Y N N/A Was the overall quality and usability of the data acceptable? (D)

#	Associated samples	Compounds	Findings	Qualifications
	2, 4	All	extracted outside H-T.	R/A

Comments: _____

LDC #: 45094 A8

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: FT
2nd Reviewer:

METHOD: GC X HPLC _____

The calibration factors (CF), average CF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

CF = A/C
average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

Where:
A = Area of compound
C = Concentration of compound
S = Standard deviation of calibration factors
X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported (std=250ppb)	Recalculated (std=250ppb)	Reported Average CF (Initial)	Recalculated Average CF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	4/11/2019	Diesel C10-C24)	1154027	1154027	1192619	1192619	12.0	12.0
	Apollo								

LDC #: 45294A8

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: FT
2nd Reviewer:

METHOD: GC ✓ HPLC _____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF -CF)/ave.CF

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(ICAL)/ CCV Conc.	Reported CF/ Conc. CCV	Recalculated CF/ Conc. CCV	Reported %D	Recalculated %D
1	CCV 419048	4/29/19	Diesel C_{10}-C_{24}	1192620	1196390	1196390	0.32	0.32
2	CCV 506002	5/6/19	↓	↓	1189150	1189150	0.29	0.29
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45094A8

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: FT
2nd reviewer:

METHOD: ✓ GC ___ HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 5

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
octacosane		75	74.079	98.9	98.8	0
o-Terpheny l		75	77.718	104	104	0

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

	Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound
A	Chlorobenzene (CBZ)	G	Octacosane	M	Benzo(e)Pyrene	S	1-Chloro-3-Nitrobenzene	Y	Tetrachloro-m- xylene
B	4-Bromofluorobenzene (BFB)	H	Ortho-Terphenyl	N	Terphenyl-D14	T	3,4-Dinitrotoluene	Z	2-Bromonaphthalene
C	a,a,a-Trifluorotoluene	I	Fluorobenzene (FBZ)	O	Decachlorobiphenyl (DCB)	U	Tripentyltin	AA	Chloro-octadecane
D	Bromochlorobenene	J	n-Triacontane	P	1-methylnaphthalene	V	Tri-n-propyltin	BB	2,4-Dichlorophenylacetic acid
E	1,4-Dichlorobutane	K	Hexacosane	Q	Dichlorophenyl Acetic Acid (DCAA)	W	Tributyl Phosphate	CC	2,5-Dibromotoluene
F	1,4-Difluorobenzene (DFB)	L	Bromobenzene	R	4-Nitrophenol	X	Triphenyl Phosphate		

LDC #: 45094A8

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: ✓ GC ___HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA

RPD =(({SSCMS - SSCMSD} * 2) / (SSCMS + SSCMSD))*100

Where SSC = Spiked sample concentration; SC = Sample concentration; SA = Spike added; MS = Matrix spike; MSD = Matrix spike duplicate

MS/MSD samples: 9 & 10

Compound	Spike Added (ug/L)		Sample Conc. (ug/L)	Spike Sample Concentration (ug/L)		Matrix spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	---	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
Diesel C_{10}-C_{24} (8015)	1250	1250	ND	1100	1110	88.0	88.0	88.8	88.8	0.90	0.90
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											
Phorate (8141A)											
Malathion (8141A)											
Formaldehyde (8315A)											

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45094A8

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: FT

2nd Reviewer:

METHOD: ✓ GC ___ HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC/SA)
RPD =(({SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100

Where SSC = Spiked sample concentration; LCS = Laboratory Control Sample; SA = Spike added; LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: 190426A2 lcs 1D

Compound	Spike Added (ug/L)		Spike Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)										
Diesel C_{10}-C_{24} (8015)	1250	1250	1120	1070	89.6	85.6	85.6	85.6	4.6	4.6
Benzene (8021B)										
Methane (RSK-175)										
2,4-D (8151)										
Dinoseb (8151)										
Naphthalene (8310)										
Anthracene (8310)										
HMX (8330)										
2,4,6-Trinitrotoluene (8330)										
Phorate (8141A)										
Malathion (8141A)										
Formaldehyde (8315A)										

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45094A8

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: EV
2nd reviewer: M

METHOD: GC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

V_o = Volume or weight of sample extract in milliliters (ml) or grams (g).

V_i = Volume of extract injected in microliters (ul)

V_t = Volume of the concentrated extract in microliters (ul)

Df = Dilution Factor.

%S = Percent solids, applicable to soil and solid matrices only.

2.0 = Factor of 2 to account for GPC cleanup

Example:

Sample I.D. LCS, Diesel C10-C24

Conc. = $\frac{10686\,93657\,(2)\,(1000)}{1192620\,(2)\,(800)}$

= 1120 ug/L

#	Sample ID	Compound	Reported Concentration (ug/L)	Calculated Concentration (ug/L)	Qualification
	190426A - LCS	Diesel C10-C24	1120	1120	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: July 5, 2019

Parameters: Methane

Validation Level: Level C & D

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88701

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH784	AZ90050	Water	04/23/19
ERH785	AZ90051	Water	04/23/19
ERH796	AZ90053	Water	04/22/19
ERH797**	AZ90054**	Water	04/22/19
ERH798	AZ90055	Water	04/22/19
ERH799**	AZ90056**	Water	04/22/19
ERH800	AZ90057	Water	04/22/19
ERH801**	AZ90058**	Water	04/22/19
ERH802	AZ90059	Water	04/23/19
ERH803	AZ90060	Water	04/23/19
ERH785MS	AZ90051MS	Water	04/23/19
ERH785MSD	AZ90051MSD	Water	04/23/19

**Indicates sample underwent Level D validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Methane by Method RSK-175

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level D data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

Retention time windows were established as required by the method for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

III. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

Retention times of all compounds in the calibration standards were within the established retention time windows for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

Samples ERH784, ERH796, ERH798, ERH800, and ERH802 were identified as trip blanks. No contaminants were found.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VIII. Field Duplicates

No field duplicates were identified in this SDG.

IX. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

X. Target Compound Identification

All target compound identifications met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Methane - Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Methane - Laboratory Blank Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Methane - Field Blank Data Qualification Summary - SDG 88701

No Sample Data Qualified in this SDG

LDC #: 45094A51a
SDG #: 88701
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C/D

Date: 5/30/19
Page: 1 of 1
Reviewer: PF
2nd Reviewer: PL

METHOD: GC Methane (Method RSK-175)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	Initial calibration/ICV	A/A	1st ICV ≤ 20
III.	Continuing calibration	A	CCV ≤ 20
IV.	Laboratory Blanks	A	
V.	Field blanks	ND	TB= 1, 3, 5, 7, 9
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	LCS ID
VIII.	Field duplicates	N	
IX.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level C validation
X.	Target compound identification	A	Not reviewed for Level C validation
XI.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

**Indicates samples underwent Level D review

	Client ID		Lab ID	Matrix	Date
1	ERH784	TB	AZ90050	Water	04/23/19
2	ERH785		AZ90051	Water	04/23/19
3	ERH796	TB	AZ90053	Water	04/22/19
4	ERH797**		AZ90054**	Water	04/22/19
5	ERH798	TB	AZ90055	Water	04/22/19
6	ERH799 xx		AZ90056	Water	04/22/19
7	ERH800	TB	AZ90057	Water	04/22/19
8	ERH801 xx		AZ90058	Water	04/22/19
9	ERH802	TB	AZ90059	Water	04/23/19
10	ERH803		AZ90060	Water	04/23/19
11	ERH785MS		AZ90051MS	Water	04/23/19
12	ERH785MSD		AZ90051MSD	Water	04/23/19
13					
14					

Notes:

	190429A						

LDC #: 45094A51a

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: JL

Method: ✓ GC ___ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
IIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?			✓	
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥0.990?	✓			
Were the RT windows properly established?	✓			
IIb. Initial calibration verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 20%?	✓			
III. Continuing calibration				
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20%?	✓			
Were all the retention times within the acceptance windows?	✓			
IV. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
V. Field Blanks				
Were field blanks identified in this SDG?	✓			
Were target compounds detected in the field blanks?		✓		
VI. Surrogate spikes				
Were all surrogate percent recovery (%R) within the QC limits?	✓		✓	
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VIII. Laboratory control samples				
Was an LCS analyzed per analytical or extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			

Validation Area	Yes	No	NA	Findings/Comments
IX. Field duplicates				
Were field duplicate pairs identified in this SDG?		✓		
Were target compounds detected in the field duplicates?			✓	
X. Compound quantitation				
Did the laboratory LOQs/RLs meet the QAPP LOQs/RLs?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XI. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

LDC#: 45094A5/a
SDG#: see cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: EV
2nd Reviewer: AC

Method: RSK 175

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
3/11/2019	Ints 7890	Methane	1	18377	2.080
			2	18654	4.160
			3	25296	8.340
			4	123132	20.850
			5	588996	83.400
			6	1512363	208.500
			7	5497199	834.000

Regression Output		*Reported*
Constant	*15458.016543*	*15500.00*
Std Err of Y Est		
R Squared	*0.999206*	*0.999000*
Degrees of Freedom		
X Coefficient(s)	*6609.500215*	*6610.00*
Std Err of Coef.		
Correlation Coefficient	*0.999603*	
Coefficient of Determination (r^2)	*0.999206*	*0.999000*

LDC #: 45294A5l2

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: FT
2nd Reviewer: AC

METHOD: GC ✓ HPLC _____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF -CF)/ave.CF

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(ICAL)/ CCV Conc.	Reported CF/ Conc. CCV	Recalculated CF/ Conc. CCV	Reported %D	Recalculated %D
1	ccv 1904290	4/29/19	Methane	83.400	84.909	84.909	1.8	1.8
2								
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45094A5a

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA

RPD =(({SSCMS - SSCMSD} * 2) / (SSCMS + SSCMSD))*100

Where SSC = Spiked sample concentration; SC = Sample concentration; SA = Spike added

MS = Matrix spike; MSD = Matrix spike duplicate

MS/MSD samples: 11 + 12

Compound	Spike Added (ug/L)		Sample Conc. (ug/L)	Spike Sample Concentration (ug/L)		Matrix spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	---	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)	83.4	83.4	ND	83.2	86.7	99.8	99.8	104	104	4.1	4.1
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											
Phorate (8141A)											
Malathion (8141A)											
Formaldehyde (8315A)											

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45094 A5/a

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: FT
2nd Reviewer: AC

METHOD: ✓ GC ___ HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC/SA)
RPD =(({SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100

Where SSC = Spiked sample concentration
LCS = Laboratory Control Sample
SA = Spike added
LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: 190429A Las ID

Compound	Spike Added (ug/L)		Spike Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)										
Diesel (8015)										
Benzene (8021B)										
Methane (RSK-175)	83.4	83.4	84.9	82.4	102	102	98.8	98.8	3.0	3.0
2,4-D (8151)										
Dinoseb (8151)										
Naphthalene (8310)										
Anthracene (8310)										
HMX (8330)										
2,4,6-Trinitrotoluene (8330)										
Phorate (8141A)										
Malathion (8141A)										
Formaldehyde (8315A)										

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45294A5/a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: F7
2nd reviewer: VC

METHOD: GC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

V_o = Volume or weight of sample extract in milliliters (ml) or grams (g).

V_i = Volume of extract injected in microliters (ul)

V_t = Volume of the concentrated extract in microliters (ul)

Df = Dilution Factor.

%S = Percent solids, applicable to soil and solid matrices only.

2.0 = Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 190429A LCS, Methane

Conc. = $\frac{(576667 - 15458)}{(6609.5)}$

=

84.9 ug/L

#	Sample ID	Compound	Reported Concentration (ug/L)	Calculated Concentration (ug/L)	Qualification
	190429A LCS	Methane	84.9	84.9	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **2320B**													
ERH785	AZ90051	1	ALKALINITY, CARBONATE (AS CACO3)	4/23/2019 8:40:00 AM	4/30/2019 10:31:00 AM	C	67.7	MG_L		2.0	1.70	J	q
ERH785	AZ90051	1	BICARBONATE	4/23/2019 8:40:00 AM	4/30/2019 10:31:00 AM	C	67.7	MG_L		2.0	1.70	J	q
ERH785	AZ90051	1	CARBONATE (AS CO3)	4/23/2019 8:40:00 AM	4/30/2019 10:31:00 AM	C	1.70	MG_L	U	2.0	1.70	U	
ERH797	AZ90054	1	ALKALINITY, CARBONATE (AS CACO3)	4/22/2019 1:40:00 PM	4/24/2019 9:32:00 PM	D	91.5	MG_L		2.0	1.70		
ERH797	AZ90054	1	BICARBONATE	4/22/2019 1:40:00 PM	4/24/2019 9:32:00 PM	D	91.5	MG_L		2.0	1.70		
ERH797	AZ90054	1	CARBONATE (AS CO3)	4/22/2019 1:40:00 PM	4/24/2019 9:32:00 PM	D	1.70	MG_L	U	2.0	1.70	U	
ERH799	AZ90056	1	ALKALINITY, CARBONATE (AS CACO3)	4/22/2019 1:35:00 PM	4/24/2019 9:37:00 PM	D	105	MG_L		2.0	1.70		
ERH799	AZ90056	1	BICARBONATE	4/22/2019 1:35:00 PM	4/24/2019 9:37:00 PM	D	105	MG_L		2.0	1.70		
ERH799	AZ90056	1	CARBONATE (AS CO3)	4/22/2019 1:35:00 PM	4/24/2019 9:37:00 PM	D	1.70	MG_L	U	2.0	1.70	U	
ERH801	AZ90058	1	ALKALINITY, CARBONATE (AS CACO3)	4/22/2019 4:45:00 PM	4/24/2019 9:44:00 PM	D	135	MG_L		2.0	1.70		
ERH801	AZ90058	1	BICARBONATE	4/22/2019 4:45:00 PM	4/24/2019 9:44:00 PM	D	135	MG_L		2.0	1.70		
ERH801	AZ90058	1	CARBONATE (AS CO3)	4/22/2019 4:45:00 PM	4/24/2019 9:44:00 PM	D	1.70	MG_L	U	2.0	1.70	U	
ERH803	AZ90060	1	ALKALINITY, CARBONATE (AS CACO3)	4/23/2019 10:45:00 AM	4/24/2019 9:57:00 PM	C	92.8	MG_L		2.0	1.70		
ERH803	AZ90060	1	BICARBONATE	4/23/2019 10:45:00 AM	4/24/2019 9:57:00 PM	C	92.8	MG_L		2.0	1.70		
ERH803	AZ90060	1	CARBONATE (AS CO3)	4/23/2019 10:45:00 AM	4/24/2019 9:57:00 PM	C	1.70	MG_L	U	2.0	1.70	U	
METHOD: **300.0**													
ERH785	AZ90051	5	CHLORIDE (AS CL)	4/23/2019 8:40:00 AM	5/8/2019 9:16:00 AM	C	104	MG_L	D	5.0	1.00		
ERH785	AZ90051	1	NITROGEN, NITRATE (AS N)	4/23/2019 8:40:00 AM	5/7/2019 11:29:00 AM	C	2.5	MG_L		0.5	0.18	J	h
ERH785	AZ90051	5	SULFATE (AS SO4)	4/23/2019 8:40:00 AM	5/8/2019 9:16:00 AM	C	17.1	MG_L	D	5.0	1.00		
ERH797	AZ90054	5	CHLORIDE (AS CL)	4/22/2019 1:40:00 PM	5/8/2019 9:24:00 AM	D	139	MG_L	D	5.0	1.00		
ERH797	AZ90054	1	NITROGEN, NITRATE (AS N)	4/22/2019 1:40:00 PM	5/7/2019 11:36:00 AM	D	3.5	MG_L		0.5	0.18	J	h
ERH797	AZ90054	5	SULFATE (AS SO4)	4/22/2019 1:40:00 PM	5/8/2019 9:24:00 AM	D	36.5	MG_L	D	5.0	1.00		
ERH799	AZ90056	20	CHLORIDE (AS CL)	4/22/2019 1:35:00 PM	5/8/2019 9:31:00 AM	D	403	MG_L	D	20.0	4.00		
ERH799	AZ90056	1	NITROGEN, NITRATE (AS N)	4/22/2019 1:35:00 PM	5/7/2019 11:43:00 AM	D	2.3	MG_L		0.5	0.18	J	h
ERH799	AZ90056	20	SULFATE (AS SO4)	4/22/2019 1:35:00 PM	5/8/2019 9:31:00 AM	D	91.8	MG_L	D	20.0	4.00		

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **300.0**													
ERH801	AZ90058	20	CHLORIDE (AS CL)	4/22/2019 4:45:00 PM	5/8/2019 9:38:00 AM	D	396	MG_L	D	20.0	4.00		
ERH801	AZ90058	1	NITROGEN, NITRATE (AS N)	4/22/2019 4:45:00 PM	5/7/2019 11:51:00 AM	D	4.4	MG_L		0.5	0.18	J	h
ERH801	AZ90058	20	SULFATE (AS SO4)	4/22/2019 4:45:00 PM	5/8/2019 9:38:00 AM	D	69.3	MG_L	D	20.0	4.00		
ERH803	AZ90060	5	CHLORIDE (AS CL)	4/23/2019 10:45:00 AM	5/8/2019 9:46:00 AM	C	151	MG_L	D	5.0	1.00		
ERH803	AZ90060	1	NITROGEN, NITRATE (AS N)	4/23/2019 10:45:00 AM	5/7/2019 11:58:00 AM	C	5.0	MG_L		0.5	0.18	J	h
ERH803	AZ90060	5	SULFATE (AS SO4)	4/23/2019 10:45:00 AM	5/8/2019 9:46:00 AM	C	46.5	MG_L	D	5.0	1.00		
METHOD: **3500-FE-B**													
ERH785	AZ90051	1	Iron, Ion (Fe2+)	4/23/2019 8:40:00 AM	4/24/2019 8:02:00 PM	C	0.32	MG_L	U	1.0	0.32	U	
ERH797	AZ90054	1	Iron, Ion (Fe2+)	4/22/2019 1:40:00 PM	4/24/2019 8:05:00 PM	D	0.32	MG_L	U	1.0	0.32	UJ	h
ERH799	AZ90056	1	Iron, Ion (Fe2+)	4/22/2019 1:35:00 PM	4/24/2019 8:06:00 PM	D	0.32	MG_L	U	1.0	0.32	UJ	h
ERH801	AZ90058	1	Iron, Ion (Fe2+)	4/22/2019 4:45:00 PM	4/24/2019 8:07:00 PM	D	0.32	MG_L	U	1.0	0.32	U	
ERH803	AZ90060	1	Iron, Ion (Fe2+)	4/23/2019 10:45:00 AM	4/24/2019 8:08:00 PM	C	0.32	MG_L	U	1.0	0.32	U	
METHOD: **353.2**													
ERH785	AZ90051	1	NITROGEN, NITRATE-NITRITE	4/23/2019 8:40:00 AM	5/1/2019 6:23:00 PM	C	0.62	MG_L		0.10	0.090		
ERH797	AZ90054	1	NITROGEN, NITRATE-NITRITE	4/22/2019 1:40:00 PM	5/1/2019 6:30:00 PM	D	0.82	MG_L		0.10	0.090		
ERH799	AZ90056	1	NITROGEN, NITRATE-NITRITE	4/22/2019 1:35:00 PM	5/1/2019 6:32:00 PM	D	0.59	MG_L		0.10	0.090		
ERH801	AZ90058	1	NITROGEN, NITRATE-NITRITE	4/22/2019 4:45:00 PM	5/1/2019 6:34:00 PM	D	1.1	MG_L		0.10	0.090		
ERH803	AZ90060	1	NITROGEN, NITRATE-NITRITE	4/23/2019 10:45:00 AM	5/1/2019 6:36:00 PM	C	1.2	MG_L		0.10	0.090		
METHOD: **8015B_E**													
ERH785	AZ90051	1	C10-C24 DIESEL RANGE ORGANICS	4/23/2019 8:40:00 AM	4/29/2019 8:03:00 PM	C	25.00	UG_L	U	40.0	25.00	U	
ERH785	AZ90051	1	C10-C24 DIESEL RANGE ORGANICS	4/23/2019 8:40:00 AM	5/6/2019 8:49:00 PM	C	25.00	UG_L	U	40.0	25.00	R	d
ERH785	AZ90051	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RANGE	4/23/2019 8:40:00 AM	5/6/2019 8:49:00 PM	C	40.00	UG_L	U	40.0	40.00	R	d
ERH785	AZ90051	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RANGE	4/23/2019 8:40:00 AM	4/29/2019 8:03:00 PM	C	40.00	UG_L	U	40.0	40.00	U	
ERH786	AZ90052	1	C10-C24 DIESEL RANGE ORGANICS	4/23/2019 8:40:00 AM	5/6/2019 9:09:00 PM	C	25.00	UG_L	U	40.0	25.00	R	d
ERH786	AZ90052	1	C10-C24 DIESEL RANGE ORGANICS	4/23/2019 8:40:00 AM	4/29/2019 9:04:00 PM	C	25.00	UG_L	U	40.0	25.00	U	
ERH786	AZ90052	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RANGE	4/23/2019 8:40:00 AM	4/29/2019 9:04:00 PM	C	40.00	UG_L	U	40.0	40.00	U	
ERH786	AZ90052	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RANGE	4/23/2019 8:40:00 AM	5/6/2019 9:09:00 PM	C	40.00	UG_L	U	40.0	40.00	R	d
ERH797	AZ90054	1	C10-C24 DIESEL RANGE ORGANICS	4/22/2019 1:40:00 PM	4/29/2019 9:23:00 PM	D	25.00	UG_L	U	40.0	25.00	U	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **8015B_E**													
ERH797	AZ90054	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RANGE	4/22/2019 1:40:00 PM	4/29/2019 9:23:00 PM	D	40.00	UG_L	U	40.0	40.00	U	
ERH799	AZ90056	1	C10-C24 DIESEL RANGE ORGANICS	4/22/2019 1:35:00 PM	4/29/2019 9:43:00 PM	D	25.00	UG_L	U	40.0	25.00	U	
ERH799	AZ90056	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RANGE	4/22/2019 1:35:00 PM	4/29/2019 9:43:00 PM	D	40.00	UG_L	U	40.0	40.00	U	
ERH801	AZ90058	1	C10-C24 DIESEL RANGE ORGANICS	4/22/2019 4:45:00 PM	4/29/2019 10:23:00 PM	D	25.00	UG_L	U	40.0	25.00	U	
ERH801	AZ90058	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RANGE	4/22/2019 4:45:00 PM	4/29/2019 10:23:00 PM	D	40.00	UG_L	U	40.0	40.00	U	
ERH803	AZ90060	1	C10-C24 DIESEL RANGE ORGANICS	4/23/2019 10:45:00 AM	4/29/2019 10:43:00 PM	C	25.00	UG_L	U	40.0	25.00	U	
ERH803	AZ90060	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RANGE	4/23/2019 10:45:00 AM	4/29/2019 10:43:00 PM	C	40.00	UG_L	U	40.0	40.00	U	
METHOD: **8260B**													
ERH784	AZ90050	1	BENZENE	4/23/2019 7:50:00 AM	4/25/2019 7:03:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH784	AZ90050	1	ETHYLBENZENE	4/23/2019 7:50:00 AM	4/25/2019 7:03:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH784	AZ90050	1	PETROLEUM HYDROCARBONS C6-C10	4/23/2019 7:50:00 AM	4/25/2019 7:02:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH784	AZ90050	1	TOLUENE	4/23/2019 7:50:00 AM	4/25/2019 7:03:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH784	AZ90050	1	Xylenes	4/23/2019 7:50:00 AM	4/25/2019 7:03:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH785	AZ90051	1	BENZENE	4/23/2019 8:40:00 AM	4/25/2019 8:28:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH785	AZ90051	1	ETHYLBENZENE	4/23/2019 8:40:00 AM	4/25/2019 8:28:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH785	AZ90051	1	PETROLEUM HYDROCARBONS C6-C10	4/23/2019 8:40:00 AM	4/25/2019 8:29:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH785	AZ90051	1	TOLUENE	4/23/2019 8:40:00 AM	4/25/2019 8:28:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH785	AZ90051	1	Xylenes	4/23/2019 8:40:00 AM	4/25/2019 8:28:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH786	AZ90052	1	BENZENE	4/23/2019 8:40:00 AM	4/25/2019 8:56:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH786	AZ90052	1	ETHYLBENZENE	4/23/2019 8:40:00 AM	4/25/2019 8:56:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH786	AZ90052	1	PETROLEUM HYDROCARBONS C6-C10	4/23/2019 8:40:00 AM	4/25/2019 8:57:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH786	AZ90052	1	TOLUENE	4/23/2019 8:40:00 AM	4/25/2019 8:56:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH786	AZ90052	1	Xylenes	4/23/2019 8:40:00 AM	4/25/2019 8:56:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH796	AZ90053	1	BENZENE	4/22/2019 1:00:00 PM	4/25/2019 6:06:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH796	AZ90053	1	ETHYLBENZENE	4/22/2019 1:00:00 PM	4/25/2019 6:06:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH796	AZ90053	1	PETROLEUM HYDROCARBONS C6-C10	4/22/2019 1:00:00 PM	4/25/2019 6:05:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH796	AZ90053	1	TOLUENE	4/22/2019 1:00:00 PM	4/25/2019 6:06:00 PM	C	0.30	UG_L	U	1.0	0.30	U	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **8260B**													
ERH796	AZ90053	1	Xylenes	4/22/2019 1:00:00 PM	4/25/2019 6:06:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH797	AZ90054	1	BENZENE	4/22/2019 1:40:00 PM	4/25/2019 9:26:00 PM	D	0.30	UG_L	U	1.0	0.30	U	
ERH797	AZ90054	1	ETHYLBENZENE	4/22/2019 1:40:00 PM	4/25/2019 9:26:00 PM	D	0.50	UG_L	U	1.0	0.50	U	
ERH797	AZ90054	1	PETROLEUM HYDROCARBONS C6-C10	4/22/2019 1:40:00 PM	4/25/2019 9:25:00 PM	D	18.0	UG_L	U	20	18.0	U	
ERH797	AZ90054	1	TOLUENE	4/22/2019 1:40:00 PM	4/25/2019 9:26:00 PM	D	0.30	UG_L	U	1.0	0.30	U	
ERH797	AZ90054	1	Xylenes	4/22/2019 1:40:00 PM	4/25/2019 9:26:00 PM	D	0.30	UG_L	U	2.0	0.30	U	
ERH798	AZ90055	1	BENZENE	4/22/2019 12:00:00 PM	4/25/2019 7:31:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH798	AZ90055	1	ETHYLBENZENE	4/22/2019 12:00:00 PM	4/25/2019 7:31:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH798	AZ90055	1	PETROLEUM HYDROCARBONS C6-C10	4/22/2019 12:00:00 PM	4/25/2019 7:32:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH798	AZ90055	1	TOLUENE	4/22/2019 12:00:00 PM	4/25/2019 7:31:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH798	AZ90055	1	Xylenes	4/22/2019 12:00:00 PM	4/25/2019 7:31:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH799	AZ90056	1	BENZENE	4/22/2019 1:35:00 PM	4/25/2019 9:53:00 PM	D	0.30	UG_L	U	1.0	0.30	U	
ERH799	AZ90056	1	ETHYLBENZENE	4/22/2019 1:35:00 PM	4/25/2019 9:53:00 PM	D	0.50	UG_L	U	1.0	0.50	U	
ERH799	AZ90056	1	PETROLEUM HYDROCARBONS C6-C10	4/22/2019 1:35:00 PM	4/25/2019 9:54:00 PM	D	18.0	UG_L	U	20	18.0	U	
ERH799	AZ90056	1	TOLUENE	4/22/2019 1:35:00 PM	4/25/2019 9:53:00 PM	D	0.30	UG_L	U	1.0	0.30	U	
ERH799	AZ90056	1	Xylenes	4/22/2019 1:35:00 PM	4/25/2019 9:53:00 PM	D	0.30	UG_L	U	2.0	0.30	U	
ERH800	AZ90057	1	BENZENE	4/22/2019 3:25:00 PM	4/25/2019 7:59:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH800	AZ90057	1	ETHYLBENZENE	4/22/2019 3:25:00 PM	4/25/2019 7:59:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH800	AZ90057	1	PETROLEUM HYDROCARBONS C6-C10	4/22/2019 3:25:00 PM	4/25/2019 8:00:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH800	AZ90057	1	TOLUENE	4/22/2019 3:25:00 PM	4/25/2019 7:59:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH800	AZ90057	1	Xylenes	4/22/2019 3:25:00 PM	4/25/2019 7:59:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH801	AZ90058	1	BENZENE	4/22/2019 4:45:00 PM	4/25/2019 10:22:00 PM	D	0.30	UG_L	U	1.0	0.30	U	
ERH801	AZ90058	1	ETHYLBENZENE	4/22/2019 4:45:00 PM	4/25/2019 10:22:00 PM	D	0.50	UG_L	U	1.0	0.50	U	
ERH801	AZ90058	1	PETROLEUM HYDROCARBONS C6-C10	4/22/2019 4:45:00 PM	4/25/2019 10:23:00 PM	D	18.0	UG_L	U	20	18.0	U	
ERH801	AZ90058	1	TOLUENE	4/22/2019 4:45:00 PM	4/25/2019 10:22:00 PM	D	0.30	UG_L	U	1.0	0.30	U	
ERH801	AZ90058	1	Xylenes	4/22/2019 4:45:00 PM	4/25/2019 10:22:00 PM	D	0.30	UG_L	U	2.0	0.30	U	
ERH802	AZ90059	1	BENZENE	4/23/2019 9:45:00 AM	4/25/2019 6:35:00 PM	C	0.30	UG_L	U	1.0	0.30	U	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **8260B**													
ERH802	AZ90059	1	ETHYLBENZENE	4/23/2019 9:45:00 AM	4/25/2019 6:35:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH802	AZ90059	1	PETROLEUM HYDROCARBONS C6-C10	4/23/2019 9:45:00 AM	4/25/2019 6:34:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH802	AZ90059	1	TOLUENE	4/23/2019 9:45:00 AM	4/25/2019 6:35:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH802	AZ90059	1	Xylenes	4/23/2019 9:45:00 AM	4/25/2019 6:35:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH803	AZ90060	1	BENZENE	4/23/2019 10:45:00 AM	4/25/2019 10:51:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH803	AZ90060	1	ETHYLBENZENE	4/23/2019 10:45:00 AM	4/25/2019 10:51:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH803	AZ90060	1	PETROLEUM HYDROCARBONS C6-C10	4/23/2019 10:45:00 AM	4/25/2019 10:50:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH803	AZ90060	1	TOLUENE	4/23/2019 10:45:00 AM	4/25/2019 10:51:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH803	AZ90060	1	Xylenes	4/23/2019 10:45:00 AM	4/25/2019 10:51:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
METHOD: **8270D**													
ERH785	AZ90051	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/23/2019 8:40:00 AM	4/30/2019 5:22:00 PM	C	80.0	UG_L	U	100	80.0	UJ	l
ERH785	AZ90051	1	PHENOL	4/23/2019 8:40:00 AM	4/26/2019 9:29:00 PM	C	4.00	UG_L	U	5.0	4.00	U	
ERH786	AZ90052	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/23/2019 8:40:00 AM	4/30/2019 6:33:00 PM	C	80.0	UG_L	U	100	80.0	UJ	l
ERH786	AZ90052	1	PHENOL	4/23/2019 8:40:00 AM	4/26/2019 10:53:00 PM	C	4.00	UG_L	U	5.0	4.00	U	
ERH797	AZ90054	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/22/2019 1:40:00 PM	4/30/2019 6:57:00 PM	D	80.0	UG_L	U	100	80.0	UJ	l
ERH797	AZ90054	1	PHENOL	4/22/2019 1:40:00 PM	4/26/2019 11:21:00 PM	D	4.00	UG_L	U	5.0	4.00	U	
ERH799	AZ90056	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/22/2019 1:35:00 PM	4/30/2019 7:20:00 PM	D	80.0	UG_L	U	100	80.0	UJ	l
ERH799	AZ90056	1	PHENOL	4/22/2019 1:35:00 PM	4/26/2019 11:49:00 PM	D	4.00	UG_L	U	5.0	4.00	U	
ERH801	AZ90058	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/22/2019 4:45:00 PM	4/30/2019 7:44:00 PM	D	80.0	UG_L	U	100	80.0	UJ	l
ERH801	AZ90058	1	PHENOL	4/22/2019 4:45:00 PM	4/27/2019 12:17:00 AM	D	4.00	UG_L	U	5.0	4.00	U	
ERH803	AZ90060	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/23/2019 10:45:00 AM	4/30/2019 8:07:00 PM	C	80.0	UG_L	U	100	80.0	UJ	l
ERH803	AZ90060	1	PHENOL	4/23/2019 10:45:00 AM	4/27/2019 12:45:00 AM	C	4.00	UG_L	U	5.0	4.00	U	
METHOD: **8270DSIM**													
ERH785	AZ90051	1	1-METHYLNAPHTHALENE	4/23/2019 8:40:00 AM	4/26/2019 6:44:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH785	AZ90051	1	2-METHYLNAPHTHALENE	4/23/2019 8:40:00 AM	4/26/2019 6:44:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH785	AZ90051	1	NAPHTHALENE	4/23/2019 8:40:00 AM	4/26/2019 6:44:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH786	AZ90052	1	1-METHYLNAPHTHALENE	4/23/2019 8:40:00 AM	4/26/2019 7:51:00 PM	C	0.10	UG_L	U	0.2	0.10	U	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **8270DSIM**													
ERH786	AZ90052	1	2-METHYLNAPHTHALENE	4/23/2019 8:40:00 AM	4/26/2019 7:51:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH786	AZ90052	1	NAPHTHALENE	4/23/2019 8:40:00 AM	4/26/2019 7:51:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH797	AZ90054	1	1-METHYLNAPHTHALENE	4/22/2019 1:40:00 PM	4/26/2019 8:14:00 PM	D	0.10	UG_L	U	0.2	0.10	U	
ERH797	AZ90054	1	2-METHYLNAPHTHALENE	4/22/2019 1:40:00 PM	4/26/2019 8:14:00 PM	D	0.10	UG_L	U	0.2	0.10	U	
ERH797	AZ90054	1	NAPHTHALENE	4/22/2019 1:40:00 PM	4/26/2019 8:14:00 PM	D	0.10	UG_L	U	0.2	0.10	U	
ERH799	AZ90056	1	1-METHYLNAPHTHALENE	4/22/2019 1:35:00 PM	4/26/2019 8:36:00 PM	D	0.10	UG_L	U	0.2	0.10	U	
ERH799	AZ90056	1	2-METHYLNAPHTHALENE	4/22/2019 1:35:00 PM	4/26/2019 8:36:00 PM	D	0.10	UG_L	U	0.2	0.10	U	
ERH799	AZ90056	1	NAPHTHALENE	4/22/2019 1:35:00 PM	4/26/2019 8:36:00 PM	D	0.10	UG_L	U	0.2	0.10	U	
ERH801	AZ90058	1	1-METHYLNAPHTHALENE	4/22/2019 4:45:00 PM	4/26/2019 8:58:00 PM	D	0.10	UG_L	U	0.2	0.10	U	
ERH801	AZ90058	1	2-METHYLNAPHTHALENE	4/22/2019 4:45:00 PM	4/26/2019 8:58:00 PM	D	0.10	UG_L	U	0.2	0.10	U	
ERH801	AZ90058	1	NAPHTHALENE	4/22/2019 4:45:00 PM	4/26/2019 8:58:00 PM	D	0.10	UG_L	U	0.2	0.10	U	
ERH803	AZ90060	1	1-METHYLNAPHTHALENE	4/23/2019 10:45:00 AM	4/26/2019 9:21:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH803	AZ90060	1	2-METHYLNAPHTHALENE	4/23/2019 10:45:00 AM	4/26/2019 9:21:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH803	AZ90060	1	NAPHTHALENE	4/23/2019 10:45:00 AM	4/26/2019 9:21:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
METHOD: **9060A**													
ERH785	AZ90051	1	DISSOLVED ORGANIC CARBON	4/23/2019 8:40:00 AM	5/3/2019 8:47:00 AM	C	0.33	MG_L	J	0.93	0.350	J	c
ERH785	AZ90051	1	TOTAL ORGANIC CARBON	4/23/2019 8:40:00 AM	5/2/2019 9:39:00 PM	C	0.26	MG_L	J	0.93	0.350	J	c
ERH797	AZ90054	1	DISSOLVED ORGANIC CARBON	4/22/2019 1:40:00 PM	4/30/2019 5:47:00 AM	D	0.72	MG_L	J	0.93	0.350	J	c
ERH797	AZ90054	1	TOTAL ORGANIC CARBON	4/22/2019 1:40:00 PM	5/2/2019 11:55:00 PM	D	0.47	MG_L	J	0.93	0.350	J	c
ERH799	AZ90056	1	DISSOLVED ORGANIC CARBON	4/22/2019 1:35:00 PM	5/3/2019 11:04:00 AM	D	0.47	MG_L	J	0.93	0.350	J	c
ERH799	AZ90056	1	TOTAL ORGANIC CARBON	4/22/2019 1:35:00 PM	4/30/2019 6:18:00 AM	D	0.45	MG_L	J	0.93	0.350	J	c
ERH801	AZ90058	1	DISSOLVED ORGANIC CARBON	4/22/2019 4:45:00 PM	4/30/2019 6:50:00 AM	D	0.89	MG_L	J	0.93	0.350	J	c
ERH801	AZ90058	1	TOTAL ORGANIC CARBON	4/22/2019 4:45:00 PM	5/3/2019 12:27:00 AM	D	0.51	MG_L	J	0.93	0.350	J	c
ERH803	AZ90060	1	DISSOLVED ORGANIC CARBON	4/23/2019 10:45:00 AM	4/30/2019 7:22:00 AM	C	0.350	MG_L	U	0.93	0.350	U	
ERH803	AZ90060	1	TOTAL ORGANIC CARBON	4/23/2019 10:45:00 AM	5/3/2019 12:58:00 AM	C	0.92	MG_L	J	0.93	0.350	J	c
METHOD: **RSK175**													
ERH784	AZ90050	1	METHANE	4/23/2019 7:50:00 AM	4/29/2019 11:23:00 AM	C	1.00	UG_L	U	5.0	1.00	U	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **RSK175**													
ERH785	AZ90051	1	METHANE	4/23/2019 8:40:00 AM	4/29/2019 11:27:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH796	AZ90053	1	METHANE	4/22/2019 1:00:00 PM	4/29/2019 11:36:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH797	AZ90054	1	METHANE	4/22/2019 1:40:00 PM	4/29/2019 11:38:00 AM	D	1.00	UG_L	U	5.0	1.00	U	
ERH798	AZ90055	1	METHANE	4/22/2019 12:00:00 PM	4/29/2019 11:40:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH799	AZ90056	1	METHANE	4/22/2019 1:35:00 PM	4/29/2019 11:43:00 AM	D	1.00	UG_L	U	5.0	1.00	U	
ERH800	AZ90057	1	METHANE	4/22/2019 3:25:00 PM	4/29/2019 11:45:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH801	AZ90058	1	METHANE	4/22/2019 4:45:00 PM	4/29/2019 11:47:00 AM	D	1.00	UG_L	U	5.0	1.00	U	
ERH802	AZ90059	1	METHANE	4/23/2019 9:45:00 AM	4/29/2019 11:49:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH803	AZ90060	1	METHANE	4/23/2019 10:45:00 AM	4/29/2019 11:51:00 AM	C	1.00	UG_L	U	5.0	1.00	U	

LDC #: 45094

EDD POPULATION COMPLETENESS WORKSHEET

Date: 6/5
Page: 1 of 1
2nd Reviewer: FM

The LDC job number listed above was entered by PE.
Entered from Body or Summary

	EDD Process		Comments/Action
I.	EDD Completeness	-	
Ia.	- All methods present?	Y	
Ib.	- All samples present/match report?	Y	
Ic.	- All reported analytes present?	Y	
Id.	- 10% or 100% verification of EDD?	Y	
II.	EDD Preparation/Entry	-	
IIa.	- Carryover U/J?	Y	
IIb.	- Reason Codes used? If so, note which codes.	Y	
IIc.	- Additional Information (QC Level, Validator, Validated Y/N, etc.)	Y	
III.	Reasonableness Checks	-	
IIIa.	- Do all qualified ND results have ND qualifier (e.g. UJ)?	Y	
IIIb.	- Do all qualified detect results have detect qualifier (e.g. J)?	Y	
IIIc.	- If reason codes are used, do all qualified results have reason code field populated, and vice versa?	Y	
IIId.	-Does the detect flag require changing for blank qualifier? If so, are all U results marked ND?	—	
IIIe.	- Do blank concentrations in report match EDD where data was qualified due to blank contamination?	—	
IIIf.	- Were multiple results reported due to dilutions/reanalysis? If so, were results qualified appropriately?	Y/Y	
IIIg.	-Are there any discrepancies between the data packet and the EDD?	N	

Notes: *see discrepancy sheet

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

AECOM
1001 Bishop Street Suite 1600
Honolulu, HI 96813
ATTN: Ms. Margie Pascua
Margie.Pascua@aecom.com

July 10, 2019

SUBJECT: REVISED Red Hill Bulk Storage Facility, CTO 18F0126, Data Validation

Dear Ms. Pascua,

Enclosed are the revised validation reports for the fractions listed below. These SDGs were received on May 23, 2019. Attachment 1 is a summary of the samples that were reviewed for each analysis.

- Revision: Collection data for samples ERH804 and ERH805 have been updated to 4/23/19 per cdc.

LDC Project #45147_RV2:

SDG #	Fraction
88714, 88775	Volatiles, Phenol, Polynuclear Aromatic Hydrocarbons, 2-(2-Methoxyethoxy)-ethanol, Wet Chemistry, Gasoline Range Organics, Total Petroleum Hydrocarbons as Extractables, Methane

The data validation was performed under Level C & D validation guidelines. The analyses were validated using the following documents and variances, as applicable to each method:

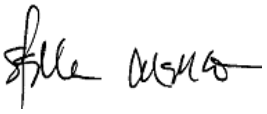
- Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 02; January 2017
- Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 01, April 2017
- Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 00, September 2017
- Sampling and Analysis Plan, Addendum 03 Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 00; June 2018
- Project Procedures Manual, U.S. Naval Facilities Engineering Command Environmental Restoration Program, NAVFAC Pacific, DON 2015
- U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.1, 2017

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIB, November 2004; update IV, February 2007; update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,



Stella Cuenco
scuenco@lab-data.com
Operations Manager/Senior Chemist

HC

Attachment 1

EDD 90/10 C/D

LDC #45147 (AECOM-Honolulu, HI / Red Hill Bulk Storage Facility, CTO 18F0126)

LDC	SDG#	DATE REC'D	(2) DATE DUE	BTEX (8260B)		Phenol (8270D)		PAHs (8270D -SIM)		2,2-MEE (8270D-M)		GRO (8260B)		TPH-E (8015B)		SGCU TPH-E (8015B)		Methane (175)		Alk. (2320B)		Cl,SO_4 NO_3-N (300.0)		NO_3/ NO_2-N (353.2)		Fe II (3500-Fe B)		DOC (9060A)		TOC (9060A)			
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	88714	05/23/19	06/07/19	10	0	5	0	5	0	5	0	10	0	5	0	3	0	9	0	4	0	4	0	4	0	4	0	4	0	4	0		
A	88714	05/23/19	06/07/19	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
B	88775	05/23/19	06/07/19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	0	3	0	-	-	-	-	-	-	-	-		
Total	J/SC			11	0	6	0	6	0	6	0	11	0	6	0	4	0	10	0	8	0	8	0	5	0	5	0	5	0	5	0	0	96

Shaded cells indicate Level D validation (all other cells are Level C validation). These sample counts do not include MS/MSD, and DUPs

L:\AECOM\Red Hill\45147ST-18F0126.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: July 10, 2019

Parameters: Volatiles

Validation Level: Level C & D

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88714

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH787	AZ90099	Water	04/23/19
ERH788	AZ90100	Water	04/23/19
ERH789	AZ90101	Water	04/24/19
ERH790**	AZ90102**	Water	04/24/19
ERH791	AZ90103	Water	04/24/19
ERH792	AZ90104	Water	04/24/19
ERH793	AZ90105	Water	04/24/19
ERH804	AZ90106	Water	04/23/19
ERH805	AZ90107	Water	04/23/19
ERH806	AZ90108	Water	04/24/19
ERH807	AZ90109	Water	04/24/19

**Indicates sample underwent Level D validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) which are Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) by Environmental Protection Agency (EPA) SW 846 Method 8260B

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level D data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Samples ERH787, ERH789, ERH792, ERH804, and ERH806 were identified as trip blanks. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

Samples ERH790** and ERH791 were identified as field duplicates. No results were detected in any of the samples.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XIV. System Performance

The system performance was acceptable for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Volatiles - Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Volatiles - Laboratory Blank Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Volatiles - Field Blank Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

LDC #: 45147A1a
SDG #: 88714
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C/D

Date: 6/01/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (BTEX)(EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	%D RSD ≤ 15 ICV ≤ 20
IV.	Continuing calibration	A	CCV ≤ 20 / 50
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB = 1, 3, 6, 8, 10
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	A	
X.	Field duplicates	ND	D = 4, 5
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level C validation
XIII.	Target compound identification	A	Not reviewed for Level C validation
XIV.	System performance	A	Not reviewed for Level C validation
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

**Indicates samples underwent Level D review

	Client ID		Lab ID	Matrix	Date
1	ERH787	TB	AZ90099	Water	04/23/19
2	ERH788		AZ90100	Water	04/23/19
3	ERH789	TB	AZ90101	Water	04/24/19
4	ERH790 **	D	AZ90102 **	Water	04/24/19
5	ERH791	D	AZ90103	Water	04/24/19
6	ERH792	TB	AZ90104	Water	04/24/19
7	ERH793		AZ90105	Water	04/24/19
8	ERH804	TB	AZ90106	Water	~~04/24/19~~ 04/23/19
9	ERH805		AZ90107	Water	~~04/24/19~~
10	ERH806	TB	AZ90108	Water	04/24/19
11	ERH807		AZ90109	Water	04/24/19
12					
13	190426AM-BLK				

LDC #: 45147A1a

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: [illegible]

Method: Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
Were all percent relative standard deviations (%RSD) ≤ 30%/15% and relative response factors (RRF) ≥ 0.05?	✓			
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 20%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) ≥ 0.05?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
VI. Field blanks				
Were field blanks were identified in this SDG?	✓			
Were target compounds detected in the field blanks?		✓		
VII. Surrogate spikes				
Were all surrogate percent recovery (%R) within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	

LDC #: 45147A1a

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: M

Validation Area	Yes	No	NA	Findings/Comments
VIII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?			✓	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
IX. Laboratory control samples				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?		✓		
XI. Internal standards				
Were internal standard area counts within -50% to +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?			✓	
XII. Compound quantitation				
Did the laboratory LOQs/RLs meet the QAPP LOQs/RLs?	✓			
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane
C. Vinyl choride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO.1,1-Difluoroethane	O1. 3-Methylpentane
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methyl cyclohexane	T1. 2-Methylhexane
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.

LDC #: 45147A2

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: FT
2nd Reviewer:

METHOD: GCMS 8260B

The calibration factors (RRFF), average RRFF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

RRF = (Ax)(Cis)/(Ais)(Cx)
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

Where:

Ax = Area of compound
Cx = Concentration of compound
S = Standard deviation of the RRFs
X = Mean of the RRFs
Ais = Area of associated internal standard
Cis = Concentration of internal Standard

#	Standard ID	Calibration Date	Compound	Reported (RRF 5 std)	Recalculated (RRF 5 std)	Reported AverageRRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
	ICAL Loki	3/24/2019	V (IS 1)	0.4619	0.4619	0.4494	0.4494	2.1	2.1
			EE (IS 2)	0.7466	0.7466	0.7104	0.7104	4.0	4.0

LDC #: 45147A/a

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	CCV 0426M03	4/26/19	V (1st internal standard)	0.4494	0.4589	0.4589	2.1	2.1
			EE (2nd internal standard)	0.7104	0.7443	0.7443	4.8	4.8
			(3rd internal standard)					
			(4th internal standard)					
2			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					
3			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					
4			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45147A /a

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: FT
2nd reviewer: M

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #4

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane	25.0	24.2486	96.9	96.9	0
1,2-Dichloroethane-d4	↓	22.5377	90.2	90.2	↓
Toluene-d8		24.0634	96.3	96.3	
Bromofluorobenzene		24.9494	99.8	99.8	

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

LDC #: 45147A1a

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer: FT
2nd Reviewer: A

METHOD: GC/MS VOA (EPA Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA Where: SSC = Spiked sample concentration; SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboraotry control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: 190426AM

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene										
Trichloroethene			9.83							
Benzene	10.0	10.0	~~10.2~~	10.2	98.3	98.3	102	102	3.7	3.7
Toluene	10.0	10.0	9.85	10.4	98.5	98.5	104	104	5.4	5.4
Chlorobenzene										

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45147A1a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: FT
2nd reviewer: M

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were all reported results recalculated and verified for all level IV samples?

Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. 190426AM LCS V

Conc. = $\frac{130762 \quad (25.0)}{739998 \quad (0.4494)}$

=

9.83 ug/L

#	Sample ID	Compound	Reported Concentration (ug/L	Calculated Concentration (ug/L)	Qualification
	190426AM	V	9.83	9.83	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: July 10, 2019

Parameters: Phenol

Validation Level: Level C & D

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88714

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH788	AZ90100	Water	04/23/19
ERH790**	AZ90102**	Water	04/24/19
ERH791	AZ90103	Water	04/24/19
ERH793	AZ90105	Water	04/24/19
ERH805	AZ90107	Water	04/23/19
ERH807	AZ90109	Water	04/24/19

**Indicates sample underwent Level D validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Phenol by Environmental Protection Agency (EPA) SW 846 Method 8270D

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level D data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0%.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. Surrogate recoveries (%R) were not within QC limits for sample ERH791. Using professional judgment, no data were qualified when one surrogate %R was outside the QC limits and the %R was greater than or equal to 10%.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

Samples ERH790** and ERH791 were identified as field duplicates. No results were detected in any of the samples.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XIV. System Performance

The system performance was acceptable for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Phenol - Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Phenol - Laboratory Blank Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Phenol - Field Blank Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

LDC #: 45147A2a
SDG #: 88714
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C/D

Date: 6/01/19
Page: 1 of 1
Reviewer: G
2nd Reviewer: PL

METHOD: GC/MS Phenol ~~& TICs~~ (EPA SW 846 Method 8270D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	%RSD ≤ 15 ICV ≤ 20
IV.	Continuing calibration pending	A	CCV ≤ 20/50
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	SW	
VIII.	Matrix spike/Matrix spike duplicates	N	cs
IX.	Laboratory control samples	A	LCS ID
X.	Field duplicates	NY	D = 2,3
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level C validation
XIII.	Target compound identification	A	Not reviewed for Level C validation
XIV.	System performance	A	Not reviewed for Level C validation
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

**Indicates samples underwent Level D review

	Client ID	Lab ID	Matrix	Date
1	ERH788	AZ90100	Water	04/23/19
2	ERH790 **	AZ90102 **	Water	04/24/19
3	ERH791	AZ90103	Water	04/24/19
4	ERH793	AZ90105	Water	04/24/19
5	ERH805	AZ90107	Water	~~04/24/19~~ 04/23/19
6	ERH807	AZ90109	Water	04/24/19
7				
8				

Notes:

LDC #: 45147A2a

VALIDATION FINDINGS CHECKLIST

Reviewer: EJ
2nd Reviewer: JL

Method: Semivolatiles (EPA SW 846 Method 8270D)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS Instrument performance check				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤15% and relative response factors (RRF) within method criteria?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 20%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) within method criteria?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks? If yes, please see the blanks validation findings worksheet.		✓		
VI. Field blanks				
Were field blanks were identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	
VII. Surrogate spikes				
Were all surrogate percent recovery (%R) within QC limits?	✓			
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any percent recoveries (%R) was less than 10%, was a reanalysis performed to confirm %R ?			✓	
VIII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?			✓	

Validation Area				
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
IX. Laboratory control samples				
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?	.	✓		
XI. Internal standards				
Were internal standard area counts within -50% to +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XII. Compound quantitation				
Did the laboratory LOQs/RLs meet the QAPP LOQs/RLs?	✓			
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	CC. Dimethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	GGGG. C30-Hopane	I1. Methyl methanesulfonate
B. Bis (2-chloroethyl) ether	DD. Acenaphthylene	FFF. Di-n-octylphthalate	HHHH. 1-Methylphenanthrene	J1. Ethyl methanesulfonate
C. 2-Chlorophenol	EE. 2,6-Dinitrotoluene	GGG. Benzo(b)fluoranthene	IIII. 1,4-Dioxane	K1. o,o',o''-Triethylphosphorothioate
D. 1,3-Dichlorobenzene	FF. 3-Nitroaniline	HHH. Benzo(k)fluoranthene	JJJJ. Acetophenone	L1. n-Phenylene diamine
E. 1,4-Dichlorobenzene	GG. Acenaphthene	III. Benzo(a)pyrene	KKKK. Atrazine	M1. 1,4-Naphthoquinone
F. 1,2-Dichlorobenzene	HH. 2,4-Dinitrophenol	JJJ. Indeno(1,2,3-cd)pyrene	LLLL. Benzaldehyde	N1. N-Nitro-o-toluidine
G. 2-Methylphenol	II. 4-Nitrophenol	KKK. Dibenz(a,h)anthracene	MMMM. Caprolactam	O1. 1,3,5-Trinitrobenzene
H. 2,2'-Oxybis(1-chloropropane)	JJ. Dibenzofuran	LLL. Benzo(g,h,i)perylene	NNNN. 2,6-Dichlorophenol	P1. Pentachlorobenzene
I. 4-Methylphenol	KK. 2,4-Dinitrotoluene	MMM. Bis(2-Chloroisopropyl)ether	OOOO. 1,2-Diphenylhydrazine	Q1. 4-Aminobiphenyl
J. N-Nitroso-di-n-propylamine	LL. Diethylphthalate	NNN. Aniline	PPPP. 3-Methylphenol	R1. 2-Naphthylamine
K. Hexachloroethane	MM. 4-Chlorophenyl-phenyl ether	OOO. N-Nitrosodimethylamine	QQQQ. 3&4-Methylphenol	S1. Triphenylene
L. Nitrobenzene	NN. Fluorene	PPP. Benzoic Acid	RRRR. 4-Dimethyldibenzothiophene (4MDT)	T1. Octachlorostyrene
M. Isophorone	OO. 4-Nitroaniline	QQQ. Benzyl alcohol	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	U1. Famphur
N. 2-Nitrophenol	PP. 4,6-Dinitro-2-methylphenol	RRR. Pyridine	TTTT. 1-Methyldibenzothiophene (1MDT)	V1. 1,4-phenylenediamine
O. 2,4-Dimethylphenol	QQ. N-Nitrosodiphenylamine	SSS. Benzidine	UUUU.. 2,3,4,6-Tetrachlorophenol	W1. Methapyrilene
P. Bis(2-chloroethoxy)methane	RR. 4-Bromophenyl-phenylether	TTT. 1-Methylnaphthalene	VVVV. 1,2,4,5-Tetrachlorobenzene	X1. Pentachloroethane
Q. 2,4-Dichlorophenol	SS. Hexachlorobenzene	UUU.Benzo(b)thiophene	WWWW.. 2-Picoline	Y1. 3,3'-Dimethylbenzidine
R. 1,2,4-Trichlorobenzene	TT. Pentachlorophenol	VVV.Benzonaphthothiophene	XXXX. 3-Methylcholanthrene	Z1. o-Toluidine
S. Naphthalene	UU. Phenanthrene	WWW.Benzo(e)pyrene	YYYY. a,a-Dimethylphenethylamine	A2. 1-Naphthylamine
T. 4-Chloroaniline	VV. Anthracene	XXX. 2,6-Dimethylnaphthalene	ZZZZ. Hexachloropropene	B2. 4-Aminobiphenyl
U. Hexachlorobutadiene	WW. Carbazole	YYY. 2,3,5-Trimethylnaphthalene	A1. N-Nitrosodiethylamine	C2. 4-Nitroquinoline-1-oxide
V. 4-Chloro-3-methylphenol	XX. Di-n-butylphthalate	ZZZ. Perylene	B1. N-Nitrosodi-n-butylamine	D2. Hexachloropene
W. 2-Methylnaphthalene	YY. Fluoranthene	AAAA. Dibenzothiophene	C1. N-Nitrosomethylethylamine	E2. Bis (2-chloro-1-methylethyl) ether
X. Hexachlorocyclopentadiene	ZZ. Pyrene	BBBB. Benzo(a)fluoranthene	D1. N-Nitrosomorpholine	F2. Bifenthrin
Y. 2,4,6-Trichlorophenol	AAA. Butylbenzylphthalate	CCCC. Benzo(b)fluorene	E1. N-Nitrosopyrrolidine	G2.Cyfluthrin
Z. 2,4,5-Trichlorophenol	BBB. 3,3'-Dichlorobenzidine	DDDD. cis/trans-Decalin	F1. Phenacetin	H2.Cypermethrin
AA. 2-Chloronaphthalene	CCC. Benzo(a)anthracene	EEEE. Biphenyl	G1. 2-Acetylaminofluorene	I2.Permethrin (cis/trans)
BB. 2-Nitroaniline	DDD. Chrysene	FFFF. Retene	H1. Pronamide	J2. 5-Nitro-o-toluidine

LDC #: 45147A2a

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Reviewer: FT
2nd Reviewer: A

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualification below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were percent recoveries (%R) for surrogates within QC limits?
Y N N/A If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?
Y N N/A If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Sample ID	Surrogate	%R (Limits)	Qualifications
	3	TPH	39.5 (50-130)	no qual
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
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			( )	

(NBZ) = Nitrobenzene - d5
(FBP) = 2-Fluorobiphenyl
(TPH) = Terphenyl - d14
(2FP) = 2-Fluorophenol
(TBP) = 2,4,6 -Tribromophenol
(2CP) = 2-Chlorophenol - d4

LDC #: 45147A2a

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: FT
2nd Reviewer: AL

METHOD: GCMS 8270D

The calibration factors (RRFF), average RRFF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

RRF = (Ax)(Cis)/(Ais)(Cx)
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

Where:
Ax = Area of compound
Cx = Concentration of compound
S = Standard deviation of the RRFs
X = Mean of the RRFs
Ais = Area of associated internal standard
Cis = Concentration of internal Standard

#	Standard ID	Calibration Date	Compound	Reported (RRF 40 std)	Recalculated (RRF40 std)	Reported AverageRRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
	ICAL	3/19/2019	A	2.046	2.046	2.163	2.163	2.20	2.20

LDC #: 45147A2a

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: FT
2nd Reviewer: A

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Internal Standard)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	ccv 0411Y264	5/2/19	Phenol (1st IS)	2.163	2.244	2.244	3.8	3.8
			(2nd IS)					
			(3rd IS)					
			(4th IS)					
			(5th IS)					
			(6th IS)					
2			(1st IS)					
			(2nd IS)					
			(3rd IS)					
			(4th IS)					
			(5th IS)					
			(6th IS)					
3			(1st IS)					
			(2nd IS)					
			(3rd IS)					
			(4th IS)					
			(5th IS)					
			(6th IS)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45147A2a

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: FT
2nd reviewer: AC

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270D)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #2

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5	125.0	88.09433	70.5	70.5	0
2-Fluorobiphenyl	↓	76.35243	61.1	61.1	
Terphenyl-d14		61.91593	49.5	49.5	
Phenol-d5	250.0	156.82209	62.7	62.7	
2-Fluorophenol	↓	166.17193	66.5	66.5	
2,4,6-Tribromophenol		192.25883	76.9	76.9	
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

LDC #: 45147A29

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

RPD = | LCSC - LCSDC | * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: 190430A LCS ID

Compound	Spike Added (ug/L)		Spike Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
Phenol	62.5	62.5	51.8	55.8	82.9	82.9	89.3	89.3	7.4	7.4
N-Nitroso-di-n-propylamine										
4-Chloro-3-methylphenol										
Acenaphthene										
Pentachlorophenol										
Pyrene										

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45147A2a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: FT
2nd reviewer: AC

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 190430A LCS Δ

Conc. = $\frac{(375402)(40.0)(1)(1000)}{(167547)(2.163)(800)}$

=

51.79 ug/L

#	Sample ID	Compound	Reported Concentration (ug/L)	Calculated Concentration (ug/L)	Qualification
	LCS	Δ	51.8	51.79	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: July 10, 2019

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: Level C & D

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88714

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH788	AZ90100	Water	04/23/19
ERH790**	AZ90102**	Water	04/24/19
ERH791	AZ90103	Water	04/24/19
ERH793	AZ90105	Water	04/24/19
ERH805	AZ90107	Water	04/23/19
ERH807	AZ90109	Water	04/24/19

**Indicates sample underwent Level D validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polynuclear Aromatic Hydrocarbons (PAHs) by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level D data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

Samples ERH790** and ERH791 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)
	ERH790**	ERH791	
1-Methylnaphthalene	9.0	8.7	3 (≤50)
2-Methylnaphthalene	7.9	7.4	7 (≤50)
Naphthalene	28	26	7 (≤50)

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XIV. System Performance

The system performance was acceptable for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

LDC #: 45147A2b
SDG #: 88714
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C/D

Date: 6/01/19
Page: 1 of 1
Reviewer: PT
2nd Reviewer: AL

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	%D RSD ≤ 15 ICV ≤ 20
IV.	Continuing calibration / closing CCV	A	CCV ≤ 20/50
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	CS
IX.	Laboratory control samples	A	Lab ID
X.	Field duplicates	SW	D = 2, 3
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level C validation
XIII.	Target compound identification	A	Not reviewed for Level C validation
XIV.	System performance	A	Not reviewed for Level C validation
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

**Indicates samples underwent Level D review

	Client ID	Lab ID	Matrix	Date
1	ERH788	AZ90100	Water	04/23/19
2	ERH790 **	AZ90102 **	Water	04/24/19
3	ERH791	AZ90103	Water	04/24/19
4	ERH793	AZ90105	Water	04/24/19
5	ERH805	AZ90107	Water	~~04/24/19~~ 04/23/
6	ERH807	AZ90109	Water	04/24/19
7				
8				

Notes:

	190430 - BLK						

LDC #: 45147A2b

VALIDATION FINDINGS CHECKLIST

Reviewer: EJ
2nd Reviewer:

Method: Semivolatiles (EPA SW 846 Method 8270D)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS Instrument performance check				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤15% and relative response factors (RRF) within method criteria?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 20%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) within method criteria?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks? If yes, please see the blanks validation findings worksheet.		✓		
VI. Field blanks				
Were field blanks were identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	
VII. Surrogate spikes				
Were all surrogate percent recovery (%R) within QC limits?	✓			
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any percent recoveries (%R) was less than 10%, was a reanalysis performed to confirm %R ?			✓	
VIII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?			✓	

LDC #: 45147A2b

VALIDATION FINDINGS CHECKLIST

Reviewer: [illegible]
2nd Reviewer: [illegible]

Validation Area				
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
IX. Laboratory control samples				
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?	✓			
XI. Internal standards				
Were internal standard area counts within -50% to +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XII. Compound quantitation				
Did the laboratory LOQs/RLs meet the QAPP LOQs/RLs?	✓			
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	CC. Dimethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	GGGG. C30-Hopane	I1. Methyl methanesulfonate
B. Bis (2-chloroethyl) ether	DD. Acenaphthylene	FFF. Di-n-octylphthalate	HHHH. 1-Methylphenanthrene	J1. Ethyl methanesulfonate
C. 2-Chlorophenol	EE. 2,6-Dinitrotoluene	GGG. Benzo(b)fluoranthene	IIII. 1,4-Dioxane	K1. o,o',o''-Triethylphosphorothioate
D. 1,3-Dichlorobenzene	FF. 3-Nitroaniline	HHH. Benzo(k)fluoranthene	JJJJ. Acetophenone	L1. n-Phenylene diamine
E. 1,4-Dichlorobenzene	GG. Acenaphthene	III. Benzo(a)pyrene	KKKK. Atrazine	M1. 1,4-Naphthoquinone
F. 1,2-Dichlorobenzene	HH. 2,4-Dinitrophenol	JJJ. Indeno(1,2,3-cd)pyrene	LLLL. Benzaldehyde	N1. N-Nitro-o-toluidine
G. 2-Methylphenol	II. 4-Nitrophenol	KKK. Dibenz(a,h)anthracene	MMMM. Caprolactam	O1. 1,3,5-Trinitrobenzene
H. 2,2'-Oxybis(1-chloropropane)	JJ. Dibenzofuran	LLL. Benzo(g,h,i)perylene	NNNN. 2,6-Dichlorophenol	P1. Pentachlorobenzene
I. 4-Methylphenol	KK. 2,4-Dinitrotoluene	MMM. Bis(2-Chloroisopropyl)ether	OOOO. 1,2-Diphenylhydrazine	Q1. 4-Aminobiphenyl
J. N-Nitroso-di-n-propylamine	LL. Diethylphthalate	NNN. Aniline	PPPP. 3-Methylphenol	R1. 2-Naphthylamine
K. Hexachloroethane	MM. 4-Chlorophenyl-phenyl ether	OOO. N-Nitrosodimethylamine	QQQQ. 3&4-Methylphenol	S1. Triphenylene
L. Nitrobenzene	NN. Fluorene	PPP. Benzoic Acid	RRRR. 4-Dimethyldibenzothiophene (4MDT)	T1. Octachlorostyrene
M. Isophorone	OO. 4-Nitroaniline	QQQ. Benzyl alcohol	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	U1. Famphur
N. 2-Nitrophenol	PP. 4,6-Dinitro-2-methylphenol	RRR. Pyridine	TTTT. 1-Methyldibenzothiophene (1MDT)	V1. 1,4-phenylenediamine
O. 2,4-Dimethylphenol	QQ. N-Nitrosodiphenylamine	SSS. Benzidine	UUUU.. 2,3,4,6-Tetrachlorophenol	W1. Methapyrilene
P. Bis(2-chloroethoxy)methane	RR. 4-Bromophenyl-phenylether	TTT. 1-Methylnaphthalene	VVVV. 1,2,4,5-Tetrachlorobenzene	X1. Pentachloroethane
Q. 2,4-Dichlorophenol	SS. Hexachlorobenzene	UUU.Benzo(b)thiophene	WWWW.. 2-Picoline	Y1. 3,3'-Dimethylbenzidine
R. 1,2,4-Trichlorobenzene	TT. Pentachlorophenol	VVV.Benzonaphthothiophene	XXXX. 3-Methylcholanthrene	Z1. o-Toluidine
S. Naphthalene	UU. Phenanthrene	WWW.Benzo(e)pyrene	YYYY. a,a-Dimethylphenethylamine	A2. 1-Naphthylamine
T. 4-Chloroaniline	VV. Anthracene	XXX. 2,6-Dimethylnaphthalene	ZZZZ. Hexachloropropene	B2. 4-Aminobiphenyl
U. Hexachlorobutadiene	WW. Carbazole	YYY. 2,3,5-Trimethylnaphthalene	A1. N-Nitrosodiethylamine	C2. 4-Nitroquinoline-1-oxide
V. 4-Chloro-3-methylphenol	XX. Di-n-butylphthalate	ZZZ. Perylene	B1. N-Nitrosodi-n-butylamine	D2. Hexachloropene
W. 2-Methylnaphthalene	YY. Fluoranthene	AAAA. Dibenzothiophene	C1. N-Nitrosomethylethylamine	E2. Bis (2-chloro-1-methylethyl) ether
X. Hexachlorocyclopentadiene	ZZ. Pyrene	BBBB. Benzo(a)fluoranthene	D1. N-Nitrosomorpholine	F2. Bifenthrin
Y. 2,4,6-Trichlorophenol	AAA. Butylbenzylphthalate	CCCC. Benzo(b)fluorene	E1. N-Nitrosopyrrolidine	G2.Cyfluthrin
Z. 2,4,5-Trichlorophenol	BBB. 3,3'-Dichlorobenzidine	DDDD. cis/trans-Decalin	F1. Phenacetin	H2.Cypermethrin
AA. 2-Chloronaphthalene	CCC. Benzo(a)anthracene	EEEE. Biphenyl	G1. 2-Acetylaminofluorene	I2.Permethrin (cis/trans)
BB. 2-Nitroaniline	DDD. Chrysene	FFFF. Retene	H1. Pronamide	J2. 5-Nitro-o-toluidine

LDC #: 45147A2h

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: FT
2nd reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target compounds identified in the field duplicate pairs?

Compound	Concentration (ug/L)		RPD (≤ 50 %)	QUAL
	2	3		
TTT	9.0	8.7	3	
W	7.9	7.4	7	
S	28	26	7	

Compound	Concentration ( )		RPD (≤ %)	QUAL

LDC #: 45147A26

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: FT
2nd Reviewer: M

METHOD: GCMS 8270D

The calibration factors (RRFF), average RRFF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

RRF = (Ax)(Cis)/(Ais)(Cx)
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

Where:
Ax = Area of compound
Cx = Concentration of compound
S = Standard deviation of the RRFs
X = Mean of the RRFs
Ais = Area of associated internal standard
Cis = Concentration of internal Standard

#	Standard ID	Calibration Date	Compound	Reported (RRF1.0 std)	Recalculated (RRF1.0 std)	Reported AverageRRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
	ICAL Linus	3/26/2019	S	1.1630	1.1630	1.3140	1.3140	12.0	12.0

LDC #: 45147A26

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: FT
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Internal Standard)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	CCV 04261030	5/2/19	S (1st IS)	1.3140	1.250	1.250	4.9	4.9
			(2nd IS)					
			(3rd IS)					
			(4th IS)					
			(5th IS)					
			(6th IS)					
2			(1st IS)					
			(2nd IS)					
			(3rd IS)					
			(4th IS)					
			(5th IS)					
			(6th IS)					
3			(1st IS)					
			(2nd IS)					
			(3rd IS)					
			(4th IS)					
			(5th IS)					
			(6th IS)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45147 A26

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: FT
2nd reviewer: A

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270D)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #2

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
~~Nitrobenzene-d5~~ W-d10	6.250	4.43093	70.9	70.9	0
2-Fluorobiphenyl YY-d10	6.250	4.12352	66.0	66.0	0
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
~~1,2-Dichlorobenzene-d4~~					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

LDC #: 45147A26

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

RPD = | LCSC - LCSDC | * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: 190430A LCS ID

Compound	Spike Added (ug/L)		Spike Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
Phenol										
N-Nitroso-di-n-propylamine										
4-Chloro-3-methylphenol										
Acenaphthene										
Pentachlorophenol										
Pyrene										
5	6.25	6.25	3.87	4.27	61.9	61.9	68.3	68.3	9.8	9.8

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45147A2b

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: FT
2nd reviewer: A

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example:

Sample I.D. #2 , S :

Conc. = $\frac{(690846)(2.5)(1)(1000)}{(59074)(1.3140)(800)}$

=

27.812 ug/L

#	Sample ID	Compound	Reported Concentration (ug/L)	Calculated Concentration (ug/L)	Qualification
	#2	S	28	27.812	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: July 10, 2019

Parameters: 2-(2-Methoxyethoxy)-ethanol

Validation Level: Level C & D

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88714

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH788**	AZ90100**	Water	04/23/19
ERH790	AZ90102	Water	04/24/19
ERH791	AZ90103	Water	04/24/19
ERH793	AZ90105	Water	04/24/19
ERH805	AZ90107	Water	04/23/19
ERH807	AZ90109	Water	04/24/19

**Indicates sample underwent Level D validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

2-(2-Methoxyethoxy)-ethanol by Environmental Protection Agency (EPA) SW 846 Method 8270D Modified

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level D data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were not added to all samples as required by the method. Using professional judgment, no data were qualified, since the LCS percent recovery was within QC limits. Additionally, two of three base surrogate percent recoveries were within QC limits in the phenol analysis.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	Flag	A or P
190429A-LCS/D (All samples in SDG 88714)	2-(2-Methoxyethoxy)-ethanol	-	155 (30-130)	NA	-

Relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
190429A-LCS/D (All samples in SDG 88714)	2-(2-Methoxyethoxy)-ethanol	28.3 (≤20)	UJ (all non-detects)	P

X. Field Duplicates

Samples ERH790 and ERH791 were identified as field duplicates. No results were detected in any of the samples.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XIV. System Performance

The system performance was acceptable for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method with the exception noted in Section VII. No results were rejected in this SDG.

Due to LCS/LCSD RPD, data were qualified as estimated in six samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
2-(2-Methoxyethoxy)-ethanol - Data Qualification Summary - SDG 88714

Sample	Compound	Flag	A or P	Reason (Code)
ERH788** ERH790 ERH791 ERH793 ERH805 ERH807	2-(2-Methoxyethoxy)-ethanol	UJ (all non-detects)	P	Laboratory control samples (RPD) (L)

Red Hill Bulk Storage Facility, CTO 18F0126
2-(2-Methoxyethoxy)-ethanol - Laboratory Blank Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
2-(2-Methoxyethoxy)-ethanol - Field Blank Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

LDC #: 45147A2c
SDG #: 88714
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C/D

Date: 6/1/19
Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS 2-(2-Methoxyethoxy)-Ethanol (EPA SW 846 Method 8270D-Modified)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A /A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A /A	r² ICV ≤ 20
IV.	Continuing calibration / ending	A	CCV ≤ 20/20
V.	Laboratory Blanks	A	
VI.	Field blanks	A	
VII.	Surrogate spikes	SW	
VIII.	Matrix spike/Matrix spike duplicates	N	CS
IX.	Laboratory control samples	SW	LCS/LD
X.	Field duplicates	ND	D = 2, 3
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level C validation
XIII.	Target compound identification	A	Not reviewed for Level C validation
XIV.	System performance	A	Not reviewed for Level C validation
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

**Indicates samples underwent Level D review

	Client ID		Lab ID	Matrix	Date
1	ERH788**		AZ90100**	Water	04/23/19
2	ERH790	D	AZ90102	Water	04/24/19
3	ERH791	D	AZ90103	Water	04/24/19
4	ERH793		AZ90105	Water	04/24/19
5	ERH805		AZ90107	Water	~~04/24/19~~
6	ERH807		AZ90109	Water	04/24/19
7					
8					

04/23/19
~~04/24/19~~

Notes:

	190429A-BLK						

LDC #: 45147 A2C

VALIDATION FINDINGS CHECKLIST

Reviewer: [illegible]
2nd Reviewer: [illegible]

Method: Semivolatiles (EPA SW 846 Method 8270D)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS Instrument performance check				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤15% and relative response factors (RRF) within method criteria?			✓	
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?	✓			
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 20%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) within method criteria?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks? If yes, please see the blanks validation findings worksheet.		✓		
VI. Field blanks				
Were field blanks were identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	
VII. Surrogate spikes				
Were all surrogate percent recovery (%R) within QC limits?			✓	
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any percent recoveries (%R) was less than 10%, was a reanalysis performed to confirm %R ?			✓	
VIII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?			✓	

LDC #: 45147A2c

VALIDATION FINDINGS CHECKLIST

Reviewer: [illegible]
2nd Reviewer: [illegible]

Validation Area				
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
IX. Laboratory control samples				
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?		✓		
Were target compounds detected in the field duplicates?			✓	
XI. Internal standards				
Were internal standard area counts within -50% to +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XII. Compound quantitation				
Did the laboratory LOQs/RLs meet the QAPP LOQs/RLs?	✓			
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	CC. Dimethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	GGGG. C30-Hopane	I1. Methyl methanesulfonate
B. Bis (2-chloroethyl) ether	DD. Acenaphthylene	FFF. Di-n-octylphthalate	HHHH. 1-Methylphenanthrene	J1. Ethyl methanesulfonate
C. 2-Chlorophenol	EE. 2,6-Dinitrotoluene	GGG. Benzo(b)fluoranthene	IIII. 1,4-Dioxane	K1. o,o',o''-Triethylphosphorothioate
D. 1,3-Dichlorobenzene	FF. 3-Nitroaniline	HHH. Benzo(k)fluoranthene	JJJJ. Acetophenone	L1. n-Phenylene diamine
E. 1,4-Dichlorobenzene	GG. Acenaphthene	III. Benzo(a)pyrene	KKKK. Atrazine	M1. 1,4-Naphthoquinone
F. 1,2-Dichlorobenzene	HH. 2,4-Dinitrophenol	JJJ. Indeno(1,2,3-cd)pyrene	LLLL. Benzaldehyde	N1. N-Nitro-o-toluidine
G. 2-Methylphenol	II. 4-Nitrophenol	KKK. Dibenz(a,h)anthracene	MMMM. Caprolactam	O1. 1,3,5-Trinitrobenzene
H. 2,2'-Oxybis(1-chloropropane)	JJ. Dibenzofuran	LLL. Benzo(g,h,i)perylene	NNNN. 2,6-Dichlorophenol	P1. Pentachlorobenzene
I. 4-Methylphenol	KK. 2,4-Dinitrotoluene	MMM. Bis(2-Chloroisopropyl)ether	OOOO. 1,2-Diphenylhydrazine	Q1. 4-Aminobiphenyl
J. N-Nitroso-di-n-propylamine	LL. Diethylphthalate	NNN. Aniline	PPPP. 3-Methylphenol	R1. 2-Naphthylamine
K. Hexachloroethane	MM. 4-Chlorophenyl-phenyl ether	OOO. N-Nitrosodimethylamine	QQQQ. 3&4-Methylphenol	S1. Triphenylene
L. Nitrobenzene	NN. Fluorene	PPP. Benzoic Acid	RRRR. 4-Dimethyldibenzothiophene (4MDT)	T1. Octachlorostyrene
M. Isophorone	OO. 4-Nitroaniline	QQQ. Benzyl alcohol	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	U1. Famphur
N. 2-Nitrophenol	PP. 4,6-Dinitro-2-methylphenol	RRR. Pyridine	TTTT. 1-Methyldibenzothiophene (1MDT)	V1. 1,4-phenylenediamine
O. 2,4-Dimethylphenol	QQ. N-Nitrosodiphenylamine	SSS. Benzidine	UUUU.. 2,3,4,6-Tetrachlorophenol	W1. Methapyrilene
P. Bis(2-chloroethoxy)methane	RR. 4-Bromophenyl-phenylether	TTT. 1-Methylnaphthalene	VVVV. 1,2,4,5-Tetrachlorobenzene	X1. Pentachloroethane
Q. 2,4-Dichlorophenol	SS. Hexachlorobenzene	UUU.Benzo(b)thiophene	WWWW.. 2-Picoline	Y1. 3,3'-Dimethylbenzidine
R. 1,2,4-Trichlorobenzene	TT. Pentachlorophenol	VVV.Benzonaphthothiophene	XXXX. 3-Methylcholanthrene	Z1. o-Toluidine
S. Naphthalene	UU. Phenanthrene	WWW.Benzo(e)pyrene	YYYY. a,a-Dimethylphenethylamine	A2. 1-Naphthylamine
T. 4-Chloroaniline	VV. Anthracene	XXX. 2,6-Dimethylnaphthalene	ZZZZ. Hexachloropropene	B2. 4-Aminobiphenyl
U. Hexachlorobutadiene	WW. Carbazole	YYY. 2,3,5-Trimethylnaphthalene	A1. N-Nitrosodiethylamine	C2. 4-Nitroquinoline-1-oxide
V. 4-Chloro-3-methylphenol	XX. Di-n-butylphthalate	ZZZ. Perylene	B1. N-Nitrosodi-n-butylamine	D2. Hexachloropene
W. 2-Methylnaphthalene	YY. Fluoranthene	AAAA. Dibenzothiophene	C1. N-Nitrosomethylethylamine	E2. Bis (2-chloro-1-methylethyl) ether
X. Hexachlorocyclopentadiene	ZZ. Pyrene	BBBB. Benzo(a)fluoranthene	D1. N-Nitrosomorpholine	F2. Bifenthrin
Y. 2,4,6-Trichlorophenol	AAA. Butylbenzylphthalate	CCCC. Benzo(b)fluorene	E1. N-Nitrosopyrrolidine	G2.Cyfluthrin
Z. 2,4,5-Trichlorophenol	BBB. 3,3'-Dichlorobenzidine	DDDD. cis/trans-Decalin	F1. Phenacetin	H2.Cypermethrin
AA. 2-Chloronaphthalene	CCC. Benzo(a)anthracene	EEEE. Biphenyl	G1. 2-Acetylaminofluorene	I2.Permethrin (cis/trans)
BB. 2-Nitroaniline	DDD. Chrysene	FFFF. Retene	H1. Pronamide	J2. 5-Nitro-o-toluidine

LDC #: 45147A2C

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a LCS required?
Y N N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

(L)

#	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	190429A-LCS/D	*	( )	155 (30-130)	( )	All (NB)	J(all)/P
		*	( )	( )	28.3 (20)	↓	J/UJ/P
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
	* 2-(-2-Methoxyethoxy)-Ethanol		( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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			( )	( )	( )		
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			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

LDC#: 45147A2C
SDG#: see cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: EJ
2nd Reviewer: AC

Method: 8270DM

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
4/30/2019	GCMS	2MEE	1	0.106871511	1.25
			2	2.145481715	12.5
			3	0.26773905	2.5
			4	0.600877104	5
			5	1.690411442	10
			6	2.265311117	15
			7	3.361865753	20
			8	3.931100065	25

Regression Output		***Reported***
Constant	*-0.106670*	*NR*
Std Err of Y Est		
R Squared	*0.991819*	*NR*
Degrees of Freedom		
X Coefficient(s)	*0.166828*	*NR*
Std Err of Coef.		
Correlation Coefficient	*0.995901*	
Coefficient of Determination (r^2)	*0.991819*	*NR*

LDC #: 45147A2C

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: FT
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Internal Standard)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	CCV 0430Y011	4/30/19	2-(2-ME)-E (1st IS)	500	577.68	577.68	16	16
			(2nd IS)					
			(3rd IS)					
			(4th IS)					
			(5th IS)					
			(6th IS)					
2			(1st IS)					
			(2nd IS)					
			(3rd IS)					
			(4th IS)					
			(5th IS)					
			(6th IS)					
3			(1st IS)					
			(2nd IS)					
			(3rd IS)					
			(4th IS)					
			(5th IS)					
			(6th IS)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45147A2c

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: FT
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

RPD = | LCSC - LCSDC | * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: 190429A LCS

Compound	Spike Added (ug/L)		Spike Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
Phenol										
N-Nitroso-di-n-propylamine										
4-Chloro-3-methylphenol										
Acenaphthene										
Pentachlorophenol										
Pyrene										
2-(2-ME)-F	80.0	80.0	93.3	124	117	117	155	155	28.3	28.3

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45147 A2C

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: FT
2nd reviewer: AL

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 190429A : LCS (2-(2-ME)-E)

Conc. = $\frac{\left(\frac{38771}{137259} + 0.106670\right)(40.0)}{(0.166828)}$

=

93.3 ug/L

#	Sample ID	Compound	Reported Concentration (ug/L)	Calculated Concentration (ug/L)	Qualification
	LCS	2-(2-ME)-E	93.3	93.3	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: July 10, 2019

Parameters: Wet Chemistry

Validation Level: Level C & D

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88714

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH788**	AZ90100**	Water	04/23/19
ERH790	AZ90102	Water	04/24/19
ERH793	AZ90105	Water	04/24/19
ERH805	AZ90107	Water	04/23/19
ERH807	AZ90109	Water	04/24/19

**Indicates sample underwent Level D validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Alkalinity by Standard Method 2320B
Chloride, Nitrate, and Sulfate by Environmental Protection Agency (EPA) Method 300.0
Ferrous Iron by Standard Method 3500-Fe B
Nitrate/Nitrite as Nitrogen by EPA Method 353.2
Dissolved Organic Carbon and Total Organic Carbon by EPA SW 846 Method 9060A

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level D data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S The sequence or number of standards used for the calibration was incorrect.

C Correlation coefficient is <0.995.

R %R for calibration is not within control limits.

B Presumed contamination from preparation (method) blank or calibration blank.

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD or difference was high.

I ICP ICS results were unsatisfactory.

A ICP Serial Dilution %D were not within control limits.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Post Digestion Spike recovery was not within control limits.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
ERH788**	Nitrate as N	50 hours	48 hours	UJ (all non-detects)	P

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Limit of Quantitation	Associated Samples
PB (prep blank)	Bicarbonate alkalinity Total alkalinity	3.9 mg/L 3.9 mg/L	2.0 mg/L 2.0 mg/L	All samples in SDG 88714
PB (prep blank)	Chloride	0.28 mg/L	1.0 mg/L	ERH805
PB (prep blank)	Chloride	0.29 mg/L	1.0 mg/L	ERH788** ERH790 ERH793 ERH807

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Sample Result Verification

All sample result verifications were acceptable for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to technical holding time, data were qualified as estimated in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Wet Chemistry - Data Qualification Summary - SDG 88714

Sample	Analyte	Flag	A or P	Reason (Code)
ERH788**	Nitrate as N	UJ (all non-detects)	P	Technical holding times (H)

Red Hill Bulk Storage Facility, CTO 18F0126
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Wet Chemistry - Field Blank Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

LDC #: 45147A6
SDG #: 88714
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C/D

Date: 6/6/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate, Sulfate (EPA Method 300.0), Ferrous Iron (SM3500-Fe B), Nitrate/Nitrite-N (EPA Method 353.2), DOC (EPA SW846 Method 9060A), TOC (EPA SW846 Method 9060A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/ASW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	ASW	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	CS
VII.	Duplicate sample analysis	N	
VIII.	Laboratory control samples	A	LCS/D
IX.	Field duplicates	N	
X.	Sample result verification	A	Not reviewed for Level C validation
XI.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

**Indicates samples underwent Level D review

	Client ID	Lab ID	Matrix	Date
1	ERH788**	AZ90100**	Water	04/23/19
2	ERH790	AZ90102	Water	04/24/19
3	ERH793	AZ90105	Water	04/24/19
4	ERH805	AZ90107	Water	~~04/24/19~~ 04/23/19
5	ERH807	AZ90109	Water	04/24/19
6				
7				
8				
9				
10				

Notes:

LDC #: 45147A6

VALIDATION FINDINGS CHECKLIST

Reviewer: 02
2nd Reviewer: AC

Method: Inorganics (EPA Method See cover)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓	✓		
II. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)			✓	
Were balance checks performed as required? (Level IV only)			✓	
III. Blanks				
Was a method blank associated with every sample in this SDG?	✓		✓	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓	✓		
IV. Matrix spike/Matrix spike duplicates and Duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.			✓	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of ≤ CRDL(≤ 2X CRDL for soil) was used for samples that were ≤ 5X the CRDL, including when only one of the duplicate sample values were ≤ 5X the CRDL.			✓	
V. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
VI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
X. Field blanks				
Field blanks were identified in this SDG.		✓	✓	
Target analytes were detected in the field blanks.				

LDC #: 45147A6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: CR
2nd reviewer: JC

All circled methods are applicable to each sample.

Sample ID	Parameter
1-5	pH TDS (Cl) F (NO3) NO2 (SO4) O-PO4 (Alk) CN NH3 TKN (TOC) Cr6+ ClO4 (NO3/NO2-N) (Fe3+) (DOC)
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4

Comments:

LDC #: 45147A6

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer: G
2nd reviewer: AE

All circled dates have exceeded the technical holding time.
Y N N/A Were all samples preserved as applicable to each method ?
Y N N/A Were all cooler temperatures within validation criteria?

Method:		300.0					
Parameters:		NO_3					
Technical holding time:		48 hrs					
Sample ID	**Sampling date**	**Analysis date**	**Total Time**	**Qualifier**	**Analysis date**	**Total Time**	**Qualifier**
1	4/23/19 15:35	4/25/19 17:54	50 hrs	J (UJ/R(ND) H)			

LDC #: 45147A6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer:
2nd Reviewer:

METHOD: Inorganics, Method See Cover

Conc. units: mg/L **Associated Samples:** All

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No qual (>5x)								
Bicarbonate Alkalinity	3.9		19.5									
Total Alkalinity	3.9		19.5									

Conc. units: mg/L **Associated Samples:** 4

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No qual								
Cl	0.28											

Conc. units: mg/L **Associated Samples:** 1-3, 5

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No qual								
Cl	0.29											

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 45147A6

Validation Findings Worksheet
Initial and Continuing Calibration Calculation Verification

Reviewer: [illegible]
2nd Reviewer: A

Method: Inorganics, Method see cover

The correlation coefficient (r) for the calibration of Cl was recalculated. Calibration date: 4/1/19

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

%R = Found X 100 / True

Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution

True = concentration of each analyte in the ICV or CCV source

Type of analysis	Analyte	Standard	Conc. (mg/l)	Area	Recalculated r or r^2	Reported r or r^2	Acceptable (Y/N)
Initial calibration	Cl	s1	0.4	0.033	*0.998625*	0.994166	Y
		s2	1	0.08			
		s3	2.5	0.201			
		s4	5	0.42			
		s5	10	0.9			
		s6	25	2.565			
		s7	35	3.736			
		s8	50	5.677			
Calibration verification	NO3/NO2	CCV	3	3.0159	102	102	
Calibration verification	TOC	CCV	2.5	2.534	101.6	101.6	
Calibration verification	Fe^{3+}	CCV	4	3.78	94.6	94.6	

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: GS 14746

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Inorganics, Method see cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

%R = Found / True x 100 Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

RPD = |S-D| / (S+D)/2 x 100 Where, S = Original sample concentration
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
LCS	Laboratory control sample	NO_3/NO_2N	3.14	3	105	105	Y
N	Matrix spike sample		(SSR-SR)				
N	Duplicate sample						

Comments: _____

LDC #: 45177A6

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: CL
2nd reviewer: AR

METHOD: Inorganics, Method see cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments?
Y N N/A Are all detection limits below the CRQL?

Compound (analyte) results for SO4 reported with a positive detect were recalculated and verified using the following equation:

Concentration = $y = 0.069x - 0.012$

Recalculation: $\frac{0.32 + 0.012}{0.069} = 4.81$ mg/L

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
	1	Cl	43.4	43.4	Y
		SO4	4.8	4.8	
		Alk	81.1	81.1	
		Fe^{3+}	0.43	0.43	
		DOC	1.1	1.1	
		TOC	0.97	0.97	↓

Note: _____

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: July 10, 2019

Parameters: Gasoline Range Organics

Validation Level: Level C & D

Laboratory: APPL. Inc

Sample Delivery Group (SDG): 88714

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH787	AZ90099	Water	04/23/19
ERH788	AZ90100	Water	04/23/19
ERH789	AZ90101	Water	04/24/19
ERH790**	AZ90102**	Water	04/24/19
ERH791	AZ90103	Water	04/24/19
ERH792	AZ90104	Water	04/24/19
ERH793	AZ90105	Water	04/24/19
ERH804	AZ90106	Water	04/23/19
ERH805	AZ90107	Water	04/23/19
ERH806	AZ90108	Water	04/24/19
ERH807	AZ90109	Water	04/24/19

**Indicates sample underwent Level D validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Gasoline Range Organics by Environmental Protection Agency (EPA) SW 846 Method 8260B

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level D data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

III. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

Samples ERH787, ERH789, ERH792, ERH804, and ERH806 were identified as trip blanks. No contaminants were found.

VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

Samples ERH790** and ERH791 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)
	ERH790**	ERH791	
Gasoline range organics	48	57	17 (≤50)

X. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XI. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Gasoline Range Organics - Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Gasoline Range Organics - Laboratory Blank Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Gasoline Range Organics - Field Blank Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

LDC #: 45147A7
SDG #: 88714
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C/D

Date: 6/1/19
Page: 1 of 1
Reviewer: FM
2nd Reviewer:

METHOD: GC/MS Gasoline Range Organics (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	r^2 ICV ≤ 20
IV.	Continuing calibration	A	CCV ≤ 20
V.	Laboratory Blanks	A	
VI.	Field blanks	NA	TB = 1, 3, 6, 8, 10
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	A	LCS 10
X.	Field duplicates	SW	D = 4, 5
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level C validation
XIII.	Target compound identification	A	Not reviewed for Level C validation
XIV.	System performance	A	Not reviewed for Level C validation
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

**Indicates samples underwent Level D review

	Client ID	Lab ID	Matrix	Date
1	ERH787 TB	AZ90099	Water	04/23/19
2	ERH788	AZ90100	Water	04/23/19
3	ERH789 TB	AZ90101	Water	04/24/19
4	ERH790 ** D	AZ90102 **	Water	04/24/19
5	ERH791 D	AZ90103	Water	04/24/19
6	ERH792 TB	AZ90104	Water	04/24/19
7	ERH793	AZ90105	Water	04/24/19
8	ERH804 TB	AZ90106	Water	~~04/24/19~~ 04/23/19 ↓
9	ERH805	AZ90107	Water	~~04/24/19~~
10	ERH806 TB	AZ90108	Water	04/24/19
11	ERH807	AZ90109	Water	04/24/19
12				
13	190426AM			

LDC #: 45147 A7

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: AL

Method: Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?			✓	
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of $\geq$ 0.990?	✓			
Were all percent relative standard deviations (%RSD) $\leq$ 30%/15% and relative response factors (RRF) $\geq$ 0.05?			✓	
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) $\leq$ 20%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?			✓	
Were all percent differences (%D) $\leq$ 20% and relative response factors (RRF) $\geq$ 0.05?	✓	✓		
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
VI. Field blanks				
Were field blanks were identified in this SDG?	✓			
Were target compounds detected in the field blanks?		✓		
VII. Surrogate spikes				
Were all surrogate percent recovery (%R) within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	

LDC #: 45147A7

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
VIII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?			✓	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
IX. Laboratory control samples				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?	✓			
XI. Internal standards				
Were internal standard area counts within -50% to +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XII. Compound quantitation				
Did the laboratory LOQs/RLs meet the QAPP LOQs/RLs?	✓			
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane
C. Vinyl choride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO.1,1-Difluoroethane	O1. 3-Methylpentane
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methyl cyclohexane	T1. 2-Methylhexane
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.

LDC #: 45147A7

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: FT
2nd reviewer: A

METHOD: GC/MS VOA (EPA Method 8260B)

Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (ug/L)		RPD (≤ 50 %)	QUAL
	4	5		
Gasoline Range Organics	48	57	17	

Compound	Concentration ( )		RPD (≤ %)	QUAL

LDC#: 45147A7
SDG#: see cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: FT
2nd Reviewer: AC

Method: GRO (8260B)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
4/1/2019	GCMS max	Gasoline Range Organics	1	8.811326274	0.8
			2	9.297914454	2
			3	10.3892834	4
			4	14.47214333	12
			5	20.08333637	24
			6	23.0884449	32
			7	27.2267952	40

Regression Output		*Reported*
Constant	*8.542809*	*8.540000*
Std Err of Y Est		
R Squared	*0.998706*	*0.999000*
Degrees of Freedom		
X Coefficient(s)	*0.466634*	*0.467000*
Std Err of Coef.		
Correlation Coefficient	*0.999353*	
Coefficient of Determination (r^2)	*0.998706*	

LDC #: 45147A7

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	CCV 0426W06	4/26/19	GRO (1st internal standard)	300	333.56	333.56	11	11
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					
2			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					
3			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					
4			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45147A7

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: FT
2nd reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 4

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene	25.0	24.9924	99.8	99.8	0

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

LDC #: 45147A7

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer: FT
2nd Reviewer:

METHOD: GC/MS VOA (EPA Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA Where: SSC = Spiked sample concentration; SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboraotry control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: 196426AM

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
GRO 1,1-Dichloroethene	300	300	302	322	101	101	107	107	6.4	6.4
Trichloroethene										
Benzene										
Toluene										
Chlorobenzene										

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45147A7

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: EJ
2nd reviewer: KL

METHOD: GC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example:

Sample I.D. #4 , GRO

Conc. = $\frac{\left(\frac{7452245}{790006} - 8.542809\right)25}{0.466634}$

=

47.7 ug/L

#	Sample ID	Compound	Reported Concentration (ug/L)	Calculated Concentration (ug/L)	Qualification
	#4	GRO	48	48	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: July 10, 2019

Parameters: Total Petroleum Hydrocarbons as Extractables

Validation Level: Level C & D

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88714

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH788	AZ90100	Water	04/23/19
ERH790**	AZ90102**	Water	04/24/19
ERH791	AZ90103	Water	04/24/19
ERH793	AZ90105	Water	04/24/19
ERH805	AZ90107	Water	04/23/19
ERH807	AZ90109	Water	04/24/19
ERH788(SGCU)	AZ90100(SGCU)	Water	04/23/19
ERH790(SGCU)**	AZ90102(SGCU)**	Water	04/24/19
ERH791(SGCU)	AZ90103(SGCU)	Water	04/24/19
ERH793(SGCU)	AZ90105(SGCU)	Water	04/24/19

**Indicates sample underwent Level D validation
Samples ending in "SGCU" underwent Silica Gel cleanup

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Total Petroleum Hydrocarbons (TPH) as Extractables by Environmental Protection Agency (EPA) SW 846 Method 8015B

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level D data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

III. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

Samples ERH790** and ERH791 and samples ERH790(SGCU)** and ERH791(SGCU) were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)
	ERH790**	ERH791	
Diesel (C10-C24)	2300	2200	4 (≤50)
Oil (C24-C40)	190	190	0 (≤50)

Compound	Concentration (ug/L)		RPD (Limits)
	ERH790(SGCU)**	ERH791(SGCU)	
Diesel (C10-C24)	430	440	2 (≤50)

X. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XI. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

LDC #: 45147A8
SDG #: 88714
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C/D

Date: 6/01/19
Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC TPH as Extractables (EPA SW 846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/Δ	
II.	Initial calibration/ICV	A/Δ	% RSD/ICV ≤ 20
III.	Continuing calibration	Δ	CCV ≤ 20
IV.	Laboratory Blanks	A	
V.	Field blanks	N	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	
IX.	Field duplicates	SW	D = 2, 3 8, 9
X.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level C validation
XI.	Target compound identification	A	Not reviewed for Level C validation
XII.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

**Indicates samples underwent Level D review / Samples appended with "SGCU" underwent Silica Gel Clean Up

	Client ID	Lab ID	Matrix	Date
1	ERH788	AZ90100	Water	04/23/19
2	ERH790 **	AZ90102 **	Water	04/24/19
3	ERH791	AZ90103	Water	04/24/19
4	ERH793	AZ90105	Water	04/24/19
5	ERH805	AZ90107	Water	~~04/24/19~~ 04/23/19
6	ERH807	AZ90109	Water	04/24/19
7	ERH788(SGCU)	AZ90100(SGCU)	Water	04/23/19
8	ERH790(SGCU) **	AZ90102(SGCU) **	Water	04/24/19
9	ERH791(SGCU)	AZ90103(SGCU)	Water	04/24/19
10	ERH793(SGCU)	AZ90105(SGCU)	Water	04/24/19
11				

Notes:

	190426A-BLK						
	190426A3-BLK (SGCU)						

LDC #: 45147A8

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: C

Method: ✓ GC ___ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
IIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥0.990?			✓	
Were the RT windows properly established?	✓			
IIb. Initial calibration verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 20%?	✓			
III. Continuing calibration				
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20%?	✓			
Were all the retention times within the acceptance windows?	✓			
IV. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
V. Field Blanks				
Were field blanks identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	
VI. Surrogate spikes				
Were all surrogate percent recovery (%R) within the QC limits?	✓			
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?			✓	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed per analytical or extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			

Validation Area	Yes	No	NA	Findings/Comments
IX. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?	✓			
X. Compound quantitation				
Did the laboratory LOQs/RLs meet the QAPP LOQs/RLs?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XI. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

LDC#: 45147A8

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC TPHE (8015B)

Compound	Concentration (ug/L)		(≤50) RPD	Qual
	2	3		
Diesel (C10-C24)	2300	2200	4	
Oil (C24-C40)	190	190	0	

Compound	Concentration (ug/L)		(≤50) RPD	Qual
	8	9		
Diesel (C10-C24)	430	440	2	

LDC #: 45147A0

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: FT
2nd Reviewer:

METHOD: GC X HPLC

The calibration factors (CF), average CF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

CF = A/C
average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

Where:
A = Area of compound
C = Concentration of compound
S = Standard deviation of calibration factors
X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported (std=250ppb)	Recalculated (std=250ppb)	Reported Average CF (Initial)	Recalculated Average CF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	4/11/2019	Diesel C10-C24)	1154027	1154027	1192619	1192619	12.0	12.0
	Apollo								

LDC #: 45147A8

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: FT
2nd Reviewer:

METHOD: GC ✓ HPLC _____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF -CF)/ave.CF

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(ICAL)/ CCV Conc.	Reported CF/ Conc. CCV	Recalculated CF/ Conc. CCV	Reported %D	Recalculated %D
1	CCV 419048	4/29/19	Diesel C10-C24	1192620	1196390	1196390	0.32	0.32
2	CCV 419063	4/29/19	↓	↓	1260280	1260286	5.7	5.7
3	CCV 508120	5/16/19	↓	↓	1391580	139158	17	17
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45147A8

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: FT
2nd reviewer: AC

METHOD: ✓ GC ___ HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: # 4

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
octacosane		75.0	73.799	98.4	98.4	0
o-terphenyl		↓	71.459	95.3	95.3	0

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

	Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound
A	Chlorobenzene (CBZ)	G	Octacosane	M	Benzo(e)Pyrene	S	1-Chloro-3-Nitrobenzene	Y	Tetrachloro-m- xylene
B	4-Bromofluorobenzene (BFB)	H	Ortho-Terphenyl	N	Terphenyl-D14	T	3,4-Dinitrotoluene	Z	2-Bromonaphthalene
C	a,a,a-Trifluorotoluene	I	Fluorobenzene (FBZ)	O	Decachlorobiphenyl (DCB)	U	Tripentyltin	AA	Chloro-octadecane
D	Bromochlorobenene	J	n-Triacontane	P	1-methylnaphthalene	V	Tri-n-propyltin	BB	2,4-Dichlorophenylacetic acid
E	1,4-Dichlorobutane	K	Hexacosane	Q	Dichlorophenyl Acetic Acid (DCAA)	W	Tributyl Phosphate	CC	2,5-Dibromotoluene
F	1,4-Difluorobenzene (DFB)	L	Bromobenzene	R	4-Nitrophenol	X	Triphenyl Phosphate		

LDC #: 45147A8

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: FT
2nd Reviewer: DR

METHOD: ✓ GC ___HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC/SA)
RPD =(({SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100

Where SSC = Spiked sample concentration; SA = Spike added
LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: 190426A1 LCS 1R

Compound	Spike Added (ug/L)		Spike Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)										
Diesel C10-C24 (8015)	1250	1250	1120	1070	89.6	89.6	85.6	85.6	4.6	4.6
Benzene (8021B)										
Methane (RSK-175)										
2,4-D (8151)										
Dinoseb (8151)										
Naphthalene (8310)										
Anthracene (8310)										
HMX (8330)										
2,4,6-Trinitrotoluene (8330)										
Phorate (8141A)										
Malathion (8141A)										
Formaldehyde (8315A)										

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45147A8

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: FT
2nd reviewer: M

METHOD: GC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example:

Sample I.D. #2 , DRO

Conc. = $\frac{2181047995\ (2)\ (1000)}{1192620\ (2)\ (800)}$

= 2285.98 ug/L

#	Sample ID	Compound	Reported Concentration (ug/L)	Calculated Concentration (ug/L)	Qualification
	#2	Diesel C10-C24	2300	2300	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: July 10, 2019

Parameters: Methane

Validation Level: Level C & D

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88714

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH787	AZ90099	Water	04/23/19
ERH788	AZ90100	Water	04/23/19
ERH789	AZ90101	Water	04/24/19
ERH790**	AZ90102**	Water	04/24/19
ERH790DL**	AZ90102DL**	Water	04/24/19
ERH792	AZ90104	Water	04/24/19
ERH793	AZ90105	Water	04/24/19
ERH804	AZ90106	Water	04/23/19
ERH805	AZ90107	Water	04/23/19
ERH806	AZ90108	Water	04/24/19
ERH807	AZ90109	Water	04/24/19

**Indicates sample underwent Level D validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Methane by Method RSK-175

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level D data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

Retention time windows were established as required by the method for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

III. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

Retention times of all compounds in the calibration standards were within the established retention time windows for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

Samples ERH787, ERH789, ERH792, ERH804, and ERH806 were identified as trip blanks. No contaminants were found.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VIII. Field Duplicates

No field duplicates were identified in this SDG.

IX. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

X. Target Compound Identification

All target compound identifications met validation criteria for samples which underwent Level D validation. Raw data were not reviewed for Level C validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The overall assessment of data was acceptable. In the case where more than one result was reported for an individual sample, the least technically acceptable results were deemed unusable as follows:

Sample	Compound	Reason	Flag	A or P
ERH790**	Methane	Results exceeded calibration range.	R	A

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Based upon the data validation all other results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Methane - Data Qualification Summary - SDG 88714

Sample	Compound	Flag	A or P	Reason (Code)
ERH790**	Methane	R	A	Overall assessment of data (D)

Red Hill Bulk Storage Facility, CTO 18F0126
Methane - Laboratory Blank Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Methane - Field Blank Data Qualification Summary - SDG 88714

No Sample Data Qualified in this SDG

LDC #: 45147A51
SDG #: 88714
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C/D

Date: 6/1/19
Page: 1 of 1
Reviewer: FT
2nd Reviewer: AV

METHOD: GC Methane (Method RSK-175)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A A	
II.	Initial calibration/ICV	A A	r² ICV ≤ 20
III.	Continuing calibration	A	CCV ≤ 20
IV.	Laboratory Blanks	A	
V.	Field blanks	NA	TB = 1, 3, 6, 8, 10
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS LD
VIII.	Field duplicates	N	
IX.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level C validation
X.	Target compound identification	A	Not reviewed for Level C validation
XI.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

**Indicates samples underwent Level D review

	Client ID	Lab ID	Matrix	Date
1	ERH787 TB	AZ90099	Water	04/23/19
2	ERH788	AZ90100	Water	04/23/19
3	ERH789 TB	AZ90101	Water	04/24/19
4	ERH790 **	AZ90102 **	Water	04/24/19
5	ERH790DL	AZ90102DL	Water	04/24/19
6	ERH792 TB	AZ90104	Water	04/24/19
7	ERH793	AZ90105	Water	04/24/19
8	ERH804 TB	AZ90106	Water	~~04/24/19~~ 04/23/19
9	ERH805	AZ90107	Water	~~04/24/19~~
10	ERH806 TB	AZ90108	Water	04/24/19
11	ERH807	AZ90109	Water	04/24/19
12				

Notes:

190503A

LDC #: 45147A51

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: AC

Method: ✓ GC ___ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
IIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?			✓	
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥0.990?	✓			
Were the RT windows properly established?	✓			
IIb. Initial calibration verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 20%?	✓			
III. Continuing calibration				
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20%?	✓			
Were all the retention times within the acceptance windows?	✓			
IV. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
V. Field Blanks				
Were field blanks identified in this SDG?	✓			
Were target compounds detected in the field blanks?		✓		
VI. Surrogate spikes				
Were all surrogate percent recovery (%R) within the QC limits?			✓	
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?			✓	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed per analytical or extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			

Validation Area	Yes	No	NA	Findings/Comments
IX. Field duplicates				
Were field duplicate pairs identified in this SDG?		✓		
Were target compounds detected in the field duplicates?			✓	
X. Compound quantitation				
Did the laboratory LOQs/RLs meet the QAPP LOQs/RLs?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XI. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

LDC #: 45147A51

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and Reported CRQLs

Reviewer: FT
2nd Reviewer: A

METHOD: ✓ **GC** __ **HPLC**

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Level IV/D Only

Y N N/A Were CRQLs adjusted for sample dilutions, dry weight factors, etc.?

Y N N/A Did the reported results for detected target compounds agree within 10.0% of the recalculated results? (✓)

#	Associated Samples	Compound Name	Findings	Qualifications
	4	Methane	x'd cal Range	Idt A

Comments: See sample calculation verification worksheet for recalculations

LDC #: 45147A51

VALIDATION FINDINGS WORKSHEET
Overall Assessment of Data

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: ✓ **GC** __ **HPLC**

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

All available information pertaining to the data were reviewed using professional judgement to compliment the determination of the overall quality of the data.

Y N N/A Was the overall quality and usability of the data acceptable? (D)

#	Associated samples	Compounds	Findings	Qualifications
	4	Methane	x'd cal Range	R/A

Comments: _____

LDC#: 45147A51
SDG#: see cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: FR
2nd Reviewer: JC

Method: RSK 175

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
3/11/2019	Ints 7890	Methane	1	18377	2.080
			2	18654	4.160
			3	25296	8.340
			4	123132	20.850
			5	588996	83.400
			6	1512363	208.500
			7	5497199	834.000

Regression Output		***Reported***
Constant	*15458.016543*	*15500.00*
Std Err of Y Est		
R Squared	*0.999206*	*0.999000*
Degrees of Freedom		
X Coefficient(s)	*6609.500215*	*6610.00*
Std Err of Coef.		
Correlation Coefficient	*0.999603*	
Coefficient of Determination (r^2)	*0.999206*	*0.999000*

LDC #: 45147A51

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC ✓ HPLC _____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF -CF)/ave.CF

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(ICAL)/ CCV Conc.	Reported CF/ Conc. CCV	Recalculated CF/ Conc. CCV	Reported %D	Recalculated %D
1	CCV 19050300	5/3/19	Methane	83.4	69.150	69.150	17	17
2								
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45147A51

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: FT
2nd Reviewer: AC

METHOD: ✓ GC ___ HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC/SA)
RPD =(({SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100

Where SSC = Spiked sample concentration
LCS = Laboratory Control Sample
SA = Spike added
LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: 190903A LCS

Compound	Spike Added (ug/L)		Spike Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)										
Diesel (8015)										
Benzene (8021B)										
Methane (RSK-175)	83.4	83.4	69.1	78.4	82.9	82.9	94.0	94.0	12.6	12.6
2,4-D (8151)										
Dinoseb (8151)										
Naphthalene (8310)										
Anthracene (8310)										
HMX (8330)										
2,4,6-Trinitrotoluene (8330)										
Phorate (8141A)										
Malathion (8141A)										
Formaldehyde (8315A)										

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 45147A51

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: [illegible]
2nd reviewer: [illegible]

METHOD: GC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

V_o = Volume or weight of sample extract in milliliters (ml) or grams (g).

V_i = Volume of extract injected in microliters (ul)

V_t = Volume of the concentrated extract in microliters (ul)

Df = Dilution Factor.

%S = Percent solids, applicable to soil and solid matrices only.

2.0 = Factor of 2 to account for GPC cleanup

Example:

Sample I.D. #5, Methane

Conc. = $\frac{(2960141 - 15458)(10)}{(6609.5)}$

= 4455 ug/L

#	Sample ID	Compound	Reported Concentration (ug/L)	Calculated Concentration (ug/L)	Qualification
	#5	Methane	4500	4455	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **2320B**													
ERH788	AZ90100	1	ALKALINITY, TOTAL (AS CACO3)	4/23/2019 3:35:00 PM	4/30/2019 11:05:00 AM	D	81.1	MG_L		2.0	1.70		
ERH788	AZ90100	1	BICARBONATE	4/23/2019 3:35:00 PM	4/30/2019 11:05:00 AM	D	81.1	MG_L		2.0	1.70		
ERH788	AZ90100	1	CARBONATE (AS CO3)	4/23/2019 3:35:00 PM	4/30/2019 11:05:00 AM	D	1.70	MG_L	U	2.0	1.70	U	
ERH790	AZ90102	1	ALKALINITY, TOTAL (AS CACO3)	4/24/2019 8:40:00 AM	4/30/2019 11:11:00 AM	C	196	MG_L		2.0	1.70		
ERH790	AZ90102	1	BICARBONATE	4/24/2019 8:40:00 AM	4/30/2019 11:11:00 AM	C	196	MG_L		2.0	1.70		
ERH790	AZ90102	1	CARBONATE (AS CO3)	4/24/2019 8:40:00 AM	4/30/2019 11:11:00 AM	C	1.70	MG_L	U	2.0	1.70	U	
ERH793	AZ90105	1	ALKALINITY, TOTAL (AS CACO3)	4/24/2019 10:04:00 AM	4/30/2019 11:22:00 AM	C	267	MG_L		2.0	1.70		
ERH793	AZ90105	1	BICARBONATE	4/24/2019 10:04:00 AM	4/30/2019 11:22:00 AM	C	267	MG_L		2.0	1.70		
ERH793	AZ90105	1	CARBONATE (AS CO3)	4/24/2019 10:04:00 AM	4/30/2019 11:22:00 AM	C	1.70	MG_L	U	2.0	1.70	U	
ERH805	AZ90107	1	ALKALINITY, TOTAL (AS CACO3)	4/23/2019 2:15:00 PM	4/30/2019 11:34:00 AM	C	62.7	MG_L		2.0	1.70		
ERH805	AZ90107	1	BICARBONATE	4/23/2019 2:15:00 PM	4/30/2019 11:34:00 AM	C	62.7	MG_L		2.0	1.70		
ERH805	AZ90107	1	CARBONATE (AS CO3)	4/23/2019 2:15:00 PM	4/30/2019 11:34:00 AM	C	1.70	MG_L	U	2.0	1.70	U	
ERH807	AZ90109	1	ALKALINITY, TOTAL (AS CACO3)	4/24/2019 10:20:00 AM	4/30/2019 11:40:00 AM	C	64.9	MG_L		2.0	1.70		
ERH807	AZ90109	1	BICARBONATE	4/24/2019 10:20:00 AM	4/30/2019 11:40:00 AM	C	64.9	MG_L		2.0	1.70		
ERH807	AZ90109	1	CARBONATE (AS CO3)	4/24/2019 10:20:00 AM	4/30/2019 11:40:00 AM	C	1.70	MG_L	U	2.0	1.70	U	
METHOD: **300.0**													
ERH788	AZ90100	1	CHLORIDE (AS CL)	4/23/2019 3:35:00 PM	4/25/2019 5:54:00 PM	D	43.4	MG_L		1.0	0.20		
ERH788	AZ90100	1	NITROGEN, NITRATE (AS N)	4/23/2019 3:35:00 PM	4/25/2019 5:54:00 PM	D	0.18	MG_L	U	0.5	0.18	UJ	h
ERH788	AZ90100	1	SULFATE (AS SO4)	4/23/2019 3:35:00 PM	4/25/2019 5:54:00 PM	D	4.8	MG_L		1.0	0.20		
ERH790	AZ90102	1	CHLORIDE (AS CL)	4/24/2019 8:40:00 AM	4/25/2019 5:39:00 PM	C	42.8	MG_L		1.0	0.20		
ERH790	AZ90102	1	NITROGEN, NITRATE (AS N)	4/24/2019 8:40:00 AM	4/25/2019 5:39:00 PM	C	0.18	MG_L	U	0.5	0.18	U	
ERH790	AZ90102	1	SULFATE (AS SO4)	4/24/2019 8:40:00 AM	4/25/2019 5:39:00 PM	C	0.98	MG_L	J	1.0	0.20	J	
ERH793	AZ90105	1	CHLORIDE (AS CL)	4/24/2019 10:04:00 AM	4/25/2019 5:47:00 PM	C	50.9	MG_L		1.0	0.20		
ERH793	AZ90105	1	NITROGEN, NITRATE (AS N)	4/24/2019 10:04:00 AM	4/25/2019 5:47:00 PM	C	7.3	MG_L		0.5	0.18		
ERH793	AZ90105	1	SULFATE (AS SO4)	4/24/2019 10:04:00 AM	4/25/2019 5:47:00 PM	C	50.6	MG_L		1.0	0.20		

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **300.0**													
ERH805	AZ90107	5	CHLORIDE (AS CL)	4/23/2019 2:15:00 PM	5/2/2019 6:01:00 PM	C	49.3	MG_L	D	5.0	1.00		
ERH805	AZ90107	1	NITROGEN, NITRATE (AS N)	4/23/2019 2:15:00 PM	4/25/2019 6:01:00 PM	C	2.1	MG_L		0.5	0.18		
ERH805	AZ90107	1	SULFATE (AS SO4)	4/23/2019 2:15:00 PM	4/25/2019 6:01:00 PM	C	9.3	MG_L		1.0	0.20		
ERH807	AZ90109	1	CHLORIDE (AS CL)	4/24/2019 10:20:00 AM	4/25/2019 5:32:00 PM	C	44.0	MG_L		1.0	0.20		
ERH807	AZ90109	1	NITROGEN, NITRATE (AS N)	4/24/2019 10:20:00 AM	4/25/2019 5:32:00 PM	C	1.9	MG_L		0.5	0.18		
ERH807	AZ90109	1	SULFATE (AS SO4)	4/24/2019 10:20:00 AM	4/25/2019 5:32:00 PM	C	6.9	MG_L		1.0	0.20		
METHOD: **3500-FE-B**													
ERH788	AZ90100	1	Iron, Ion (Fe2+)	4/23/2019 3:35:00 PM	4/26/2019 3:14:00 PM	D	0.43	MG_L	J	1.0	0.32	J	
ERH790	AZ90102	1	Iron, Ion (Fe2+)	4/24/2019 8:40:00 AM	4/26/2019 3:15:00 PM	C	2.3	MG_L		1.0	0.32		
ERH793	AZ90105	1	Iron, Ion (Fe2+)	4/24/2019 10:04:00 AM	4/26/2019 3:16:00 PM	C	0.32	MG_L	U	1.0	0.32	U	
ERH805	AZ90107	1	Iron, Ion (Fe2+)	4/23/2019 2:15:00 PM	4/26/2019 3:17:00 PM	C	0.32	MG_L	U	1.0	0.32	U	
ERH807	AZ90109	1	Iron, Ion (Fe2+)	4/24/2019 10:20:00 AM	4/26/2019 3:18:00 PM	C	0.32	MG_L	U	1.0	0.32	U	
METHOD: **353.2**													
ERH788	AZ90100	1	NITROGEN, NITRATE-NITRITE	4/23/2019 3:35:00 PM	5/1/2019 6:43:00 PM	D	0.090	MG_L	U	0.10	0.090	U	
ERH790	AZ90102	1	NITROGEN, NITRATE-NITRITE	4/24/2019 8:40:00 AM	5/1/2019 6:44:00 PM	C	0.090	MG_L	U	0.10	0.090	U	
ERH793	AZ90105	1	NITROGEN, NITRATE-NITRITE	4/24/2019 10:04:00 AM	5/1/2019 6:45:00 PM	C	1.7	MG_L		0.10	0.090		
ERH805	AZ90107	1	NITROGEN, NITRATE-NITRITE	4/23/2019 2:15:00 PM	5/1/2019 6:46:00 PM	C	0.46	MG_L		0.10	0.090		
ERH807	AZ90109	1	NITROGEN, NITRATE-NITRITE	4/24/2019 10:20:00 AM	5/1/2019 6:47:00 PM	C	0.41	MG_L		0.10	0.090		
METHOD: **8015B_E**													
ERH788	AZ90100	1	C10-C24 DIESEL RANGE ORG SILICA GEL CLEAN UP	4/23/2019 3:35:00 PM	5/16/2019 12:46:00 PM	C	57	UG_L	T6D	40.0	25.00		
ERH788	AZ90100	1	C10-C24 DIESEL RANGE ORGANICS	4/23/2019 3:35:00 PM	4/29/2019 11:03:00 PM	C	230	UG_L	T6	40.0	25.00		
ERH788	AZ90100	1	C24-C40 OIL RANGE ORGANICS SILICA GEL CLEAN UP	4/23/2019 3:35:00 PM	5/16/2019 12:46:00 PM	C	40.00	UG_L	U	40.0	40.00	U	
ERH788	AZ90100	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RAN	4/23/2019 3:35:00 PM	4/29/2019 11:03:00 PM	C	40.00	UG_L	U	40.0	40.00	U	
ERH790	AZ90102	1	C10-C24 DIESEL RANGE ORG SILICA GEL CLEAN UP	4/24/2019 8:40:00 AM	5/16/2019 1:06:00 PM	D	430	UG_L	T6D	40.0	25.00		
ERH790	AZ90102	1	C10-C24 DIESEL RANGE ORGANICS	4/24/2019 8:40:00 AM	4/29/2019 11:23:00 PM	D	2300	UG_L	T6	40.0	25.00		
ERH790	AZ90102	1	C24-C40 OIL RANGE ORGANICS SILICA GEL CLEAN UP	4/24/2019 8:40:00 AM	5/16/2019 1:06:00 PM	D	40.00	UG_L	U	40.0	40.00	U	
ERH790	AZ90102	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RAN	4/24/2019 8:40:00 AM	4/29/2019 11:23:00 PM	D	190	UG_L		40.0	40.00		
ERH791	AZ90103	1	C10-C24 DIESEL RANGE ORG SILICA GEL CLEAN UP	4/24/2019 8:40:00 AM	5/16/2019 1:26:00 PM	C	440	UG_L	T6D	40.0	25.00		

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **8015B_E**													
ERH791	AZ90103	1	C10-C24 DIESEL RANGE ORGANICS	4/24/2019 8:40:00 AM	4/29/2019 11:43:00 PM	C	2200	UG_L	T6	40.0	25.00		
ERH791	AZ90103	1	C24-C40 OIL RANGE ORGANICS SILICA GEL CLEAN UP	4/24/2019 8:40:00 AM	5/16/2019 1:26:00 PM	C	40.00	UG_L	U	40.0	40.00	U	
ERH791	AZ90103	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RAN	4/24/2019 8:40:00 AM	4/29/2019 11:43:00 PM	C	190	UG_L		40.0	40.00		
ERH793	AZ90105	1	C10-C24 DIESEL RANGE ORG SILICA GEL CLEAN UP	4/24/2019 10:04:00 AM	5/16/2019 1:45:00 PM	C	25.00	UG_L	U	40.0	25.00	U	
ERH793	AZ90105	1	C10-C24 DIESEL RANGE ORGANICS	4/24/2019 10:04:00 AM	4/30/2019 12:02:00 AM	C	300	UG_L	T3M	40.0	25.00		
ERH793	AZ90105	1	C24-C40 OIL RANGE ORGANICS SILICA GEL CLEAN UP	4/24/2019 10:04:00 AM	5/16/2019 1:45:00 PM	C	40.00	UG_L	U	40.0	40.00	U	
ERH793	AZ90105	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RAN	4/24/2019 10:04:00 AM	4/30/2019 12:02:00 AM	C	190	UG_L	T3M	40.0	40.00		
ERH805	AZ90107	1	C10-C24 DIESEL RANGE ORGANICS	4/23/2019 2:15:00 PM	4/30/2019 12:22:00 AM	C	25.00	UG_L	U	40.0	25.00	U	
ERH805	AZ90107	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RAN	4/23/2019 2:15:00 PM	4/30/2019 12:22:00 AM	C	40.00	UG_L	U	40.0	40.00	U	
ERH807	AZ90109	1	C10-C24 DIESEL RANGE ORGANICS	4/24/2019 10:20:00 AM	4/30/2019 12:42:00 AM	C	25.00	UG_L	U	40.0	25.00	U	
ERH807	AZ90109	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RAN	4/24/2019 10:20:00 AM	4/30/2019 12:42:00 AM	C	40.00	UG_L	U	40.0	40.00	U	
METHOD: **8260B**													
ERH787	AZ90099	1	BENZENE	4/23/2019 11:20:00 AM	4/26/2019 1:52:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH787	AZ90099	1	ETHYLBENZENE	4/23/2019 11:20:00 AM	4/26/2019 1:52:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH787	AZ90099	1	PETROLEUM HYDROCARBONS C6-C10	4/23/2019 11:20:00 AM	4/26/2019 1:51:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH787	AZ90099	1	TOLUENE	4/23/2019 11:20:00 AM	4/26/2019 1:52:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH787	AZ90099	1	Xylenes	4/23/2019 11:20:00 AM	4/26/2019 1:52:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH788	AZ90100	1	BENZENE	4/23/2019 3:35:00 PM	4/26/2019 4:13:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH788	AZ90100	1	ETHYLBENZENE	4/23/2019 3:35:00 PM	4/26/2019 4:13:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH788	AZ90100	1	PETROLEUM HYDROCARBONS C6-C10	4/23/2019 3:35:00 PM	4/26/2019 4:14:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH788	AZ90100	1	TOLUENE	4/23/2019 3:35:00 PM	4/26/2019 4:13:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH788	AZ90100	1	Xylenes	4/23/2019 3:35:00 PM	4/26/2019 4:13:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH789	AZ90101	1	BENZENE	4/24/2019 8:00:00 AM	4/26/2019 2:20:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH789	AZ90101	1	ETHYLBENZENE	4/24/2019 8:00:00 AM	4/26/2019 2:20:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH789	AZ90101	1	PETROLEUM HYDROCARBONS C6-C10	4/24/2019 8:00:00 AM	4/26/2019 2:19:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH789	AZ90101	1	TOLUENE	4/24/2019 8:00:00 AM	4/26/2019 2:20:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH789	AZ90101	1	Xylenes	4/24/2019 8:00:00 AM	4/26/2019 2:20:00 PM	C	0.30	UG_L	U	2.0	0.30	U	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **8260B**													
ERH790	AZ90102	1	BENZENE	4/24/2019 8:40:00 AM	4/26/2019 4:42:00 PM	D	0.30	UG_L	U	1.0	0.30	U	
ERH790	AZ90102	1	ETHYLBENZENE	4/24/2019 8:40:00 AM	4/26/2019 4:42:00 PM	D	0.50	UG_L	U	1.0	0.50	U	
ERH790	AZ90102	1	PETROLEUM HYDROCARBONS C6-C10	4/24/2019 8:40:00 AM	4/26/2019 4:43:00 PM	D	48	UG_L	G3	20	18.0		
ERH790	AZ90102	1	TOLUENE	4/24/2019 8:40:00 AM	4/26/2019 4:42:00 PM	D	0.30	UG_L	U	1.0	0.30	U	
ERH790	AZ90102	1	Xylenes	4/24/2019 8:40:00 AM	4/26/2019 4:42:00 PM	D	0.30	UG_L	U	2.0	0.30	U	
ERH791	AZ90103	1	BENZENE	4/24/2019 8:40:00 AM	4/26/2019 5:11:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH791	AZ90103	1	ETHYLBENZENE	4/24/2019 8:40:00 AM	4/26/2019 5:11:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH791	AZ90103	1	PETROLEUM HYDROCARBONS C6-C10	4/24/2019 8:40:00 AM	4/26/2019 5:10:00 PM	C	57	UG_L	G3	20	18.0		
ERH791	AZ90103	1	TOLUENE	4/24/2019 8:40:00 AM	4/26/2019 5:11:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH791	AZ90103	1	Xylenes	4/24/2019 8:40:00 AM	4/26/2019 5:11:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH792	AZ90104	1	BENZENE	4/24/2019 10:02:00 AM	4/26/2019 2:48:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH792	AZ90104	1	ETHYLBENZENE	4/24/2019 10:02:00 AM	4/26/2019 2:48:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH792	AZ90104	1	PETROLEUM HYDROCARBONS C6-C10	4/24/2019 10:02:00 AM	4/26/2019 2:49:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH792	AZ90104	1	TOLUENE	4/24/2019 10:02:00 AM	4/26/2019 2:48:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH792	AZ90104	1	Xylenes	4/24/2019 10:02:00 AM	4/26/2019 2:48:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH793	AZ90105	1	BENZENE	4/24/2019 10:04:00 AM	4/26/2019 5:39:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH793	AZ90105	1	ETHYLBENZENE	4/24/2019 10:04:00 AM	4/26/2019 5:39:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH793	AZ90105	1	PETROLEUM HYDROCARBONS C6-C10	4/24/2019 10:04:00 AM	4/26/2019 5:40:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH793	AZ90105	1	TOLUENE	4/24/2019 10:04:00 AM	4/26/2019 5:39:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH793	AZ90105	1	Xylenes	4/24/2019 10:04:00 AM	4/26/2019 5:39:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH804	AZ90106	1	BENZENE	4/23/2019 12:50:00 PM	4/26/2019 3:16:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH804	AZ90106	1	ETHYLBENZENE	4/23/2019 12:50:00 PM	4/26/2019 3:16:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH804	AZ90106	1	PETROLEUM HYDROCARBONS C6-C10	4/23/2019 12:50:00 PM	4/26/2019 3:17:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH804	AZ90106	1	TOLUENE	4/23/2019 12:50:00 PM	4/26/2019 3:16:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH804	AZ90106	1	Xylenes	4/23/2019 12:50:00 PM	4/26/2019 3:16:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH805	AZ90107	1	BENZENE	4/23/2019 2:15:00 PM	4/26/2019 6:08:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH805	AZ90107	1	ETHYLBENZENE	4/23/2019 2:15:00 PM	4/26/2019 6:08:00 PM	C	0.50	UG_L	U	1.0	0.50	U	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **8260B**													
ERH805	AZ90107	1	PETROLEUM HYDROCARBONS C6-C10	4/23/2019 2:15:00 PM	4/26/2019 6:09:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH805	AZ90107	1	TOLUENE	4/23/2019 2:15:00 PM	4/26/2019 6:08:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH805	AZ90107	1	Xylenes	4/23/2019 2:15:00 PM	4/26/2019 6:08:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH806	AZ90108	1	BENZENE	4/24/2019 8:21:00 AM	4/26/2019 3:46:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH806	AZ90108	1	ETHYLBENZENE	4/24/2019 8:21:00 AM	4/26/2019 3:46:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH806	AZ90108	1	PETROLEUM HYDROCARBONS C6-C10	4/24/2019 8:21:00 AM	4/26/2019 3:45:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH806	AZ90108	1	TOLUENE	4/24/2019 8:21:00 AM	4/26/2019 3:46:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH806	AZ90108	1	Xylenes	4/24/2019 8:21:00 AM	4/26/2019 3:46:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH807	AZ90109	1	BENZENE	4/24/2019 10:20:00 AM	4/26/2019 6:37:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH807	AZ90109	1	ETHYLBENZENE	4/24/2019 10:20:00 AM	4/26/2019 6:37:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH807	AZ90109	1	PETROLEUM HYDROCARBONS C6-C10	4/24/2019 10:20:00 AM	4/26/2019 6:36:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH807	AZ90109	1	TOLUENE	4/24/2019 10:20:00 AM	4/26/2019 6:37:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH807	AZ90109	1	Xylenes	4/24/2019 10:20:00 AM	4/26/2019 6:37:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
METHOD: **8270D**													
ERH788	AZ90100	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/23/2019 3:35:00 PM	4/30/2019 8:31:00 PM	D	80.0	UG_L	U	100	80.0	UJ	l
ERH788	AZ90100	1	PHENOL	4/23/2019 3:35:00 PM	5/2/2019 1:58:00 PM	C	4.00	UG_L	U	5.0	4.00	U	
ERH790	AZ90102	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/24/2019 8:40:00 AM	4/30/2019 8:54:00 PM	C	80.0	UG_L	U	100	80.0	UJ	l
ERH790	AZ90102	1	PHENOL	4/24/2019 8:40:00 AM	5/2/2019 2:26:00 PM	D	4.00	UG_L	U	5.0	4.00	U	
ERH791	AZ90103	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/24/2019 8:40:00 AM	4/30/2019 9:18:00 PM	C	80.0	UG_L	U	100	80.0	UJ	l
ERH791	AZ90103	1	PHENOL	4/24/2019 8:40:00 AM	5/2/2019 2:54:00 PM	C	4.00	UG_L	U	5.0	4.00	U	
ERH793	AZ90105	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/24/2019 10:04:00 AM	4/30/2019 9:41:00 PM	C	80.0	UG_L	U	100	80.0	UJ	l
ERH793	AZ90105	1	PHENOL	4/24/2019 10:04:00 AM	5/2/2019 3:22:00 PM	C	4.00	UG_L	U	5.0	4.00	U	
ERH805	AZ90107	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/23/2019 2:15:00 PM	4/30/2019 10:05:00 PM	C	80.0	UG_L	U	100	80.0	UJ	l
ERH805	AZ90107	1	PHENOL	4/23/2019 2:15:00 PM	5/2/2019 3:50:00 PM	C	4.00	UG_L	U	5.0	4.00	U	
ERH807	AZ90109	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/24/2019 10:20:00 AM	4/30/2019 10:28:00 PM	C	80.0	UG_L	U	100	80.0	UJ	l
ERH807	AZ90109	1	PHENOL	4/24/2019 10:20:00 AM	5/2/2019 4:18:00 PM	C	4.00	UG_L	U	5.0	4.00	U	
METHOD: **8270DSIM**													

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **8270DSIM**													
ERH788	AZ90100	1	1-METHYLNAPHTHALENE	4/23/2019 3:35:00 PM	5/2/2019 1:36:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH788	AZ90100	1	2-METHYLNAPHTHALENE	4/23/2019 3:35:00 PM	5/2/2019 1:36:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH788	AZ90100	1	NAPHTHALENE	4/23/2019 3:35:00 PM	5/2/2019 1:36:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH790	AZ90102	1	1-METHYLNAPHTHALENE	4/24/2019 8:40:00 AM	5/2/2019 1:58:00 PM	D	9.0	UG_L		0.2	0.10		
ERH790	AZ90102	1	2-METHYLNAPHTHALENE	4/24/2019 8:40:00 AM	5/2/2019 1:58:00 PM	D	7.9	UG_L		0.2	0.10		
ERH790	AZ90102	1	NAPHTHALENE	4/24/2019 8:40:00 AM	5/2/2019 1:58:00 PM	D	28	UG_L		0.2	0.10		
ERH791	AZ90103	1	1-METHYLNAPHTHALENE	4/24/2019 8:40:00 AM	5/2/2019 2:20:00 PM	C	8.7	UG_L		0.2	0.10		
ERH791	AZ90103	1	2-METHYLNAPHTHALENE	4/24/2019 8:40:00 AM	5/2/2019 2:20:00 PM	C	7.4	UG_L		0.2	0.10		
ERH791	AZ90103	1	NAPHTHALENE	4/24/2019 8:40:00 AM	5/2/2019 2:20:00 PM	C	26	UG_L		0.2	0.10		
ERH793	AZ90105	1	1-METHYLNAPHTHALENE	4/24/2019 10:04:00 AM	5/2/2019 2:43:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH793	AZ90105	1	2-METHYLNAPHTHALENE	4/24/2019 10:04:00 AM	5/2/2019 2:43:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH793	AZ90105	1	NAPHTHALENE	4/24/2019 10:04:00 AM	5/2/2019 2:43:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH805	AZ90107	1	1-METHYLNAPHTHALENE	4/23/2019 2:15:00 PM	5/2/2019 3:05:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH805	AZ90107	1	2-METHYLNAPHTHALENE	4/23/2019 2:15:00 PM	5/2/2019 3:05:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH805	AZ90107	1	NAPHTHALENE	4/23/2019 2:15:00 PM	5/2/2019 3:05:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH807	AZ90109	1	1-METHYLNAPHTHALENE	4/24/2019 10:20:00 AM	5/2/2019 3:27:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH807	AZ90109	1	2-METHYLNAPHTHALENE	4/24/2019 10:20:00 AM	5/2/2019 3:27:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH807	AZ90109	1	NAPHTHALENE	4/24/2019 10:20:00 AM	5/2/2019 3:27:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
METHOD: **9060A**													
ERH788	AZ90100	1	DISSOLVED ORGANIC CARBON	4/23/2019 3:35:00 PM	4/30/2019 10:00:00 PM	D	1.1	MG_L		0.93	0.350		
ERH788	AZ90100	1	TOTAL ORGANIC CARBON	4/23/2019 3:35:00 PM	5/3/2019 1:30:00 AM	D	0.97	MG_L		0.93	0.350		
ERH790	AZ90102	1	DISSOLVED ORGANIC CARBON	4/24/2019 8:40:00 AM	5/3/2019 11:36:00 AM	C	3.5	MG_L		0.93	0.350		
ERH790	AZ90102	1	TOTAL ORGANIC CARBON	4/24/2019 8:40:00 AM	4/30/2019 10:32:00 PM	C	3.8	MG_L		0.93	0.350		
ERH793	AZ90105	1	DISSOLVED ORGANIC CARBON	4/24/2019 10:04:00 AM	4/30/2019 11:05:00 PM	C	1.6	MG_L		0.93	0.350		
ERH793	AZ90105	1	TOTAL ORGANIC CARBON	4/24/2019 10:04:00 AM	5/3/2019 2:02:00 AM	C	1.5	MG_L		0.93	0.350		
ERH805	AZ90107	1	DISSOLVED ORGANIC CARBON	4/23/2019 2:15:00 PM	5/3/2019 12:08:00 PM	C	0.36	MG_L	J	0.93	0.350	J	
ERH805	AZ90107	1	TOTAL ORGANIC CARBON	4/23/2019 2:15:00 PM	4/30/2019 11:37:00 PM	C	0.23	MG_L	J	0.93	0.350	J	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **9060A**													
ERH807	AZ90109	1	DISSOLVED ORGANIC CARBON	4/24/2019 10:20:00 AM	5/1/2019 7:13:00 PM	C	0.21	MG_L	J	0.93	0.350	J	
ERH807	AZ90109	1	TOTAL ORGANIC CARBON	4/24/2019 10:20:00 AM	5/3/2019 2:33:00 AM	C	0.26	MG_L	J	0.93	0.350	J	
METHOD: **RSK175**													
ERH787	AZ90099	1	METHANE	4/23/2019 11:20:00 AM	5/3/2019 10:52:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH788	AZ90100	1	METHANE	4/23/2019 3:35:00 PM	5/3/2019 10:54:00 AM	C	140	UG_L		5.0	1.00		
ERH789	AZ90101	1	METHANE	4/24/2019 8:00:00 AM	5/3/2019 10:56:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH790	AZ90102	1	METHANE	4/24/2019 8:40:00 AM	5/3/2019 10:58:00 AM	D	1500	UG_L	E	5.0	1.00	R	d
ERH790	AZ90102	10	METHANE	4/24/2019 8:40:00 AM	5/3/2019 11:04:00 AM	D	4500	UG_L	D	50.0	10.00		
ERH792	AZ90104	1	METHANE	4/24/2019 10:02:00 AM	5/3/2019 11:07:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH793	AZ90105	1	METHANE	4/24/2019 10:04:00 AM	5/3/2019 11:09:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH804	AZ90106	1	METHANE	4/23/2019 12:50:00 PM	5/3/2019 11:11:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH805	AZ90107	1	METHANE	4/23/2019 2:15:00 PM	5/3/2019 11:14:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH806	AZ90108	1	METHANE	4/24/2019 8:21:00 AM	5/3/2019 11:16:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH807	AZ90109	1	METHANE	4/24/2019 10:20:00 AM	5/3/2019 11:18:00 AM	C	1.00	UG_L	U	5.0	1.00	U	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: June 6, 2019

Parameters: Wet Chemistry

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88775

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH817	AZ90451	Water	04/29/19
ERH818	AZ90452	Water	04/29/19
ERH819	AZ90453	Water	04/29/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Alkalinity by Standard Method 2320B
Chloride, Nitrate, and Sulfate by Environmental Protection Agency (EPA) Method 300.0

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S The sequence or number of standards used for the calibration was incorrect.

C Correlation coefficient is <0.995.

R %R for calibration is not within control limits.

B Presumed contamination from preparation (method) blank or calibration blank.

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD or difference was high.

I ICP ICS results were unsatisfactory.

A ICP Serial Dilution %D were not within control limits.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Post Digestion Spike recovery was not within control limits.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
ERH818	Nitrate as N	77 hours	48 hours	UJ (all non-detects)	P
ERH817	Nitrate as N	59 hours	48 hours	UJ (all non-detects)	P
ERH819	Nitrate as N	55 hours	48 hours	UJ (all non-detects)	P

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Limit of Quantitation	Associated Samples
PB (prep blank)	Bicarbonate alkalinity Total alkalinity Chloride	4.6 mg/L 4.6 mg/L 0.30 mg/L	2.0 mg/L 2.0 mg/L 1.0 mg/L	All samples in SDG 88775

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Sample Result Verification

Raw data were not reviewed for Level C validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to technical holding time, data were qualified as estimated in three samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Wet Chemistry - Data Qualification Summary - SDG 88775

Sample	Analyte	Flag	A or P	Reason (Code)
ERH817 ERH818 ERH819	Nitrate as N	UJ (all non-detects)	P	Technical holding times (H)

Red Hill Bulk Storage Facility, CTO 18F0126
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 88775

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Wet Chemistry - Field Blank Data Qualification Summary - SDG 88775

No Sample Data Qualified in this SDG

LDC #: 45147B6
SDG #: 88775
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 6/6/19
Page: 1 of 1
Reviewer: O
2nd Reviewer: A

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate, Sulfate (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A SW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicate sample analysis	N	
VIII.	Laboratory control samples	A	LCS/D
IX.	Field duplicates	N	
X.	Sample result verification	N	
XI.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH817	AZ90451	Water	04/29/19
2	ERH818	AZ90452	Water	04/29/19
3	ERH819	AZ90453	Water	04/29/19
4				
5				
6				
7				
8				
9				
10				

Notes:

LDC #: 45147B6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: CR
2nd reviewer: A

All circled methods are applicable to each sample.

Sample ID	Parameter
13	pH TDS (Cl) F (NO3) (NO2) SO4 O-PO4 (Alk) CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4

Comments:

LDC #: 45147B6

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer: a
2nd reviewer: A

All circled dates have exceeded the technical holding time.
Y N N/A Were all samples preserved as applicable to each method ?
Y N N/A Were all cooler temperatures within validation criteria?

Method:	~~9045C~~ 300.0		
Parameters:	NO_3		
Technical holding time:	48hrs		

Sample ID	Sampling date	Analysis date	Total Time (hrs)	Qualifier	Analysis date	Total Time	Qualifier
2	4/29/19 10:15	5/2/19 15:35	77	J/UJ/P	(ND) (H)		
1	↓ 08:50	5/1/19 19:57	59	↓	↓		
3	↓ 12:50	↓ 20:34	55	↓	↓		

LDC #: 45147B6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: G
2nd Reviewer: A

METHOD: Inorganics, Method See Cover

Conc. units: mg/L **Associated Samples:** All

Analyte	Blank ID	Blank ID	Blank Action Limit										
	PB	ICB/CCB (mg/L)		No qual (>5x)									
Bicarbonate Alkalinity	4.6		23										
Total Alkalinity	4.6		23										
Cl	0.30												

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **2320B**													
ERH817	AZ90451	1	ALKALINITY, TOTAL (AS CACO3)	4/29/2019 8:50:00 AM	5/6/2019 9:01:00 PM	C	112	MG_L		2.0	1.70		
ERH817	AZ90451	1	BICARBONATE	4/29/2019 8:50:00 AM	5/6/2019 9:01:00 PM	C	112	MG_L		2.0	1.70		
ERH817	AZ90451	1	CARBONATE (AS CO3)	4/29/2019 8:50:00 AM	5/6/2019 9:01:00 PM	C	1.70	MG_L	U	2.0	1.70	U	
ERH818	AZ90452	1	ALKALINITY, TOTAL (AS CACO3)	4/29/2019 10:15:00 AM	5/6/2019 9:09:00 PM	C	144	MG_L		2.0	1.70		
ERH818	AZ90452	1	BICARBONATE	4/29/2019 10:15:00 AM	5/6/2019 9:09:00 PM	C	144	MG_L		2.0	1.70		
ERH818	AZ90452	1	CARBONATE (AS CO3)	4/29/2019 10:15:00 AM	5/6/2019 9:09:00 PM	C	1.70	MG_L	U	2.0	1.70	U	
ERH819	AZ90453	1	ALKALINITY, TOTAL (AS CACO3)	4/29/2019 12:50:00 PM	5/6/2019 9:22:00 PM	C	115	MG_L		2.0	1.70		
ERH819	AZ90453	1	BICARBONATE	4/29/2019 12:50:00 PM	5/6/2019 9:22:00 PM	C	115	MG_L		2.0	1.70		
ERH819	AZ90453	1	CARBONATE (AS CO3)	4/29/2019 12:50:00 PM	5/6/2019 9:22:00 PM	C	1.70	MG_L	U	2.0	1.70	U	
METHOD: **300.0**													
ERH817	AZ90451	5	CHLORIDE (AS CL)	4/29/2019 8:50:00 AM	5/8/2019 10:30:00 AM	C	46.1	MG_L	D	5.0	1.00		
ERH817	AZ90451	1	NITROGEN, NITRATE (AS N)	4/29/2019 8:50:00 AM	5/1/2019 7:57:00 PM	C	0.18	MG_L	U	0.5	0.18	UJ	h
ERH817	AZ90451	1	SULFATE (AS SO4)	4/29/2019 8:50:00 AM	5/1/2019 7:57:00 PM	C	11.3	MG_L		1.0	0.20		
ERH818	AZ90452	5	CHLORIDE (AS CL)	4/29/2019 10:15:00 AM	5/8/2019 10:37:00 AM	C	48.6	MG_L	D	5.0	1.00		
ERH818	AZ90452	1	NITROGEN, NITRATE (AS N)	4/29/2019 10:15:00 AM	5/2/2019 3:35:00 PM	C	0.18	MG_L	U	0.5	0.18	UJ	h
ERH818	AZ90452	1	SULFATE (AS SO4)	4/29/2019 10:15:00 AM	5/2/2019 3:35:00 PM	C	11.4	MG_L		1.0	0.20		
ERH819	AZ90453	5	CHLORIDE (AS CL)	4/29/2019 12:50:00 PM	5/8/2019 10:45:00 AM	C	48.3	MG_L	D	5.0	1.00		
ERH819	AZ90453	1	NITROGEN, NITRATE (AS N)	4/29/2019 12:50:00 PM	5/1/2019 8:34:00 PM	C	0.18	MG_L	U	0.5	0.18	UJ	h
ERH819	AZ90453	1	SULFATE (AS SO4)	4/29/2019 12:50:00 PM	5/1/2019 8:34:00 PM	C	11.4	MG_L		1.0	0.20		

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

AECOM
1001 Bishop Street Suite 1600
Honolulu, HI 96813
ATTN: Ms. Margie Pascua
Margie.Pascua@aecom.com

June 11, 2019

SUBJECT: Red Hill Bulk Storage Facility, CTO 18F0126, Data Validation

Dear Ms. Pascua,

Enclosed are the final validation reports for the fractions listed below. This SDG was received on May 28, 2019. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #45161:

SDG #	Fraction
88736	Volatiles, Phenol, Polynuclear Aromatic Hydrocarbons, 2-(2-Methoxyethoxy)-ethanol, Wet Chemistry, Gasoline Range Organics, Total Petroleum Hydrocarbons as Extractables, Methane

The data validation was performed under Level C validation guidelines. The analyses were validated using the following documents and variances, as applicable to each method:

- Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 02; January 2017
- Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 01, April 2017
- Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 00, September 2017
- Sampling and Analysis Plan, Addendum 03 Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 00; June 2018
- Project Procedures Manual, U.S. Naval Facilities Engineering Command Environmental Restoration Program, NAVFAC Pacific, DON 2015
- U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.1, 2017

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIB, November 2004; update IV, February 2007; update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Stella Cuenco
scuenco@lab-data.com
Operations Manager/Senior Chemist

HC

Attachment 1

EDD 90/10 C/D

LDC #45161 (AECOM-Honolulu, HI / Red Hill Bulk Storage Facility, CTO 18F0126)

LDC	SDG#	DATE REC'D	(2) DATE DUE	BTEX (8260B)		Phenol (8270D)		(3)PAHs (8270D -SIM)		2,2-MEE (8270D-M)		GRO (8260B)		TPH-E (8015B)		Methane (175)		Alk. (2320B)		Cl,SO_4 NO_3-N (300.0)		NO_3/ NO_2-N (353.2)		Fe II (3500-Fe B)		DOC (9060A)		TOC (9060A)					
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	88736	05/28/19	06/11/19	4	0	2	0	2	0	2	0	4	0	2	0	4	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0				
Total	T/SC			4	0	2	0	2	0	2	0	4	0	2	0	4	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0	0	0	0	32

Shaded cells indicate Level D validation (all other cells are Level C validation). These sample counts do not include MS/MSD, and DUPs

L:\AECOM\Red Hill\45161ST-18F0126.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: June 6, 2019

Parameters: Volatiles

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88736

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH808	AZ90212	Water	04/25/19
ERH809	AZ90213	Water	04/25/19
ERH810	AZ90214	Water	04/25/19
ERH811	AZ90215	Water	04/25/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) which are Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) by Environmental Protection Agency (EPA) SW 846 Method 8260B

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Samples ERH808 and ERH810 were identified as trip blanks. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XIV. System Performance

Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Volatiles - Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Volatiles - Laboratory Blank Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Volatiles - Field Blank Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

LDC #: 45161A1a
SDG #: 88736
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 6/1/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (BTEX)(EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	%D RSD ≤ 15 ICV ≤ 20
IV.	Continuing calibration ending	A	CCV ≤ 20 / 50
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB = 1, 3
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	CS
IX.	Laboratory control samples	A	LCS ND
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH808 TB	AZ90212	Water	04/25/19
2	ERH809	AZ90213	Water	04/25/19
3	ERH810 TB	AZ90214	Water	04/25/19
4	ERH811	AZ90215	Water	04/25/19
5				
6				
7				
8				

Notes:

	190429AM						

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: June 6, 2019

Parameters: Phenol

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88736

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH809	AZ90213	Water	04/25/19
ERH811	AZ90215	Water	04/25/19
ERH811RE	AZ90215RE	Water	04/25/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

- Phenol by Environmental Protection Agency (EPA) SW 846 Method 8270D

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met with the following exceptions:

Sample	Compound	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	A or P
ERH811RE	Phenol	11	7	UJ (all non-detects)	A

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0%.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Affected Compound	Flag	A or P
ERH811	2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d6 Terphenyl-d14	8.83 (43-140) 7.97 (44-119) 10.4 (19-119) 9.13 (44-120) 9.90 (10-115) 8.24 (50-134)	Phenol	R (all non-detects)	A

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XIV. System Performance

Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method.

In the case where more than one result was reported for an individual sample, the least technically acceptable results were deemed unusable as follows:

Sample	Compound	Reason	Flag	A or P
ERH811	Phenol	Low surrogate recovery.	R	A

Due to technical holding time, data were qualified as estimated in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Phenol - Data Qualification Summary - SDG 88736

Sample	Compound	Flag	A or P	Reason (Code)
ERH811RE	Phenol	UJ (all non-detects)	A	Technical holding times (H)
ERH811	Phenol	R	A	Overall assessment of data (D)

Red Hill Bulk Storage Facility, CTO 18F0126
Phenol - Laboratory Blank Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Phenol - Field Blank Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

LDC #: 45161A2a
SDG #: 88736
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 6/1/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Phenol ~~& HC~~ F7s (EPA SW 846 Method 8270D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A SW	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	% RSD ≤ 15 ICV ≤ 20
IV.	Continuing calibration / ending	A	CCV ≤ 20 / 50
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	SW	
VIII.	Matrix spike/Matrix spike duplicates	N	CS
IX.	Laboratory control samples	A	LCS ID
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	SW	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1 1	ERH809	AZ90213	Water	04/25/19
2 1	ERH811	AZ90215	Water	04/25/19
3 2	ERH811RX	AZ90215RX	Water	04/25/19
4				
5				
6				
7				
8				

Notes:

1	190430A						
2	190506A1						

LDC #: 45161A2a

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

All circled dates have exceeded the technical holding times.
Y N N/A Were all cooler temperatures within validation criteria?

METHOD : GC/MA BNA SW846 METHOD 8270D (H)

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
3	W		4/25/19	5/6/19	5/8/19	11	J/UJ/A ND

TECHNICAL HOLDING TIME CRITERIA

Water: Extracted within 7 days, analyzed within 40 days.
Soil: Extracted within 14 days, analyzed within 40 days.

LDC #: 45161A2a

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Reviewer: FT
2nd Reviewer: MC

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualification below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were percent recoveries (%R) for surrogates within QC limits?
Y N N/A If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?
Y N N/A If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

(S)

#	Sample ID	Surrogate	%R (Limits)	Qualifications
	2	TBP	8.83 (43-140)	J/R/A ND
		FBP	7.97 (44-119)	
		2FP	10.4 (19-119)	
		NBZ	9.13 (44-120)	
		PHL-d6	9.90 (10-115)	
		TPH	8.24 (50-134)	
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(NBZ) = Nitrobenzene - d5
(FBP) = 2-Fluorobiphenyl
(TPH) = Terphenyl - d14
(2FP) = 2-Fluorophenol
(TBP) = 2,4,6 -Tribromophenol
(2CP) = 2-Chlorophenol - d4

PHL-d6 = Phenol-d6

LDC #: 45161 A2a

VALIDATION FINDINGS WORKSHEET
Overall Assessment of Data

Page: 1 of 1
Reviewer: FT
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
All available information pertaining to the data were reviewed using professional judgement to compliment the determination of the overall quality of the data.

(Y) N N/A Was the overall quality and usability of the data acceptable? (D)

#	Sample ID	Compound	Finding	Qualifications
	2	All	%SS < 10%	R/A

Comments: _____

OVR.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: June 6, 2019

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88736

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH809	AZ90213	Water	04/25/19
ERH811	AZ90215	Water	04/25/19
ERH811RE	AZ90215RE	Water	04/25/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polynuclear Aromatic Hydrocarbons (PAHs) which are 1-Methylnaphthalene, 2-Methylnaphthalene, and Naphthalene by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met with the following exceptions:

Sample	Compound	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	A or P
ERH811RE	All compounds	11	7	UJ (all non-detects)	A

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Affected Compound	Flag	A or P
ERH811	2-Methylnaphthalene-d10 Fluoranthene-d10	13.7 (39-114) 13.7 (58-120)	All compounds	UJ (all non-detects)	A

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XIV. System Performance

Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method.

In the case where more than one result was reported for an individual sample, the least technically acceptable results were deemed unusable as follows:

Sample	Compound	Reason	Flag	A or P
ERH811RE	All compounds	Extracted outside holding time.	R	A

Due to surrogate %R, data were qualified as estimated in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 88736

Sample	Compound	Flag	A or P	Reason Code)
ERH811	All compounds	UJ (all non-detects)	A	Surrogates (%R) (S)
ERH811RE	All compounds	R	A	Overall assessment of data (D)

Red Hill Bulk Storage Facility, CTO 18F0126
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

LDC #: 45161A2b
SDG #: 88736
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 6/1/19
Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A /SW	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A /A	%RSD ≤ 15 ICV ≤ 20
IV.	Continuing calibration (ending)	A	CCV ≤ 20/50
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	SW	
VIII.	Matrix spike/Matrix spike duplicates	N	cs
IX.	Laboratory control samples	A	lcs ID
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	SW	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH809	AZ90213	Water	04/25/19
2	ERH811	AZ90215	Water	04/25/19
3	ERH811RX	AZ90215RX	Water	04/25/19
4				
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8				

Notes:

1	190430A-B1K						
2	190506A1-B1K						

LDC #: 45161 A2b

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer: FA
2nd Reviewer:

All circled dates have exceeded the technical holding times.
Y N N/A Were all cooler temperatures within validation criteria?

METHOD : GC/MA BNA SW846 METHOD 8270D (H)

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
3	W		4/25/19	5/6/19	5/8/19	11	J/UJ/A ND

TECHNICAL HOLDING TIME CRITERIA

Water: Extracted within 7 days, analyzed within 40 days.
Soil: Extracted within 14 days, analyzed within 40 days.

LDC #: 45161A2b

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Reviewer: FT
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualification below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were percent recoveries (%R) for surrogates within QC limits?

(Y) N N/A If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?

Y N (N/A) If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

(S)

#	Sample ID	Surrogate	%R (Limits)	Qualifications
	2	W-d10	13.7 (39-114)	J/UJ/A NO
		XY-d10	13.7 (58-120)	↓
			( )	
			( )	
			( )	
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(NBZ) = Nitrobenzene - d5
(FBP) = 2-Fluorobiphenyl
(TPH) = Terphenyl - d14
(2FP) = 2-Fluorophenol
(TBP) = 2,4,6 -Tribromophenol
(2CP) = 2-Chlorophenol - d4

LDC #: 45161A2b

VALIDATION FINDINGS WORKSHEET
Overall Assessment of Data

Page: 1 of 1
Reviewer: FT
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
All available information pertaining to the data were reviewed using professional judgement to compliment the determination of the overall quality of the data.

(Y) N N/A Was the overall quality and usability of the data acceptable? (D)

#	Sample ID	Compound	Finding	Qualifications
	3	All	extracted outside H.T.	R/A

Comments: _____

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: June 6, 2019

Parameters: 2-(2-Methoxyethoxy)-ethanol

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88736

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH809	AZ90213	Water	04/25/19
ERH811	AZ90215	Water	04/25/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

2-(2-Methoxyethoxy)-ethanol by Environmental Protection Agency (EPA) SW 846 Method 8270D Modified

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were not added to all samples as required by the method. Using professional judgment, no data were qualified, since the MS/MSD/LCS percent recoveries were within QC limits. Additionally, all base surrogate percent recoveries were within QC limits in the phenol reextraction and reanalysis.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	Flag	A or P
190429A-LCS/D (All samples in SDG 88701)	2-(2-Methoxyethoxy)-ethanol	-	155 (30-130)	NA	-

Relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
190429A-LCS/D (All samples in SDG 88701)	2-(2-Methoxyethoxy)-ethanol	28.3 (≤20)	UJ (all non-detects)	P

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XIV. System Performance

Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method with the exception noted in Section VII. No results were rejected in this SDG.

Due to LCS/LCSD RPD, data were qualified as estimated in two samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
2-(2-Methoxyethoxy)-ethanol - Data Qualification Summary - SDG 88736

Sample	Compound	Flag	A or P	Reason (Code)
ERH809 ERH811	2-(2-Methoxyethoxy)-ethanol	UJ (all non-detects)	P	Laboratory control samples (RPD) (L)

Red Hill Bulk Storage Facility, CTO 18F0126
2-(2-Methoxyethoxy)-ethanol - Laboratory Blank Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
2-(2-Methoxyethoxy)-ethanol - Field Blank Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

LDC #: 45161A2c
SDG #: 88736
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 6/1/19
Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS 2-(2-Methoxyethoxy)-Ethanol (EPA SW 846 Method 8270D-Modified)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	r² ICV ≤ 20
IV.	Continuing calibration | ending	A	CCV ≤ 20 / 50
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	SW	
VIII.	Matrix spike/Matrix spike duplicates	N	CD
IX.	Laboratory control samples	SW	LCS / D
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH809	AZ90213	Water	04/25/19
2	ERH811	AZ90215	Water	04/25/19
3				
4				
5				
6				
7				
8				

Notes:

	190429A BLK						

LDC #: 45161A2c

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Reviewer: FT
2nd Reviewer: AC

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
Please see qualification below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were percent recoveries (%R) for surrogates within QC limits?
Y N N/A If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?
Y N N/A If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Sample ID	Surrogate	%R (Limits)	Qualifications
	all	Surrogates were not added to all samples as required by the method. Although the %R for LCSD and %RPD were outside the QC criteria, no data were qualified base on surrogates. Additionally, all base surrogate percent recoveries were within QC limits in the phenol reanalysis for sample ERH811		Text
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			( )	
			( )	

(NBZ) = Nitrobenzene - d5 (2FP) = 2-Fluorophenol

LDC #: 45161A2C

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: FT
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a LCS required?

Y N N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

(L)

#	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	190429A--	*	( )	155 (30-130)	( )	All	J dil / P ND
	LCS ID	*	( )	( )	28.3 (20)	↓	J / NJ / P ↓
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
	* 2-(2-Methoxy ethoxy)-Ethanol		( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

LDC Report# 45161A6

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: June 6, 2019

Parameters: Wet Chemistry

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88736

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH809	AZ90213	Water	04/25/19
ERH811	AZ90215	Water	04/25/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Alkalinity by Standard Method 2320B
Chloride, Nitrate, and Sulfate by Environmental Protection Agency (EPA) Method 300.0
Ferrous Iron by Standard Method 3500-Fe B
Nitrate/Nitrite as Nitrogen by EPA Method 353.2
Dissolved Organic Carbon and Total Organic Carbon by EPA SW 846 Method 9060A

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H	Holding times were exceeded.
S	The sequence or number of standards used for the calibration was incorrect.
C	Correlation coefficient is <0.995.
R	%R for calibration is not within control limits.
B	Presumed contamination from preparation (method) blank or calibration blank.
L	Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.
Q	MS/MSD recovery was poor.
E	MS/MSD or Duplicate RPD or difference was high.
I	ICP ICS results were unsatisfactory.
A	ICP Serial Dilution %D were not within control limits.
F	Presumed contamination from FB or ER.
D	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Post Digestion Spike recovery was not within control limits.
V	Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Limit of Quantitation	Associated Samples
PB (prep blank)	Total alkalinity Bicarbonate Alkalinity	3.9 mg/L 3.9 mg/L	2.0 mg/L 2.0 mg/L	All samples in SDG 88736
ICB/CCB	Chloride	0.30 mg/L	1.0 mg/L	All samples in SDG 88736

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Sample Result Verification

Raw data were not reviewed for Level C validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Wet Chemistry- Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Wet Chemistry - Field Blank Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

LDC #: 45161A6
SDG #: 88736
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 6/6/19
Page: 1 of 1
Reviewer: CT
2nd Reviewer: JK

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate, Sulfate (EPA Method 300.0), Ferrous Iron (SM3500-Fe B), Nitrate/Nitrite-N (EPA Method 353.2), DOC (EPA SW846 Method 9060A), TOC (EPA SW846 Method 9060A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A SW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	CS
VII.	Duplicate sample analysis	N	
VIII.	Laboratory control samples	A	LCS/D
IX.	Field duplicates	N	
X.	Sample result verification	N	
XI.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH809	AZ90213	Water	04/25/19
2	ERH811	AZ90215	Water	04/25/19
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Notes:

LDC #: 45161A6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: CR
2nd reviewer:

All circled methods are applicable to each sample.

Sample ID	Parameter
1,2	pH TDS (Cl) F (NO3) NO2 (SO4) O-PO4 (Alk) CN NH3 TKN (TOC) Cr6+ ClO4 (NO3/NO2-N) (Fe3+) (DOC)
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4

Comments:

LDC #: 45161A6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: [signature]
2nd Reviewer: [signature]

METHOD: Inorganics, Method See Cover

Conc. units: mg/L **Associated Samples:** All

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No qual (>5x)								
Bicarbonate alkalinity	3.9		19.5									
Total alkalinity	3.9		19.5									
Chloride		0.30										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: June 6, 2019

Parameters: Gasoline Range Organics

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88736

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH808	AZ90212	Water	04/25/19
ERH809	AZ90213	Water	04/25/19
ERH810	AZ90214	Water	04/25/19
ERH811	AZ90215	Water	04/25/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Gasoline Range Organics by Environmental Protection Agency (EPA) SW 846 Method 8260B

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

III. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

Samples ERH808 and ERH810 were identified as trip blanks. No contaminants were found.

VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Compound Quantitation

Raw data were not reviewed for Level C validation.

XI. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Gasoline Range Organics - Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Gasoline Range Organics - Laboratory Blank Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Gasoline Range Organics - Field Blank Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

LDC #: 45161A7
SDG #: 88736
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 6/1/19
Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS Gasoline Range Organics (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	1st ICV ≤ 20
IV.	Continuing calibration	A	CV ≤ 20
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB = 1, 3
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	cs
IX.	Laboratory control samples	A	LCS ID
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH808 TB	AZ90212	Water	04/25/19
2	ERH809	AZ90213	Water	04/25/19
3	ERH810 TB	AZ90214	Water	04/25/19
4	ERH811	AZ90215	Water	04/25/19
5				
6				
7				
8				

Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: June 6, 2019

Parameters: Total Petroleum Hydrocarbons as Extractables

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88736

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH809	AZ90213	Water	04/25/19
ERH811	AZ90215	Water	04/25/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Total Petroleum Hydrocarbons (TPH) as Extractables by Environmental Protection Agency (EPA) SW 846 Method 8015B

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

III. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Compound Quantitation

Raw data were not reviewed for Level C validation.

XI. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

LDC #: 45161A8
SDG #: 88736
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 6/1/19
Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC TPH as Extractables (EPA SW 846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / Δ	
II.	Initial calibration/ICV	A / Δ	%D RSD / ICV ≤ 20
III.	Continuing calibration	A	CCV ≤ 20
IV.	Laboratory Blanks	Δ	
V.	Field blanks	N	
VI.	Surrogate spikes	Δ	
VII.	Matrix spike/Matrix spike duplicates	N	OS
VIII.	Laboratory control samples	A	LCS ID
IX.	Field duplicates	N	
X.	Compound quantitation RL/LOQ/LODs	N	
XI.	Target compound identification	N	
XII.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH809	AZ90213	Water	04/25/19
2	ERH811	AZ90215	Water	04/25/19
3				
4				
5				
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9				
10				
11				
12				

Notes:

-	190502 A1						

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: June 6, 2019

Parameters: Methane

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88736

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH808	AZ90212	Water	04/25/19
ERH809	AZ90213	Water	04/25/19
ERH810	AZ90214	Water	04/25/19
ERH811	AZ90215	Water	04/25/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Methane by Method RSK-175

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

III. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

Samples ERH808 and ERH810 were identified as trip blanks. No contaminants were found.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VIII. Field Duplicates

No field duplicates were identified in this SDG.

IX. Compound Quantitation

Raw data were not reviewed for Level C validation.

X. Target Compound Identification

Raw data were not reviewed for Level C validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Red Hill Bulk Storage Facility, CTO 18F0126
Methane - Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Methane - Laboratory Blank Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Methane - Field Blank Data Qualification Summary - SDG 88736

No Sample Data Qualified in this SDG

LDC #: 45161A51
SDG #: 88736
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 6/11/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC Methane (Method RSK-175)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	Initial calibration/ICV	A / A	1 r ICV ≤ 20
III.	Continuing calibration	A	CCV ≤ 20
IV.	Laboratory Blanks	A	
V.	Field blanks	ND	TB = 1, 3
VI.	Matrix spike/Matrix spike duplicates	N	cs
VII.	Laboratory control samples	A	LCS ID
VIII.	Field duplicates	N	
IX.	Compound quantitation RL/LOQ/LODs	N	
X.	Target compound identification	N	
XI.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH808 TB	AZ90212	Water	04/25/19
2	ERH809	AZ90213	Water	04/25/19
3	ERH810 TB	AZ90214	Water	04/25/19
4	ERH811	AZ90215	Water	04/25/19
5				
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10				
11				
12				

Notes:

	190503A						

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **2320B**													
ERH809	AZ90213	1	ALKALINITY, TOTAL (AS CACO3)	4/25/2019 9:50:00 AM	4/30/2019 11:46:00 AM	C	146	MG_L		2.0	1.70		
ERH809	AZ90213	1	BICARBONATE	4/25/2019 9:50:00 AM	4/30/2019 11:46:00 AM	C	146	MG_L		2.0	1.70		
ERH809	AZ90213	1	CARBONATE (AS CO3)	4/25/2019 9:50:00 AM	4/30/2019 11:46:00 AM	C	1.70	MG_L	U	2.0	1.70	U	
ERH811	AZ90215	1	ALKALINITY, TOTAL (AS CACO3)	4/25/2019 9:50:00 AM	4/30/2019 11:53:00 AM	C	64.2	MG_L		2.0	1.70		
ERH811	AZ90215	1	BICARBONATE	4/25/2019 9:50:00 AM	4/30/2019 11:53:00 AM	C	64.2	MG_L		2.0	1.70		
ERH811	AZ90215	1	CARBONATE (AS CO3)	4/25/2019 9:50:00 AM	4/30/2019 11:53:00 AM	C	1.70	MG_L	U	2.0	1.70	U	
METHOD: **300.0**													
ERH809	AZ90213	50	CHLORIDE (AS CL)	4/25/2019 9:50:00 AM	5/8/2019 9:53:00 AM	C	1200	MG_L	D	50.0	10.00		
ERH809	AZ90213	1	NITROGEN, NITRATE (AS N)	4/25/2019 9:50:00 AM	4/26/2019 3:42:00 PM	C	7.1	MG_L		0.5	0.18		
ERH809	AZ90213	50	SULFATE (AS SO4)	4/25/2019 9:50:00 AM	5/8/2019 9:53:00 AM	C	342	MG_L	D	50.0	10.00		
ERH811	AZ90215	5	CHLORIDE (AS CL)	4/25/2019 9:50:00 AM	5/8/2019 10:00:00 AM	C	85.9	MG_L	D	5.0	1.00		
ERH811	AZ90215	1	NITROGEN, NITRATE (AS N)	4/25/2019 9:50:00 AM	4/26/2019 3:49:00 PM	C	1.0	MG_L		0.5	0.18		
ERH811	AZ90215	1	SULFATE (AS SO4)	4/25/2019 9:50:00 AM	4/26/2019 3:49:00 PM	C	30.1	MG_L		1.0	0.20		
METHOD: **3500-FE-B**													
ERH809	AZ90213	1	Iron, Ion (Fe2+)	4/25/2019 9:50:00 AM	4/30/2019 9:06:00 AM	C	0.32	MG_L	U	1.0	0.32	U	
ERH811	AZ90215	1	Iron, Ion (Fe2+)	4/25/2019 9:50:00 AM	4/30/2019 9:07:00 AM	C	0.88	MG_L	J	1.0	0.32	J	
METHOD: **353.2**													
ERH809	AZ90213	1	NITROGEN, NITRATE-NITRITE	4/25/2019 9:50:00 AM	5/1/2019 6:48:00 PM	C	1.8	MG_L		0.10	0.090		
ERH811	AZ90215	1	NITROGEN, NITRATE-NITRITE	4/25/2019 9:50:00 AM	5/1/2019 6:49:00 PM	C	0.21	MG_L		0.10	0.090		
METHOD: **8015B_E**													
ERH809	AZ90213	1	C10-C24 DIESEL RANGE ORGANICS	4/25/2019 9:50:00 AM	5/6/2019 9:29:00 PM	C	25.00	UG_L	U	40.0	25.00	U	
ERH809	AZ90213	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RANG	4/25/2019 9:50:00 AM	5/6/2019 9:29:00 PM	C	40.00	UG_L	U	40.0	40.00	U	
ERH811	AZ90215	1	C10-C24 DIESEL RANGE ORGANICS	4/25/2019 9:50:00 AM	5/6/2019 10:09:00 PM	C	25.00	UG_L	U	40.0	25.00	U	
ERH811	AZ90215	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RANG	4/25/2019 9:50:00 AM	5/6/2019 10:09:00 PM	C	40.00	UG_L	U	40.0	40.00	U	
METHOD: **8260B**													
ERH808	AZ90212	1	BENZENE	4/25/2019 8:45:00 AM	4/29/2019 1:55:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH808	AZ90212	1	ETHYLBENZENE	4/25/2019 8:45:00 AM	4/29/2019 1:55:00 PM	C	0.50	UG_L	U	1.0	0.50	U	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **8260B**													
ERH808	AZ90212	1	PETROLEUM HYDROCARBONS C6-C10	4/25/2019 8:45:00 AM	4/29/2019 1:54:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH808	AZ90212	1	TOLUENE	4/25/2019 8:45:00 AM	4/29/2019 1:55:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH808	AZ90212	1	Xylenes	4/25/2019 8:45:00 AM	4/29/2019 1:55:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH809	AZ90213	1	BENZENE	4/25/2019 9:50:00 AM	4/29/2019 2:23:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH809	AZ90213	1	ETHYLBENZENE	4/25/2019 9:50:00 AM	4/29/2019 2:23:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH809	AZ90213	1	PETROLEUM HYDROCARBONS C6-C10	4/25/2019 9:50:00 AM	4/29/2019 2:22:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH809	AZ90213	1	TOLUENE	4/25/2019 9:50:00 AM	4/29/2019 2:23:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH809	AZ90213	1	Xylenes	4/25/2019 9:50:00 AM	4/29/2019 2:23:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH810	AZ90214	1	BENZENE	4/25/2019 8:15:00 AM	4/29/2019 2:52:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH810	AZ90214	1	ETHYLBENZENE	4/25/2019 8:15:00 AM	4/29/2019 2:52:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH810	AZ90214	1	PETROLEUM HYDROCARBONS C6-C10	4/25/2019 8:15:00 AM	4/29/2019 2:51:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH810	AZ90214	1	TOLUENE	4/25/2019 8:15:00 AM	4/29/2019 2:52:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH810	AZ90214	1	Xylenes	4/25/2019 8:15:00 AM	4/29/2019 2:52:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH811	AZ90215	1	BENZENE	4/25/2019 9:50:00 AM	4/29/2019 3:21:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH811	AZ90215	1	ETHYLBENZENE	4/25/2019 9:50:00 AM	4/29/2019 3:21:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH811	AZ90215	1	PETROLEUM HYDROCARBONS C6-C10	4/25/2019 9:50:00 AM	4/29/2019 3:20:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH811	AZ90215	1	TOLUENE	4/25/2019 9:50:00 AM	4/29/2019 3:21:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH811	AZ90215	1	Xylenes	4/25/2019 9:50:00 AM	4/29/2019 3:21:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
METHOD: **8270D**													
ERH809	AZ90213	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/25/2019 9:50:00 AM	4/30/2019 10:51:00 PM	C	80.0	UG_L	U	100	80.0	UJ	l
ERH809	AZ90213	1	PHENOL	4/25/2019 9:50:00 AM	5/2/2019 6:39:00 PM	C	4.00	UG_L	U	5.0	4.00	U	
ERH811	AZ90215	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/25/2019 9:50:00 AM	4/30/2019 11:14:00 PM	C	80.0	UG_L	U	100	80.0	UJ	l
ERH811	AZ90215	1	PHENOL	4/25/2019 9:50:00 AM	5/8/2019 1:23:00 PM	C	4.00	UG_L	U	5.0	4.00	UJ	h
ERH811	AZ90215	1	PHENOL	4/25/2019 9:50:00 AM	5/2/2019 7:07:00 PM	C	4.00	UG_L	U	5.0	4.00	R	d
METHOD: **8270DSIM**													
ERH809	AZ90213	1	1-METHYLNAPHTHALENE	4/25/2019 9:50:00 AM	5/2/2019 5:19:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH809	AZ90213	1	2-METHYLNAPHTHALENE	4/25/2019 9:50:00 AM	5/2/2019 5:19:00 PM	C	0.10	UG_L	U	0.2	0.10	U	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **8270DSIM**													
ERH809	AZ90213	1	NAPHTHALENE	4/25/2019 9:50:00 AM	5/2/2019 5:19:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH811	AZ90215	1	1-METHYLNAPHTHALENE	4/25/2019 9:50:00 AM	5/8/2019 12:23:00 PM	C	0.10	UG_L	U	0.2	0.10	R	d
ERH811	AZ90215	1	1-METHYLNAPHTHALENE	4/25/2019 9:50:00 AM	5/2/2019 5:42:00 PM	C	0.10	UG_L	U	0.2	0.10	UJ	s
ERH811	AZ90215	1	2-METHYLNAPHTHALENE	4/25/2019 9:50:00 AM	5/8/2019 12:23:00 PM	C	0.10	UG_L	U	0.2	0.10	R	d
ERH811	AZ90215	1	2-METHYLNAPHTHALENE	4/25/2019 9:50:00 AM	5/2/2019 5:42:00 PM	C	0.10	UG_L	U	0.2	0.10	UJ	s
ERH811	AZ90215	1	NAPHTHALENE	4/25/2019 9:50:00 AM	5/8/2019 12:23:00 PM	C	0.10	UG_L	U	0.2	0.10	R	d
ERH811	AZ90215	1	NAPHTHALENE	4/25/2019 9:50:00 AM	5/2/2019 5:42:00 PM	C	0.10	UG_L	U	0.2	0.10	UJ	s
METHOD: **9060A**													
ERH809	AZ90213	1	DISSOLVED ORGANIC CARBON	4/25/2019 9:50:00 AM	5/1/2019 6:40:00 PM	C	1.3	MG_L		0.93	0.350		
ERH809	AZ90213	1	TOTAL ORGANIC CARBON	4/25/2019 9:50:00 AM	5/3/2019 3:05:00 AM	C	2.1	MG_L		0.93	0.350		
ERH811	AZ90215	1	DISSOLVED ORGANIC CARBON	4/25/2019 9:50:00 AM	5/3/2019 12:39:00 PM	C	0.47	MG_L	J	0.93	0.350	J	
ERH811	AZ90215	1	TOTAL ORGANIC CARBON	4/25/2019 9:50:00 AM	5/1/2019 4:34:00 PM	C	0.28	MG_L	J	0.93	0.350	J	
METHOD: **RSK175**													
ERH808	AZ90212	1	METHANE	4/25/2019 8:45:00 AM	5/3/2019 11:20:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH809	AZ90213	1	METHANE	4/25/2019 9:50:00 AM	5/3/2019 11:22:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH810	AZ90214	1	METHANE	4/25/2019 8:15:00 AM	5/3/2019 11:24:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH811	AZ90215	1	METHANE	4/25/2019 9:50:00 AM	5/3/2019 11:27:00 AM	C	1.00	UG_L	U	5.0	1.00	U	

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

AECOM
1001 Bishop Street Suite 1600
Honolulu, HI 96813
ATTN: Ms. Margie Pascua
Margie.Pascua@aecom.com

June 14, 2019

SUBJECT: Red Hill Bulk Storage Facility, CTO 18F0126, Data Validation

Dear Ms. Pascua,

Enclosed are the final validation reports for the fractions listed below. This SDG was received on May 31, 2019. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #45179:

SDG #	Fraction
88764	Volatiles, Phenol, Polynuclear Aromatic Hydrocarbons, 2-(2-Methoxyethoxy)-ethanol, Wet Chemistry, Gasoline Range Organics, Total Petroleum Hydrocarbons as Extractables, Methane

The data validation was performed under Level C validation guidelines. The analyses were validated using the following documents and variances, as applicable to each method:

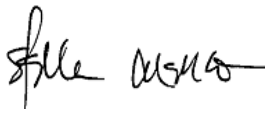
- Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 02; January 2017
- Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 01, April 2017
- Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 00, September 2017
- Sampling and Analysis Plan, Addendum 03 Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, Revision 00; June 2018
- Project Procedures Manual, U.S. Naval Facilities Engineering Command Environmental Restoration Program, NAVFAC Pacific, DON 2015
- U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.1, 2017

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIB, November 2004; update IV, February 2007; update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,



Stella Cuenco
scuenco@lab-data.com
Operations Manager/Senior Chemist

585 pages-EM_RV1 removed TICs

Attachment 1

EDD 90/10 C/D

LDC #45179 (AECOM-Honolulu, HI / Red Hill Bulk Storage Facility, CTO 18F0126)

LDC	SDG#	DATE REC'D	(2) DATE DUE	BTEX (8260B)		Phenol (8270D)		(3)PAHs (8270D -SIM)		2,2-MEE (8270D-M)		GRO (8260B)		TPH-E (8015B)		Methane (175)		Alk. (2320B)		Cl,SO_4 NO_3-N (300.0)		NO_3/ NO_2-N (353.2)		Fe II (3500-Fe B)		DOC (9060A)		TOC (9060A)					
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	88764	05/31/19	06/14/19	5	0	3	0	3	0	3	0	5	0	3	0	2	0	1	0	1	0	1	0	1	0	1	0	1	0				
Total	J/SC			5	0	3	0	3	0	3	0	5	0	3	0	2	0	1	0	1	0	1	0	1	0	1	0	1	0	0	0	0	30

Shaded cells indicate Level D validation (all other cells are Level C validation). These sample counts do not include MS/MSD, and DUPs

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Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: June 11, 2019

Parameters: Volatiles

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88764

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH812	AZ90446	Water	04/29/19
ERH813	AZ90447	Water	04/29/19
ERH814	AZ90448	Water	04/29/19
ERH815	AZ90449	Water	04/29/19
ERH816	AZ90450	Water	04/29/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) which are Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) by Environmental Protection Agency (EPA) SW 846 Method 8260B

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Samples ERH812 and ERH815 were identified as trip blanks. No contaminants were found.

Sample ERH813 was identified as an equipment blank. No contaminants were found.

Sample ERH814 was identified as a field blank. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XIV. System Performance

Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Red Hill Bulk Storage Facility, CTO 18F0126
Volatiles - Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Volatiles - Laboratory Blank Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Volatiles - Field Blank Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

LDC #: 45179A1a
SDG #: 88764
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 6/8/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (BTEX)(EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	%RSD ≤ 15 ICV ≤ 20
IV.	Continuing calibration / ending	A	CCV ≤ 20 / 50
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB = 1, 4 EB = 2 FB = 3
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	cs
IX.	Laboratory control samples	A	LCS/D
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH812 TB	AZ90446	Water	04/29/19
2	ERH813 EB	AZ90447	Water	04/29/19
3	ERH814 FB	AZ90448	Water	04/29/19
4	ERH815 TB	AZ90449	Water	04/29/19
5	ERH816	AZ90450	Water	04/29/19
6				
7				
8				

Notes:

	190507AL						

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: June 11, 2019

Parameters: Phenol

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88764

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH813	AZ90447	Water	04/29/19
ERH814	AZ90448	Water	04/29/19
ERH816	AZ90450	Water	04/29/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Phenol by Environmental Protection Agency (EPA) SW 846 Method 8270D

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0%.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample ERH813 was identified as an equipment blank. No contaminants were found.

Sample ERH814 was identified as a field blank. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XIV. System Performance

Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Red Hill Bulk Storage Facility, CTO 18F0126
Phenol - Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Phenol - Laboratory Blank Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Phenol - Field Blank Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

LDC #: 45179A2a
SDG #: 88764
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 6/8/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Phenol ~~& PCBs~~ (EPA SW 846 Method 8270D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A /Δ	
II.	GC/MS Instrument performance check	Δ	
III.	Initial calibration/ICV	A /Δ	%D RSD ≤ 15 ICV ≤ 20
IV.	Continuing calibration (ending)	Δ	CCV ≤ 20/50
V.	Laboratory Blanks	Δ	
VI.	Field blanks	ND	EB = 1 FB = 2
VII.	Surrogate spikes	Δ	
VIII.	Matrix spike/Matrix spike duplicates	N	MS
IX.	Laboratory control samples	A	LCS/D
X.	Field duplicates	N	
XI.	Internal standards	Δ	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	Δ	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH813 EB	AZ90447	Water	04/29/19
2	ERH814 FB	AZ90448	Water	04/29/19
3	ERH816	AZ90450	Water	04/29/19
4				
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Notes:

	190506A						

LDC Report# 45179A2b

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: June 11, 2019

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88764

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH813	AZ90447	Water	04/29/19
ERH814	AZ90448	Water	04/29/19
ERH816	AZ90450	Water	04/29/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polynuclear Aromatic Hydrocarbons (PAHs) which are 1-Methylnaphthalene, 2-Methylnaphthalene, and Naphthalene by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample ERH813 was identified as an equipment blank. No contaminants were found.

Sample ERH814 was identified as a field blank. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XIV. System Performance

Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Red Hill Bulk Storage Facility, CTO 18F0126
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

LDC #: 45179A2b
SDG #: 88764
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 6/8/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A A	%RSD ≤15 ICV ≤20
IV.	Continuing calibration pending	A	CCV ≤ 20/50
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	EB = 1 FB = 2
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	CS
IX.	Laboratory control samples	A	LCS ID
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH813 EB	AZ90447	Water	04/29/19
2	ERH814 FB	AZ90448	Water	04/29/19
3	ERH816	AZ90450	Water	04/29/19
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Notes:

	190506A						

LDC Report# 45179A2c

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: June 11, 2019

Parameters: 2-(2-Methoxyethoxy)-ethanol

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88764

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH813	AZ90447	Water	04/29/19
ERH814	AZ90448	Water	04/29/19
ERH816	AZ90450	Water	04/29/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

2-(2-Methoxyethoxy)-ethanol by Environmental Protection Agency (EPA) SW 846 Method 8270D Modified

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample ERH813 was identified as an equipment blank. No contaminants were found.

Sample ERH814 was identified as a field blank. No contaminants were found.

VII. Surrogates

Surrogates were not added to all samples as required by the method. Using professional judgment, no data were qualified, since the LCS/LCSD percent recoveries were within QC limits. Additionally, all base surrogate percent recoveries were within QC limits in the phenol analysis.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XIV. System Performance

Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method with the exception noted in Section VII. No results were rejected in this SDG.

Red Hill Bulk Storage Facility, CTO 18F0126
2-(2-Methoxyethoxy)-ethanol - Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
2-(2-Methoxyethoxy)-ethanol - Laboratory Blank Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
2-(2-Methoxyethoxy)-ethanol - Field Blank Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

LDC #: 45179A2c
SDG #: 88764
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: ~~6/8/19~~ 6/8/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS 2-(2-Methoxyethoxy)-Ethanol (EPA SW 846 Method 8270D-Modified)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	r^2 ICV ≤ 20
IV.	Continuing calibration / closing CCV	A	CCV ≤ 20/50
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	EB = 1 FB = 2
VII.	Surrogate spikes	SW	
VIII.	Matrix spike/Matrix spike duplicates	N	CS
IX.	Laboratory control samples	A	LCS/D
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID		Lab ID	Matrix	Date
1	ERH813	EB	AZ90447	Water	04/29/19
2	ERH814	FB	AZ90448	Water	04/29/19
3	ERH816		AZ90450	Water	04/29/19
4					
5					
6					
7					
8					

Notes:

	190506A						

LDC #: 45179 A2C

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Reviewer: FT
2nd Reviewer: AC

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
Please see qualification below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were percent recoveries (%R) for surrogates within QC limits?
Y N N/A If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?
Y N N/A If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Sample ID	Surrogate	%R (Limits)	Qualifications
	all	Surrogates were not added to all samples as required by the method. Using professional judgment, no data were qualified, since the LCS/LCSD percent recoveries were within QC limits. Additionally, all base surrogate percent recoveries were within QC limits in the phenol analysis.		Text
			( )	
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(NBZ) = Nitrobenzene - d5
(FBP) = 2-Fluorobiphenyl
(TPH) = Terphenyl - d14
(2FP) = 2-Fluorophenol
(TBP) = 2,4,6 -Tribromophenol
(2CP) = 2-Chlorophenol - d4

LDC Report# 45179A6

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: June 12, 2019

Parameters: Wet Chemistry

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88764

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH816	AZ90450	Water	04/29/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Alkalinity by Standard Method 2320B
Chloride, Nitrate, and Sulfate by Environmental Protection Agency (EPA) Method 300.0
Ferrous Iron by Standard Method 3500-Fe B
Nitrate/Nitrite as Nitrogen by EPA Method 353.2
Dissolved Organic Carbon and Total Organic Carbon by EPA SW 846 Method 9060A

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S The sequence or number of standards used for the calibration was incorrect.

C Correlation coefficient is <0.995.

R %R for calibration is not within control limits.

B Presumed contamination from preparation (method) blank or calibration blank.

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD or difference was high.

I ICP ICS results were unsatisfactory.

A ICP Serial Dilution %D were not within control limits.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Post Digestion Spike recovery was not within control limits.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
ERH816	Nitrate	58 hours	48 hours	J (all detects)	P

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Limit of Quantitation	Associated Samples
PB (prep blank)	Total alkalinity Bicarbonate Alkalinity Chloride	4.6 mg/L 4.6 mg/L 0.30 mg/L	2.0 mg/L 2.0 mg/L 1.0 mg/L	All samples in SDG 88764

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Sample Result Verification

Raw data were not reviewed for Level C validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods.

Due to technical holding time, data were qualified as estimated in one sample.

No results were rejected in this SDG.

Red Hill Bulk Storage Facility, CTO 18F0126
Wet Chemistry- Data Qualification Summary - SDG 88764

Sample	Analyte	Flag	A or P	Reason (Code)
ERH816	Nitrate	J (all detects)	P	Technical holding times (H)

Red Hill Bulk Storage Facility, CTO 18F0126
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Wet Chemistry - Field Blank Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

LDC #: 45179A6
SDG #: 88764
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 6/11/19
Page: 1 of 1
Reviewer: C
2nd Reviewer: A

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate, Sulfate (EPA Method 300.0), Ferrous Iron (SM3500-Fe B), Nitrate/Nitrite-N (EPA Method 353.2), DOC (EPA SW846 Method 9060A), TOC (EPA SW846 Method 9060A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/SW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicate sample analysis	N	
VIII.	Laboratory control samples	A	LCS/D
IX.	Field duplicates	N	
X.	Sample result verification	N	
XI.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH816	AZ90450	Water	04/29/19
2				
3				
4				
5				
6				
7				
8				
9				
10				

Notes:

LDC #: 45979A6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: CR
2nd reviewer: [illegible]

All circled methods are applicable to each sample.

Sample ID	Parameter
1	pH TDS (Cl) F (NO3) NO2 (SO4) O-PO4 (Alk) CN NH3 TKN (TOC) Cr6+ ClO4 (NO3/NO2-N) (Fe3+) (DOC)
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4

Comments:

LDC #: 45174A6

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: A
2nd reviewer: M

All circled dates have exceeded the technical holding time.
(Y) N N/A Were all samples preserved as applicable to each method ? (H)
(Y) N N/A Were all cooler temperatures within validation criteria?

Method:	300.0				SM3500FeB		
Parameters:	NO3				Ferrous Iron		
Technical holding time:	48hrs				48hrs		
Sample ID	Sampling date	Analysis date	Total Time	Qualifier	Analysis date	Total Time	Qualifier
1	4/29/19 09:00	5/1/19 19:50	58 hrs	J/UJ/P (Det)	5/3/19 15:49	102 hrs	J/UJ/P (Det)

LDC #: 45179A6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: G
2nd Reviewer: AC

METHOD: Inorganics, Method See Cover

Conc. units: mg/L **Associated Samples:** All

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No qual								
Total Alkalinity	4.6		46									
Bicarbonate Alkalinity	4.6		46									
Cl	0.30											

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: June 11, 2019

Parameters: Gasoline Range Organics

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88764

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH812	AZ90446	Water	04/29/19
ERH813	AZ90447	Water	04/29/19
ERH814	AZ90448	Water	04/29/19
ERH815	AZ90449	Water	04/29/19
ERH816	AZ90450	Water	04/29/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Gasoline Range Organics by Environmental Protection Agency (EPA) SW 846 Method 8260B

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

III. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

Samples ERH812 and ERH815 were identified as trip blanks. No contaminants were found.

Sample ERH813 was identified as an equipment blank. No contaminants were found.

Sample ERH814 was identified as a field blank. No contaminants were found.

VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Compound Quantitation

Raw data were not reviewed for Level C validation.

XI. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

LDC #: 45179A7
SDG #: 88764
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 6/18/19
Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS Gasoline Range Organics (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/Δ	
II.	GC/MS Instrument performance check	Δ	
III.	Initial calibration/ICV	A/Δ	RF ICV ≤20
IV.	Continuing calibration	Δ	CCV ≤20
V.	Laboratory Blanks	Δ	
VI.	Field blanks	ND	TB=1, 4 EB=2 FB=3
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	CS
IX.	Laboratory control samples	A	LCS/D
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	Δ	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH812 TB	AZ90446	Water	04/29/19
2	ERH813 EB	AZ90447	Water	04/29/19
3	ERH814 FB	AZ90448	Water	04/29/19
4	ERH815 TB	AZ90449	Water	04/29/19
5	ERH816	AZ90450	Water	04/29/19
6				
7				
8				

Notes:

190507AL

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: June 11, 2019

Parameters: Total Petroleum Hydrocarbons as Extractables

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88764

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH813	AZ90447	Water	04/29/19
ERH814	AZ90448	Water	04/29/19
ERH816	AZ90450	Water	04/29/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Total Petroleum Hydrocarbons (TPH) as Extractables by Environmental Protection Agency (EPA) SW 846 Method 8015B

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

III. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

Sample ERH813 was identified as an equipment blank. No contaminants were found.

Sample ERH814 was identified as a field blank. No contaminants were found.

VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

Relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
190502A-LCS/D (All samples in SDG 88764)	Diesel (C10-C24)	35.7 (≤30)	UJ (all non-detects)	P

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Compound Quantitation

Raw data were not reviewed for Level C validation.

XI. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to LCS/LCSD RPD, data were qualified as estimated in three samples.

Red Hill Bulk Storage Facility, CTO 18F0126
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG 88764

Sample	Compound	Flag	A or P	Reason (Code)
ERH813 ERH814 ERH816	Diesel (C10-C24)	UJ (all non-detects)	P	Laboratory control samples (%R) (L)

Red Hill Bulk Storage Facility, CTO 18F0126
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

LDC #: 45179A8
SDG #: 88764
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 6/8/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC TPH as Extractables (EPA SW 846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	Initial calibration/ICV	A/A	%D RSP/ICV ≤ 20
III.	Continuing calibration	A	CCV ≤ 20
IV.	Laboratory Blanks	A	
V.	Field blanks	ND	EB = 1 FB = 2
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	cs
VIII.	Laboratory control samples	SW	LCS/D
IX.	Field duplicates	N	
X.	Compound quantitation RL/LOQ/LODs	N	
XI.	Target compound identification	N	
XII.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH813 EB	AZ90447	Water	04/29/19
2	ERH814 FB	AZ90448	Water	04/29/19
3	ERH816	AZ90450	Water	04/29/19
4				
5				
6				
7				
8				
9				
10				
11				
12				

Notes:

	190502A - LCS						

LDC #: 45179A8

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: FT
2nd Reviewer:

METHOD: ✓ GC __ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a laboratory control samples (LCS) and laboratory control sample duplicate (LCSD) analyzed for each matrix in this SDG?

Y N N/A Were the LCS percent recoveries (%R) and relative percent differences (RPD) within the QC limits?

Level IV/D Only

Y N N/A Was an LCS analyzed every 20 samples for each matrix or whenever a sample extraction was performed? (L)

#	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	190502A-LCS1D	Diesel (C10-C24)	( )	( )	35.7 (30)	All	J/UJ/P ND
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

LDC Report# 45179A51

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: June 11, 2019

Parameters: Methane

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 88764

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH815	AZ90449	Water	04/29/19
ERH816	AZ90450	Water	04/29/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Methane by Method RSK-175

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

III. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

Sample ERH815 was identified as a trip blank. No contaminants were found.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VIII. Field Duplicates

No field duplicates were identified in this SDG.

IX. Compound Quantitation

Raw data were not reviewed for Level C validation.

X. Target Compound Identification

Raw data were not reviewed for Level C validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Red Hill Bulk Storage Facility, CTO 18F0126
Methane - Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Methane - Laboratory Blank Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Methane - Field Blank Data Qualification Summary - SDG 88764

No Sample Data Qualified in this SDG

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **2320B**													
ERH816	AZ90450	1	ALKALINITY, TOTAL (AS CACO3)	4/29/2019 9:00:00 AM	5/6/2019 8:53:00 PM	C	114	MG_L		2.0	1.70		
ERH816	AZ90450	1	BICARBONATE	4/29/2019 9:00:00 AM	5/6/2019 8:53:00 PM	C	114	MG_L		2.0	1.70		
ERH816	AZ90450	1	CARBONATE (AS CO3)	4/29/2019 9:00:00 AM	5/6/2019 8:53:00 PM	C	1.70	MG_L	U	2.0	1.70	U	
METHOD: **300.0**													
ERH816	AZ90450	5	CHLORIDE (AS CL)	4/29/2019 9:00:00 AM	5/8/2019 10:23:00 AM	C	48.7	MG_L	D	5.0	1.00		
ERH816	AZ90450	1	NITROGEN, NITRATE (AS N)	4/29/2019 9:00:00 AM	5/1/2019 7:50:00 PM	C	0.18	MG_L	U	0.5	0.18	UJ	h
ERH816	AZ90450	1	SULFATE (AS SO4)	4/29/2019 9:00:00 AM	5/1/2019 7:50:00 PM	C	11.5	MG_L		1.0	0.20		
METHOD: **3500-FE-B**													
ERH816	AZ90450	1	Iron, Ion (Fe2+)	4/29/2019 9:00:00 AM	5/3/2019 3:49:00 PM	C	0.25	MG_L	J	1.0	0.32	J	
METHOD: **353.2**													
ERH816	AZ90450	1	NITROGEN, NITRATE-NITRITE	4/29/2019 9:00:00 AM	5/1/2019 6:50:00 PM	C	0.090	MG_L	U	0.10	0.090	U	
METHOD: **8015B_E**													
ERH813	AZ90447	1	C10-C24 DIESEL RANGE ORGANICS	4/29/2019 8:10:00 AM	5/6/2019 10:29:00 PM	C	25.00	UG_L	U	40.0	25.00	UJ	l
ERH813	AZ90447	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RAN	4/29/2019 8:10:00 AM	5/6/2019 10:29:00 PM	C	40.00	UG_L	U	40.0	40.00	U	
ERH814	AZ90448	1	C10-C24 DIESEL RANGE ORGANICS	4/29/2019 7:45:00 AM	5/6/2019 10:48:00 PM	C	25.00	UG_L	U	40.0	25.00	UJ	l
ERH814	AZ90448	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RAN	4/29/2019 7:45:00 AM	5/6/2019 10:48:00 PM	C	40.00	UG_L	U	40.0	40.00	U	
ERH816	AZ90450	1	C10-C24 DIESEL RANGE ORGANICS	4/29/2019 9:00:00 AM	5/6/2019 11:08:00 PM	C	25.00	UG_L	U	40.0	25.00	UJ	l
ERH816	AZ90450	1	C24-C40 TOTAL PETROLEUM HYDROCARBONS, OIL RAN	4/29/2019 9:00:00 AM	5/6/2019 11:08:00 PM	C	40.00	UG_L	U	40.0	40.00	U	
METHOD: **8260B**													
ERH812	AZ90446	1	BENZENE	4/29/2019 7:40:00 AM	5/7/2019 10:36:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH812	AZ90446	1	ETHYLBENZENE	4/29/2019 7:40:00 AM	5/7/2019 10:36:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH812	AZ90446	1	PETROLEUM HYDROCARBONS C6-C10	4/29/2019 7:40:00 AM	5/7/2019 10:35:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH812	AZ90446	1	TOLUENE	4/29/2019 7:40:00 AM	5/7/2019 10:36:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH812	AZ90446	1	Xylenes	4/29/2019 7:40:00 AM	5/7/2019 10:36:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH813	AZ90447	1	BENZENE	4/29/2019 8:10:00 AM	5/7/2019 11:05:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH813	AZ90447	1	ETHYLBENZENE	4/29/2019 8:10:00 AM	5/7/2019 11:05:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH813	AZ90447	1	PETROLEUM HYDROCARBONS C6-C10	4/29/2019 8:10:00 AM	5/7/2019 11:04:00 PM	C	18.0	UG_L	U	20	18.0	U	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **8260B**													
ERH813	AZ90447	1	TOLUENE	4/29/2019 8:10:00 AM	5/7/2019 11:05:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH813	AZ90447	1	Xylenes	4/29/2019 8:10:00 AM	5/7/2019 11:05:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH814	AZ90448	1	BENZENE	4/29/2019 7:45:00 AM	5/7/2019 11:33:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH814	AZ90448	1	ETHYLBENZENE	4/29/2019 7:45:00 AM	5/7/2019 11:33:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH814	AZ90448	1	PETROLEUM HYDROCARBONS C6-C10	4/29/2019 7:45:00 AM	5/7/2019 11:32:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH814	AZ90448	1	TOLUENE	4/29/2019 7:45:00 AM	5/7/2019 11:33:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH814	AZ90448	1	Xylenes	4/29/2019 7:45:00 AM	5/7/2019 11:33:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH815	AZ90449	1	BENZENE	4/29/2019 8:30:00 AM	5/7/2019 10:07:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH815	AZ90449	1	ETHYLBENZENE	4/29/2019 8:30:00 AM	5/7/2019 10:07:00 PM	C	0.50	UG_L	U	1.0	0.50	U	
ERH815	AZ90449	1	PETROLEUM HYDROCARBONS C6-C10	4/29/2019 8:30:00 AM	5/7/2019 10:06:00 PM	C	18.0	UG_L	U	20	18.0	U	
ERH815	AZ90449	1	TOLUENE	4/29/2019 8:30:00 AM	5/7/2019 10:07:00 PM	C	0.30	UG_L	U	1.0	0.30	U	
ERH815	AZ90449	1	Xylenes	4/29/2019 8:30:00 AM	5/7/2019 10:07:00 PM	C	0.30	UG_L	U	2.0	0.30	U	
ERH816	AZ90450	1	BENZENE	4/29/2019 9:00:00 AM	5/8/2019 12:02:00 AM	C	0.30	UG_L	U	1.0	0.30	U	
ERH816	AZ90450	1	ETHYLBENZENE	4/29/2019 9:00:00 AM	5/8/2019 12:02:00 AM	C	0.50	UG_L	U	1.0	0.50	U	
ERH816	AZ90450	1	PETROLEUM HYDROCARBONS C6-C10	4/29/2019 9:00:00 AM	5/8/2019 12:01:00 AM	C	18.0	UG_L	U	20	18.0	U	
ERH816	AZ90450	1	TOLUENE	4/29/2019 9:00:00 AM	5/8/2019 12:02:00 AM	C	0.30	UG_L	U	1.0	0.30	U	
ERH816	AZ90450	1	Xylenes	4/29/2019 9:00:00 AM	5/8/2019 12:02:00 AM	C	0.30	UG_L	U	2.0	0.30	U	
METHOD: **8270D**													
ERH813	AZ90447	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/29/2019 8:10:00 AM	5/6/2019 4:09:00 PM	C	80.0	UG_L	U	100	80.0	U	
ERH813	AZ90447	1	PHENOL	4/29/2019 8:10:00 AM	5/8/2019 11:59:00 AM	C	4.00	UG_L	U	5.0	4.00	U	
ERH814	AZ90448	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/29/2019 7:45:00 AM	5/6/2019 4:33:00 PM	C	80.0	UG_L	U	100	80.0	U	
ERH814	AZ90448	1	PHENOL	4/29/2019 7:45:00 AM	5/8/2019 12:27:00 PM	C	4.00	UG_L	U	5.0	4.00	U	
ERH816	AZ90450	1	2-(2-METHOXY ETHOXY)-ETHANOL	4/29/2019 9:00:00 AM	5/6/2019 4:57:00 PM	C	80.0	UG_L	U	100	80.0	U	
ERH816	AZ90450	1	PHENOL	4/29/2019 9:00:00 AM	5/8/2019 12:55:00 PM	C	4.00	UG_L	U	5.0	4.00	U	
METHOD: **8270DSIM**													
ERH813	AZ90447	1	1-METHYLNAPHTHALENE	4/29/2019 8:10:00 AM	5/8/2019 11:16:00 AM	C	0.10	UG_L	U	0.2	0.10	U	
ERH813	AZ90447	1	2-METHYLNAPHTHALENE	4/29/2019 8:10:00 AM	5/8/2019 11:16:00 AM	C	0.10	UG_L	U	0.2	0.10	U	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **8270DSIM**													
ERH813	AZ90447	1	NAPHTHALENE	4/29/2019 8:10:00 AM	5/8/2019 11:16:00 AM	C	0.10	UG_L	U	0.2	0.10	U	
ERH814	AZ90448	1	1-METHYLNAPHTHALENE	4/29/2019 7:45:00 AM	5/8/2019 11:38:00 AM	C	0.10	UG_L	U	0.2	0.10	U	
ERH814	AZ90448	1	2-METHYLNAPHTHALENE	4/29/2019 7:45:00 AM	5/8/2019 11:38:00 AM	C	0.10	UG_L	U	0.2	0.10	U	
ERH814	AZ90448	1	NAPHTHALENE	4/29/2019 7:45:00 AM	5/8/2019 11:38:00 AM	C	0.10	UG_L	U	0.2	0.10	U	
ERH816	AZ90450	1	1-METHYLNAPHTHALENE	4/29/2019 9:00:00 AM	5/8/2019 12:00:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH816	AZ90450	1	2-METHYLNAPHTHALENE	4/29/2019 9:00:00 AM	5/8/2019 12:00:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
ERH816	AZ90450	1	NAPHTHALENE	4/29/2019 9:00:00 AM	5/8/2019 12:00:00 PM	C	0.10	UG_L	U	0.2	0.10	U	
METHOD: **9060A**													
ERH816	AZ90450	1	DISSOLVED ORGANIC CARBON	4/29/2019 9:00:00 AM	5/7/2019 10:29:00 PM	C	0.43	MG_L	J	0.93	0.350	J	
ERH816	AZ90450	1	TOTAL ORGANIC CARBON	4/29/2019 9:00:00 AM	5/7/2019 8:21:00 PM	C	0.38	MG_L	J	0.93	0.350	J	
METHOD: **RSK175**													
ERH815	AZ90449	1	METHANE	4/29/2019 8:30:00 AM	5/3/2019 11:29:00 AM	C	1.00	UG_L	U	5.0	1.00	U	
ERH816	AZ90450	1	METHANE	4/29/2019 9:00:00 AM	5/3/2019 11:31:00 AM	C	1.00	UG_L	U	5.0	1.00	U	

LDC #: 45179A51
SDG #: 88764
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 6/8/19
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC Methane (Method RSK-175)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	Initial calibration/ICV	A/A	r² ICV ≤ 20
III.	Continuing calibration	A	CCV ≤ 20
IV.	Laboratory Blanks	A	
V.	Field blanks	ND	TB = 1
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS ID
VIII.	Field duplicates	N	
IX.	Compound quantitation RL/LOQ/LODs	N	
X.	Target compound identification	N	
XI.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH815 TB	AZ90449	Water	04/29/19
2	ERH816	AZ90450	Water	04/29/19
3				
4				
5				
6				
7				
8				
9				
10				

Notes:

	190503A						

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

AECOM
1001 Bishop Street Suite 1600
Honolulu, HI 96813
ATTN: Ms. Margie Pascua
Margie.Pascua@aecom.com

July 10, 2019

SUBJECT: **Data Quality Assessment Report**
April 2019
Environmental Investigation and
Groundwater Monitoring
Red Hill Bulk Fuel Storage Facility
Joint Base Pearl Harbor-Hickam
Oahu, Hawaii
CTO 18F0126

Enclosed is the Data Quality Assessment Report, April 2019, Environmental Investigation and Groundwater Monitoring for Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, Oahu, Hawaii, CTO 18F0126.

We appreciate this opportunity to support AECOM in the performance of this project.

Please feel free to contact us if you have any questions.

Sincerely,

Stella Cuenco
scuenco@lab-data.com
Operations Manager/Senior Chemist

DATA QUALITY ASSESSMENT REPORT

APRIL 2019
ENVIRONMETAL INVESTIGATION AND GROUNDWATER MONITORING

RED HILL BULK FUEL STORAGE FACILITY
JOINT BASE PEARL HARBOR-HICKAM
OAHU, HAWAII
CTO 18F0126

July 9, 2019

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GLOSSARY

BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CTO	Contract Task Order
DQAR	Data Quality Assessment Report
DOC	Dissolved Organic Carbon
DOD	Department of Defense
DL	Detection Limit
DUP	Laboratory Duplicate
EB	Equipment Blank
FB	Field Blank
FD	Field Duplicate
GRO	Gasoline Range Organics
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate
LDC	Laboratory Data Consultants, Inc
LOD	Limit of Detection
LOQ	Limit of Quantitation
MEE	2-(2-Methoxyethoxy)-ethanol
MS/MSD	Matrix Spike / Matrix Spike Duplicate
NAVFAC	Naval Facilities Engineering Command
PAH	Polynuclear Aromatic Hydrocarbons
PARCCS	Precision, Accuracy, Representativeness, Comparability, Completeness, Sensitivity
PQO	Project Quality Objectives
PT	Proficiency Testing sample
QA/QC	Quality Assurance/Quality Control
QSM	Quality Systems Manual
RPD	Relative Percent Difference
RRF	Relative Response Factor
SDG	Sample Delivery Group
SGCU	Silica Gel Clean Up
SIM	Selected Ion Monitoring
TB	Trip Blank
TOC	Total Organic Carbon
TPHE	Total Petroleum Hydrocarbons as Extractables
VOC	Volatile Organic Compounds
%D	Percent Difference
%R	Percent Recovery
%RSD	Percent Relative Standard Deviation
mg/L	Milligrams per Liter
ug/L	Micrograms per Liter

1.0 INTRODUCTION

An environmental investigation and groundwater monitoring were conducted on April 2019 at the Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam in Oahu, Hawaii. This part of the investigation included the collection and analyses of 39 environmental and quality control (QC) samples. The analyses were performed by the following methods:

Benzene, Toluene, Ethylbenzene, Xylenes, total (BTEX) by Environmental Protection Agency (EPA) SW-846 Method 8260B
Phenol by EPA SW-846 Method 8270D
Polynuclear Aromatic Hydrocarbons (PAH) by EPA SW-846 Method 8270D-Selected Ion Monitoring (SIM) mode
2-(2-Methoxyethoxy)-ethanol by (MEE) EPA SW-846 Method 8270D Modified
Gasoline Range Organics (GRO) by EPA SW-846 Method 8260B
Total Petroleum Hydrocarbons as Extractables (TPHE) by EPA SW-846 Method 8015B
Methane by Method RSK-175

Wet Chemistry:
Alkalinity by Standard Method 2320B
Chloride, Nitrate as Nitrogen, and Sulfate (Anions) by EPA Method 300.0
Ferrous Iron by Standard Method 3500-Fe B
Nitrate/Nitrite as Nitrogen by EPA Method 353.2
Dissolved Organic Carbon (DOC) and Total Organic Carbon (TOC) by EPA SW-846 Method 9060A

Analytical services for the water samples were provided by APPL, Inc. The samples were grouped into sample delivery groups (SDGs) as received by the laboratory. The environmental samples are associated with quality assurance (QA) and QC samples designed to document the data quality of the entire SDG or a sub-group of samples within a SDG. Table I is a cross-reference table listing each sample, analysis, SDG, collection date, laboratory sample number, matrix, and validation level.

Approximately ten percent of the analytical data were validated according to Naval Facilities Engineering Command (NAVFAC) Pacific Level D data validation procedures and ninety percent of the analytical data were validated according to NAVFAC Pacific Level C data validation procedures. The analytical data were evaluated for QA/QC based on the *NAVFAC Pacific Environmental Restoration (ER) Program Data Validation Procedures (DON 2015)* and the *Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (DoD 2017).*

This data quality assessment report (DQAR) summarizes the QA/QC evaluation of the data according to precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS) relative to the project quality objectives (PQOs). This report provides a quantitative and qualitative assessment of the data and identifies potential sources of error, uncertainty, and bias that may affect the overall usability.

The DQAR evaluates and summarizes the results of QA/QC data validation for the entire sampling program. Each analytical fraction has a separate section for each of the PARCCS criteria. These sections interpret specific QC deviations and their effects on both individual data points and the analyses as a whole. Section 11 presents a summary of the PARCCS criteria by comparing quantitative parameters with acceptability criteria defined in the PQOs. Qualitative PARCCS criteria are also summarized in this section.

Precision and Accuracy of Environmental Data

Environmental data quality depends on sample collection procedures, analytical methods and instrumentation, documentation, and sample matrix properties. Both sampling procedures and laboratory analyses contain potential sources of uncertainty, error, and/or bias, which affect the overall quality of a measurement. Errors in sample data may result from incomplete equipment decontamination, inappropriate sampling techniques, sample heterogeneity, improper filtering, and improper preservation. The accuracy of analytical results is dependent on selecting appropriate analytical methods, maintaining equipment properly, and complying with QC requirements. The sample matrix also is an important factor in the ability to obtain precise and accurate results within a given media.

Environmental and laboratory QA/QC samples assess the effects of sampling procedures and evaluate laboratory contamination, laboratory performance, and matrix effects. QA/QC samples include: method blanks, calibration blanks, laboratory control samples/laboratory control sample duplicates (LCS/LCSD), matrix spike sample/matrix spike sample duplicate (MS/MSD), field duplicate samples (FD), trip blanks (TB), equipment blank (EB), field blank (FB), and proficiency testing (PT) samples.

Before conducting the PARCCS evaluation, the analytical data were validated according to the NAVFAC procedures and DoD QSM. Samples not meeting the NAVFAC procedures and DoD QSM acceptance criteria were qualified with a flag, an abbreviation indicating a deficiency with the data. The following are flags used in data validation.

J Estimated The associated numerical value is an estimated quantity. The analyte was detected but the reported value may not be accurate or precise. The "J" qualification indicates the data fell outside the QC limits, but the exceedance was not sufficient to cause rejection of the data.

R Rejected The data is unusable (the compound or analyte may or may not be present). Use of the "R" qualifier indicates a significant variance from functional guideline acceptance criteria. Either resampling or reanalysis is necessary to determine the presence or absence of the rejected analyte.

U Nondetected Analyses were performed for the compound or analyte, but it was not detected. The "U" designation is also applied to suspected blank contamination. The "U" flag is used to qualify any result detected in an environmental sample at a concentration less than 10 times the value of the concentration in any associated blank for common laboratory contaminants and less than 5 times the concentration in any associated blank for all other contaminants.

UJ Estimated/Nondetected Analyses were performed for the compound or analyte, but it was not detected and the limit of detection (LOD) is an estimated quantity due to poor accuracy or precision. This qualification is also used to flag possible false negative results in the case where low bias in the analytical system is indicated by low calibration response, surrogate, internal standard, or other spike recovery.

Once the data are reviewed and qualified according to the NAVFAC procedures and DoD QSM, the data set is then evaluated using PARCCS criteria. PARCCS criteria provide an evaluation of overall data usability. The following is a discussion of PARCCS criteria as related to the PQOs.

Precision is a measure of the agreement or reproducibility of analytical results under a given set of conditions. It is a quantity that cannot be measured directly but is calculated from the reported concentrations.

Precision is expressed as the relative percent difference (RPD):

$RPD = (D1–D2)/\{1/2(D1+D2)\} \times 100$

Where:
D1 = the reported concentration for primary sample analyses
D2 = the reported concentrations for duplicate analyses

Precision is primarily assessed by calculating a RPD from the reported concentrations of the spiked compounds for each sample in the MS/MSD pair. In the absence of a MS/MSD pair, a laboratory duplicate or LCS/LCSD pair can be analyzed as an alternative means of assessing precision. In some cases, samples from multiple SDGs were within one QC batch and therefore are associated with the same laboratory QC samples. An additional measure of sampling precision may be obtained by collecting and analyzing field duplicate samples, which are compared using the RPD result as the evaluation criteria.

MS and MSD samples are field samples spiked by the laboratory with target analytes prior to preparation and analysis. These samples measure the overall efficiency of the analytical method in recovering target analytes from an environmental matrix. A LCS is similar to a MS/MSD sample in that the LCS is spiked with the same target analytes prior to preparation and analysis. However, the LCS is prepared using a controlled interference-free matrix instead of a field sample aliquot. Laboratory reagent water is used to prepare aqueous LCS. The LCS measures laboratory efficiency in recovering target analytes from an aqueous matrix in the absence of matrix interferences.

For inorganic analysis, one primary sample is analyzed and accompanied by an unspiked laboratory duplicate. The data reviewer compares the reported results of the primary analysis and the laboratory duplicate and calculates RPDs to assess laboratory precision.

Laboratory and field precision are further evaluated by calculating RPDs for field duplicate pairs. The sampler collects two field samples at the same location and under identically controlled conditions. The laboratory then analyzes the samples under identical conditions.

An RPD outside the numerical QC limit in MS/MSD samples, LCS/LCSDs, or FDs indicates imprecision. Imprecision is the variance in the consistency with which the laboratory arrives at a particular reported result. Thus, the actual analyte concentration may be higher or lower than the reported result.

Possible causes of poor precision include sample matrix interference, improper sample collection or handling, inconsistent sample preparation, and poor instrument stability. In some duplicates, results maybe reported in either the primary or duplicate samples at levels below the limit of quantitation (LOQ) or non-detected. Since these values are considered to be estimates, RPD exceedances from these duplicate sets do not suggest a significant impact on the data quality.

Accuracy is a measure of the agreement of an experimental determination and the true value of the parameter being measured. It is used to identify bias in a given measurement system. Recoveries outside acceptable QC limits may be caused by factors such as instrumentation, analyst error, or matrix interference. Accuracy is assessed through the analysis of MS, MSD, LCS, and samples containing surrogate spikes. In some cases, samples from multiple SDGs were within one QC batch and therefore are associated with the same laboratory QC samples. Surrogate spikes are either isotopically labeled compounds or compounds that are not typically detected in the samples. Surrogate spikes are added to every blank, environmental sample, MS/MSD, LCS/LCSD and standard, for all applicable organic analyses. Accuracy of inorganic analyses is determined using the percent recoveries of MS and LCS analyses.

Percent recovery (%R) is calculated using the following equation:

$\%R = (A–B)/C \times 100$

Where:
A = measured concentration in the spiked sample
B = measured concentration of the spike compound in the unspiked sample
C = concentration of the spike

The percent recovery of each analyte spiked in MS/MSD samples, LCS, and surrogate compounds added to environmental samples is evaluated against the acceptance criteria specified by the previously noted documents. Spike recoveries outside the acceptable QC accuracy limits provide an indication of bias, where the reported data may overestimate or underestimate the actual concentration of compounds detected or LODs reported for environmental samples.

Accuracy can also be evaluated by analyzing PT samples. PT testing determines the performance of individual laboratories for specific tests or measurements and is used to monitor laboratories' continuing performance.

Representativeness is a qualitative parameter that expresses the degree to which the sample data are characteristic of a population and is evaluated by reviewing the QC results of blank samples and holding times. Positive detects of compounds in the blank samples identify compounds that may have been introduced into the samples during sample collection, transport, preparation, or analysis. The QA/QC blanks collected and analyzed are method blanks, calibration blanks, field blanks, equipment blanks, and trip blanks.

A method blank is a laboratory grade water or solid matrix that contains the method reagents and has undergone the same preparation and analysis as the environmental samples. The method blank provides a measure of the combined contamination derived from the laboratory source water, glassware, instruments, reagents, and sample preparation steps. Method blanks are prepared for each sample of a similar matrix extracted by the same method at a similar concentration level.

For inorganic analyses, initial and continuing calibration blanks (ICB/CCB) consist of acidified laboratory grade water, which are injected at the beginning and at a regular frequency during each 12 - hour sample analysis run. These blanks estimate residual contaminants from the previous sample or standards analysis and measure baseline shifts that commonly occur in emission and absorption spectroscopy.

Trip blanks are used to identify possible volatile organic contamination introduced into the sample during transport. A trip blank is a sample volatile organics analysis vial filled in the laboratory with reagent-grade water and preserved to a pH less than 2 with hydrochloric acid. It is transported to the site, stored with the sample containers, and returned unopened to the laboratory for analysis. Trip blanks were collected and analyzed for BTEX, GRO, and methane.

Equipment blanks consist of analyte-free water poured over or through the sample collection equipment. The water is collected in a sample container for laboratory analysis. These blanks are collected after the sampling equipment is decontaminated and measure efficiency of the decontamination procedure. Equipment blanks were collected and analyzed for BTEX, phenol, PAH, MEE, GRO, and TPH as extractables.

Field blanks consist of analyte-free source water stored at the sample collection site. The water is collected from each source water used during each sampling event. Field blanks were collected and analyzed for BTEX, phenol, PAH, MEE, GRO, and TPH as extractables.

Contaminants found in both the environmental sample and a blank sample are assumed to be laboratory artifacts if the concentration in the environmental sample is less than 5 times the blank value.

Holding times are evaluated to assure that the sample integrity is intact for accurate sample preparation and analysis. Holding times will be specific for each method and matrix analyzed. Holding time exceedances can cause loss of sample constituents due to biodegradation, precipitation, volatilization, and chemical degradation.

Comparability is a qualitative expression of the confidence with which one data set may be compared to another. It provides an assessment of the equivalence of the analytical results to data obtained from other analyses. It is important that data sets be comparable if they are used in conjunction with other data sets. The factors affecting comparability include the following: sample collection and handling techniques, matrix type, and analytical method. If these aspects of sampling and analysis are carried out according to standard analytical procedures, the data are considered comparable. Comparability can only be compared with confidence when precision, accuracy, and representativeness are known.

Completeness is defined as the percentage of acceptable sample results compared to the total number of sample results. Completeness is evaluated to determine if an acceptable amount of usable data were obtained so that a valid scientific site assessment can be completed. Completeness equals the total number of sample results for each fraction minus the total number of rejected sample results divided by the total number of sample results multiplied by 100. As specified in the PQOs, the goal for completeness for target analytes in each analytical fraction is 90 percent.

Percent completeness is calculated using the following equation:

$$\%C = (T - R)/T \times 100$$

Where:
%C = percent completeness
T = total number of sample results
R = total number of rejected sample results

Completeness is also determined by comparing the planned number of samples per method and matrix as specified in the project planning document, with the number determined above.

Sensitivity is the ability of an analytical method or instrument to discriminate between measurement responses representing different concentrations. This capability is established during the planning phase to meet the PQOs. It is important that calibration requirements, detection limits (DLs), and project-specific LODs and LOQs presented in the work plan are achieved and that target analytes can be detected at concentrations necessary to support the PQOs. In addition, sample results are compared to method blank and field blank results to identify potential effects of laboratory background and field procedures on sensitivity.

The following sections present a review of QC data for each analytical method. The details regarding the qualification of results are provided in the data validation reports.

2.0 VOLATILE ORGANIC COMPOUNDS

A total of 36 water samples were analyzed for BTEX by EPA SW 846 Method 8260B. All BTEX data were assessed to be valid since none of the 144 total results were rejected due to holding time or QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the PQOs.

2.1 Precision and Accuracy

2.1.1 Instrument Calibration

Initial and continuing calibration results provide a means of evaluating accuracy within a particular SDG. Relative response factor (RRF), percent relative standard deviation (%RSD), and percent difference (%D) are the three major parameters used to measure the effectiveness of instrument calibration. RRF is a measure of the relative spectral response of an analyte compared to its internal standard. %RSD is an expression of the linearity of instrument response. %D is a comparison of a continuing calibration instrumental response with its initial response. %RSD and %D exceedances suggest routine instrumental anomalies, which typically impact all sample results for the affected compounds.

The RRFs met the validation acceptance criteria of ≥ 0.05 in the initial and continuing calibrations. The %RSDs met the method acceptance criteria of 15 percent or the coefficient of determination (r^2) was $\geq$ 0.990 in the initial calibration. The %Ds in the initial and continuing calibration verifications met the method acceptance criteria of 20 percent. The %Ds in the ending continuing calibration verifications met the validation acceptance criteria of 50 percent.

2.1.2 Surrogates

All surrogate %Rs were within the acceptance criteria.

2.1.3 MS/MSD Samples

No data were qualified as a result of high MS/MSD %Rs and RPDs since the associated results were not detected.

2.1.4 LCS/LCSD Samples

All LCS/LCSD %Rs and RPDs were within the acceptance criteria.

2.1.5 FD Samples

No VOC were detected for field duplicate samples ERH782 and ERH783; samples ERH785 and ERH786; and samples ERH790 and ERH791.

2.1.6 Internal Standards

All internal standard areas and retention areas were within acceptance criteria.

2.1.7 Proficiency Testing Samples

Proficiency testing (PT) samples were not performed for the sampling event.

2.1.8 Compound Quantitation and Target Identification

All compound quantitation and target identifications were found to be acceptable.

2.2 Representativeness

2.2.1 Holding Times

The evaluation of holding times to verify compliance with the method was conducted. All holding times were met.

2.2.2 Blanks

Method blanks, TBs, EBs and FBs were collected and analyzed to evaluate representativeness. The concentration for an individual target compound in any of the types of QA/QC blanks was used for data qualification.

If contaminants were detected in a blank, corrective actions were made for the chemical analytical data during data validation. The corrective action consisted of amending the laboratory reported results based on the following criteria.

> Results Below or Above the LOQ If a sample result for the blank contaminant was less than the LOQ or greater than the sample LOQ and less than 5 times the blank value for all contaminants, the sample result for the blank contaminant was amended as a non-detect at the concentration reported in the sample results.
>
> No Action If a sample result for the blank contaminant was greater than 5 times the blank value for all contaminants, the result was not amended.

2.2.2.1 Method Blanks

No contaminants were detected in the method blanks for this analysis.

2.2.2.2 EBs and FBs

No contaminants were detected in the equipment blanks and field blanks for this analysis.

2.2.2.3 Trip Blanks

No contaminants were detected in the trip blanks for this analysis.

2.3 Comparability

The laboratory used standard analytical methods for all of the analyses. In all cases, the DLs and LODs attained were below the specified LOQs. The comparability of the data is regarded as acceptable.

2.4 Completeness

The completeness level attained for VOC field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

2.5 Sensitivity

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory DLs and LOQs met the specified requirements described in the QAPP.

3.0 PHENOL

A total of 20 water samples were analyzed for phenol by EPA SW-846 Method 8270D. All phenol data were assessed to be valid since none of the 20 total results were rejected due to holding time or QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the PQOs.

3.1 Precision and Accuracy

3.1.1 Instrument Calibration

The RRFs met the validation acceptance criteria of ≥ 0.05 in the initial and continuing calibrations. The %RSDs met the method acceptance criteria of 15 percent. The %Ds in the initial and continuing calibration verifications met the method acceptance criteria of 20 percent. The %Ds in the ending continuing calibration verifications met the validation acceptance criteria of 50 percent.

3.1.2 Surrogates

All surrogate %Rs were within the acceptance criteria.

3.1.3 MS/MSD Samples

All MS/MSD %Rs were within the acceptance criteria.

No data were qualified as a result of high MS/MSD RPDs since the associated results were not detected.

3.1.4 LCS/LCSD Samples

All LCS/LCSD %Rs and RPDs were within the acceptance criteria.

3.1.5 Internal Standards

All internal standard areas and retention times were within the acceptance criteria.

3.1.6 FD Samples

No phenol was detected for field duplicate samples ERH782 and ERH783; samples ERH785 and ERH786; and samples ERH790 and ERH791.

3.1.7 Proficiency Testing Samples

PT samples were not performed for the sampling event.

3.1.8 Compound Quantitation and Target Identification

All compound quantitation and target compound identification were found to be acceptable.

In instances where data were reextracted or reanalyzed by the laboratory, data were qualified as not reportable by the validators in order to yield only one complete set of data for a given sample.

3.2 Representativeness

3.2.1 Holding Times

The evaluation of holding times to verify compliance with the method was conducted.

As a result of extraction holding time exceedance, the phenol result for sample ERH811 was qualified as non-detected estimated (UJ). The extraction holding time is 7 days for phenol. Results may be biased low in the associated sample.

3.2.2 Blanks

Method blanks, EBs, and FBs were collected and analyzed to evaluate representativeness.

3.2.2.1 Method Blanks

No contaminants were detected in the method blanks for this analysis.

3.2.2.2 EBs and FBs

No phenol was detected in the equipment blanks and field blanks for this analysis.

3.3 Comparability

The laboratory used standard analytical methods for all of the analyses. In all cases, the DLs and LODs attained were below the specified LOQs. The comparability of the data is regarded as acceptable.

3.4 Completeness

The completeness level attained for phenol was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

3.5 Sensitivity

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory DLs and LOQs met the specified requirements described in the work plan.

4.0 POLYNUCLEAR AROMATIC HYDROCARBONS

A total of 20 water samples were analyzed for 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene by EPA SW-846 Method 8270D-SIM. All PAH data were assessed to be valid since none of the 60 total results were rejected based on holding time or QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the PQOs.

4.1 Precision and Accuracy

4.1.1 Instrument Calibration

The RRFs met the validation acceptance criteria of ≥ 0.05 in the initial and continuing calibrations. The %RSDs met the method acceptance criteria of 15 percent. The %Ds in the initial and continuing calibration verifications met the method acceptance criteria of 20 percent. The %Ds in the ending continuing calibration verifications met the validation acceptance criteria of 50 percent.

4.1.2 Surrogates

As a result of low surrogate %Rs, the PAH results for sample ERH811 were qualified as non-detected estimated (UJ). Low surrogate %R indicates that the results may be biased low in the associated sample.

4.1.3 MS/MSD Samples

All MS/MSD %Rs and RPDs were within the acceptance criteria.

4.1.4 LCS/LCSD Samples

All LCS/LCSD %Rs and RPDs were within the acceptance criteria.

4.1.5 Internal Standards

All internal standard areas and retention times were within the acceptance criteria.

4.1.6 Field Duplicate Samples

The FD RPDs were within the acceptance criteria for field duplicate samples ERH790 and ERH791.

No PAH were detected for field duplicate samples ERH782 and ERH783 and samples ERH785 and ERH786.

4.1.7 Proficiency Testing Samples

PT samples were not performed for the sampling event.

4.1.8 Compound Quantitation and Target Identification

All compound quantitation and target compound identification were found to be acceptable.

In instances where data were reextracted or reanalyzed by the laboratory, data were qualified as not reportable by the validators in order to yield only one complete set of data for a given sample.

4.2 Representativeness

4.2.1 Holding Times

The evaluation of holding times to verify compliance with the method was conducted. All holding times were met.

4.2.2 Blanks

Method blanks, EBs, and FBs were collected and analyzed to evaluate representativeness.

4.2.2.1 Method Blanks

No contaminants were detected in the method blanks for this analysis.

4.2.2.2 EBs and FBs

No contaminants were detected in the equipment blanks and field blanks for this analysis.

4.3 Comparability

The laboratory used standard analytical methods for all of the analyses. In all cases, the DLs and LODs attained were below the specified LOQs. The comparability of the data is regarded as acceptable.

4.4 Completeness

The completeness level attained for PAH field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

4.5 Sensitivity

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory DLs and LOQs met the specified requirements described in the work plan.

5.0 2-(2-METHOXYETHOXY)-ETHANOL

A total of 20 water samples were analyzed for MEE by EPA SW 846 Method 8270D modified. All MEE data were assessed to be valid since none of the 20 total results were rejected based on holding time or QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the PQOs.

5.1 Precision and Accuracy

5.1.1 Instrument Calibration

The RRFs met the validation acceptance criteria of ≥ 0.05 in the initial and continuing calibrations. The %RSDs met the method acceptance criteria of 15 percent or the coefficient of determination (r^2) was $\geq$ 0.990 in the initial calibration. The %Ds in the initial and continuing calibration verifications met the method acceptance criteria of 20 percent. The %Ds in the ending continuing calibration verifications met the validation acceptance criteria of 50 percent.

5.1.2 Surrogates

Surrogates were not added to all samples as required by the method. No data were qualified when one base surrogate %R was outside the QC limits and the %R was greater than or equal to 10% in the phenol analysis for sample ERH791.

5.1.3 MS/MSD Samples

All MS/MSD %Rs and RPDs were within the acceptance criteria.

5.1.4 LCS/LCSD Samples

No data were qualified as a result of a high LCSD %R since the associated results were not detected.

As a result of high LCS/LCSD RPDs, the MEE results for 17 samples were qualified as non-detected estimated (UJ). Bias cannot be determined.

5.1.5 Internal Standards

All internal standard areas and retention times were within the acceptance criteria.

5.1.6 Field Duplicate Samples

No MEE was detected for field duplicate samples ERH782 and ERH783; samples ERH785 and ERH786; and samples ERH790 and ERH791.

5.1.7 Proficiency Testing Samples

PT samples were not performed for the sampling event.

5.1.8 Compound Quantitation and Target Identification

All compound quantitation and target compound identification were found to be acceptable.

5.2 Representativeness

5.2.1 Holding Times

The evaluation of holding times to verify compliance with the method was conducted. All holding times were met.

5.2.2 Blanks

Method blanks, EBs, and FBs were collected and analyzed to evaluate representativeness.

5.2.2.1 Method Blanks

No contaminants were detected in the method blanks for this analysis.

5.2.2.2 EBs and FBs

No contaminants were detected in the equipment blanks and field blanks for this analysis.

5.3 Comparability

The laboratory used standard analytical methods for all of the analyses. In all cases, the DLs and LODs attained were below the specified LOQs. The comparability of the data is regarded as acceptable.

5.4 Completeness

The completeness level attained for MEE field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

5.5 Sensitivity

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory DLs and LOQs met the specified requirements described in the work plan.

6.0 GASOLINE RANGE ORGANICS

A total of 36 water samples were analyzed for GRO by EPA SW-846 Method 8260B. All GRO data were assessed to be valid since none of the 36 total results were rejected based on holding time or QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the PQOs.

6.1 Precision and Accuracy

6.1.1 Instrument Calibration

The coefficient of determination (r^2) was $\geq$ 0.990 in the initial calibration. The %Ds in the initial and continuing calibration verifications met the method acceptance criteria of 20 percent.

6.1.2 Surrogates

All surrogate %Rs were within the acceptance criteria.

6.1.3 MS/MSD Samples

All MS/MSD %Rs were within the acceptance criteria.

No data were qualified as a result of a high MS/MSD RPD since the associated results were not detected.

6.1.4 LCS/LCSD Samples

All LCS/LCSD %Rs and RPDs were within the acceptance criteria.

6.1.5 Field Duplicate Samples

The FD RPDs were within the acceptance criteria for field duplicate samples ERH790 and ERH791.

No GRO were detected for field duplicate samples ERH782 and ERH783 and samples ERH785 and ERH786.

6.1.6 Proficiency Testing Samples

PT samples were not performed for the sampling event.

6.1.7 Compound Quantitation and Target Identification

All compound quantitation and target compound identification were found to be acceptable

6.2 Representativeness

6.2.1 Holding Times

The evaluation of holding times to verify compliance with the method was conducted. All holding times were met.

6.2.2 Blanks

Method blanks, EBs, FBs, and TBs were collected and analyzed to evaluate representativeness.

6.2.2.1 Method Blanks

No contaminants were detected in the method blanks for this analysis.

6.2.2.2 EBs and FBs

No contaminants were detected in the equipment blanks and field blanks for this analysis.

6.2.2.3 Trip Blanks

No contaminants were detected in the trip blanks for this analysis.

6.3 Comparability

The laboratory used standard analytical methods for all of the analyses. In all cases, the DLs attained were below the specified LOQs. The comparability of the data is regarded as acceptable.

6.4 Completeness

The completeness level attained for GRO field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

6.5 Sensitivity

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory DLs and LOQs met the specified requirements described in the work plan.

7.0 TOTAL PETROLEUM HYDROCARBONS AS EXTRACTABLES

A total of 20 water samples were analyzed for diesel range organics (DRO) and oil range organics (ORO) by EPA SW-846 Method 8015B and four water samples were also analyzed for DRO and ORO with silica gel cleanup (SGCU) by EPA SW-846 Method 8015B. All TPHE data were assessed to be valid since none of the 48 total results were rejected based on holding time or QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the PQOs.

7.1 Precision and Accuracy

7.1.1 Instrument Calibration

The %RSDs in the initial calibration and the %Ds in the initial and continuing calibration verifications met the method acceptance criteria of 20 percent.

7.1.2 Surrogates

All surrogate %Rs were within the acceptance criteria.

7.1.3 MS/MSD Samples

No data were qualified as a result of a high ORO MS %R, since the associated result was not detected.

All MS/MSD RPDs were within the acceptance criteria.

7.1.4 LCS/LCSD Samples

All LCS/LCSD %Rs were within the acceptance criteria.

As a result of a high LCS/LCSD RPD, the DRO results for samples ERH813, ERH814, and ERH816 were qualified as non-detected estimated (UJ). Bias cannot be determined.

7.1.5 Field Duplicate Samples

The FD RPDs were within the acceptance criteria for field duplicate samples ERH790 and ERH791.

No DRO or ORO were detected for field duplicate samples ERH782 and ERH783 and samples ERH785 and ERH786.

7.1.6 Proficiency Testing Samples

PT samples were not performed for the sampling event.

7.1.7 Compound Quantitation and Target Identification

All compound quantitation and target compound identification were found to be acceptable.

In instances where data were reextracted or reanalyzed by the laboratory, data were qualified as not reportable by the validators in order to yield only one complete set of data for a given sample.

7.2 Representativeness

7.2.1 Holding Times

The evaluation of holding times to verify compliance with the method was conducted.

7.2.2 Blanks

Method blanks, EBs, and FBs were collected and analyzed to evaluate representativeness.

7.2.2.1 Method Blanks

No contaminants were detected in the method blanks for this analysis.

7.2.2.2 Equipment Blanks and Field Blanks

No contaminants were detected in the equipment blanks and field blanks for this analysis.

7.3 Comparability

The laboratory used standard analytical methods for all of the analyses. In all cases, the DLs attained were below the specified LOQs. The comparability of the data is regarded as acceptable.

7.4 Completeness

The completeness level attained for TPHE field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

7.5 Sensitivity

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory DLs and LOQs met the specified requirements described in the work plan.

8.0 METHANE

A total of 30 water samples were analyzed for methane by Method RSK-175. All methane data were assessed to be valid since none of the 30 total results were rejected based on holding time or QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the PQOs.

8.1 Precision and Accuracy

8.1.1 Instrument Calibration

The coefficient of determination (r^2) was $\geq$ 0.990 in the initial calibration. The %Ds in the initial and continuing calibration verifications met the method acceptance criteria of 20 percent.

8.1.2 MS/MSD Samples

All MS/MSD %Rs and RPDs were within the acceptance criteria.

8.1.3 LCS/LCSD Samples

All LCS/LCSD %Rs and RPDs were within the acceptance criteria.

8.1.4 Field Duplicate Samples

Field duplicate samples were not collected for this analysis.

8.1.5 Proficiency Testing Samples

PT samples were not performed for the sampling event.

8.1.6 Compound Quantitation and Target Identification

All compound quantitation and target compound identification were found to be acceptable.

In instances where data were diluted by the laboratory, data were qualified as not reportable by the validators in order to yield only one complete set of data for a given sample.

8.2 Representativeness

8.2.1 Holding Times

The evaluation of holding times to verify compliance with the method was conducted. All holding times were met.

8.2.2 Blanks

Method blanks and trip blanks were collected and analyzed to evaluate representativeness.

8.2.2.1 Method Blanks

No contaminants were detected in the method blanks for this analysis.

8.2.2.2 Trip Blanks

No contaminants were detected in the trip blanks for this analysis.

8.3 Comparability

The laboratory used standard analytical methods for all of the analyses. In all cases, the DLs attained were below the specified LOQs. The comparability of the data is regarded as acceptable.

8.4 Completeness

The completeness level attained for methane field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

8.5 Sensitivity

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory DLs and LOQs met the specified requirements described in the work plan.

9.0 WET CHEMISTRY

A total of 15 water samples were analyzed for ferrous iron by Standard Method 3500-Fe B; nitrate/nitrite as nitrogen by EPA Method 353.2; and DOC and TOC by EPA SW-846 Method 9060A and 18 water samples were analyzed for alkalinity by Standard Method 2320B and anions by EPA Method 300.0. All

wet chemistry data were assessed to be valid since none of the 168 total results were rejected due to holding time or QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the PQOs.

9.1 Precision and Accuracy

9.1.1 Instrument Calibration

The correlation coefficients in the initial calibrations and percent recoveries in the continued calibration verifications were within the method acceptance criteria of ≥ 0.995 and 90-110 percent, respectively.

As a result of high ICV %Rs, four dissolved organic carbon and five total organic carbon results were qualified as detected estimated (J).

9.1.2 MS/MSD Samples

As a result of low MS/MSD %Rs, the total alkalinity and bicarbonate alkalinity results for samples ERH782 and ERH785 were qualified as detected estimated (J). Low MS/MSD %R indicates that the results may be biased low in the associated sample.

All MS/MSD RPDs were within the acceptance criteria.

9.1.3 LCS/LCSD Samples

As a result of low LCS/LCSD %Rs, the total organic carbon result for sample ERH795 was qualified as detected estimated (J). Low LCS/LCSD %R indicates that the results may be biased low in the associated sample.

All LCS/LCSD RPDs were within the acceptance criteria.

9.1.4 Laboratory Duplicate Samples

DUP sample analyses were performed for Alkalinity, DOC, and TOC. Results were within the acceptance criteria.

9.1.5 Field Duplicate Samples

Field duplicates were not collected for these analyses.

9.1.6 Proficiency Testing Samples

PT samples were not performed for the sampling event.

9.1.7 Sample Result Verification

All sample results were found to be acceptable.

9.2 Representativeness

9.2.1 Holding Times

The evaluation of holding times to verify compliance with the method was conducted.

As a result of analysis holding time exceedances, ten nitrate results were qualified as detected estimated (J) or non-detected estimated (UJ) and two ferrous iron results were qualified as non-detected estimated (UJ). The analysis holding time is 48 hours for nitrate and ferrous iron. Results may be biased low in the associated samples.

9.2.2 Blanks

Method blanks and calibration blanks were analyzed to evaluate representativeness.

9.2.2.1 Method and Calibration Blanks

As a result of contamination found in the method blank, dissolved organic carbon and total organic carbon results for sample ERH795 were qualified as not detected (U).

9.3 Comparability

The laboratory used standard analytical methods for all of the analyses. In all cases, the DLs attained were below the specified LOQs. Target compounds detected below the LOQs flagged (J) by the laboratory should be considered estimated. The comparability of the data is regarded as acceptable.

9.4 Completeness

The completeness level attained for wet chemistry field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

9.5 Sensitivity

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory DLs and LOQs met the specified requirements described in the work plan.

10.0 VARIANCES IN ANALYTICAL PERFORMANCE

The laboratory used standard analytical methods for all of the analyses throughout the project. No systematic variances in analytical performance were noted in the case narratives.

11.0 SUMMARY OF PARCCS CRITERIA

The validation reports present the PARCCS results for all SDGs. Each PARCCS criterion is discussed in detail in the following sections.

11.1 Precision and Accuracy

Low surrogate %R, MS/MSD %R, and LCS/LCSD %R indicate that the associated PAH and wet chemistry results may be biased low in the associated samples.

Bias cannot be determined for MEE, DRO, and wet chemistry results due to initial calibration verification %R and LCS/LCSD RPD outside the acceptance criteria.

Precision and accuracy were evaluated using data quality indicators such as calibration, surrogates, MS/MSD, LCS/LCSD, FD, and internal standards. The precision and accuracy of the data set were considered acceptable after integration of qualification of estimated results as noted above.

11.2 Representativeness

All samples for each method and matrix were evaluated for holding time compliance. All holding times were met with the exceptions noted in Sections and 3.2.1 and 9.2.1. All samples were associated with a method blank in each individual SDG. The representativeness of the project data is considered acceptable.

11.3 Comparability

Sampling frequency requirements were met in obtaining field duplicates and necessary field blanks. The laboratory used standard analytical methods for their analyses. The analytical results were reported in correct standard units. The overall comparability is considered acceptable.

11.4 Completeness

Of the 526 total results reported, none of the results were rejected. The completeness for all SDGs is as follows:

Parameter	Total Analytes	No. of Rejects	% Completeness
BTEX	144	0	100
Phenol	20	0	100
PAH	60	0	100
MEE	20	0	100
GRO	36	0	100
TPH as Extractables	48	0	100
Methane	30	0	100
Wet Chemistry	168	0	100
Total	**526**	**0**	**100**

The completeness percentage based on rejected data met the 90 percent PQO goal. A less quantifiable loss of data occurred in the application of blank qualifications as noted in Section 9.2.2.1.

11.5 Sensitivity

Sensitivity was achieved by the laboratory to support the PQOs. Calibration concentrations, DLs, LODs and LOQs met the project requirements and low-level contamination in the method blanks did not affect sensitivity.

Table I. Sample Cross-Reference

LDC	SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	BTEX (8260B)	Phenol (8270D)	PAH (8270D SIM)	MEE (8270D)	GRO (8260B)	TPHE (8015B)	TPHE SGCU (8015B)	Methane (RSK 175)	Anions (300.0)	NO3/NO2 as N (353.2)	Alkalinity (2320B)	Ferrous Iron (3500-FE-B)	DOC and TOC (9060A)
45048A	88687	ERH781	AZ89957	Water	04/22/19	TB	Level C	X				X			X					
45048A	88687	ERH782	AZ89958	Water	04/22/19	FD1	Level C	X	X	X	X	X	X			X	X	X	X	X
45048A	88687	ERH783	AZ89959	Water	04/22/19	FD1	Level C	X	X	X	X	X	X		X					
45048A	88687	ERH794	AZ89960	Water	04/22/19	TB	Level C	X				X			X					
45048A	88687	ERH795	AZ89961	Water	04/22/19		Level C	X	X	X	X	X	X		X	X	X	X	X	X
45094A	88701	ERH784	AZ90050	Water	04/23/19	TB	Level C	X				X			X					
45094A	88701	ERH785	AZ90051	Water	04/23/19	FD2	Level C	X	X	X	X	X	X		X	X	X	X	X	X
45094A	88701	ERH786	AZ90052	Water	04/23/19	FD2	Level C	X	X	X	X	X	X							
45094A	88701	ERH796	AZ90053	Water	04/22/19	TB	Level C	X				X			X					
45094A	88701	ERH797	AZ90054	Water	04/22/19		Level D	X	X	X	X	X	X		X	X	X	X	X	X
45094A	88701	ERH798	AZ90055	Water	04/22/19	TB	Level C	X				X			X					
45094A	88701	ERH799	AZ90056	Water	04/22/19		Level D	X	X	X	X	X	X		X	X	X	X	X	X
45094A	88701	ERH800	AZ90057	Water	04/22/19	TB	Level C	X				X			X					
45094A	88701	ERH801	AZ90058	Water	04/22/19		Level D	X	X	X	X	X	X		X	X	X	X	X	X
45094A	88701	ERH802	AZ90059	Water	04/23/19	TB	Level C	X				X			X					
45094A	88701	ERH803	AZ90060	Water	04/23/19		Level C	X	X	X	X	X	X		X	X	X	X	X	X
45147A	88714	ERH787	AZ90099	Water	04/23/19	TB	Level C	X				X			X					
45147A	88714	ERH788	AZ90100	Water	04/23/19		Level C	X	X	X		X	X	X	X					
45147A	88714	ERH788	AZ90100	Water	04/23/19		Level D				X					X	X	X	X	X
45147A	88714	ERH789	AZ90101	Water	04/24/19	TB	Level C	X				X			X					
45147A	88714	ERH790	AZ90102	Water	04/24/19	FD3	Level C				X					X	X	X	X	X
45147A	88714	ERH790	AZ90102	Water	04/24/19	FD3	Level D	X	X	X		X	X	X	X					
45147A	88714	ERH791	AZ90103	Water	04/24/19	FD3	Level C	X	X	X	X	X	X	X						
45147A	88714	ERH792	AZ90104	Water	04/24/19	TB	Level C	X				X			X					
45147A	88714	ERH793	AZ90105	Water	04/24/19		Level C	X	X	X	X	X	X	X	X	X	X	X	X	X
45147A	88714	ERH804	AZ90106	Water	04/23/19	TB	Level C	X				X			X					
45147A	88714	ERH805	AZ90107	Water	04/23/19		Level C	X	X	X	X	X	X		X	X	X	X	X	X
45147A	88714	ERH806	AZ90108	Water	04/24/19	TB	Level C	X				X			X					
45147A	88714	ERH807	AZ90109	Water	04/24/19		Level C	X	X	X	X	X	X		X	X	X	X	X	X
45147B	88775	ERH817	AZ90451	Water	04/29/19		Level C									X		X		
45147B	88775	ERH818	AZ90452	Water	04/29/19		Level C									X		X		

Table I. Sample Cross-Reference

LDC	SDG	Client Sample ID	Lab Sample ID	Matrix	Sample Date	QC Type	Validation Level	BTEX (8260B)	Phenol (8270D)	PAH (8270D SIM)	MEE (8270D)	GRO (8260B)	TPHE (8015B)	TPHE SGCU (8015B)	Methane (RSK 175)	Anions (300.0)	NO3/NO2 as N (353.2)	Alkalinity (2320B)	Ferrous Iron (3500-FE-B)	DOC and TOC (9060A)
45147B	88775	ERH819	AZ90453	Water	04/29/19		Level C									X		X		
45161A	88736	ERH808	AZ90212	Water	04/25/19	TB	Level C	X				X			X					
45161A	88736	ERH809	AZ90213	Water	04/25/19		Level C	X	X	X	X	X	X		X	X	X	X	X	X
45161A	88736	ERH810	AZ90214	Water	04/25/19	TB	Level C	X				X			X					
45161A	88736	ERH811	AZ90215	Water	04/25/19		Level C	X	X	X	X	X	X		X	X	X	X	X	X
45179A	88764	ERH812	AZ90446	Water	04/29/19	TB	Level C	X				X								
45179A	88764	ERH813	AZ90447	Water	04/29/19	EB	Level C	X	X	X	X	X	X							
45179A	88764	ERH814	AZ90448	Water	04/29/19	FB	Level C	X	X	X	X	X	X							
45179A	88764	ERH815	AZ90449	Water	04/29/19	TB	Level C	X				X			X					
45179A	88764	ERH816	AZ90450	Water	04/29/19		Level C	X	X	X	X	X	X		X	X	X	X	X	X

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Appendix C.3:
Fact Sheet

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Fact Sheet: Detection and Quantitation – What Project Managers and Data Users Need to Know

As a Project Manager or decision-maker, you may use environmental data to accomplish one or more of the following tasks:

- Determine whether a chemical substance is present in an environmental sample at or above some threshold value or action level;
- Verify that a pollutant concentration remains below a permit limit;
- Evaluate potential risks to human health or the environment;
- Monitor changes in concentrations of contaminants; or
- Determine the effectiveness of remediation activities.

Making correct decisions in these cases often depends on the ability of an analytical method to detect and measure extremely low concentrations of a substance.

This Fact Sheet has been prepared to: 1) provide Project Managers and data users with basic information about detection and quantitation concepts; and 2) acquaint the reader with detection and quantitation terminology and requirements contained in the *DoD Quality Systems Manual for Environmental Laboratories (DoD QSM),* Version 5.1. This information should help clarify the uncertainty associated with reporting low-concentration data. It should also help project teams understand the importance of selecting analytical methods that are sensitive enough for their intended uses, i.e., capable of generating reliable data (data of known precision and bias) at the project-specific decision levels.[1]

Measures of Sensitivity – Basic Concepts

The following terms are used to describe the routine sensitivity of analytical procedures:

- DL – Detection Limit
- LOD – Limit of Detection
- LOQ – Limit of Quantitation

All measures of sensitivity are specific to the analyte, sample matrix, test method, instrumentation, and analyst/laboratory performance. Therefore, analytical performance must be demonstrated for each variable (e.g., it is possible that two "identical" instruments from the same manufacturer may exhibit different sensitivities). A graphical representation of these terms is shown as Figure 1.

The Detection Limit (DL) is the smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration with 99% confidence. At the DL, the false positive rate (Type I error) is 1% (red shaded region in Figure 1). A DL may be used as the lowest

[1] A discussion on the Minimum Detectable Concentration (or Minimum Detectable Activity) for radiological data is beyond the scope of this Fact Sheet. For a discussion on this, see DoD/DOE QSM 5.1 Module 6, Section 1.5.2.1.1.

concentration for reliably reporting a detection of a specific analyte in a specific matrix with a specific method with 99% confidence.

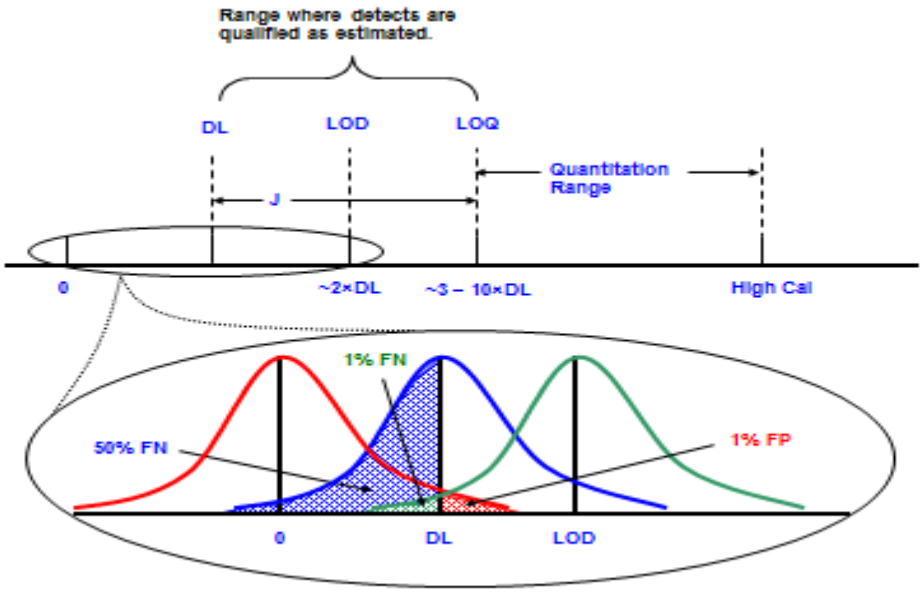

Figure 1: Summary of data quality characteristics below and above DL, LOD, and LOQ. The red trace shows the distribution of results given a sample with a true concentration of zero. The blue trace shows the distribution of results given a sample with a true concentration at the Detection Limit. The green trace shows the distribution of results given a sample with a true concentration at the Limit of Detection. The red shaded region represents those results which would yield a false positive (i.e., the true concentration is zero but the analytical result is detection). The blue and green shaded regions represent those results which would yield a false negative if the true concentration is at the reporting limit and the reporting limit is set at the DL or LOD, respectively (i.e., a sample with a true concentration at the DL has a 50% chance of yielding a false negative, and a sample with a true concentration at the LOD has a 1% chance of yielding a false negative).

Note that for reporting purposes, any result at or above the DL must also meet qualitative identification criteria required by the test method. Although a result at or above the DL indicates that the analyte is present, the absence of a result at or above the DL is inconclusive (i.e., one cannot confidently state whether the analyte is present or absent), because the false negative rate if the analyte is present at the DL is 50% (blue shaded region in Figure 1).

The Limit of Detection (LOD) is defined as the lowest concentration for reliable reporting of a non-detect of a specific analyte in a specific matrix with a specific method at 99% confidence. At the LOD, the false negative rate (Type II error) is 1% (green shaded region in Figure 1). In other words, if a sample has a true concentration at the LOD, there is at least a 99% probability of reporting a "detection" (a measured value ≥ DL) and a 1% chance of falsely reporting a non-detect (a false negative).

For reporting purposes, the failure to obtain a "detection" should be reported as "<LOD," because the false negative rate at the LOD is only 1%. Reporting the sample result as "<DL," is inappropriate because the false negative rate at the DL is 50%.

The Limit of Quantitation (LOQ) is the smallest concentration that produces a quantitative result with known and recorded precision and bias. For DoD/DOE projects, the LOQ shall be set at or above the concentration of the lowest initial calibration standard and within the calibration range. Because of the requirements on precision and bias, the LOQ is larger than the LOD[2]; therefore, the following is true:

$$DL < LOD < LOQ$$

Quantitative results, with a known degree of precision and bias, can only be achieved at or above the LOQ. Detections between the DL and the LOQ assure the *presence* of the analyte, but their numeric values are estimates and are therefore indicated as such on test reports. Figure 2 summarizes the differences and the relationship between DL, LOD, and LOQ.

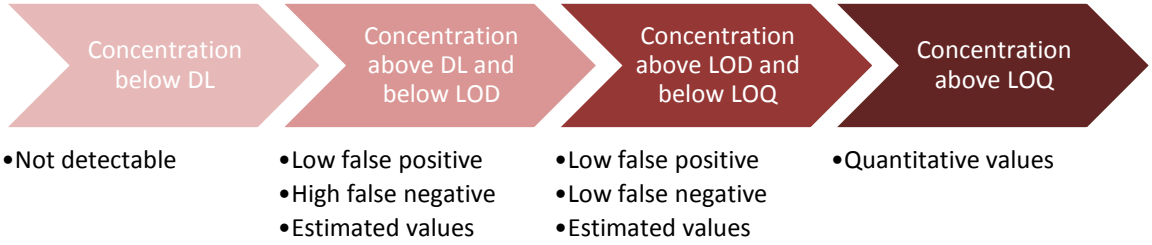

Figure 2: Summary of data quality characteristics below and above DL, LOD, and LOQ.

Types of Procedures for Estimating Sensitivity

Numerical estimates of the DL, LOD, or LOQ for a specific analyte, matrix, and method can be calculated using various statistical procedures, which involve spiking reagent water or other specific matrix with low concentrations of the analyte of interest. At this time, unfortunately, universally accepted statistical procedures do not exist.

The estimator that has been most commonly used by environmental laboratories is the EPA Method Detection Limit (MDL), which is an approximation of the DL. EPA has defined the MDL as "the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero."[3] Calculating the MDL at 99% confidence means there is a 1% probability of a false positive when a sample has a result at the MDL. The EPA MDL was designed to protect against false positives; however, it does not protect against false negatives.

[2] See TNI Module 4, Section 1.5.2.2d.
[3] 40 Code of Federal Regulations (CFR) Part 136, Appendix B, rev.2

Uses and Limitations of the MDL

When performed correctly and consistently, MDLs determined using the EPA procedure can be useful for comparing the performance of different laboratories using the same methods or the performance of different methods within the same laboratory. Laboratories typically determine the MDL in reagent water, resulting in a "best-case" MDL, which provides limited information about method performance on real-world samples.

The EPA MDL procedure as originally defined in 40 CFR Part 136, (Appendix B, 1984) has been criticized as a poor estimator of the DL for numerous reasons including but not limited to:

1. It is a single laboratory, short-term estimator that fails to account for analytical bias, changing instrument conditions or analyst skill.
2. It assumes uniform variance across all possible spike concentrations, failing to account for the fact that variance changes at higher concentrations.
3. It assumes that measured values at the spike concentration are normally distributed. By using the procedure and spiking at very low concentrations, laboratories have been able to calculate MDLs that cannot be achieved in practice.
4. It does not require a demonstration of the ability to detect an analyte at the calculated MDL.
5. It is not reproducible from day-to-day, lab-to-lab, etc.

Since 2000 the EPA has increased efforts to address these issues. In 2016 the EPA updated the MDL procedure in 40 CFR 136 which did include provisions for addressing background contamination, multiple analysts and instruments, and included verification requirements; however, the MDL calculation of spikes remains unchanged.

DoD QSM Requirements

Requirements for the DL, LOD and the LOQ which are designed to address some of the concerns discussed in the previous paragraph are contained in DoD QSM Module 4 Sections 1.5.2.1 and 1.5.2.2. Requirements that may be of particular note to Project Managers and Data Users are:

- Laboratories are required to verify measures of sensitivity, in terms of the LOD and LOQ, at least quarterly.
- Laboratories shall establish a detection limit (DL) for each suite of analyte-matrix-method, including surrogates. The DL shall be used to determine the LOD for each analyte and matrix as well as for all preparatory and cleanup methods routinely used on samples.
- After each DL determination, the laboratory must establish the LOD. It is specific to each suite of analyte, matrix, and method (including sample preparation).
- The laboratory must establish the LOD by spiking a quality system matrix at a concentration of at least 2 times but no greater than four times the DL.
- The signal to noise (S/N) ratio at the LOD must be at least three, and the results must meet all method requirements for analyte identification.

- The DL and LOD must be reported for all analyte-matrix-method suites unless it is not applicable to the test or specifically excluded by project requirements.
- The laboratory procedure for establishing the LOQ must empirically demonstrate precision and bias at the LOQ for each suite of analyte-matrix-method, including surrogates. The LOQ and associated precision and bias must meet client requirements and must be reported. If the method is modified, precision and bias at the new LOQ must be demonstrated and reported For DoD/DOE projects, the LOQ must be set within the calibration range, including the lowest calibration level.

Establishing Project-Specific Requirements for Method Sensitivity

Project teams should establish their project-specific requirements for method sensitivity in terms of a Reporting Limit (RL) for each analyte and matrix. As defined in the DoD QSM, the RL is a customer-specified lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix. The RL cannot be less than the LOQ, if precision and bias of the RL and the LOQ are identical. If the LOQ for a particular analytical method or laboratory cannot meet the RL, then a project team has four options:

1. Consult with the laboratory to improve method performance or modify the method to achieve a lower LOQ.
2. Select a different method with an LOQ less than or equal to the RL.
3. Raise the RL.
4. If no other options are available to meet project needs, allow for increased level of uncertainty such that adjusted LOQ can meet RL. This LOQ must be verified.

Please note that precision and bias must be taken into consideration when assessing the LOQ versus the RL. Also note that data below the RL may be reported; however, they are estimated values if less than the LOQ. Although data reporting and flagging requirements are project-specific, all reported LOD and LOQ shall be adjusted for the size of sample aliquots, concentration/dilution factors, and percent solids.

Reporting and Flagging Analytical Data

The following example (based on QSM 5.1 Module 2 section 5.10.3.1.1) illustrates the proper use of the “U” and “J” data qualifier flags for non-detect and estimated analytical results, respectively.

Data Qualifier flags in this example are defined as:
U- Analyte was not detected and is reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.
J- The reported result is an estimated value (e.g. matrix interference was observed, or the analyte was detected at a concentration outside the calibration range).

Example: Detection Limit (DL) = 2, Limit of Detection (LOD) = 4, Limit of Quantitation (LOQ) = 20, Reporting Limit (RL) for the project = 30, with precision and bias of the LOQ meeting precision and bias of the RL. All samples are undiluted.

Sample #1:	Analytical Result: Non-detect	Reported Result: 4U
Sample #2:	Analytical Result: 2	Reported Result: 2J
Sample #3:	Analytical Result: 10	Reported Result: 10J
Sample #4:	Analytical Result: 20	Reported Result: 20
Sample #5:	Analytical Result: 30	Reported Result: 30

Note that the laboratory may use additional data qualifiers or different letters or symbols to denote the qualifiers as long as they are appropriately defined and their use is consistent with project-specific requirements. Additionally, the laboratory-defined data qualifiers are for laboratory use only. Data usability must be determined by the project team.

Understanding and Documenting Uncertainty for Low-Concentration Data

As mentioned above, detection and quantitation limits are laboratory specific. The following are some steps Project Managers can take to document measurement uncertainty for low concentration data.

- As part of the laboratory selection process, provide the laboratory with project-specific RLs, including precision and bias, for each analyte and matrix. Ask the laboratory to provide its DL, LOD, and LOQ with associated precision and bias for each target analyte in each matrix of concern (e.g., reagent water, clean sand, etc.) and verify that these values meet project-specific RLs. Request laboratory SOPs for establishing the DL and for establishing and verifying the LOD and LOQ.
- Ask the laboratory to verify the LOD by processing an LOD verification check sample with each batch of samples. This is a quality control sample that is spiked at a concentration at or slightly above the LOD to evaluate whether the analyte of interest is in fact "detectable" in the matrix of interest. To accurately report non-detects, set the reporting for non-detects to "less than the LOD" or report the LOD with a "U" flag.
- If the project involves the collection of unusual or difficult matrices, or if the project-specific RL is near the LOQ, ask the laboratory to verify the LOQ in the project-specific matrix by analyzing a minimum of four replicate samples with known concentrations at the LOQ.
- Review low concentration raw data (e.g., chromatograms). If a result is reported above the DL, make sure that the signal-to-noise ratio is at least 3.
- Compare sample result with blank results. If sample results (including chromatograms) cannot be distinguished from blank results, the data may not be useable for decision making.