

Energy Laboratories Inc

ANALYTICAL RUN Summary

20-Sep-21

Run ID FID-HEADSPACE_210120A

Run Start Date: 1/20/2021
 Analyst: Jeff Whitmer
 Ical:
 Column ID: porapak Q
 Comments: thermometer used for temp:S94278.

Instrument ID	Description
1000_SGE_041819	1000 mL SGE Syringe _ Gas Tight

Std ID	Std Name	Std Amount	Std Units	Samp Amount	Samp Units	SampType	Expiration Date
10711	HC-Methane-W-CCV	0.3	ml			lcs	8/9/2022
12173	HC-Methane-W-CCV	0.3	ml			CCV	11/23/2023

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188877	MBLK	HC-METHANE-	MBLK		1/20/2021 11:50:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Ethane	A	mg/L		0			0	0	0.00031	0.001	0	0%	0	0	0%	
Ethene	A	mg/L		0			0	0	0.00023	0.001	0	0%	0	0	0%	
Methane	A	mg/L		0			0	0	0.000704	0.001	0	0%	0	0	0%	
Ethylene	X	mg/L		0			0	0	0.001	0.001	0	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188879	Cal1	HC-METHANE-	CAL1		1/20/2021 11:54:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Ethane	A	ppm		2.66692829		2.5	0	0	2	2	0	107%	50	150	0%	
Ethene	A	ppm		2.68217219		2.5	0	0	2	2	0	107%	50	150	0%	
Methane	A	ppm		2.9330938		2.5	0	0	2	2	0	117%	50	150	0%	
Ethylene	X	ppm		2.68217219		1000	0	0	2	2	0	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188881	Cal2	HC-METHANE-	CAL2		1/20/2021 12:00:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q

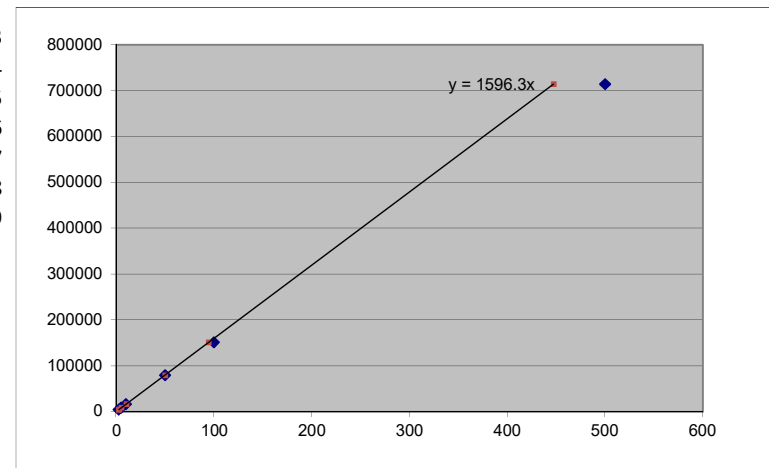
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188881	Cal2	HC-METHANE-	CAL2		1/20/2021 12:00:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Ethane	A	ppm		5.15876183		5	0	0	2	2	0	103%	85	115	0%	
Ethene	A	ppm		5.18455183		5	0	0	2	2	0	104%	85	115	0%	
Methane	A	ppm		5.47590194		5	0	0	2	2	0	110%	85	115	0%	
Ethylene	X	ppm		5.18455183		1000	0	0	2	2	0	1%	0	0	0%	S
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188883	Cal3	HC-METHANE-	CAL3		1/20/2021 12:04:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Ethane	A	ppm		10.3740375		10	0	0	2	2	0	104%	85	115	0%	
Ethene	A	ppm		10.2107455		10	0	0	2	2	0	102%	85	115	0%	
Methane	A	ppm		10.5521213		10	0	0	2	2	0	106%	85	115	0%	
Ethylene	X	ppm		10.2107455		1000	0	0	2	2	0	1%	0	0	0%	S
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188885	Cal4	HC-METHANE-	CAL4		1/20/2021 12:09:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Ethane	A	ppm		50.4828227		50	0	0	2	2	0	101%	85	115	0%	
Ethene	A	ppm		50.7731613		50	0	0	2	2	0	102%	85	115	0%	
Methane	A	ppm		49.9741048		50	0	0	2	2	0	100%	85	115	0%	
Ethylene	X	ppm		50.7731613		1000	0	0	2	2	0	5%	0	0	0%	S
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188887	Cal5	HC-METHANE-	CAL5		1/20/2021 12:14:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Ethane	A	ppm		96.640217		100	0	0	2	2	0	97%	85	115	0%	
Ethene	A	ppm		96.3665695		100	0	0	2	2	0	96%	85	115	0%	
Methane	A	ppm		94.8118498		100	0	0	2	2	0	95%	85	115	0%	
Ethylene	X	ppm		96.3665695		1000	0	0	2	2	0	10%	0	0	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188889	Cal6	HC-METHANE-	CAL6		1/20/2021 12:22:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Ethane	A	ppm		444.006974		500	0	0	2	2	0	89%	85	115	0%	
Ethene	A	ppm		445.008645		500	0	0	2	2	0	89%	85	115	0%	
Methane	A	ppm		447.326874		500	0	0	2	2	0	89%	85	115	0%	
Ethylene	X	ppm		445.008645		1000	0	0	2	2	0	45%	0	0	0%	S
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188891	Cal7	HC-METHANE-	CAL7		1/20/2021 12:31:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	ppm		834.11562		1000	0	0	2	2	0	83%	85	115	0%	S
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188893	LCS	HC-METHANE-	CCV		1/20/2021 12:36:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Ethane	A	ppm		97.2572953		100	0	0	2	2	0	97%	85	115	0%	
Ethene	A	ppm		97.1407652		100	0	0	2	2	0	97%	85	115	0%	
Methane	A	ppm		96.8898234		100	0	0	2	2	0	97%	85	115	0%	
Ethylene	X	ppm		97.1407652		1000	0	0	2	2	0	10%	85	115	0%	S

Inst ID FID-HeadSpace

Curve Data for samples analyzed after 1/29/2021

Blank,cts	STD ID					
0	#12173	1000000				
Decimal	Sample	Response	Date/Time	Run Id		
Amnt, Injtd	Conc ppm	Area				
300ul	Equivalent	Counts	Factor			
0.0000025	2.5	4682	1872.8	1/21/2021 11:54	16483	
0.000005	5	8741	1748.2	1/21/2021 12:00	16484	
0.00001	10	16844	1684.4	1/21/2021 12:04	16485	
0.00005	50	79772	1595.44	1/21/2021 12:09	16486	
0.0001	100	151345	1513.45	1/21/2021 12:14	16487	
0.0005	500	714053	1428.106	1/21/2021 12:22	16488	
0.001	1000	1331471	1331.471	1/21/2021 12:31	16489	



Methane	MW= 16.04	StdDev	188.2268
		Avg RF	1596.267
		%RSD	11.79169

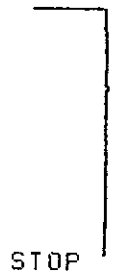
Calculated Recoveries			
[PPM]	Area Cnts	PPM	% recovery
2.5	4682	2.933094	1.1732375
5	8741	5.475902	1.0951804
10	16844	10.55212	1.0552121
50	79772	49.9741	0.9994821
100	151345	94.81185	0.9481185
500	714053	447.3269	0.8946537
1000	1331471	834.1156	0.8341156

Sample	Area Count	Dilution	Temperature (°C)	Concentration ppm and mg/L	Date and Time	Analyst	Sample	Test Code	Analyte
MBLK	0	1	20	0	1/20/2021 11:50	jdw	MBLK	HC-METHANE-W	Methane
MBLK	0	1	20	0	1/20/2021 11:50	jdw	MBLK	HC-METHANE-W	Ethane
MBLK	0	1	20	0	1/20/2021 11:50	jdw	MBLK	HC-METHANE-W	Ethene
Cal1	4682	1	20	2.9330938	1/20/2021 11:54	jdw	CCV	HC-METHANE-CCV	Methane
Cal1	8164	1	20	2.66692829	1/20/2021 11:54	jdw	CCV	HC-METHANE-CCV	Ethane
Cal1	8384	1	20	2.68217219	1/20/2021 11:54	jdw	CCV	HC-METHANE-CCV	Ethene
Cal2	8741	1	20	5.47590194	1/20/2021 12:00	jdw	CCV	HC-METHANE-CCV	Methane
Cal2	15792	1	20	5.15876183	1/20/2021 12:00	jdw	CCV	HC-METHANE-CCV	Ethane
Cal2	16206	1	20	5.18455183	1/20/2021 12:00	jdw	CCV	HC-METHANE-CCV	Ethene
Cal3	16844	1	20	10.5521213	1/20/2021 12:04	jdw	CCV	HC-METHANE-CCV	Methane
Cal3	31757	1	20	10.37403746	1/20/2021 12:04	jdw	CCV	HC-METHANE-CCV	Ethane
Cal3	31917	1	20	10.21074545	1/20/2021 12:04	jdw	CCV	HC-METHANE-CCV	Ethene
Cal4	79772	1	20	49.97410476	1/20/2021 12:09	jdw	CCV	HC-METHANE-CCV	Methane
Cal4	154538	1	20	50.48282269	1/20/2021 12:09	jdw	CCV	HC-METHANE-CCV	Ethane
Cal4	158708	1	20	50.7731613	1/20/2021 12:09	jdw	CCV	HC-METHANE-CCV	Ethene
Cal5	151345	1	20	94.81184983	1/20/2021 12:14	jdw	CCV	HC-METHANE-CCV	Methane
Cal5	295835	1	20	96.64021698	1/20/2021 12:14	jdw	CCV	HC-METHANE-CCV	Ethane
Cal5	301225	1	20	96.3665695	1/20/2021 12:14	jdw	CCV	HC-METHANE-CCV	Ethene
Cal6	714053	1	20	447.3268744	1/20/2021 12:22	jdw	CCV	HC-METHANE-CCV	Methane
Cal6	1359194	1	20	444.0069737	1/20/2021 12:22	jdw	CCV	HC-METHANE-CCV	Ethane
Cal6	1391019	1	20	445.0086452	1/20/2021 12:22	jdw	CCV	HC-METHANE-CCV	Ethene
Cal7	1331471	1	20	834.11562	1/20/2021 12:22	jdw	CCV	HC-METHANE-CCV	Methane
LCS	154662	1	20	96.88982337	1/20/2021 12:36	jdw	CCV	HC-METHANE-CCV	Methane
LCS	297724	1	20	97.25729532	1/20/2021 12:36	jdw	CCV	HC-METHANE-CCV	Ethane
LCS	303645	1	20	97.1407652	1/20/2021 12:36	jdw	CCV	HC-METHANE-CCV	Ethene

Calibration
Methane, Ethane,
Ethene
JOW
1/20/2021

*ID MB

* RUN #16482 JAN 20, 2021 11:50:13
START

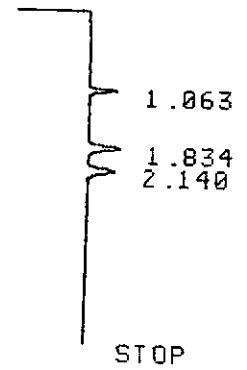


RUN# 16482 JAN 20, 2021 11:50:13

IDENTIFIER : MB
NO RUN PERKS STORED

*ID CAL1-2.5PPM

* RUN #16483 JAN 20, 2021 11:54:22
START



RUN# 16483 JAN 20, 2021 11:54:22

IDENTIFIER : CAL1-2.5PPM
AREA%

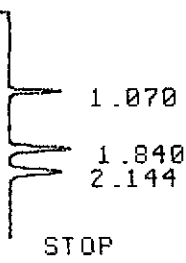
RT	AREA	TYPE	WIDTH	AREA%
1.063	4682	PP	.048	22.05370
1.834	8384	PV	.078	39.49128
2.140	8164	UP	.087	38.45502

TOTAL AREA= 21230
MUL FACTOR=1.0000E+00

*ID CAL2-5PPM

* RUN #16484 JAN 20, 2021 12:00:03

START



RUN# 16484 JAN 20, 2021 12:00:03

IDENTIFIER : CAL2-5PPM

AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.070	8741	UP	.049	21.45610
1.840	16206	PU	.076	39.78006
2.144	15792	UU	.088	38.76384

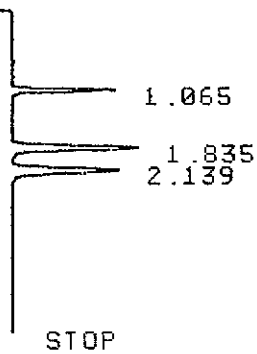
TOTAL AREA= 40739

MUL FACTOR=1.0000E+00

*ID CAL3-10PPM

* RUN #16485 JAN 20, 2021 12:04:08

START



RUN# 16485 JAN 20, 2021 12:04:08

IDENTIFIER : CAL3-10PPM

AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.065	16844	PU	.047	20.91955
1.835	31917	UP	.074	39.63958
2.139	31757	PU	.087	39.44088

TOTAL AREA= 80518

MUL FACTOR=1.0000E+00

*ID CAL4-50PPM

* RUN #16486 JAN 20, 2021 12:09:55

START



RUN# 16486 JAN 20, 2021 12:09:55

IDENTIFIER : CAL4-50PPM
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.070	79772	PB	.046	20.29729
1.840	158708	PB	.075	40.38187
2.145	154538	BB	.087	39.32085

TOTAL AREA= 393018
MUL FACTOR=1.0000E+00

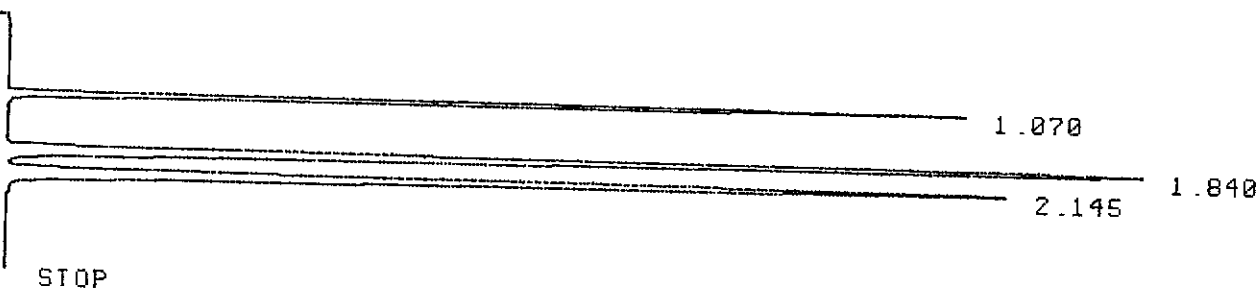
*CAL5-100PPM

INVALID SYSTEM COMMAND

*ID CAL5-100PPM

* RUN #16487 JAN 20, 2021 12:14:46

START



RUN# 16487 JAN 20, 2021 12:14:46

IDENTIFIER : CAL5-100PPM
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.070	151345	PB	.047	20.22234
1.840	301225	PB	.075	40.24893
2.145	295835	BB	.088	39.52874

TOTAL AREA= 748405
MUL FACTOR=1.0000E+00

*ID CAL6-500PPM

* RUN #16488 JAN 20, 2021 12:22:48
START



RUN# 16488 JAN 20, 2021 12:22:48

IDENTIFIER : CAL6-500PPM
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.070	714053	PB	.047	20.61195
1.838	1391019	PB	.077	40.15334
2.141	1359194	BB	.090	39.23469

TOTAL AREA=3464266
MUL FACTOR=1.0000E+00

*ID CAL7-1000PPM

* RUN #16489 JAN 20, 2021 12:31:25
START



RUN# 16489 JAN 20, 2021 12:31:25

IDENTIFIER : CAL7-1000PPM
AREA%

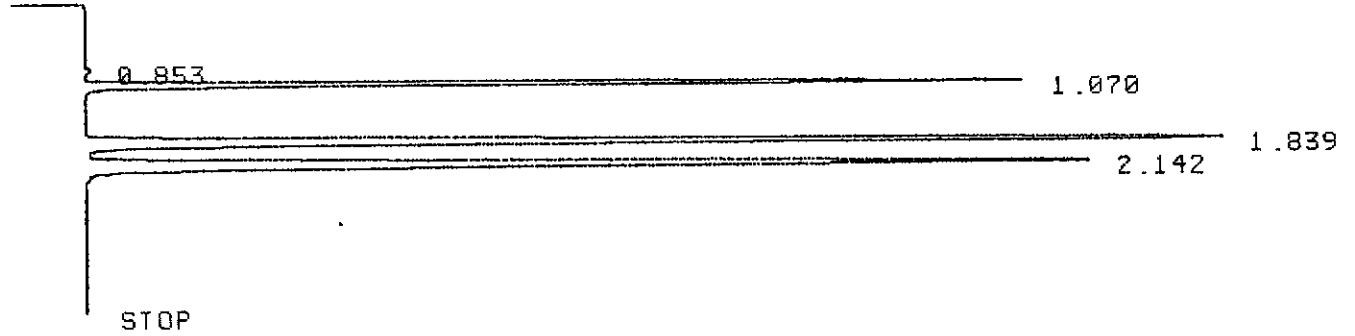
RT	AREA	TYPE	WIDTH	AREA%
1.070	1331471	PB	.049	21.86052

2.139 2333118 UB .095 37.95542
2.999 795 PP .068 .01293

TOTAL AREA=6146995
MUL FACTOR=1.0000E+00

*ID 10711-LCS

* RUN #16490 JAN 20, 2021 12:36:18
START



RUN# 16490 JAN 20, 2021 12:36:18

IDENTIFIER : 10711-LCS
AREA%

RT	AREA	TYPE	WIDTH	AREA%
.853	1141	PU	.054	.15069
1.070	154662	BB	.049	20.42627
1.839	303645	BU	.075	40.10251
2.142	297724	UU	.088	39.32053

TOTAL AREA= 757172
MUL FACTOR=1.0000E+00

*

Energy Laboratories Inc

ANALYTICAL RUN Summary

14-Jan-22

Run ID FID-HEADSPACE_220113A

Run Start Date: 1/13/2022
Analyst: Jeff Whitmer
Ical:
Column ID: porapak Q
Comments: See Preservation Comment column for sample pH; thermometer used for temp:S94278.

Instrument ID	Description
1000_SGE_041819	1000 mL SGE Syringe _ Gas Tight

Std ID	Std Name	Std Amount	Std Units	Samp Amount	Samp Units	SampType	Expiration Date
10711	HC-Methane-W-CCV	0.3	ml			lcs	8/9/2022
12173	HC-Methane-W-CCV	0.3	ml			CCV	11/23/2023

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976364	CCV	HC-METHANE-	CCV		1/13/2022 8:58:0	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	ppm		97.4956119		100	0	0	2	2	0	97%	85	115	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976365	LCS	HC-METHANE-	LCS		1/13/2022 9:02:0	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	ppm		97.6747799		100	0	0	2	2	0	98%	85	115	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976366	LCSD	HC-METHANE-	LCSD		1/13/2022 9:06:0	1	R373132		0	1E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	ppm		97.9466643		100	0	97.67478	2	2	0	98%	85	115	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976367	MBLK	HC-METHANE-	MBLK		1/13/2022 10:30:	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	0.001	0	0%	0	0	0%	
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976368	B22010625-001I	HC-METHANE-	SAMP		1/13/2022 10:36:	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	0.002	0	0%	0	0	0%	U
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976369	B22010625-005	HC-METHANE-	SAMP		1/13/2022 10:44:	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	0.002	0	0%	0	0	0%	U
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976370	B22010626-001I	HC-METHANE-	SAMP		1/13/2022 10:50:	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	0.002	0	0%	0	0	0%	U
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976371	B22010626-005	HC-METHANE-	SAMP		1/13/2022 10:57:	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	0.002	0	0%	0	0	0%	U
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976372	B22010629-001I	HC-METHANE-	SAMP		1/13/2022 11:05:	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0.00132090			0	0	0.000704	0.002	0	0%	0	0	0%	J

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976373	B22010629-005	HC-METHANE-	SAMP		1/13/2022 11:11:	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	0.002	0	0%	0	0	0%	U
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976374	B22010628-001I	HC-METHANE-	SAMP		1/13/2022 11:17:	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	0.002	0	0%	0	0	0%	U
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976375	B22010628-005	HC-METHANE-	SAMP		1/13/2022 11:24:	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	0.002	0	0%	0	0	0%	U
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976376	B22010633-001I	HC-METHANE-	SAMP		1/13/2022 11:30:	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	0.002	0	0%	0	0	0%	U
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976377	B22010633-005	HC-METHANE-	SAMP		1/13/2022 11:35:	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	0.002	0	0%	0	0	0%	U
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976378	B22010637-001I	HC-METHANE-	SAMP		1/13/2022 11:43:	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	0.002	0	0%	0	0	0%	U

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976379	B22010637-005	HC-METHANE-	SAMP		1/13/2022 11:49:	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	0.002	0	0%	0	0	0%	U
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976380	B22010641-001I	HC-METHANE-	SAMP		1/13/2022 11:56:	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0.00218597			0	0	0.000704	0.002	0	0%	0	0	0%	
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976381	B22010641-001I	HC-METHANE-	DUP		1/13/2022 12:04:	1	R373132		0	1E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0.00225053			0	0.002186	0.000704	0.002	0	0%	0	0	3%	
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976382	B22010641-005	HC-METHANE-	SAMP		1/13/2022 12:11:	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	0.002	0	0%	0	0	0%	U
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976383	B22010643-001I	HC-METHANE-	SAMP		1/13/2022 12:16:	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0.00177471			0	0	0.000704	0.002	0	0%	0	0	0%	J
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14976384	B22010643-006	HC-METHANE-	SAMP		1/13/2022 12:23:	1	R373132		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	0.002	0	0%	0	0	0%	U

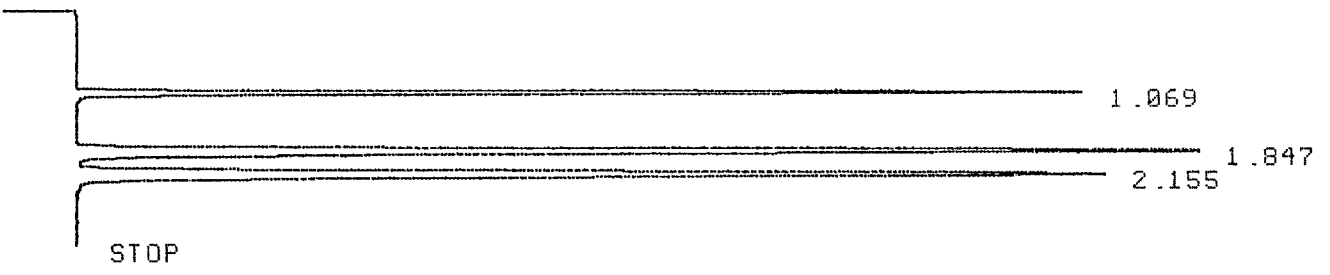
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
14976385	CCV	HC-METHANE-	CCV		1/13/2022 12:32:	1	R373132		0	0						
Methane	A	ppm		97.7336673		100	0	0	2	2	0	98%	85	115	0%	

Sample ID	Area Count	Dilution Factor	Temperature (C)	Concentration	Date/Time Analyzed	Analyst	Sample Type	Test Code	Analyte	Headspace Volume	Liquid Volume
CCV	155629	1	21	97.49561186	1/13/2022 8:58	jdw	CCV	HC-METHANE-CCV	Methane		
LCS	155915	1	21	97.67477991	1/13/2022 9:02	jdw	LCS	HC-METHANE-CCV	Methane		
LCS	156349	1	21	97.9466643	1/13/2022 9:06	jdw	LCS	HC-METHANE-CCV	Methane		
MBLK	942	1	21	0.00013636	1/13/2022 10:30	jdw	MBLK	HC-METHANE-W	Methane	10	32
B22010625-001I	2242	1	21	0.000188183	1/13/2022 10:36	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010625-005A	1063	1	21	1.75155E-05	1/13/2022 10:44	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010626-001I	1561	1	21	8.96042E-05	1/13/2022 10:50	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010626-005A	1242	1	21	4.34269E-05	1/13/2022 10:57	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010628-001I	1416	1	21	6.86145E-05	1/13/2022 11:17	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010628-005A	538	1	21	-5.84816E-05	1/13/2022 11:24	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010629-001I	10067	1	21	0.001320901	1/13/2022 11:05	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010629-005A	893	1	21	-7.09306E-06	1/13/2022 11:11	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010633-001I	987	1	21	6.51403E-06	1/13/2022 11:30	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010633-005A	834	1	21	-1.56337E-05	1/13/2022 11:35	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010637-001I	1425	1	21	6.99173E-05	1/13/2022 11:43	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010637-005A	1034	1	21	1.33176E-05	1/13/2022 11:49	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010641-001I	16043	1	21	0.002185965	1/13/2022 11:56	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010641-001IDUP	16489	1	21	0.002250527	1/13/2022 12:04	jdw	DUP	HC-METHANE-W	Methane	10	32
B22010641-005A	0	1	21	-0.00013636	1/13/2022 12:11	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010643-001I	13202	1	21	0.001774712	1/13/2022 12:16	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010643-006A	1057	1	21	1.6647E-05	1/13/2022 12:23	jdw	SAMP	HC-METHANE-W	Methane	10	32
CCV	156009	1	21	97.73366731	1/13/2022 12:32	jdw	CCV	HC-METHANE-CCV	Methane		

SDW
1/13/2022

*ID 12173-500X-CCU

* RUN #18996 JAN 13, 2022 08:58:18
START



RUN# 18996 JAN 13, 2022 08:58:18

IDENTIFIER : 12173-500X-C
AREA%

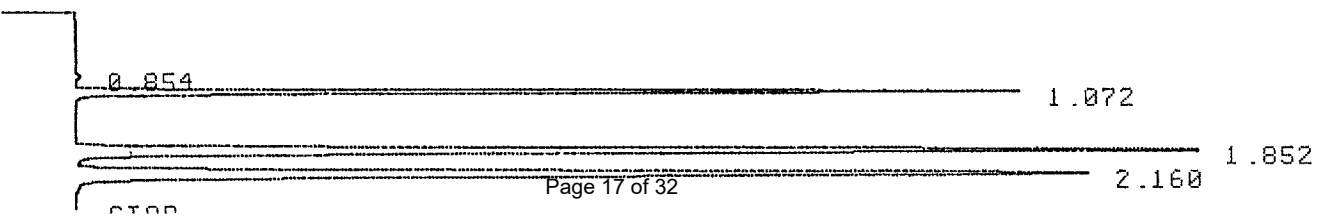
RT	AREA	TYPE	WIDTH	AREA%
1.069	155629	PB	.045	20.15570
1.847	311238	PB	.074	40.30880
2.155	305267	BB	.087	39.53549

TOTAL AREA= 772134
MUL FACTOR=1.0000E+00

*ID L

*ID 10711-LCS

* RUN #18997 JAN 13, 2022 09:02:40
START



RUN# 18997 JAN 13, 2022 09:02:40

IDENTIFIER : 10711-LCS

AREA%

RT	AREA	TYPE	WIDTH	AREA%
.854	815	UU	.047	.10575
1.072	155915	PB	.048	20.23152
1.852	310510	PB	.075	40.29174
2.160	303414	BB	.088	39.37098

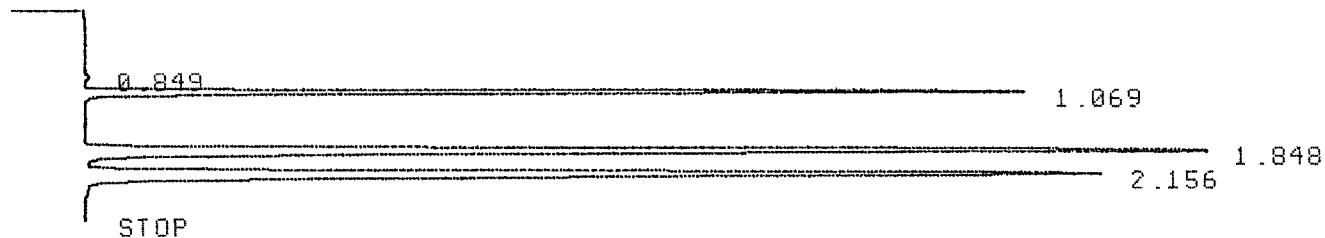
TOTAL AREA= 770654

MUL FACTOR=1.0000E+00

*ID 10711-LCSD

* RUN #18998 JAN 13, 2022 09:06:40

START



RUN# 18998 JAN 13, 2022 09:06:40

IDENTIFIER : 10711-LCSD

AREA%

RT	AREA	TYPE	WIDTH	AREA%
.849	813	UU	.050	.10449
1.069	156349	PB	.049	20.09426
1.848	313264	UU	.076	40.26126
2.156	307652	UU	.088	39.54000

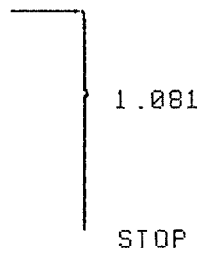
TOTAL AREA= 778078

MUL FACTOR=1.0000E+00

*

*ID MB

* RUN #18999 JAN 13, 2022 10:30:35
START



RUN# 18999 JAN 13, 2022 10:30:35

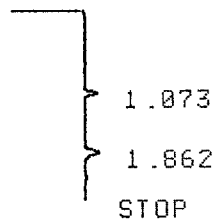
IDENTIFIER : MB
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.081	942	UP	.065	100.00000

TOTAL AREA= 942
MUL FACTOR=1.0000E+00

*ID 625-1I

* RUN #19000 JAN 13, 2022 10:36:15
START



RUN# 19000 JAN 13, 2022 10:36:15

IDENTIFIER : 625-1I
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.073	2242	BP	.048	34.86238
1.862	4189	UP	.081	65.13760

TOTAL AREA= 6431
MUL FACTOR=1.0000E+00

*ID 625-5A

* RUN #19001 JAN 13, 2022 10:44:39
START

┌───
│
│ } 1.084
│
└───
STOP

RUN# 19001 JAN 13, 2022 10:44:39

IDENTIFIER : 625-5A
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.084	1063	PP	.060	100.00000

TOTAL AREA= 1063
MUL FACTOR=1.0000E+00

*ID 626-1I

* RUN #19002 JAN 13, 2022 10:50:33
START

┌───
│
│ } 0.890
│ } 1.060
│
└───
STOP

RUN# 19002 JAN 13, 2022 10:50:33

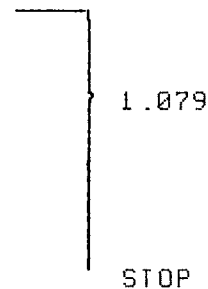
IDENTIFIER : 626-1I
AREA%

RT	AREA	TYPE	WIDTH	AREA%
.890	494	PU	.057	24.03893
1.060	1561	UP	.082	75.96109

TOTAL AREA= 2055
MUL FACTOR=1.0000E+00

*ID 626-5A

* RUN #19003 JAN 13, 2022 10:57:10
START



RUN# 19003 JAN 13, 2022 10:57:10

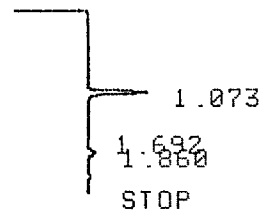
IDENTIFIER : 626-5A
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.079	1242	UP	.072	100.00000

TOTAL AREA= 1242
MUL FACTOR=1.0000E+00

*ID 629-1I

* RUN #19004 JAN 13, 2022 11:05:35
START



RUN# 19004 JAN 13, 2022 11:05:35

IDENTIFIER : 629-1I
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.073	10067	UU	.049	79.06227
1.692	508	PV	.065	3.98963
1.860	2158	UP	.079	16.94809

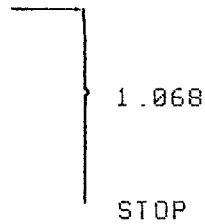
TOTAL AREA= 12733
MUL FACTOR=1.0000E+00

*ID 629-5A

*

*ID 629-5A

* RUN #19005 JAN 13, 2022 11:11:28
START



RUN# 19005 JAN 13, 2022 11:11:28

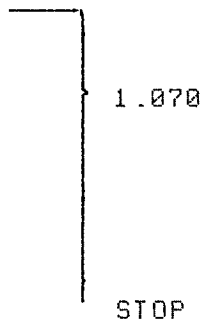
IDENTIFIER : 629-5A
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.068	893	PV	.061	100.00000

TOTAL AREA= 893
MUL FACTOR=1.0000E+00

*ID 628-1I

* RUN #19006 JAN 13, 2022 11:17:13
START



RUN# 19006 JAN 13, 2022 11:17:13

IDENTIFIER : 628-1I
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.070	1416	PP	.068	100.00000

TOTAL AREA= 1416
MUL FACTOR=1.0000E+00

*ID 628-5A

* RUN #19007 JAN 13, 2022 11:24:50
START

┌───
│
│ } 1.075
│
└───
STOP

RUN# 19007 JAN 13, 2022 11:24:50

IDENTIFIER : 628-5A

AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.075	538	BP	.044	100.00000

TOTAL AREA= 538
MUL FACTOR=1.0000E+00

*ID 633-1I

* RUN #19008 JAN 13, 2022 11:30:09
START

┌───
│
│ } 1.078
│
└───
STOP

RUN# 19008 JAN 13, 2022 11:30:09

IDENTIFIER : 633-1I

AREA%

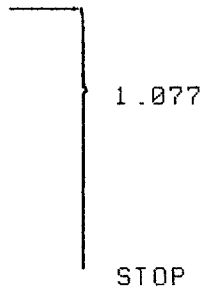
RT	AREA	TYPE	WIDTH	AREA%
1.078	987	UV	.057	100.00000

TOTAL AREA= 987
MUL FACTOR=1.0000E+00

*

*ID 633-5A

* RUN #19009 JAN 13, 2022 11:35:32
START



RUN# 19009 JAN 13, 2022 11:35:32

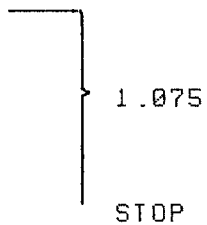
IDENTIFIER : 633-5A
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.077	834	UP	.054	100.00000

TOTAL AREA= 834
MUL FACTOR=1.0000E+00

*ID 637-1I

* RUN #19010 JAN 13, 2022 11:43:15
START



RUN# 19010 JAN 13, 2022 11:43:15

IDENTIFIER : 637-1I
AREA%

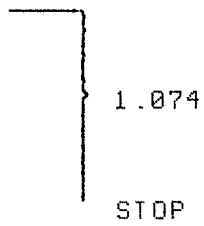
RT	AREA	TYPE	WIDTH	AREA%
1.075	1425	PP	.052	100.00000

TOTAL AREA= 1425
MUL FACTOR=1.0000E+00

*ID 637-5A

* RUN #19011 JAN 13, 2022 11:49:33

START



RUN# 19011 JAN 13, 2022 11:49:33

IDENTIFIER : 637-5A

AREA%

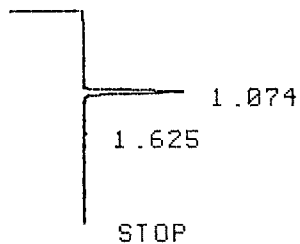
RT	AREA	TYPE	WIDTH	AREA%
1.074	1034	UP	.062	100.00000

TOTAL AREA= 1034
MUL FACTOR=1.0000E+00

*ID 641-1I

* RUN #19012 JAN 13, 2022 11:56:00

START



RUN# 19012 JAN 13, 2022 11:56:00

IDENTIFIER : 641-1I

AREA%

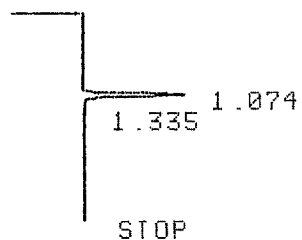
RT	AREA	TYPE	WIDTH	AREA%
1.074	16043	PB	.046	100.00000

TOTAL AREA= 16043
MUL FACTOR=1.0000E+00

*

*ID 641-1I-DUP

* RUN #19013 JAN 13, 2022 12:04:07
START



RUN# 19013 JAN 13, 2022 12:04:07

IDENTIFIER : 641-1I-DUP
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.074	16489	UU	.047	97.77635
1.335	375	I PB	.055	2.22367

TOTAL AREA= 16864
MUL FACTOR=1.0000E+00

*ID 641-5A

* RUN #19014 JAN 13, 2022 12:11:01
START



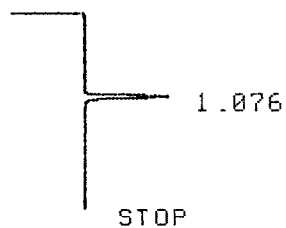
RUN# 19014 JAN 13, 2022 12:11:01

IDENTIFIER : 641-5A
NO RUN PEAKS STORED

*

*ID 643-1I

* RUN #19015 JAN 13, 2022 12:16:14
START



RUN# 19015 JAN 13, 2022 12:16:14

IDENTIFIER : 643-1I

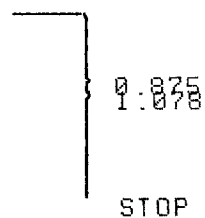
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.076	13202	BB	.046	100.00000

TOTAL AREA= 13202
MUL FACTOR=1.0000E+00

*ID 643-6A

* RUN #19016 JAN 13, 2022 12:23:55
START



RUN# 19016 JAN 13, 2022 12:23:55

IDENTIFIER : 643-6A

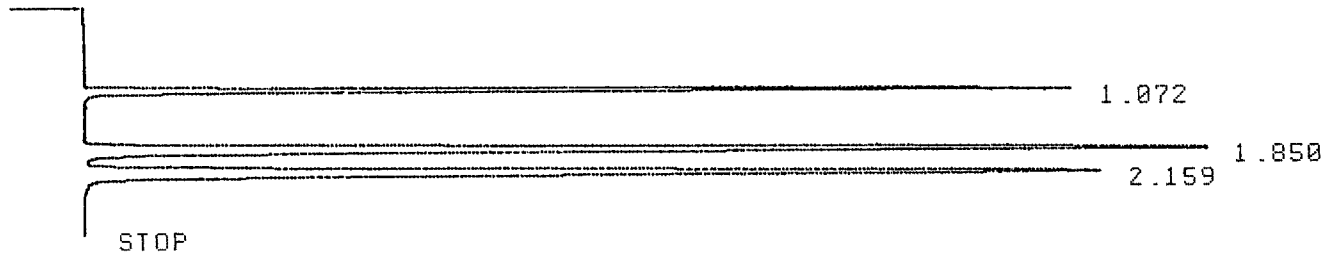
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.078	1057	PP	.076	100.00000

TOTAL AREA= 1057
MUL FACTOR=1.0000E+00

*ID 12173-500X-CCU

* RUN #19017 JAN 13, 2022 12:32:54
START



RUN# 19017 JAN 13, 2022 12:32:54

IDENTIFIER : 12173-500X-C
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.072	156009	PB	.046	20.29742
1.850	310929	PB	.075	40.45315
2.159	301677	BB	.087	39.24944

TOTAL AREA= 768615
MUL FACTOR=1.0000E+00

*

Energy Laboratories Inc

Spike LOG

Standard ID: 12173
 Standard Name: HC-Methane-W-CCV
 Date Prepared: 11/22/2019
 Date Expires: 11/23/2023
 Department: GAS
 Vendor: Matheson
 Lot Number: 109-96-04454
 Balance ID:

Type: Primary
 BY:
 Status: New

Comments: CCV Gas Standard for Methane, Ethene, Ethane: 50000ppm stock diluted from 100 - 500ppm with Helium for CCV. Diluted from 2.5ppm - 1000ppm with Helium for Calibration.

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
3 Multi-Component Gas Standard in Ni	12173		mL	11/23

Final Volume: mL

Stock Source

Base Units

Amount Added

Analyses

CAS

Conc: ug/mL

MATHESON TRI-GAS INC
1650 Enterprise Pkwy
Twinsburg, OH 44087
1-215-648-4000

CERTIFICATE OF ANALYSIS

Energy Laboratories Inc
1120 South 27th Street
Billings, MT 59101

Ref Po# 3008099

14 LITER DISPOSABLE

LOT NUMBER: 109-96-04454

COMPONENT

CONCENTRATION

methane	50010	ppm
ethane	50030	ppm
ethylene	50030	ppm
nitrogen	Bal	

ITEM NUMBER: GMT2685284TC

CGA: 160

PSIG: 240

FILL DATE: 11/22/19

EXPIRATION DATE: 11/23/23

ID #: 12173

Opened: _____

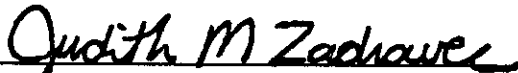
3 Multi-Component Gas Standard in Nitrogen

Expires: 11/23/2023

Rec'd: 12/3/2019

Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

Above are the results of the analysis you requested, as reported by our laboratory. Results are in mole percent, unless otherwise indicated. Mixture accuracy is $\pm 2\%$. NIST traceable by weights or gaseous standards.



Judy Zadravec, Chemist

10/19/2018

DATE

Energy Laboratories Inc

Spike LOG

Standard ID: 10711
 Standard Name: HC-Methane-W-CCV
 Date Prepared: 8/8/2018
 Date Expires: 8/9/2022
 Department: GAS
 Vendor: Matheson
 Lot Number: 109-86-03507
 Balance ID:

Type: Primary
 BY:
 Status: New

Comments: LCS Gas Standard for Methane, Ethene, Ethane: 100ppm per standard used undiluted for LCS

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
3 Multi-Component Gas Standard in Ni	10711		mL	8/9/2022

Final Volume: mL

Stock Source

Base Units

Amount Added

Analyses

CAS

Conc: ug/mL

MATHESON TRI-GAS INC
1650 Enterprise Pkwy
Twinsburg, OH 44087
1-215-648-4000

CERTIFICATE OF ANALYSIS

Energy Laboratories Inc
1120 South 27th Street
Billings, MT 59101

Ref Po# 3005062

14 LITER DISPOSABLE

LOT NUMBER: 109-86-03507

COMPONENT

CONCENTRATION

methane	100.0	ppm
ethane	100.0	ppm
ethylene	100.0	ppm
nitrogen	Bal	

ITEM NUMBER: GMT2677328TC

CGA: 160

PSIG: 240

FILL DATE: 08/08/18

EXPIRATION DATE: 08/09/22

Above are the results of the analysis you requested, as reported by our laboratory. Results are in mole percent, unless otherwise indicated. Mixture accuracy is $\pm 2\%$. NIST traceable by weights or gaseous standards.

Judith M Zadravec

Judy Zadravec, Chemist

8/14/2018

DATE

ID #: 10711
Opened: _____
3 Multi-Component Gas Standard in Nitrogen
Expires: 8/9/2022
Rec'd: 8/27/2018
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107