

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

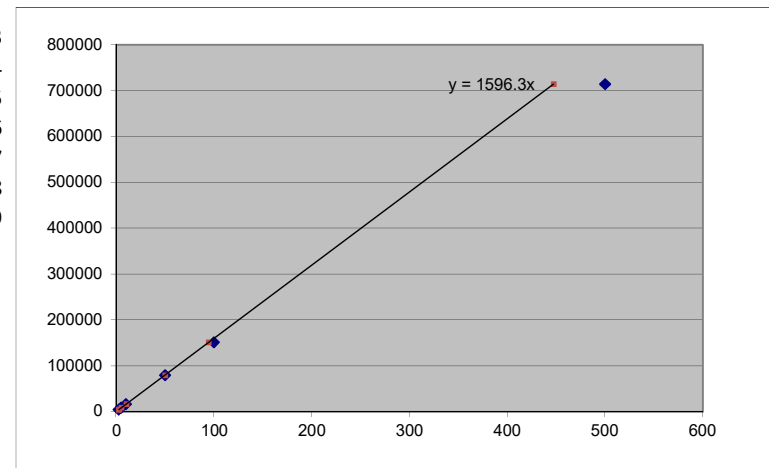
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188881	Cal2	HC-METHANE-	CAL2		1/20/2021 12:00:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Ethane	A	ppm		5.15876183		5	0	0	2	2	0	103%	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	1000000				
0 #12173						
Decimal	Sample	Response	Date/Time	Run Id		
Amnt, Injtd Equivalent	Conc ppm	Factor				
300ul	Area Counts					
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

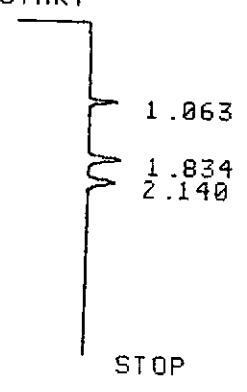


RUN# 16482 JAN 20, 2021 11:50:13

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%

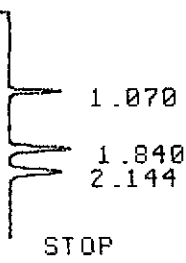
RT	AREA	TYPE	WIDTH	AREA%
1.063	4682	PP	.048	22.05370
1.834	8384	PU	.078	39.49128
2.140	8164	UP	.087	38.45502

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

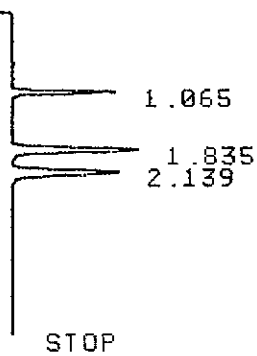
TOTAL AREA= 40739

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

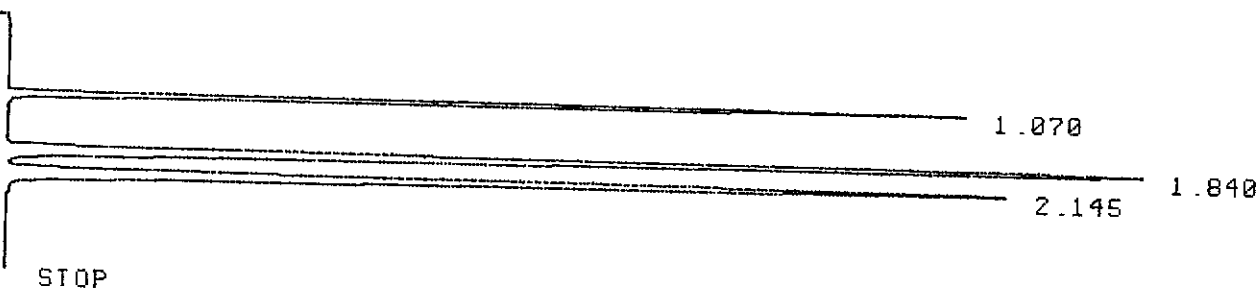
*CAL5-100PPM

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%

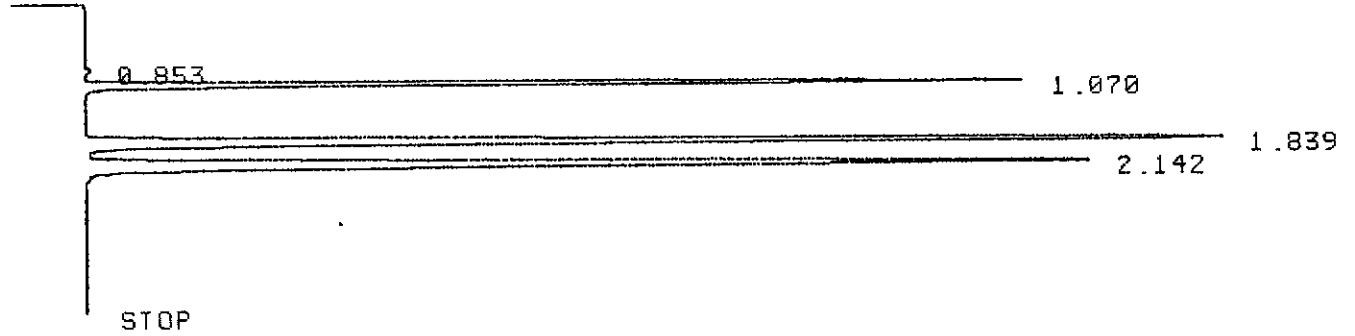
RT	AREA	TYPE	WIDTH	AREA%
1.070	1331471	PB	.049	21.86952

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_220111A

Run Start Date: 1/11/2022
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					
14973806	CCV	HC-METHANE-	CCV		1/11/2022 8:47:0	1	R373050		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	ppm		96.8478504		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					
14973807	LCS	HC-METHANE-	LCS		1/11/2022 8:52:0	1	R373050		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	ppm		97.6779122		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					
14973808	LCSD	HC-METHANE-	LCSD		1/11/2022 8:57:0	1	R373050		0	1E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	ppm		98.1064120		100	0	97.677912	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					
14973809	MBLK	HC-METHANE-	MBLK		1/11/2022 10:02:	1	R373050		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					
14973810	B22010260-001I	HC-METHANE-	SAMP		1/11/2022 10:20:	78	R373050		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		3.23921227			0	0	0.054912	0.156	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					
14973811	B22010260-001I	HC-METHANE-	DUP		1/11/2022 10:30:	78	R373050		0	1E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		3.23302697			0	3.2392123	0.054912	0.156	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					
14973812	B22010260-005	HC-METHANE-	SAMP		1/11/2022 10:43:	1	R373050		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					
14973813	B22010338-001I	HC-METHANE-	SAMP		1/11/2022 10:49:	1	R373050		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					
14973814	B22010338-005	HC-METHANE-	SAMP		1/11/2022 10:54:	1	R373050		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					
14973815	B22010361-001I	HC-METHANE-	SAMP		1/11/2022 11:00:	1	R373050		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0.01021454			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					
14973816	B22010361-005	HC-METHANE-	SAMP		1/11/2022 11:11:	1	R373050		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					
14973817	B22010366-001I	HC-METHANE-	SAMP		1/11/2022 11:34:	78	R373050		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0.57398432			0	0	0.054912	0.156	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					
14973818	B22010366-006	HC-METHANE-	SAMP		1/11/2022 12:00:	1	R373050		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					
14973819	B22010369-001I	HC-METHANE-	SAMP		1/11/2022 12:05:	1	R373050		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					
14973820	B22010369-005	HC-METHANE-	SAMP		1/11/2022 12:10:	1	R373050		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					
14973821	B22010403-001I	HC-METHANE-	SAMP		1/11/2022 12:16:	1	R373050		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					
14973822	B22010403-005	HC-METHANE-	SAMP		1/11/2022 12:22:	1	R373050		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					
14973823	B22010405-001I	HC-METHANE-	SAMP		1/11/2022 12:27:	1	R373050		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					
14973824	B22010405-005	HC-METHANE-	SAMP		1/11/2022 12:33:	1	R373050		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					
14973825	B22010406-001I	HC-METHANE-	SAMP		1/11/2022 12:38:	1	R373050		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					
14973826	B22010406-005	HC-METHANE-	SAMP		1/11/2022 12:44:	1	R373050		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

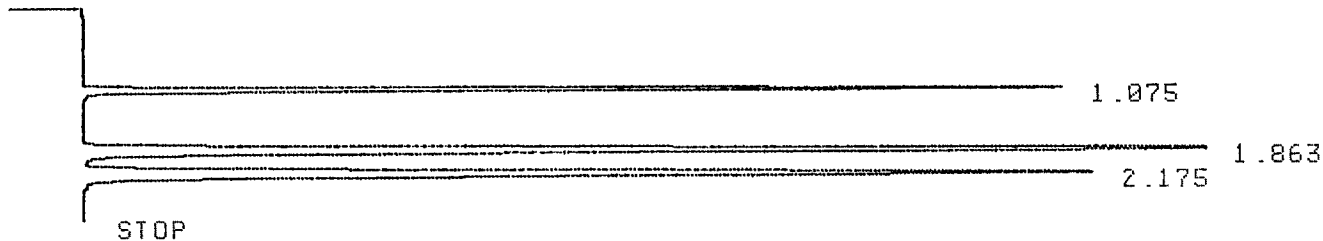
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14973827	B22010409-001I	HC-METHANE-	SAMP		1/11/2022 12:49:	1	R373050		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	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					
14973828	B22010409-005	HC-METHANE-	SAMP		1/11/2022 12:57:	1	R373050		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					
14973829	B22010410-001I	HC-METHANE-	SAMP		1/11/2022 1:03:0	1	R373050		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					
14973830	B22010410-005	HC-METHANE-	SAMP		1/11/2022 1:08:0	1	R373050		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					
14973831	CCV	HC-METHANE-	CCV		1/11/2022 1:13:0	1	R373050		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	ppm		97.8589597		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	154595	1	20	96.84785044	1/11/2022 8:47	jdw	CCV	HC-METHANE-CCV	Methane		
LCS	155920	1	20	97.67791222	1/11/2022 8:52	jdw	LCS	HC-METHANE-CCV	Methane		
LCS	156604	1	20	98.10641204	1/11/2022 8:57	jdw	LCS	HC-METHANE-CCV	Methane		
MBLK	1515	1	20	0.000220436	1/11/2022 10:02	jdw	MBLK	HC-METHANE-W	Methane	10	32
B22010260-001I	286929	78	20	3.239212273	1/11/2022 10:20	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010260-001IDUP	286384	78	20	3.233026975	1/11/2022 10:30	jdw	DUP	HC-METHANE-W	Methane	10	32
B22010260-005A	1094	1	20	-6.12564E-05	1/11/2022 10:43	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010338-001I	1883	1	20	5.35448E-05	1/11/2022 10:49	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010338-005A	1187	1	20	-4.77247E-05	1/11/2022 10:54	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010361-001I	71717	1	20	0.010214545	1/11/2022 11:00	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010361-005A	1109	1	20	-5.90739E-05	1/11/2022 11:11	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010366-001I	52090	78	20	0.57398432	1/11/2022 11:34	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010366-006A	935	1	20	-8.43913E-05	1/11/2022 12:00	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010369-001I	1570	1	20	8.00262E-06	1/11/2022 12:05	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010369-005A	1404	1	20	-1.61507E-05	1/11/2022 12:10	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010403-001I	1490	1	20	-3.63755E-06	1/11/2022 12:16	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010403-005A	1234	1	20	-4.08861E-05	1/11/2022 12:22	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010405-001I	1061	1	20	-6.6058E-05	1/11/2022 12:27	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010405-005A	932	1	20	-8.48278E-05	1/11/2022 12:33	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010406-001I	652	1	20	-0.000125568	1/11/2022 12:38	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010406-005A	0	1	20	-0.000220436	1/11/2022 12:44	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010409-001I	4372	1	20	0.0004157	1/11/2022 12:49	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010409-005A	1514	1	20	-1.45502E-07	1/11/2022 12:57	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010410-001I	1105	1	20	-5.96559E-05	1/11/2022 13:03	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22010410-005A	821	1	20	-0.000100979	1/11/2022 13:08	jdw	SAMP	HC-METHANE-W	Methane	10	32
CCV	156209	1	20	97.85895966	1/11/2022 13:13	jdw	CCV	HC-METHANE-CCV	Methane		

JSW
1/11/2022

*ID 12173-500X-CCU

* RUN #18956 JAN 11, 2022 08:47:18
START



RUN# 18956 JAN 11, 2022 08:47:18

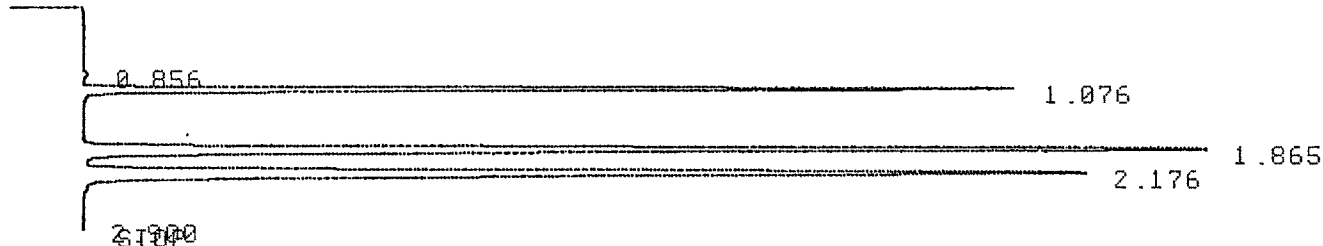
IDENTIFIER : 12173-500X-C
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.075	154595	PB	.046	20.05529
1.863	310699	PV	.076	40.30634
2.175	305550	VB	.089	39.63837

TOTAL AREA= 770844
MUL FACTOR=1.0000E+00

*ID 10711-LCS

* RUN #18957 JAN 11, 2022 08:52:03
START



RUN# 18957 JAN 11, 2022 08:52:03

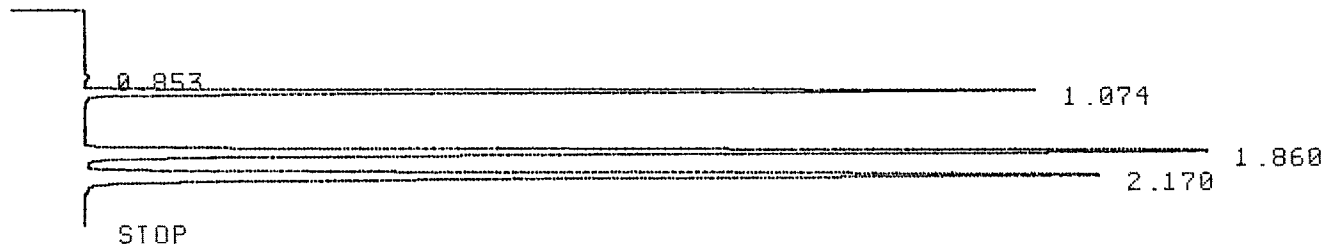
IDENTIFIER : 10711-LCS
AREA%

RT	AREA	TYPE	WIDTH	AREA%
.856	855	VV	.055	.11109
1.076	155920	PB	.049	20.25925
1.865	309373	PB	.076	40.19794
2.176	303167	BB	.089	39.39157
2.900	309	I PH	.067	.04015

TOTAL AREA= 769624
MUL FACTOR=1.0000E+00

*ID 10711-LCSD

* RUN #18958 JAN 11, 2022 08:57:05
START



RUN# 18958 JAN 11, 2022 08:57:05

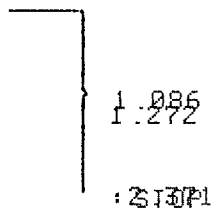
IDENTIFIER : 10711-LCSD
AREA%

RT	AREA	TYPE	WIDTH	AREA%
.853	871	BP	.049	.11271
1.074	156604	UB	.048	20.26454
1.860	310802	PB	.075	40.21776
2.170	304521	BB	.088	39.40499

TOTAL AREA= 772798
MUL FACTOR=1.0000E+00

*ID MB

* RUN #18959 JAN 11, 2022 10:02:35
START



RUN# 18959 JAN 11, 2022 10:02:35

IDENTIFIER : MB
AREA%

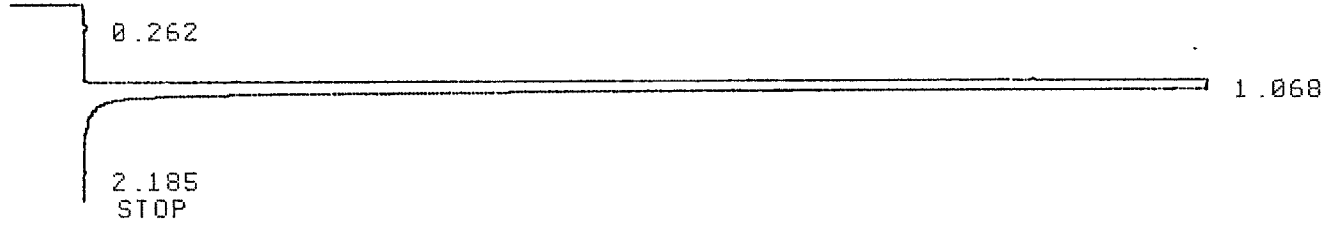
RT	AREA	TYPE	WIDTH	AREA%
1.086	1515	VU	.078	77.09923
1.272	450	PV	.053	22.90077

TOTAL AREA= 1965
MUL FACTOR=1.0000E+00

*ID 260-1I

* RUN #18960 JAN 11, 2022 10:09:10

START



RUN# 18960 JAN 11, 2022 10:09:10

IDENTIFIER : 260-1I

AREA%

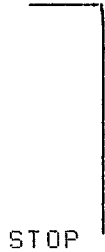
RT	AREA	TYPE	WIDTH	AREA%
.262	721	PP	.092	.01197
1.068	6020154	SHB	.065	99.97168
2.185	984	PU	.140	.01634

TOTAL AREA=6021856
MUL FACTOR=1.0000E+00

* PLOT



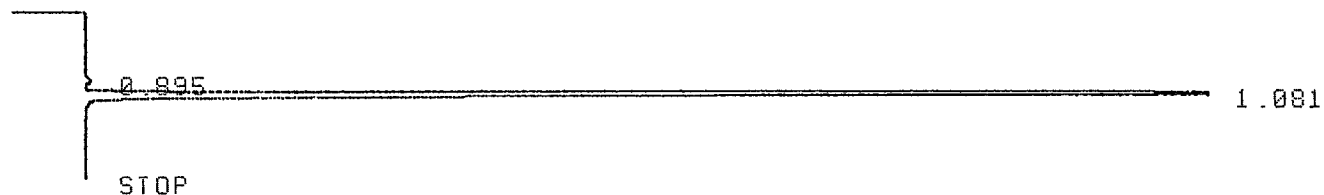
* PLOT



*

*ID 260-1I-78X

* RUN #18961 JAN 11, 2022 10:20:36
START



RUN# 18961 JAN 11, 2022 10:20:36

IDENTIFIER : 260-1I-78X
AREA%

RT	AREA	TYPE	WIDTH	AREA%
.895	1380	PP	.070	.47865
1.081	286929	PB	.049	99.52138

TOTAL AREA= 288309
MUL FACTOR=1.0000E+00

* PLOT



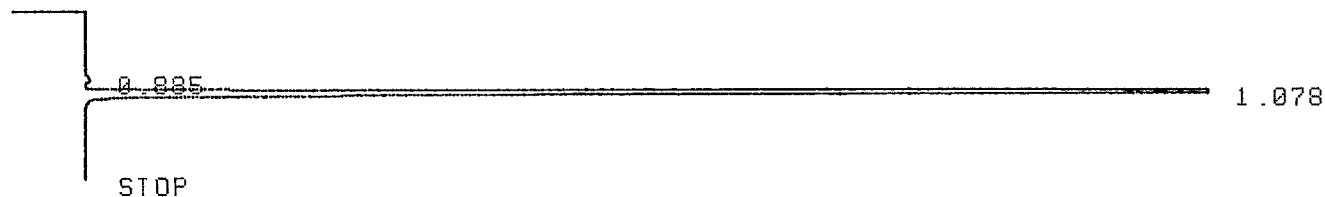
* PLOT



*

*ID 260-1I-78XDUP

* RUN #18962 JAN 11, 2022 10:30:16
START



RUN# 18962 JAN 11, 2022 10:30:16

IDENTIFIER : 260-1I-78XDU

AREA%

RT	AREA	TYPE	WIDTH	AREA%
.885	1503	PU	.076	.52208
1.078	286384	PB	.048	99.47792

TOTAL AREA= 287887
MUL FACTOR=1.0000E+00

* PLOT



* PLOT



*
*
*

*ID 260-5A

* RUN #18963 JAN 11, 2022 10:43:24
START

┌───
└─── } 1.081
 } : 2.266
 } STOP

RUN# 18963 JAN 11, 2022 10:43:24

IDENTIFIER : 260-5A
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.081	1094	UP	.058	100.00000

TOTAL AREA= 1094
MUL FACTOR=1.0000E+00

*ID 338-1I

* RUN #18964 JAN 11, 2022 10:49:13
START

┌───
└─── } 1.081
 } : 2.308
 } STOP

RUN# 18964 JAN 11, 2022 10:49:13

IDENTIFIER : 338-1I
AREA%

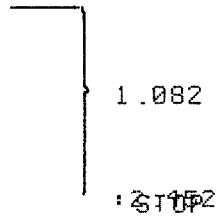
RT	AREA	TYPE	WIDTH	AREA%
1.081	1883	UP	.055	100.00000

TOTAL AREA= 1883
MUL FACTOR=1.0000E+00

*

*ID 338-5A

* RUN #18965 JAN 11, 2022 10:54:23
START



RUN# 18965 JAN 11, 2022 10:54:23

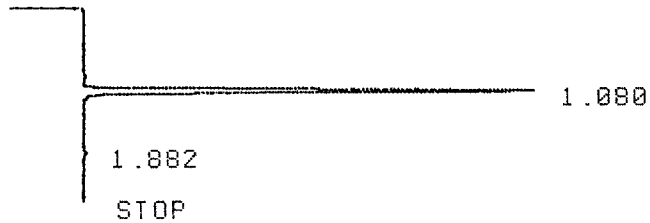
IDENTIFIER : 338-5A
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.082	1187	UP	.069	100.00000

TOTAL AREA= 1187
MUL FACTOR=1.0000E+00

*ID 361-1I

* RUN #18966 JAN 11, 2022 11:00:44
START



RUN# 18966 JAN 11, 2022 11:00:44

IDENTIFIER : 361-1I
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.080	71717	PB	.047	99.06074
1.882	680	PU	.062	.93927

TOTAL AREA= 72397
MUL FACTOR=1.0000E+00

STOP

* PLOT

STOP

*ID 361-5A

* RUN #18967 JAN 11, 2022 11:11:18
START

1.083
:STOP

RUN# 18967 JAN 11, 2022 11:11:18

IDENTIFIER : 361-5A

AREA%

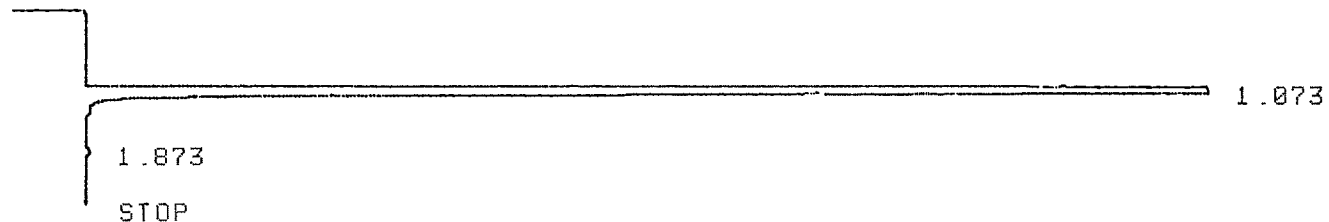
RT	AREA	TYPE	WIDTH	AREA%
1.083	1109	PU	.063	100.00000

TOTAL AREA= 1109
MUL FACTOR=1.0000E+00

*

*ID 366-1I

* RUN #18968 JAN 11, 2022 11:17:08
START



RUN# 18968 JAN 11, 2022 11:17:08

IDENTIFIER : 366-1I
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.073	3006206	BB	.055	99.95459
1.873	1366	PV	.082	.04542

TOTAL AREA=3007573
MUL FACTOR=1.0000E+00

* PLOT



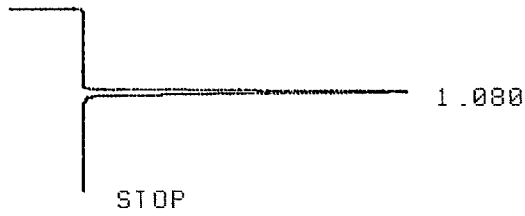
* PLOT



*ID 366-1I-78X

* RUN #18969 JAN 11, 2022 11:34:44

START



RUN# 18969 JAN 11, 2022 11:34:44

IDENTIFIER : 366-1I-78X

AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.080	52090	BB	.047	100.00000

TOTAL AREA= 52090

MUL FACTOR=1.0000E+00

* PLOT



* PLOT



*

*ID 366-6A

* RUN #18970 JAN 11, 2022 12:00:20
START

1.083
STOP

RUN# 18970 JAN 11, 2022 12:00:20

IDENTIFIER : 366-6A

AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.083	935	PP	.066	100.00000

TOTAL AREA= 935
MUL FACTOR=1.0000E+00

*ID 369-1I

* RUN #18971 JAN 11, 2022 12:05:52
START

1.078
STOP

RUN# 18971 JAN 11, 2022 12:05:52

IDENTIFIER : 369-1I

AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.078	1570	PU	.060	100.00000

TOTAL AREA= 1570
MUL FACTOR=1.0000E+00

*

*ID 369-5A

* RUN #18972 JAN 11, 2022 12:10:53
START

┌───
│
│ } 1.078
│
└───
STOP

RUN# 18972 JAN 11, 2022 12:10:53

IDENTIFIER : 369-5A
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.078	1404	PP	.078	100.00000

TOTAL AREA= 1404
MUL FACTOR=1.0000E+00

*ID 403-1I

* RUN #18973 JAN 11, 2022 12:16:06
START

┌───
│
│ } 1.073
│
└───
STOP

RUN# 18973 JAN 11, 2022 12:16:06

IDENTIFIER : 403-1I
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.073	1490	BP	.054	100.00000

TOTAL AREA= 1490
MUL FACTOR=1.0000E+00

*ID 403-5A

* RUN #18974 JAN 11, 2022 17:22:01

```

┌───
│
│ } 1.098
│
│
│ } 2.101
└───

```

RUN# 18974 JAN 11, 2022 12:22:01

IDENTIFIER : 403-SA
 AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.098	1234	UP	.072	100.00000

TOTAL AREA= 1234
 MUL FACTOR=1.0000E+00

*ID 405-1I

* RUN #18975 JAN 11, 2022 12:27:39
 START

```

┌───
│
│ } 1.083
│
│
│ } 2.305
└───

```

RUN# 18975 JAN 11, 2022 12:27:39

IDENTIFIER : 405-1I
 AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.083	1061	PU	.070	76.00288
2.467	335	UP	.026	23.99713

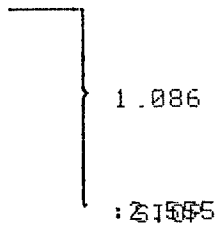
TOTAL AREA= 1396
 MUL FACTOR=1.0000E+00

*

*

*ID 405-5A

* RUN #18976 JAN 11, 2022 12:33:08
START



RUN# 18976 JAN 11, 2022 12:33:08

IDENTIFIER : 405-5A

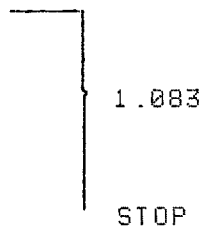
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.086	932	PP	.063	100.00000

TOTAL AREA= 932
MUL FACTOR=1.0000E+00

*ID 406-1I

* RUN #18977 JAN 11, 2022 12:38:57
START



RUN# 18977 JAN 11, 2022 12:38:57

IDENTIFIER : 406-1I

AREA%

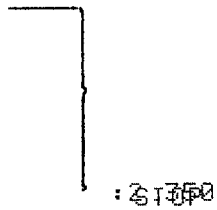
RT	AREA	TYPE	WIDTH	AREA%
1.083	652	PP	.057	100.00000

TOTAL AREA= 652
MUL FACTOR=1.0000E+00

*

*ID 406-5A

* RUN #18978 JAN 11, 2022 12:44:29
START

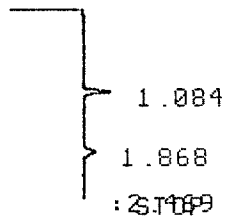


RUN# 18978 JAN 11, 2022 12:44:29

IDENTIFIER : 406-5A
NO RUN PEAKS STORED

*ID 409-1I

* RUN #18979 JAN 11, 2022 12:49:32
START



RUN# 18979 JAN 11, 2022 12:49:32

IDENTIFIER : 409-1I
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.084	4372	BP	.049	56.00101
1.868	3435	UP	.085	43.99898

TOTAL AREA= 7807
MUL FACTOR=1.0000E+00

*

ID 410-11

@

* RUN #18981 JAN 11, 2022 13:03:00
START

┌───┐
│ │
│ │
│ │
└───┘ 1.080
 : 2.701
 : 3.781

RUN# 18981 JAN 11, 2022 13:03:00

IDENTIFIER : 410-11
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.080	1105	PV	.062	100.00000

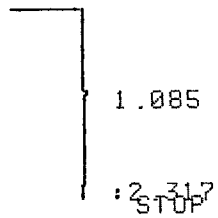
TOTAL AREA= 1105
MUL FACTOR=1.0000E+00

*

*
*

*ID 410-5A

* RUN #18982 JAN 11, 2022 13:08:07
START



RUN# 18982 JAN 11, 2022 13:08:07

IDENTIFIER : 410-5A

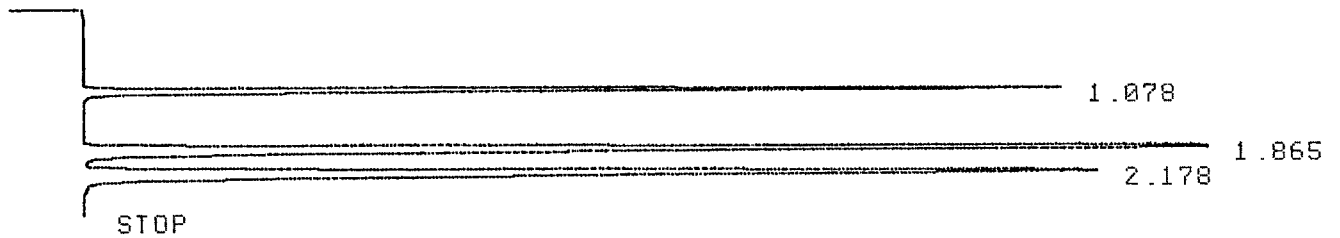
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.085	821	PU	.058	100.00000

TOTAL AREA= 821
MUL FACTOR=1.0000E+00

*ID 12173-500X-CCU

* RUN #18983 JAN 11, 2022 13:13:11
START



RUN# 18983 JAN 11, 2022 13:13:11

IDENTIFIER : 12173-500X-C

AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.078	156209	PB	.047	20.09440
1.865	312818	PB	.076	40.24026
2.178	308349	BB	.089	39.66536

TOTAL AREA= 777376
MUL FACTOR=1.0000E+00

Energy Laboratories Inc

Spike LOG

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

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: _____

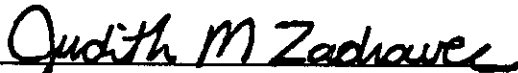
3 Multi-Component Gas Standard in Nitrogen

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	8/9/22

Final Volume: mL

Stock Source

Base Units

Amount Added

Analtes

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