

# 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 |

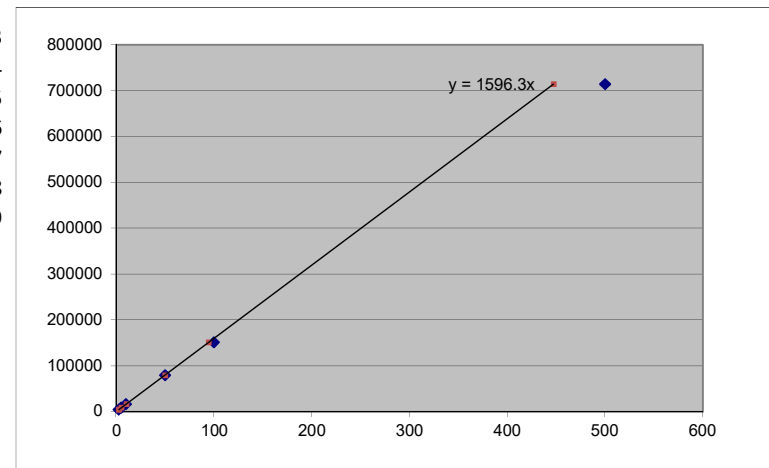
| Seq No   | Lab ID | Test Code   | Sample Typ | File ID    | Analysis Date    | DF    | Batch ID | Prep Date | SPKref | RPDref | pmoist |      |     |      |      |   |
|----------|--------|-------------|------------|------------|------------------|-------|----------|-----------|--------|--------|--------|------|-----|------|------|---|
| 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     |           |                 |       |  |
| Equivalent  |          | Counts   |           |                 |       |  |
| 300ul       |          |          |           |                 |       |  |
| 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 |  |



|         |           | StdDev | 188.2268 |
|---------|-----------|--------|----------|
| Methane | MW= 16.04 | 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

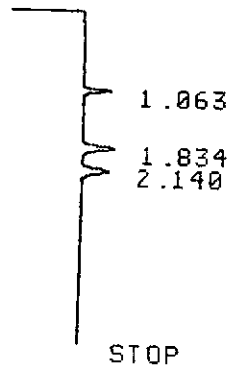


RUN# 16482      JAN 20, 2021 11:50:13

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%

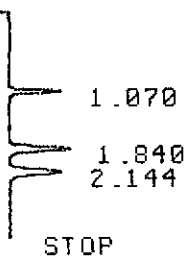
| RT    | AREA | TYPE | WIDTH | AREA%    |
|-------|------|------|-------|----------|
| 1.063 | 4682 | PP   | .048  | 22.05370 |
| 1.834 | 8384 | PU   | .078  | 39.49128 |
| 2.140 | 8164 | UP   | .087  | 38.45502 |

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 |

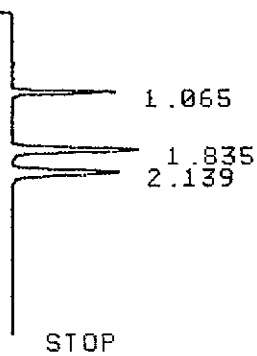
TOTAL AREA= 40739

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 |

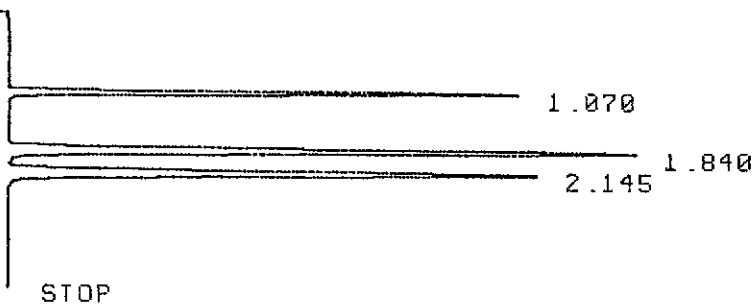
TOTAL AREA= 80518

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

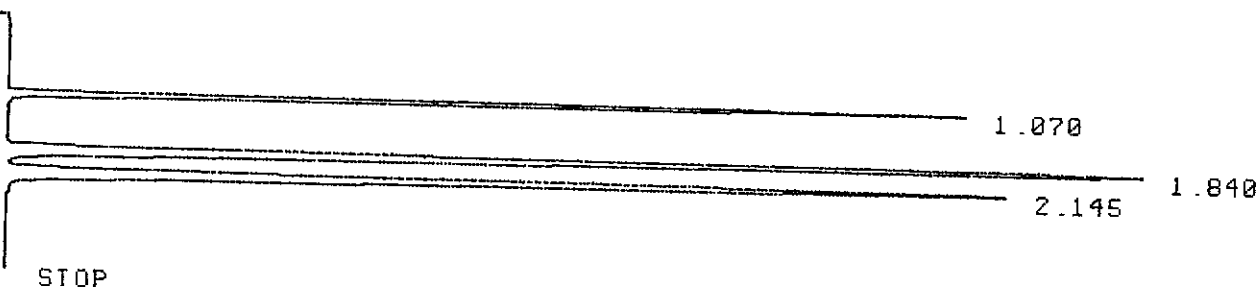
\*CAL5-100PPM

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%

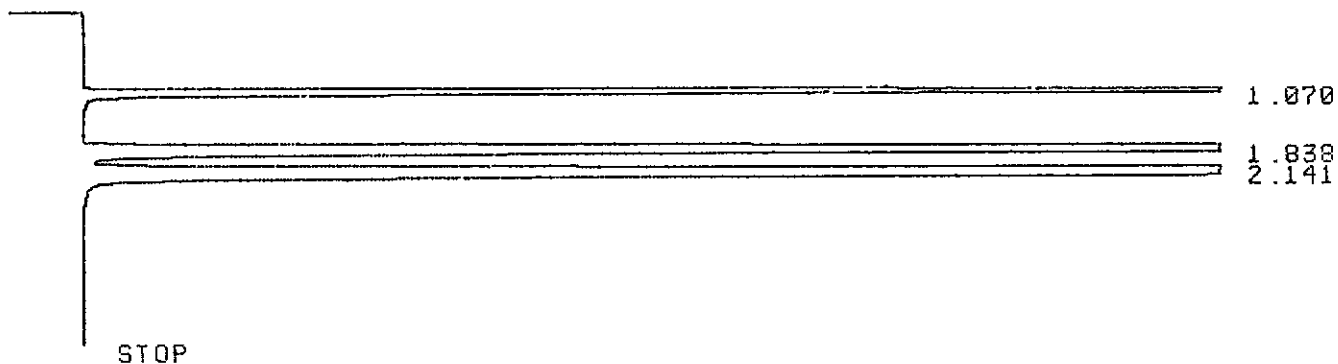
| RT    | AREA   | TYPE | WIDTH | AREA%    |
|-------|--------|------|-------|----------|
| 1.070 | 151345 | PB   | .047  | 20.22234 |
| 1.840 | 301225 | PB   | .075  | 40.24893 |
| 2.145 | 295835 | BB   | .088  | 39.52874 |

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

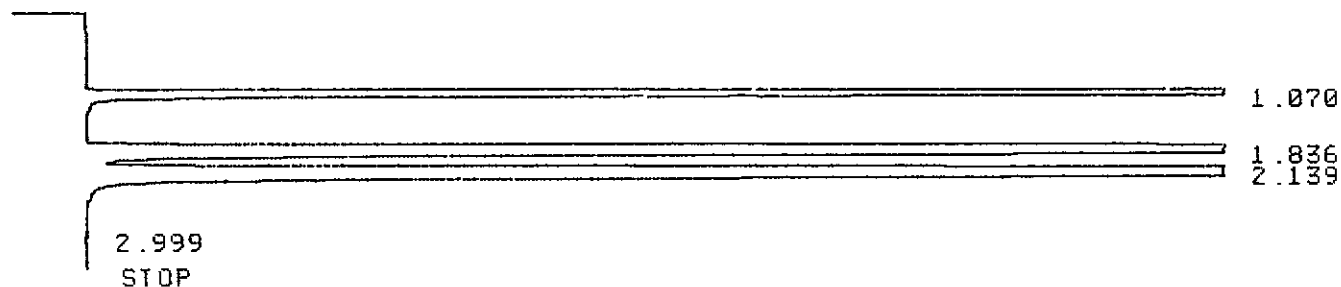
IDENTIFIER : CAL6-500PPM  
AREA%

| 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%

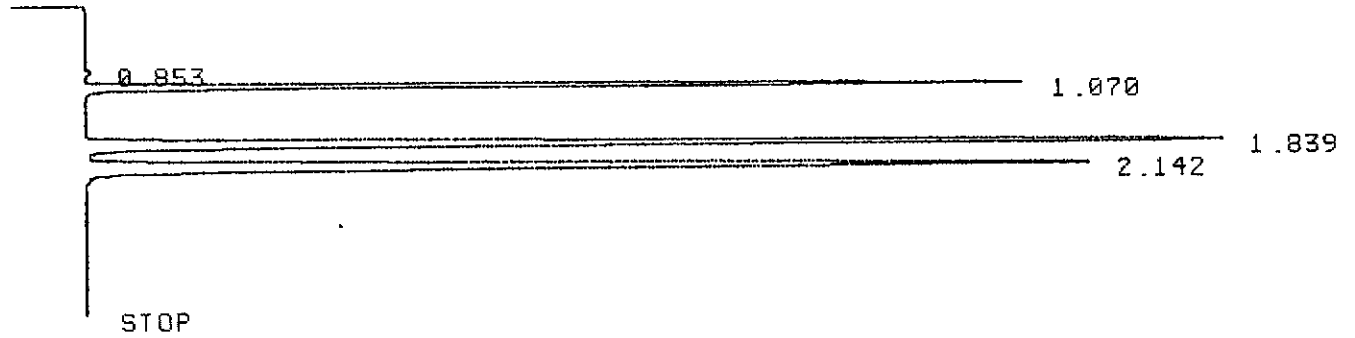
| RT    | AREA    | TYPE | WIDTH | AREA%    |
|-------|---------|------|-------|----------|
| 1.070 | 1331471 | PB   | .049  | 21.86052 |

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

17-Jan-22

Run ID FID-HEADSPACE\_220114A

**Run Start Date:** 1/14/2022  
**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 |      |     |      |      |   |
|----------|--------|-------------|------------|------------|------------------|-------|----------|-----------|--------|--------|--------|------|-----|------|------|---|
| 14978866 | CCV    | HC-METHANE- | CCV        |            | 1/14/2022 8:32:0 | 1     | R373199  |           | 0      | 0      |        |      |     |      |      |   |
| Analyte  | T      | Units       | RAW        | Final      | Text             | Spike | SPKref   | RPDref    | MDL    | PQL    | UQL    | %REC | LOW | HIGH | %RPD | Q |
| Methane  | A      | ppm         |            | 96.8465975 |                  | 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 |      |     |      |      |   |
|----------|--------|-------------|------------|------------|------------------|-------|----------|-----------|--------|--------|--------|------|-----|------|------|---|
| 14978867 | LCS    | HC-METHANE- | LCS        |            | 1/14/2022 8:37:0 | 1     | R373199  |           | 0      | 0      |        |      |     |      |      |   |
| Analyte  | T      | Units       | RAW        | Final      | Text             | Spike | SPKref   | RPDref    | MDL    | PQL    | UQL    | %REC | LOW | HIGH | %RPD | Q |
| Methane  | A      | ppm         |            | 97.1855133 |                  | 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 |      |     |      |      |   |
|----------|--------|-------------|------------|------------|------------------|-------|----------|-----------|--------|--------|--------|------|-----|------|------|---|
| 14978868 | LCSD   | HC-METHANE- | LCSD       |            | 1/14/2022 8:41:0 | 1     | R373199  |           | 0      | 1E+07  |        |      |     |      |      |   |
| Analyte  | T      | Units       | RAW        | Final      | Text             | Spike | SPKref   | RPDref    | MDL    | PQL    | UQL    | %REC | LOW | HIGH | %RPD | Q |
| Methane  | A      | ppm         |            | 97.5764254 |                  | 100   | 0        | 97.185513 | 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 |      |     |      |      |   |
|----------|----------------|-------------|------------|------------|------------------|-------|----------|-----------|----------|--------|--------|------|-----|------|------|---|
| 14978869 | MBLK           | HC-METHANE- | MBLK       |            | 1/14/2022 9:40:0 | 1     | R373199  |           | 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 |      |     |      |      |   |
| 14978870 | B22010750-001I | HC-METHANE- | SAMP       |            | 1/14/2022 9:50:0 | 1     | R373199  |           | 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 |      |     |      |      |   |
| 14978871 | B22010750-005  | HC-METHANE- | SAMP       |            | 1/14/2022 9:56:0 | 1     | R373199  |           | 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 |      |     |      |      |   |
| 14978872 | B22010751-001I | HC-METHANE- | SAMP       |            | 1/14/2022 10:02: | 1     | R373199  |           | 0        | 0      |        |      |     |      |      |   |
| Analyte  | T              | Units       | RAW        | Final      | Text             | Spike | SPKref   | RPDref    | MDL      | PQL    | UQL    | %REC | LOW | HIGH | %RPD | Q |
| Methane  | A              | mg/L        |            | 0.00948092 |                  |       | 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 |      |     |      |      |   |
| 14978873 | B22010751-001I | HC-METHANE- | DUP        |            | 1/14/2022 10:12: | 1     | R373199  |           | 0        | 1E+07  |        |      |     |      |      |   |
| Analyte  | T              | Units       | RAW        | Final      | Text             | Spike | SPKref   | RPDref    | MDL      | PQL    | UQL    | %REC | LOW | HIGH | %RPD | Q |
| Methane  | A              | mg/L        |            | 0.00951381 |                  |       | 0        | 0.0094809 | 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 |      |     |      |      |   |
| 14978874 | B22010751-005  | HC-METHANE- | SAMP       |            | 1/14/2022 10:23: | 1     | R373199  |           | 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 |      |     |      |      |   |
|----------|----------------|-------------|------------|---------|------------------|-------|----------|-----------|----------|--------|--------|------|-----|------|------|---|
| 14978875 | B22010753-001I | HC-METHANE- | SAMP       |         | 1/14/2022 10:29: | 1     | R373199  |           | 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 |      |     |      |      |   |
| 14978876 | B22010753-005  | HC-METHANE- | SAMP       |         | 1/14/2022 10:35: | 1     | R373199  |           | 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 |      |     |      |      |   |
| 14978877 | B22010755-001I | HC-METHANE- | SAMP       |         | 1/14/2022 11:26: | 1     | R373199  |           | 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 |      |     |      |      |   |
| 14978878 | B22010755-005  | HC-METHANE- | SAMP       |         | 1/14/2022 11:32: | 1     | R373199  |           | 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 |      |     |      |      |   |
| 14978879 | B22010756-001I | HC-METHANE- | SAMP       |         | 1/14/2022 11:38: | 1     | R373199  |           | 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 |      |     |      |      |   |
| 14978880 | B22010756-005  | HC-METHANE- | SAMP       |         | 1/14/2022 11:51: | 1     | R373199  |           | 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 |      |     |      |      |   |
|----------|----------------|-------------|------------|------------|------------------|-------|----------|-----------|----------|--------|--------|------|-----|------|------|---|
| 14978882 | B22010757-001I | HC-METHANE- | SAMP       |            | 1/14/2022 12:15: | 78    | R373199  |           | 0        | 0      |        |      |     |      |      |   |
| Analyte  | T              | Units       | RAW        | Final      | Text             | Spike | SPKref   | RPDref    | MDL      | PQL    | UQL    | %REC | LOW | HIGH | %RPD | Q |
| Methane  | A              | mg/L        |            | 3.19147766 |                  |       | 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 |      |     |      |      |   |
| 14978883 | B22010757-005  | HC-METHANE- | SAMP       |            | 1/14/2022 12:31: | 1     | R373199  |           | 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 |      |     |      |      |   |
| 14978884 | B22010758-001I | HC-METHANE- | SAMP       |            | 1/14/2022 12:54: | 78    | R373199  |           | 0        | 0      |        |      |     |      |      |   |
| Analyte  | T              | Units       | RAW        | Final      | Text             | Spike | SPKref   | RPDref    | MDL      | PQL    | UQL    | %REC | LOW | HIGH | %RPD | Q |
| Methane  | A              | mg/L        |            | 0.48574452 |                  |       | 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 |      |     |      |      |   |
| 14978885 | B22010758-006  | HC-METHANE- | SAMP       |            | 1/14/2022 1:05:0 | 1     | R373199  |           | 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 |      |     |      |      |   |
| 14978886 | B22010759-001I | HC-METHANE- | SAMP       |            | 1/14/2022 1:11:0 | 1     | R373199  |           | 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 |      |     |      |      |   |
| 14978888 | B22010759-005  | HC-METHANE- | SAMP       |            | 1/14/2022 1:18:0 | 1     | R373199  |           | 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 |      |     |      |      |   |
|----------|----------------|-------------|------------|------------|------------------|-------|----------|-----------|----------|--------|--------|------|-----|------|------|---|
| 14978889 | B22010754-001I | HC-METHANE- | SAMP       |            | 1/14/2022 1:24:0 | 1     | R373199  |           | 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 |      |     |      |      |   |
| 14978890 | B22010754-005  | HC-METHANE- | SAMP       |            | 1/14/2022 1:29:0 | 1     | R373199  |           | 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 |      |     |      |      |   |
| 14978891 | CCV            | HC-METHANE- | CCV        |            | 1/14/2022 1:33:0 | 1     | R373199  |           | 0        | 0      |        |      |     |      |      |   |
| Analyte  | T              | Units       | RAW        | Final      | Text             | Spike | SPKref   | RPDref    | MDL      | PQL    | UQL    | %REC | LOW | HIGH | %RPD | Q |
| Methane  | A              | ppm         |            | 98.8700689 |                  | 100   | 0        | 0         | 2        | 2      | 0      | 99%  | 85  | 115  | 0%   |   |

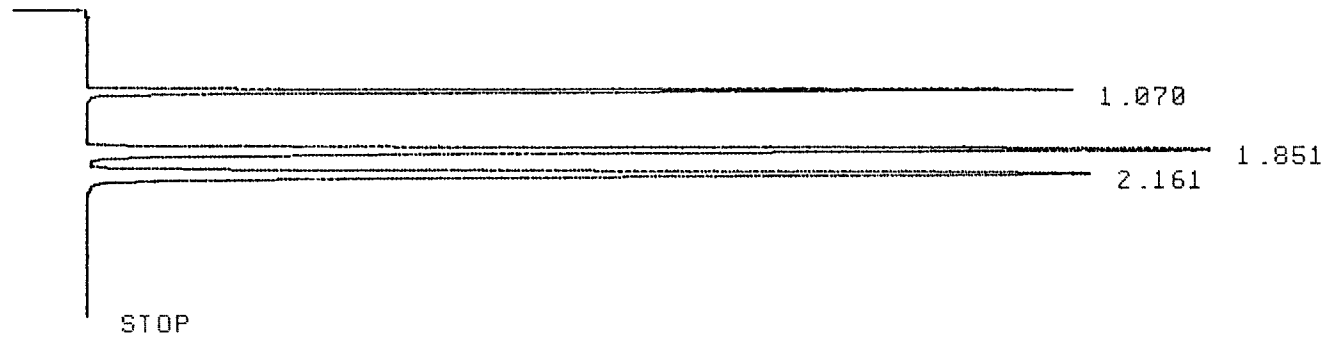
| Sample ID         | Area Count | Dilution Factor | Temperature (C) | Concentration | Date/Time Analyzed | Analyst | Sample Type | Test Code      | Analyte | Headspace Volume | Liquid Volume |
|-------------------|------------|-----------------|-----------------|---------------|--------------------|---------|-------------|----------------|---------|------------------|---------------|
| CCV               | 154593     | 1               | 20              | 96.84659751   | 1/14/2022 8:32     | jdw     | CCV         | HC-METHANE-CCV | Methane |                  |               |
| LCS               | 155134     | 1               | 20              | 97.18551331   | 1/14/2022 8:37     | jdw     | LCS         | HC-METHANE-CCV | Methane |                  |               |
| LCS               | 155758     | 1               | 20              | 97.57642542   | 1/14/2022 8:41     | jdw     | LCS         | HC-METHANE-CCV | Methane |                  |               |
| MBLK              | 0          | 1               | 20              | 0             | 1/14/2022 9:40     | jdw     | MBLK        | HC-METHANE-W   | Methane | 10               | 32            |
| B22010750-001I    | 1012       | 1               | 20              | 0.000147248   | 1/14/2022 9:50     | jdw     | SAMP        | HC-METHANE-W   | Methane | 10               | 32            |
| B22010750-005A    | 870        | 1               | 20              | 0.000126587   | 1/14/2022 9:56     | jdw     | SAMP        | HC-METHANE-W   | Methane | 10               | 32            |
| B22010751-001I    | 65160      | 1               | 20              | 0.009480923   | 1/14/2022 10:02    | jdw     | SAMP        | HC-METHANE-W   | Methane | 10               | 32            |
| B22010751-001IDUP | 65386      | 1               | 20              | 0.009513806   | 1/14/2022 10:12    | jdw     | DUP         | HC-METHANE-W   | Methane | 10               | 32            |
| B22010751-005A    | 868        | 1               | 20              | 0.000126296   | 1/14/2022 10:23    | jdw     | SAMP        | HC-METHANE-W   | Methane | 10               | 32            |
| B22010753-001I    | 3538       | 1               | 20              | 0.000514787   | 1/14/2022 10:29    | jdw     | SAMP        | HC-METHANE-W   | Methane | 10               | 32            |
| B22010753-005A    | 715        | 1               | 20              | 0.000104034   | 1/14/2022 10:35    | jdw     | SAMP        | HC-METHANE-W   | Methane | 10               | 32            |
| B22010754-001I    | 1274       | 1               | 20              | 0.00018537    | 1/14/2022 13:24    | jdw     | SAMP        | HC-METHANE-W   | Methane | 10               | 32            |
| B22010754-005A    | 855        | 1               | 20              | 0.000124404   | 1/14/2022 13:29    | jdw     | SAMP        | HC-METHANE-W   | Methane | 10               | 32            |
| B22010755-001I    | 452        | 1               | 20              | 6.5767E-05    | 1/14/2022 11:26    | jdw     | SAMP        | HC-METHANE-W   | Methane | 10               | 32            |
| B22010755-005A    | 523        | 1               | 20              | 7.60976E-05   | 1/14/2022 11:32    | jdw     | SAMP        | HC-METHANE-W   | Methane | 10               | 32            |
| B22010756-001I    | 1277       | 1               | 20              | 0.000185806   | 1/14/2022 11:38    | jdw     | SAMP        | HC-METHANE-W   | Methane | 10               | 32            |
| B22010756-005A    | 1155       | 1               | 20              | 0.000168055   | 1/14/2022 11:51    | jdw     | SAMP        | HC-METHANE-W   | Methane | 10               | 32            |
| B22010757-001I    | 281208     | 78              | 20              | 3.19147766    | 1/14/2022 12:15    | jdw     | SAMP        | HC-METHANE-W   | Methane | 10               | 32            |
| B22010757-005A    | 1028       | 1               | 20              | 0.000149576   | 1/14/2022 12:31    | jdw     | SAMP        | HC-METHANE-W   | Methane | 10               | 32            |
| B22010758-001I    | 42800      | 78              | 20              | 0.485744516   | 1/14/2022 12:54    | jdw     | SAMP        | HC-METHANE-W   | Methane | 10               | 32            |
| B22010758-006A    | 859        | 1               | 20              | 0.000124986   | 1/14/2022 13:05    | jdw     | SAMP        | HC-METHANE-W   | Methane | 10               | 32            |
| B22010759-001I    | 1616       | 1               | 20              | 0.000235132   | 1/14/2022 13:11    | jdw     | SAMP        | HC-METHANE-W   | Methane | 10               | 32            |
| B22010759-005A    | 808        | 1               | 20              | 0.000117566   | 1/14/2022 13:18    | jdw     | SAMP        | HC-METHANE-W   | Methane | 10               | 32            |
| CCV               | 157823     | 1               | 20              | 98.87006888   | 1/14/2022 13:33    | jdw     | CCV         | HC-METHANE-CCV | Methane |                  |               |



JBW  
1/14/2022

\*ID 12173-500X-CCU

\* RUN #19018      JAN 14, 2022    08:32:04  
START



RUN# 19018                      JAN 14, 2022    08:32:04

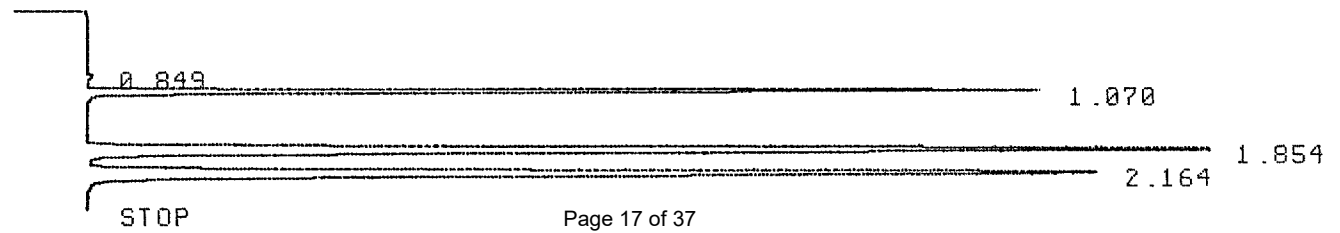
IDENTIFIER : 12173-500X-C  
AREA%

| RT    | AREA   | TYPE | WIDTH | AREA%    |
|-------|--------|------|-------|----------|
| 1.070 | 154593 | PB   | .046  | 20.30714 |
| 1.851 | 306375 | PB   | .075  | 40.24504 |
| 2.161 | 300306 | BB   | .088  | 39.44781 |

TOTAL AREA= 761274  
MUL FACTOR=1.0000E+00

\*ID 10711-LCS

\* RUN #19019      JAN 14, 2022    08:37:53  
START



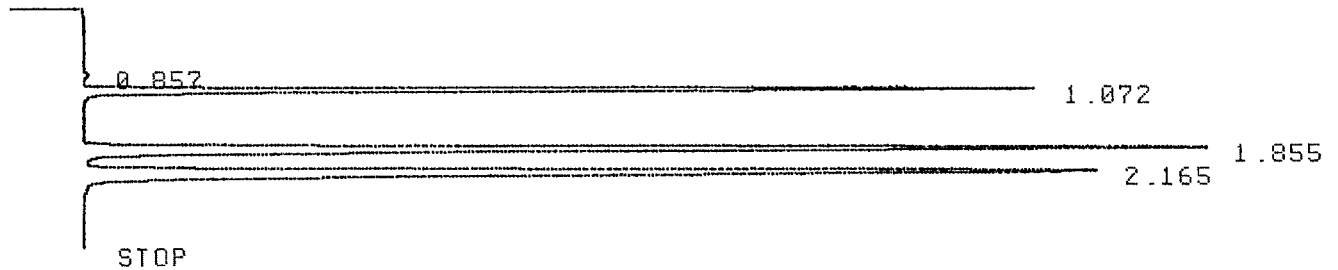
IDENTIFIER : 10711-LCS  
AREA%

| RT    | AREA   | TYPE | WIDTH | AREA%    |
|-------|--------|------|-------|----------|
| .849  | 952    | UP   | .051  | .12425   |
| 1.070 | 155134 | UB   | .047  | 20.24719 |
| 1.854 | 308510 | PB   | .075  | 40.26496 |
| 2.164 | 301604 | BB   | .087  | 39.36362 |

TOTAL AREA= 766200  
MUL FACTOR=1.0000E+00

\*ID 10711-LCS0

\* RUN #19020                    JAN 14, 2022 08:41:55  
START



IDENTIFIER : 10711-LCS0  
AREA%

| RT    | AREA   | TYPE | WIDTH | AREA%    |
|-------|--------|------|-------|----------|
| .857  | 892    | PP   | .054  | .11564   |
| 1.072 | 155758 | PB   | .048  | 20.19202 |
| 1.855 | 310151 | PB   | .075  | 40.20707 |
| 2.165 | 304583 | PB   | .088  | 39.48526 |

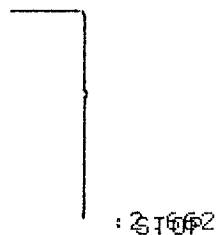
TOTAL AREA= 771384  
MUL FACTOR=1.0000E+00

\*

\*ID MB

\* RUN #19021            JAN 14, 2022  09:40:59

START



RUN# 19021            JAN 14, 2022  09:40:59

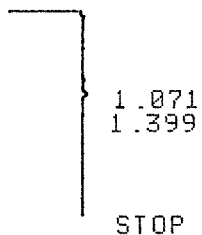
IDENTIFIER : MB  
NO RUN PEAKS STORED

\*ID MB

\*ID 750-1I

\* RUN #19022            JAN 14, 2022  09:50:18

START



RUN# 19022            JAN 14, 2022  09:50:18

IDENTIFIER : 750-1I

AREA%

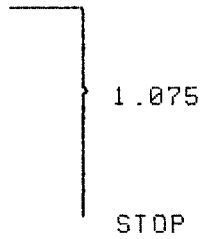
| RT    | AREA | TYPE | WIDTH | AREA%    |
|-------|------|------|-------|----------|
| 1.071 | 1012 | UU   | .057  | 61.74496 |
| 1.399 | 627  | PU   | .082  | 38.25504 |

TOTAL AREA= 1639  
MUL FACTOR=1.0000E+00

\*

\*ID 750-5A

\* RUN #19023      JAN 14, 2022   09:56:20  
START



RUN# 19023              JAN 14, 2022   09:56:20

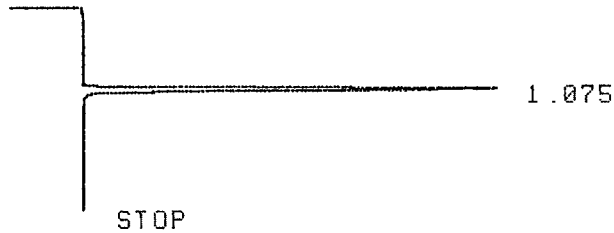
IDENTIFIER : 750-5A  
AREA%

| RT    | AREA | TYPE | WIDTH | AREA%     |
|-------|------|------|-------|-----------|
| 1.075 | 870  | BP   | .059  | 100.00000 |

TOTAL AREA=      870  
MUL FACTOR=1.0000E+00

\*ID 751-1I

\* RUN #19024      JAN 14, 2022   10:02:34  
START



RUN# 19024              JAN 14, 2022   10:02:34

IDENTIFIER : 751-1I  
AREA%

| RT    | AREA  | TYPE | WIDTH | AREA%     |
|-------|-------|------|-------|-----------|
| 1.075 | 65160 | PB   | .046  | 100.00000 |

TOTAL AREA=      65160  
MUL FACTOR=1.0000E+00

\* PLOT

STOP

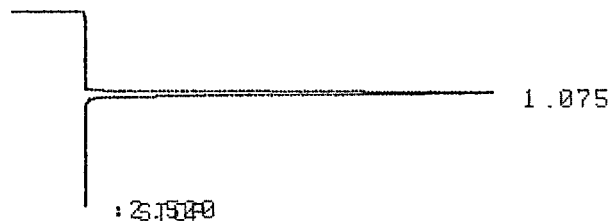
\* PLOT

STOP

\*ID 751-1I-DUP

\* RUN #19025      JAN 14, 2022    10:12:14

START



RUN# 19025              JAN 14, 2022    10:12:14

IDENTIFIER : 751-1I-DUP

AREA%

| RT    | AREA  | TYPE | WIDTH | AREA%     |
|-------|-------|------|-------|-----------|
| 1.075 | 65386 | PB   | .047  | 100.00000 |

TOTAL AREA= 65386

MUL FACTOR=1.0000E+00

\* PLOT

STOP

\* PLOT

STOP

\*ID 751-5A

\* RUN #19026            JAN 14, 2022  10:23:02  
START

```

  ┌───┐
  │   │
  │   │ 1.079
  │   │
  └───┘
  STOP

```

RUN# 19026            JAN 14, 2022  10:23:02

IDENTIFIER : 751-5A  
AREA%

| RT    | AREA | TYPE | WIDTH | AREA%     |
|-------|------|------|-------|-----------|
| 1.079 | 868  | UU   | .062  | 100.00000 |

TOTAL AREA=        868  
MUL FACTOR=1.0000E+00

\*ID 753-1I

\* RUN #19027            JAN 14, 2022  10:29:41  
START

```

  ┌───┐
  │   │
  │   │ 1.073
  │   │ 1.351
  │   │ 1.855
  │   │ 1.985
  │   │ :2.340
  └───┘
  STOP

```

RUN# 19027            JAN 14, 2022  10:29:41

IDENTIFIER : 753-1I  
AREA%

| RT    | AREA | TYPE | WIDTH | AREA%    |
|-------|------|------|-------|----------|
| 1.073 | 3538 | UU   | .051  | 62.51990 |
| 1.351 | 693  | PP   | .090  | 12.24598 |
| 1.850 | 1104 | PP   | .084  | 19.50874 |
| 1.985 | 324  | PV   | .041  | 5.72539  |

TOTAL AREA=        5659  
MUL FACTOR=1.0000E+00

\*ID 753-5A

\* RUN #19028            JAN 14, 2022    10:35:40  
START

```

┌───┐
│   │
│   │ 1.080
│   │ 1.701
│   │ :2.368
│   │ STOP
└───┘

```

RUN# 19028                    JAN 14, 2022    10:35:40

IDENTIFIER : 753-5A  
AREA%

| RT    | AREA | TYPE | WIDTH | AREA%    |
|-------|------|------|-------|----------|
| 1.080 | 715  | UP   | .059  | 70.23574 |
| 1.701 | 303  | PU   | .044  | 29.76424 |

TOTAL AREA=    1018  
MUL FACTOR=1.0000E+00

~~\*ID 754-ID 755-11~~

*30w  
11/4/2022*

\*ID 755-11

\* RUN #19029            JAN 14, 2022    11:21:34  
START

```

┌───┐
│   │ 1.085
│   │
│   │ STOP
└───┘

```

*Repeat run - electrical  
disturbance  
30w  
11/4/2022*

RUN# 19029                    JAN 14, 2022    11:21:34

IDENTIFIER : 755-11  
AREA%

| RT    | AREA | TYPE | WIDTH | AREA%    |
|-------|------|------|-------|----------|
| .038  | 1132 | I PB | .048  | 20.62682 |
| .188  | 1037 | I PB | .049  | 18.89578 |
| .355  | 789  | I BB | .043  | 14.37682 |
| .620  | 615  | PP   | .037  | 11.20627 |
| .687  | 564  | PP   | .029  | 10.27697 |
| .804  | 1037 | PP   | .055  | 18.89578 |
| 1.085 | 314  | PP   | .025  | 5.72157  |

TOTAL AREA=    5488  
MUL FACTOR=1.0000E+00

\*ID 755-1I

\* RUN #19030      JAN 14, 2022   11:26:42  
START

┌───┐  
│   │  
│   │ 1.081  
│   │  
│   │  
│   │  
│   │  
└───┘  
STOP

RUN# 19030              JAN 14, 2022   11:26:42

IDENTIFIER : 755-1I  
AREA%

| RT    | AREA | TYPE | WIDTH | AREA%     |
|-------|------|------|-------|-----------|
| 1.081 | 452  | BP   | .036  | 100.00000 |

TOTAL AREA=      452  
MUL FACTOR=1.0000E+00

\*ID 755-5A

\* RUN #19031      JAN 14, 2022   11:32:55  
START

┌───┐  
│   │  
│   │ 1.080  
│   │  
│   │  
│   │  
│   │  
└───┘  
STOP

RUN# 19031              JAN 14, 2022   11:32:55

IDENTIFIER : 755-5A  
AREA%

| RT    | AREA | TYPE | WIDTH | AREA%     |
|-------|------|------|-------|-----------|
| 1.080 | 523  | PP   | .047  | 100.00000 |

TOTAL AREA=      523  
MUL FACTOR=1.0000E+00



\*ID 756-1I

\* RUN #19032            JAN 14, 2022  11:38:46

START

```
┌───┐
│   │
│   │ 1.072
│   │ 1.238
│   │ 1.655
│   │ 1.855
│   │ 2.221
│   │ STOP
```

RUN# 19032                    JAN 14, 2022  11:38:46

IDENTIFIER : 756-1I

AREA%

| RT    | AREA | TYPE | WIDTH | AREA%    |
|-------|------|------|-------|----------|
| 1.072 | 1277 | BP   | .036  | 65.02038 |
| 1.855 | 382  | BB   | .039  | 19.45010 |
| 2.221 | 305  | I PP | .023  | 15.52953 |

TOTAL AREA= 1964  
MUL FACTOR=1.0000E+00

\* PLOT

```
┌───┐
│   │
│   │ STOP
```

\* PLOT

```
┌───┐
│   │
│   │ STOP
```

\*

\*ID 756-5A

\* RUN #19033 JAN 14, 2022 11:51:17

START

```

┌───
│   1.079
│   1.279
│   1.594
│   1.912
│   1.961
│   2.261
│ STOP
└───
    
```

RUN# 19033 JAN 14, 2022 11:51:17

IDENTIFIER : 756-5A

AREA%

| RT    | AREA | TYPE | WIDTH | AREA%    |
|-------|------|------|-------|----------|
| 1.079 | 1155 | UU   | .063  | 27.34375 |
| 1.279 | 542  | PV   | .067  | 12.83144 |
| 1.594 | 1052 | UP   | .095  | 24.90530 |
| 1.912 | 451  | PP   | .047  | 10.67708 |
| 1.961 | 365  | PV   | .041  | 8.64110  |
| 2.261 | 659  | PP   | .075  | 15.60132 |

TOTAL AREA= 4224  
 MUL FACTOR=1.0000E+00

\*ID 757-1I

\* RUN #19034 JAN 14, 2022 11:56:44

START

```

┌───
│   0.131
│   0.264
└───┬────────────────────────────────────────────────────────────────────────────────── 1.061
      │
      │   1.061
      │
      │   2.481
      │ STOP
      └───
    
```

RUN# 19034 JAN 14, 2022 11:56:44

IDENTIFIER : 757-1I

AREA%

| RT    | AREA    | TYPE | WIDTH | AREA%    |
|-------|---------|------|-------|----------|
| .131  | 717     | I PB | .064  | .01216   |
| .264  | 894     | PB   | .068  | .01516   |
| 1.061 | 5895248 | SPB  | .065  | 99.95290 |
| 2.481 | 1166    | PB   | .082  | .01977   |

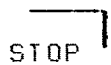
TOTAL AREA=5898026  
 MUL FACTOR=1.0000E+00

\* PLOT



STOP

\* PLOT



STOP

\*  
^BREAK

\* PLOT



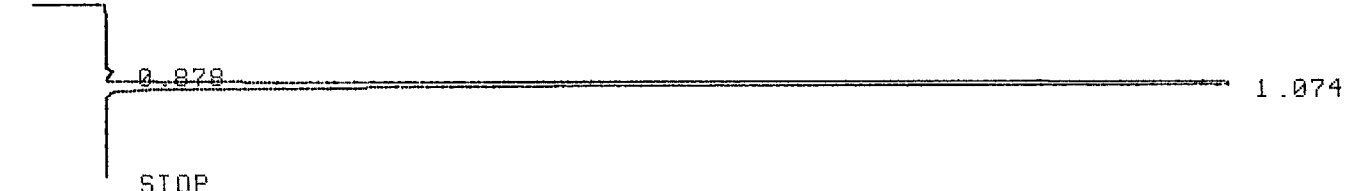
STOP

\*ID 757-1I

\*ID 757-1I-78X

\* RUN #19035      JAN 14, 2022    12:15:33

START



RUN# 19035                      JAN 14, 2022    12:15:33

IDENTIFIER : 757-1I-78X

AREA%

| RT    | AREA   | TYPE | WIDTH | AREA%    |
|-------|--------|------|-------|----------|
| .878  | 1621   | UU   | .073  | .57314   |
| 1.074 | 281208 | PB   | .048  | 99.42688 |

TOTAL AREA= 282829  
MUL FACTOR=1.0000E+00

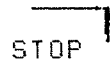
\* PLOT



\* PLOT



\* PLOT



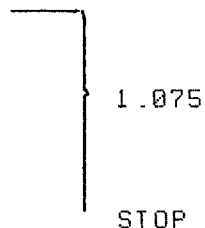
\* PLOT



\*

\*ID 757-5A

\* RUN #19036            JAN 14, 2022  12:31:54  
START



RUN# 19036                    JAN 14, 2022  12:31:54

IDENTIFIER : 757-5A

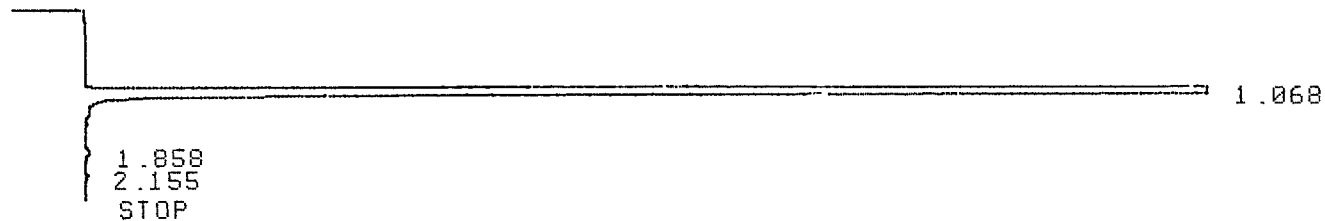
AREA%

| RT    | AREA TYPE | WIDTH | AREA%     |
|-------|-----------|-------|-----------|
| 1.075 | 1028  PU  | .058  | 100.00000 |

TOTAL AREA=  1028  
MUL FACTOR=1.0000E+00

\*ID 758-1I

\* RUN #19037            JAN 14, 2022  12:39:11  
START



RUN# 19037                    JAN 14, 2022  12:39:11

IDENTIFIER : 758-1I

AREA%

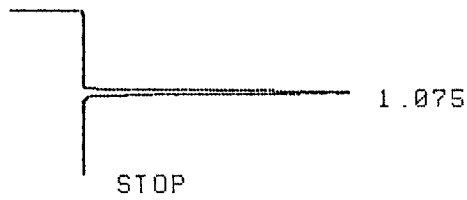
| RT    | AREA TYPE   | WIDTH | AREA%    |
|-------|-------------|-------|----------|
| 1.068 | 2640237  PB | .053  | 99.90947 |
| 1.858 | 1764  PU    | .085  | .06675   |
| 2.155 | 628  UP     | .076  | .02376   |

TOTAL AREA=2642629  
MUL FACTOR=1.0000E+00

STOP

\*ID 758-1I-78X

\* RUN #19038      JAN 14, 2022 12:54:58  
START



RUN# 19038              JAN 14, 2022 12:54:58

IDENTIFIER : 758-1I-78X  
AREA%

| RT    | AREA  | TYPE | WIDTH | AREA%     |
|-------|-------|------|-------|-----------|
| 1.075 | 42800 | PB   | .047  | 100.00000 |

TOTAL AREA= 42800  
MUL FACTOR=1.0000E+00

\* PLOT



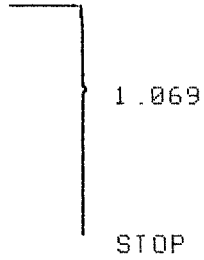
\* PLOT



\*ID 758-6A

\* RUN #19039      JAN 14, 2022 13:05:02

START



RUN# 19039      JAN 14, 2022 13:05:02

IDENTIFIER : 758-6A

AREA%

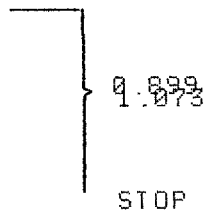
| RT    | AREA | TYPE | WIDTH | AREA%     |
|-------|------|------|-------|-----------|
| 1.069 | 859  | UP   | .058  | 100.00000 |

TOTAL AREA= 859  
MUL FACTOR=1.0000E+00

\*ID 759-1I

\* RUN #19040      JAN 14, 2022 13:11:40

START



RUN# 19040      JAN 14, 2022 13:11:40

IDENTIFIER : 759-1I

AREA%

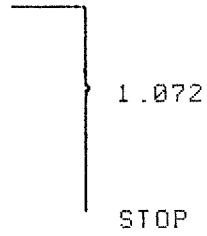
| RT    | AREA | TYPE | WIDTH | AREA%    |
|-------|------|------|-------|----------|
| .899  | 777  | PU   | .106  | 32.46971 |
| 1.073 | 1616 | UP   | .058  | 67.53030 |

TOTAL AREA= 2393  
MUL FACTOR=1.0000E+00

\*

\*ID 759-5A

\* RUN #19041      JAN 14, 2022 13:18:19  
START



RUN# 19041      JAN 14, 2022 13:18:19

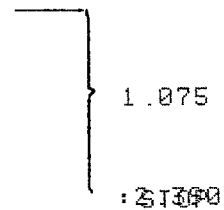
IDENTIFIER : 759-5A  
AREA%

| RT    | AREA | TYPE | WIDTH | AREA%     |
|-------|------|------|-------|-----------|
| 1.072 | 808  | PU   | .059  | 100.00000 |

TOTAL AREA= 808  
MUL FACTOR=1.0000E+00

\*ID 754-1I

\* RUN #19042      JAN 14, 2022 13:24:23  
START



RUN# 19042      JAN 14, 2022 13:24:23

IDENTIFIER : 754-1I  
AREA%

| RT    | AREA | TYPE | WIDTH | AREA%     |
|-------|------|------|-------|-----------|
| 1.075 | 1274 | PP   | .056  | 100.00000 |

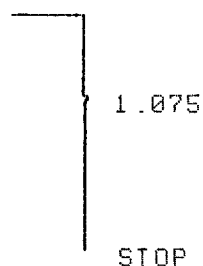
TOTAL AREA= 1274  
MUL FACTOR=1.0000E+00

\*



\*ID 754-5A

\* RUN #19043      JAN 14, 2022 13:29:21  
START



RUN# 19043      JAN 14, 2022 13:29:21

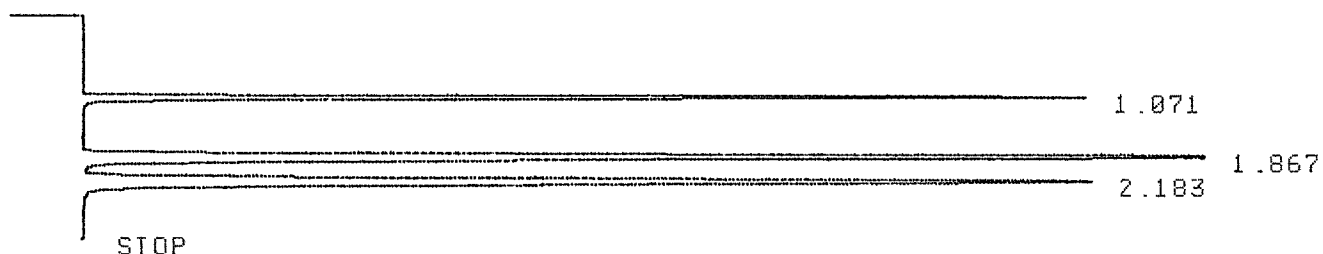
IDENTIFIER : 754-5A  
AREA%

| RT    | AREA | TYPE | WIDTH | AREA%     |
|-------|------|------|-------|-----------|
| 1.075 | 855  | UP   | .062  | 100.00000 |

TOTAL AREA= 855  
MUL FACTOR=1.0000E+00

\*ID 12173-500X-CCU

\* RUN #19044      JAN 14, 2022 13:33:50  
START



RUN# 19044      JAN 14, 2022 13:33:50

IDENTIFIER : 12173-500X-C  
AREA%

| RT    | AREA   | TYPE | WIDTH | AREA%    |
|-------|--------|------|-------|----------|
| 1.071 | 157823 | BB   | .046  | 20.31827 |
| 1.867 | 312039 | BB   | .076  | 40.17218 |
| 2.183 | 306892 | BB   | .089  | 39.50955 |

TOTAL AREA= 776754  
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: \_\_\_\_\_

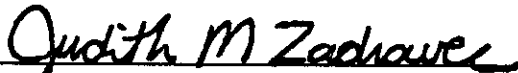
3 Multi-Component Gas Standard in Nitrogen

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

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| 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