

EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

| | | |
|-------------------------------------|---------------------------------|--|
| PRIMARY DB KEY: 05-103-11059 | NAME/DESCRIP : | YELLOW CREEK FEDERAL XOM 2-22-0246 |
| LEASE #: | | SURFACE CASING |
| FIELD/AREA: | YELLOW CREEK, COC62048 | |
| PROJECT NO. : | 202404020 | ANALYSIS NO. : 03 |
| COMPANY NAME : | CAERUS OIL & GAS LLC | ANALYSIS DATE: APRIL 08, 2024 17:53 |
| OFFICE / BRANCH: | PARACHUTE, CO | SAMPLE DATE : MARCH 28, 2024 9:00 |
| CUSTOMER REF: | | TO: |
| PRODUCER : | CAERUS PICEANCE, LLC | EFFECTIVE DATE: |

*****FIELD DATA*****

| | | | |
|--------------------|----------|--------------------|---------------|
| SAMPLE CYCLE: | | SAMPLE TYPE: | SPOT |
| SAMPLE PRES. : | 208 psig | PROBE : | NO |
| FLOW PRES. : | psig | CYLINDER NO. : | ECA-772 |
| LAB PRES: | psig | SAMPLED BY : | JUSTIN STEELE |
| SAMPLE TEMP. : | 43 °f | SAMPLING COMPANY: | CAERUS |
| AMBIENT TEMP.: | °f | H2S BY STAIN TUBE: | — ppm mol |
| H2O BY STAIN TUBE: | — #/mmcf | CO2 BY STAIN TUBE: | — Mol % |
| FIELD COMMENTS: | | | |
| LAB COMMENTS: | | | |

| <u>COMPONENT</u> | <u>MOLE %</u> | <u>MASS %</u> | <u>GPM @ 14.65</u> | <u>GPM @ 14.73</u> |
|------------------|------------------|------------------|------------------------|------------------------|
| ALCOHOLS | 0.1456 | 0.2416 | 0.0190 | 0.0191 |
| HELIUM | 0.01 | 0.00 | --- | --- |
| HYDROGEN | 0.01 | 0.00 | --- | --- |
| OXYGEN/ARGON | 0.00 | 0.00 | --- | --- |
| NITROGEN | 0.24 | 0.35 | --- | --- |
| CARBON DIOXIDE | 1.54 | 3.51 | --- | --- |
| METHANE | 85.5712 | 71.0997 | --- | --- |
| ETHANE | 7.8983 | 12.3004 | 2.1064 | 2.1179 |
| PROPANE | 2.7848 | 6.3600 | 0.7648 | 0.7690 |
| I-BUTANE | 0.5922 | 1.7827 | 0.1929 | 0.1940 |
| N-BUTANE | 0.5587 | 1.6819 | 0.1760 | 0.1769 |
| I-PENTANE | 0.2240 | 0.8363 | 0.0820 | 0.0824 |
| N-PENTANE | 0.1439 | 0.5377 | 0.0520 | 0.0523 |
| HEXANES PLUS | 0.2813 | 1.2997 | 0.1110 | 0.1115 |
| TOTALS | 100.00000 | 100.00000 | 3.5041 | 3.5231 |

| <u>BTEX COMPONENTS</u> | <u>MOLE%</u> | <u>WT%</u> |
|------------------------|---------------|---------------|
| BENZENE | 0.0101 | 0.0409 |
| TOLUENE | 0.0059 | 0.0282 |
| ETHYLBENZENE | 0.0000 | 0.0000 |
| XYLENES | 0.0004 | 0.0023 |
| TOTAL BTEX | 0.0164 | 0.0714 |

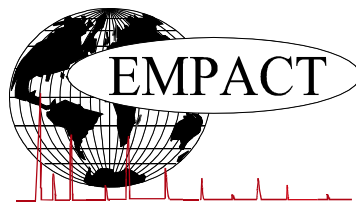
| | <u>BTU @ 14.65</u> | <u>14.73</u> |
|---|------------------------|------------------------|
| LHV NET DRY REAL : | 1032.2 /scf | 1037.8 /scf |
| NET WET REAL : | 1014.2 /scf | 1019.8 /scf |
| HHV GROSS DRY REAL : | 1140.7 /scf | 1146.9 /scf |
| GROSS WET REAL : | 1120.8 /scf | 1127.0 /scf |
| NET HEATING VALUE (60 °F ideal reaction): | 20293.5 Btu/lbm | 20293.5 Btu/lbm |
| GROSS HEATING VALUE (60°F ideal reaction): | 22430.9 Btu/lbm | 22430.9 Btu/lbm |
| RELATIVE DENSITY (AIR=1): | 0.6665 | 0.6665 |
| DENSITY | 0.05088 lbm/scf | 0.05088 lbm/scf |
| COMPRESSIBILITY FACTOR : | 0.9972 | 0.9972 |
| REGULAR WOBBE INDEX | 1397.6 | 1397.6 |

*(DETAILED HYDROCARBON ANALYSIS/NJ 1993)

Mod ASTM D6730, GPA 2261 & GPA 2286.

** (CALC: GPA 2172, GPA 2145 & TP-17 @14.696 & 60 F)

The data presented herein has been acquired by means of current analytical techniques and represents the judicious conclusion EMPACT Analytical Systems, Inc. Results of the analysis can be affected by the sampling conditions, therefore, are only warranted through proper lab protocol. EMPACT assumes no responsibility for interpretation or any consequences from application of the reported information and is the sole liability of the user. The reproduction in any media of this reported information may not be made, in portion or as a whole, without the written permission of EMPACT Analytical Systems, Inc.



**EXTENDED NATURAL GAS ANALYSIS (*DHA)
GLYCALC INFORMATION**

| | | | |
|----------------|--|----------------|----------------------|
| PROJECT NO. : | 202404020 | ANALYSIS NO. : | 03 |
| COMPANY NAME : | CAERUS OIL & GAS LLC | ANALYSIS DATE: | APRIL 08, 2024 17:53 |
| ACCOUNT NO. : | | SAMPLE DATE : | MARCH 28, 2024 9:00 |
| PRODUCER : | CAERUS PICEANCE, LLC | CYLINDER NO. : | ECA-772 |
| LEASE NO. : | | SAMPLED BY : | JUSTIN STEELE |
| NAME/DESCRIP : | YELLOW CREEK FEDERAL XOM 2-22-0246 SURFACE CASING | | |

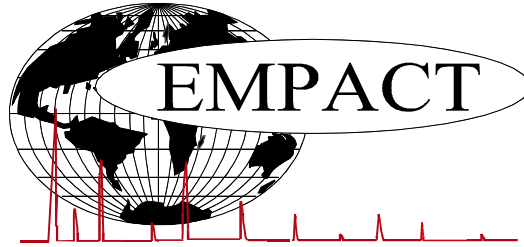
| | | | |
|--------------------|-------------|----------------|-----------------|
| ***FIELD DATA*** | | SAMPLE TEMP. : | 43 |
| SAMPLE PRES. : | 208 | AMBIENT TEMP.: | |
| H2S BY STAIN TUBE: | — | | |
| COMMENTS : | <i>SPOT</i> | | <i>NO PROBE</i> |

| <u>Componet</u> | <u>Mole %</u> | <u>Wt %</u> |
|------------------------|------------------|------------------|
| Helium | 0.01 | 0.00 |
| Hydrogen | 0.01 | 0.00 |
| Carbon Dioxide | 1.54 | 3.51 |
| Nitrogen | 0.24 | 0.35 |
| Methane | 85.5712 | 71.0997 |
| Ethane | 7.8983 | 12.3004 |
| Propane | 2.7848 | 6.3600 |
| Isobutane | 0.5922 | 1.7827 |
| n-Butane | 0.5587 | 1.6819 |
| Isopentane | 0.2177 | 0.8134 |
| n-Pentane | 0.1439 | 0.5377 |
| Cyclopentane | 0.0063 | 0.0229 |
| n-Hexane | 0.0538 | 0.2401 |
| Cyclohexane | 0.0282 | 0.1229 |
| Other Hexanes | 0.1089 | 0.4834 |
| Heptanes | 0.0486 | 0.2511 |
| Methylcyclohexane | 0.0239 | 0.1216 |
| 2,2,4 Trimethylpentane | 0.0000 | 0.0000 |
| Benzene | 0.0101 | 0.0409 |
| Toluene | 0.0059 | 0.0282 |
| Ethylbenzene | 0.0000 | 0.0000 |
| Xylenes | 0.0004 | 0.0023 |
| C8+ Heavies | 0.0015 | 0.0092 |
| <u>Subtotal</u> | <u>99.85440</u> | <u>99.75840</u> |
| Oxygen/Argon | 0.00 | 0.00 |
| Alcohols | 0.1456 | 0.2416 |
| <u>Total</u> | <u>100.00000</u> | <u>100.00000</u> |

| | <u>Total</u> | <u>C6+</u> | <u>C8+</u> | <u>C10+</u> |
|---|---------------|-----------------|-----------------|-----------------|
| Calculated Values BTU @ <u>14.65</u> | Sample | Fraction | Fraction | Fraction |
| LHV Net Dry Real: | 1032.2 | 4522.3 | 5565.9 | 7168.9 Btu/scf |
| Net Wet Real: | 1014.2 | 4443.2 | 5468.6 | 7043.6 Btu/scf |
| HHV Gross Dry Real: | 1140.7 | 4865.7 | 6010.3 | 8464.6 Btu/scf |
| Gross Wet Real: | 1120.8 | 4780.6 | 5905.2 | 8316.6 Btu/scf |
| Other Calculated Values | | | | |
| Regualr Wobbe Index* | 1397.6 | 2754.9 | 3013.5 | 3586.6 Btu/scf |
| Net Heating Value (60 °F ideal reaction): | 20293.5 | 19230.4 | 19195.8 | 17455.2 Btu/lbm |
| Gross Heating Value (60°F ideal reaction): | 22430.9 | 20689.5 | 20720.9 | 20610.0 Btu/lbm |
| Molar Mass (MW): | 19.30797 | 89.182 | 115.268 | 162.272 g/mol |
| Relative Density (AIR=1): | 0.6665 | 3.0789 | 3.9800 | 5.6028 SG |
| Density: | 0.05088 | 0.23500 | 0.30375 | 0.42761 lbm/scf |
| Compressibility Factor: | 0.9972 | 0.9904 | 0.9971 | 0.9998 Z |
| Liquid Volume real gas @: | <u>14.65</u> | 18.2078 | 0.1107 | 0 gal/1000 scf |

* The Wobbe pressure base in the number considered is based upon the given Pb of the HHV above.
 #DIV/0 or 0 (zero) will appear in the Calculated Value Section when there is no C6+, C8+ or C10+ in the sample to calculate these factors.
 BDL - Below Detection Limit. The H2S LOS has a detection limit of 0.25 ppm. A _ (an underscore) indicates there was no tube pulled for H2S.

The data presented herein has been acquired by means of current analytical techniques and represents the judicious conclusion EMPACT Analytical Systems, Inc. Results of the analysis can be affected by the sampling conditions, therefore, are only warranted through proper lab protocol. EMPACT assumes no responsibility for interpretation or any consequences from application of the reported information and is the sole liability of the user. The reproduction in any media of this reported information may not be made, in portion or as a whole, without the written permission of EMPACT Analytical Systems, Inc.



EXTENDED NATURAL GAS ANALYSIS (*DHA)

DHA COMPONENT LIST

PRIMARY DB KEY: **05-103-11059** NAME/DESCRIP : **YELLOW CREEK FEDERAL XOM 2-22-0246**
 LEASE #: SURFACE CASING
 FIELD/AREA: **YELLOW CREEK, COC62048**

PROJECT NO. : **202404020** ANALYSIS NO. : **03**
 COMPANY NAME : **CAERUS OIL & GAS LLC** ANALYSIS DATE: **APRIL 08, 2024 17:53**
 OFFICE / BRANCH: **PARACHUTE, CO** SAMPLE DATE : **MARCH 28, 2024 9:00**
 CUSTOMER REF: TO:
 PRODUCER : **CAERUS PICEANCE, LLC** EFFECTIVE DATE:

*****FIELD DATA*****

SAMPLE CYCLE: SAMPLE TYPE: **SPOT**
 SAMPLE PRES. : **208** psig PROBE : **NO**
 FLOW PRES. : psig CYLINDER NO. : **ECA-772**
 LAB PRES: psig SAMPLED BY : **JUSTIN STEELE**
 SAMPLE TEMP. : **43** °f SAMPLING COMPANY: **CAERUS**
 AMBIENT TEMP.: °f H2S BY STAIN TUBE: **-** ppm mol
 H2O BY STAIN TUBE: **-** #/mmcf CO2 BY STAIN TUBE: **-** Mol %
 FIELD COMMENTS:
 LAB COMMENTS:

| COMPONENT | PIANO # | MOLE % | MASS % | GPM @ 14.65 | GPM @ 14.73 |
|--------------------------|---------|---------|---------|----------------|----------------|
| Helium | --- | 0.01 | 0.00 | --- | --- |
| Hydrogen | --- | 0.01 | 0.00 | --- | --- |
| Oxygen/Argon | --- | 0.00 | 0.00 | --- | --- |
| Nitrogen | --- | 0.24 | 0.35 | --- | --- |
| Carbon Dioxide | --- | 1.54 | 3.51 | --- | --- |
| Methane | P1 | 85.5712 | 71.0997 | --- | --- |
| Ethane | P2 | 7.8983 | 12.3004 | 2.106 | 2.118 |
| Propane | P3 | 2.7848 | 6.3600 | 0.765 | 0.769 |
| i-Butane | I4 | 0.5922 | 1.7827 | 0.193 | 0.194 |
| Methanol | X1 | 0.1456 | 0.2416 | 0.019 | 0.019 |
| n-Butane | P4 | 0.5587 | 1.6819 | 0.176 | 0.177 |
| 2,2-Dimethylpropane | I5 | 0.0048 | 0.0179 | 0.002 | 0.002 |
| i-Pentane | I5 | 0.2129 | 0.7955 | 0.078 | 0.078 |
| n-Pentane | P5 | 0.1439 | 0.5377 | 0.052 | 0.052 |
| 2,2-Dimethylbutane | I6 | 0.0056 | 0.0250 | 0.002 | 0.002 |
| Cyclopentane | N5 | 0.0063 | 0.0229 | 0.002 | 0.002 |
| 2,3-Dimethylbutane | I6 | 0.0105 | 0.0469 | 0.004 | 0.004 |
| 2-Methylpentane | I6 | 0.0436 | 0.1946 | 0.018 | 0.018 |
| 3-Methylpentane | I6 | 0.0238 | 0.1062 | 0.010 | 0.010 |
| n-Hexane | P6 | 0.0538 | 0.2401 | 0.022 | 0.022 |
| 2,2-Dimethylpentane | I7 | 0.0014 | 0.0073 | 0.001 | 0.001 |
| Methylcyclopentane | N6 | 0.0254 | 0.1107 | 0.009 | 0.009 |
| 2,4-Dimethylpentane | I7 | 0.0025 | 0.0130 | 0.001 | 0.001 |
| 2,2,3-Trimethylbutane | I7 | 0.0005 | 0.0026 | 0.000 | 0.000 |
| Benzene | A6 | 0.0101 | 0.0409 | 0.003 | 0.003 |
| 3,3-Dimethylpentane | I7 | 0.0007 | 0.0036 | 0.000 | 0.000 |
| Cyclohexane | N6 | 0.0282 | 0.1229 | 0.010 | 0.010 |
| 2-Methylhexane | I7 | 0.0094 | 0.0488 | 0.004 | 0.004 |
| 2,3-Dimethylpentane | I7 | 0.0022 | 0.0114 | 0.001 | 0.001 |
| 1,1-Dimethylcyclopentane | N7 | 0.0020 | 0.0102 | 0.001 | 0.001 |

| | | | | | |
|--------------------------------|-----|------------------|------------------|---------------|---------------|
| 3-Methylhexane | I7 | 0.0077 | 0.0400 | 0.004 | 0.004 |
| 1c,3-Dimethylcyclopentane | N7 | 0.0030 | 0.0153 | 0.001 | 0.001 |
| 1t,3-Dimethylcyclopentane | N7 | 0.0026 | 0.0132 | 0.001 | 0.001 |
| 3-Ethylpentane | I7 | 0.0003 | 0.0016 | 0.000 | 0.000 |
| 1t,2-Dimethylcyclopentane | N7 | 0.0041 | 0.0209 | 0.002 | 0.002 |
| n-Heptane | P7 | 0.0115 | 0.0597 | 0.005 | 0.005 |
| 1c,2-Dimethylcyclopentane | N7 | 0.0002 | 0.0010 | 0.000 | 0.000 |
| Methylcyclohexane | N7 | 0.0239 | 0.1216 | 0.010 | 0.010 |
| 2,2-Dimethylhexane | I8 | 0.0003 | 0.0018 | 0.000 | 0.000 |
| Ethylcyclopentane | N7 | 0.0005 | 0.0025 | 0.000 | 0.000 |
| 2,5-Dimethylhexane | I8 | 0.0001 | 0.0006 | 0.000 | 0.000 |
| 2,2,3-Trimethylpentane | I8 | 0.0001 | 0.0006 | 0.000 | 0.000 |
| 1c,2t,4-Trimethylcyclopentane | N8 | 0.0001 | 0.0006 | 0.000 | 0.000 |
| Toluene | A7 | 0.0059 | 0.0282 | 0.002 | 0.002 |
| 2-Methylheptane | I8 | 0.0001 | 0.0006 | 0.000 | 0.000 |
| 3-Methylheptane | I8 | 0.0001 | 0.0006 | 0.000 | 0.000 |
| 1c,2t,3-Trimethylcyclopentane | N8 | 0.0002 | 0.0011 | 0.000 | 0.000 |
| 1t,4-Dimethylcyclohexane | N8 | 0.0001 | 0.0006 | 0.000 | 0.000 |
| n-Octane | P8 | 0.0002 | 0.0012 | 0.000 | 0.000 |
| 1,1,4-Trimethylcyclohexane | N9 | 0.0001 | 0.0007 | 0.000 | 0.000 |
| 1,3-Dimethylbenzene (m-Xylene) | A8 | 0.0003 | 0.0017 | 0.000 | 0.000 |
| 1,4-Dimethylbenzene (p-Xylene) | A8 | 0.0001 | 0.0006 | 0.000 | 0.000 |
| 1,3-Di-i-propylbenzene | A11 | 0.0001 | 0.0008 | 0.000 | 0.000 |
| TOTAL | | 100.00000 | 100.00000 | 3.5041 | 3.5231 |

CALCULATED VALUES**

| BTEX COMPONENTS | MOLE% | WT% | BTU @ | 14.65 | 14.73 |
|-----------------|--------|--------|--|-------------|-----------------|
| BENZENE | 0.0101 | 0.0409 | LHV NET DRY REAL : | 1032.2 /scf | 1037.8 /scf |
| TOLUENE | 0.0059 | 0.0282 | NET WET REAL : | 1014.2 /scf | 1019.8 /scf |
| ETHYLBENZENE | 0.0000 | 0.0000 | HHV GROSS DRY REAL : | 1140.7 /scf | 1146.9 /scf |
| XYLENES | 0.0004 | 0.0023 | GROSS WET REAL : | 1120.8 /scf | 1127.0 /scf |
| TOTAL BTEX | 0.0164 | 0.0714 | NET HEATING VALUE (60 °F ideal reaction): | | 20293.5 Btu/lbm |
| | | | GROSS HEATING VALUE (60°F ideal reaction): | | 22430.9 Btu/lbm |
| | | | RELATIVE DENSITY (AIR=1): | | 0.6665 |
| | | | DENSITY | | 0.05088 lb/scf |
| | | | COMPRESSIBILITY FACTOR : | | 0.9972 |
| | | | REGULAR WOBBE INDEX | | 1397.6 |

*(DETAILED HYDROCARBON ANALYSIS/NJ 1993)

Mod ASTM D6730, GPA 2261 & GPA 2286.

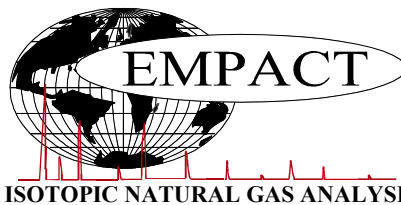
** (CALC: GPA 2172, GPA 2145 & TP-17 @14.696 & 60 F)

C6+ Fraction of DHA Gas Analysis @60°F, 14.696 psia

| | | | | |
|---------------------|-------------|-------------------------------|----------------------|--------------------|
| Net Dry Ideal BTU | 4492.9 /scf | Relative Density - SG (Air=1) | 3.0789 | C6+ factors |
| Gross Dry Ideal BTU | 4834 /scf | Z Compressibility Factor | 0.99038 | 0.98984 |
| Net Dry Ideal BTU | 19230.4 /lb | Density Factor | 235.004 lbm/1000 ft3 | |
| Gross Dry Ideal BTU | 20689.5 /lb | Molar Mass or MW | 89.182 g/mol | |
| | | Volume Liquid Ideal gas | 0.111 scf/gal | 25.2 |

This hexanes plus fraction may be applied in place of published C6+ factors. The Z & GPM need additional calc for C6+ factors.
#DIV/0 or 0 (zero) will appear in this section when there is no hexanes plus in the sample to calculate C6+ factors.

The data presented herein has been acquired by means of current analytical techniques and represents the judicious conclusion EMPACT Analytical Systems, Inc. Results of the analysis can be affected by the sampling conditions, therefore, are only warranted through proper lab protocol. EMPACT assumes no responsibility for interpretation or any consequences from application of the reported information and is the sole liability of the user. The reproduction in any media of this reported information may not be made, in portion or as a whole, without the written permission of EMPACT Analytical Systems, Inc.



PRIMARY DB KEY: **05-103-11059** NAME/DESCRIP : **YELLOW CREEK FEDERAL XOM 2-22-0246**
 LEASE #: **SURFACE CASING**
 FIELD/AREA: **YELLOW CREEK, COC62048**

PROJECT NO. : **202404020** ANALYSIS NO. : **03**
 COMPANY NAME : **CAERUS OIL & GAS LLC** ANALYSIS DATE: **APRIL 17, 2024 00:00**
 OFFICE / BRANCH: **PARACHUTE, CO** SAMPLE DATE : **MARCH 28, 2024 9:00**
 CUSTOMER REF: **TO:**
 PRODUCER : **CAERUS PICEANCE, LLC** EFFECTIVE DATE:

*****FIELD DATA*****

SAMPLE CYCLE: SAMPLE TYPE: **SPOT**
 SAMPLE PRES. : 208 psig PROBE : **NO**
 FLOW PRES. : psig CYLINDER NO. : **ECA-772**
 LAB PRES: psig SAMPLED BY : **JUSTIN STEELE**
 SAMPLE TEMP. : 43 °f SAMPLING COMPANY: **CAERUS**
 AMBIENT TEMP.: °f H2S BY STAIN TUBE: **-** ppm mol
 H2O BY STAIN TUBE: **-** #/mmcf CO2 BY STAIN TUBE: **-** Mol %
 FIELD COMMENTS:
 LAB COMMENTS:

| COMPONENTS | NORM. MOLE% | GPM @ 14.65 | d13C % VPDB | dD % VSMOW |
|--------------|---------------|---------------|-------------|------------|
| HELIUM | 0.01 | - | - | - |
| HYDROGEN | 0.01 | - | - | - |
| OXYGEN/ARGON | 0.00 | - | - | - |
| NITROGEN | 0.24 | - | - | - |
| CO2 | 1.54 | - | -4.2 | - |
| METHANE | 85.57 | - | -39.8 | -187 |
| ETHANE | 7.90 | 2.1093 | -28.4 | - |
| PROPANE | 2.78 | 0.7667 | -25.9 | - |
| ISOBUTANE | 0.59 | 0.1929 | -26.2 | - |
| N-BUTANE | 0.56 | 0.1759 | -25.4 | - |
| ISOPENTANE | 0.22 | 0.0800 | -25.9 | - |
| N-PENTANE | 0.14 | 0.0540 | -24.8 | - |
| HEXANES+ | 0.43 | 0.1170 | - | - |
| TOTAL | 100.00 | 3.4958 | | |

BTU @ 60 DEG F

14.65
 GROSS DRY REAL = 1141.5 /scf
 GROSS SATURATED REAL = 1121.5 /scf

RELATIVE DENSITY (AIR=1 @14.696 PSIA 60F) 0.6661
 GRAVITY (LB/SCF) 0.05084
 COMPRESSIBILITY FACTOR : 0.99720

NOTE: REFERENCE GPA 2261(ASTM D1945 & ASME-PTC), 2145, & 2172 CURRENT PUBLICATIONS

Reference: Per GPA 2172-14 sec 9 **The C6+ is derived from the following ratios of C6, C7 & C8+ respectively: 60% 30% 10%**

The NG Composition File #: **202404020-03-H-532**
 The Isotopic Data File #: **DIG-035190**

Note: Stable isotope results based on multi-point laboratory calibration

Precision δ¹³C < 0.5 ‰ Precision δD < 5.0 ‰

Values in red represent low peak heights. Interpret with caution.

The data presented herein has been acquired by means of current analytical techniques and represents the judicious conclusion EMPACT Analytical Systems, Inc. Results of the analysis can be affected by the sampling conditions, therefore, are only warranted through proper lab protocol. EMPACT assumes no responsibility for interpretation or any consequences from application of the reported information and is the sole liability of the user. The reproduction in any media of this reported information may not be made, in portion or as a whole, without the written permission of EMPACT Analytical Systems, Inc.