



**EXTENDED NATURAL GAS ANALYSIS (\*DHA)**

**MAIN PAGE**

PRIMARY DB KEY: **05-103-10152** NAME/DESCRIP : **120280014 FIGURE FOUR 8011D K18 498**  
 LEASE #: INTERMEDIATE CASING  
 FIELD/AREA:  
 PROJECT NO. : **202503106** ANALYSIS NO. : **02**  
 COMPANY NAME : **QB ENERGY OPERATING, LLC** ANALYSIS DATE: **MARCH 31, 2025 15:25**  
 OFFICE / BRANCH: **PARACHUTE, CO** SAMPLE DATE : **MARCH 13, 2025 13:00**  
 CUSTOMER REF: TO:  
 PRODUCER : **QB ENERGY OPERATING, LLC** EFFECTIVE DATE:

**\*\*\*FIELD DATA\*\*\***

SAMPLE CYCLE: SAMPLE TYPE: **SPOT**  
 SAMPLE PRES. : **502** psig PROBE : **NO**  
 FLOW PRES. : psig CYLINDER NO. : **ECA-777**  
 LAB PRES: psig SAMPLED BY : **NICK SMITH**  
 SAMPLE TEMP. : **30** °f SAMPLING COMPANY: **QB ENERGY**  
 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 @<br/>14.65</u> | <u>GPM @<br/>14.73</u> |
|------------------|-----------------|-----------------|------------------------|------------------------|
| HELIUM           | 0.00            | 0.00            | ---                    | ---                    |
| HYDROGEN         | 0.51            | 0.05            | ---                    | ---                    |
| OXYGEN/ARGON     | 0.07            | 0.11            | ---                    | ---                    |
| NITROGEN         | 5.50            | 7.89            | ---                    | ---                    |
| CARBON DIOXIDE   | 0.60            | 1.35            | ---                    | ---                    |
| METHANE          | 81.3275         | 66.8638         | ---                    | ---                    |
| ETHANE           | 7.3175          | 11.2760         | 1.9510                 | 1.9617                 |
| PROPANE          | 2.8518          | 6.4445          | 0.7836                 | 0.7879                 |
| I-BUTANE         | 0.5646          | 1.6818          | 0.1839                 | 0.1849                 |
| N-BUTANE         | 0.6615          | 1.9704          | 0.2079                 | 0.2090                 |
| I-PENTANE        | 0.2357          | 0.8708          | 0.0850                 | 0.0854                 |
| N-PENTANE        | 0.1739          | 0.6430          | 0.0630                 | 0.0633                 |
| HEXANES PLUS     | 0.1875          | 0.8497          | 0.0750                 | 0.0752                 |
| <b>TOTALS</b>    | <b>100.0000</b> | <b>100.0000</b> | <b>3.3494</b>          | <b>3.3674</b>          |

| <u>BTEX COMPONENTS</u> | <u>MOLE%</u>  | <u>WT%</u>    |
|------------------------|---------------|---------------|
| BENZENE                | 0.0024        | 0.0096        |
| TOLUENE                | 0.0004        | 0.0019        |
| ETHYLBENZENE           | 0.0000        | 0.0000        |
| XYLENES                | 0.0000        | 0.0000        |
| <b>TOTAL BTEX</b>      | <b>0.0028</b> | <b>0.0115</b> |

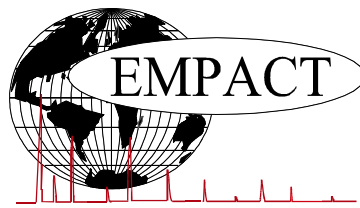
|  | <u>CALCULATED VALUES**</u> |                 |
|--|----------------------------|-----------------|
| <u>BTU @</u>                               | <u>14.65</u>               | <u>14.73</u>    |
| <b>LHV</b> NET DRY REAL :                  | 985.3 /scf                 | 990.7 /scf      |
| NET WET REAL :                             | 968.1 /scf                 | 973.5 /scf      |
| <b>HHV</b> GROSS DRY REAL :                | 1089.3 /scf                | 1095.2 /scf     |
| GROSS WET REAL :                           | 1070.3 /scf                | 1076.2 /scf     |
| NET HEATING VALUE (60 °F ideal reaction):  |                            | 19171.9 Btu/lbm |
| GROSS HEATING VALUE (60°F ideal reaction): |                            | 21190.9 Btu/lbm |
| RELATIVE DENSITY (AIR=1):                  |                            | 0.6738          |
| DENSITY                                    |                            | 0.05142 lbm/scf |
| COMPRESSIBILITY FACTOR :                   |                            | 0.9974          |
| REGULAR WOBBE INDEX                        |                            | 1327.6          |

\*(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. :  | 202503106   | ANALYSIS NO. :  | 02                   |
| COMPANY NAME : | QB ENERGY OPERATING, LLC                                | ANALYSIS DATE : | MARCH 31, 2025 15:25 |
| ACCOUNT NO. :  |   | SAMPLE DATE :   | MARCH 13, 2025 13:00 |
| PRODUCER :     | QB ENERGY OPERATING, LLC                                | CYLINDER NO. :  | ECA-777              |
| LEASE NO. :    |   | SAMPLED BY :    | NICK SMITH           |
| NAME/DESCRIP : | 120280014 FIGURE FOUR 8011D K18 498 INTERMEDIATE CASING |                 |                      |

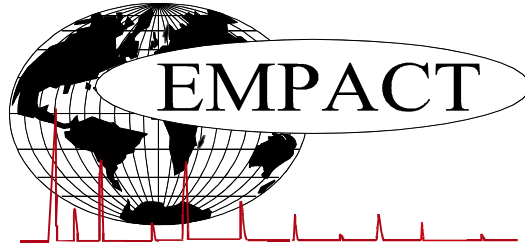
|                    |   |                |    |
|--------------------|---|----------------|----|
| ***FIELD DATA***   |   | SAMPLE TEMP. : | 30 |
| SAMPLE PRES. :     | 502   | AMBIENT TEMP.: |    |
| H2S BY STAIN TUBE: | —   |                |    |
| COMMENTS :         | <i>SPOT</i> <i>ppm mol</i><br><i>NO PROBE</i> |                |    |

| <u>Componet</u>        | <u>Mole %</u>    | <u>Wt %</u>      |
|------------------------|------------------|------------------|
| Helium                 | 0.00             | 0.00             |
| Hydrogen               | 0.51             | 0.05             |
| Carbon Dioxide         | 0.60             | 1.35             |
| Nitrogen               | 5.50             | 7.89             |
| Methane                | 81.3275          | 66.8638          |
| Ethane                 | 7.3175           | 11.2760          |
| Propane                | 2.8518           | 6.4445           |
| Isobutane              | 0.5646           | 1.6818           |
| n-Butane               | 0.6615           | 1.9704           |
| Isopentane             | 0.2296           | 0.8489           |
| n-Pentane              | 0.1739           | 0.6430           |
| Cyclopentane           | 0.0061           | 0.0219           |
| n-Hexane               | 0.0427           | 0.1886           |
| Cyclohexane            | 0.0157           | 0.0677           |
| Other Hexanes          | 0.0902           | 0.3966           |
| Heptanes               | 0.0231           | 0.1182           |
| Methylcyclohexane      | 0.0112           | 0.0564           |
| 2,2,4 Trimethylpentane | 0.0001           | 0.0006           |
| Benzene                | 0.0024           | 0.0096           |
| Toluene                | 0.0004           | 0.0019           |
| Ethylbenzene           | 0.0000           | 0.0000           |
| Xylenes                | 0.0000           | 0.0000           |
| C8+ Heavies            | 0.0017           | 0.0101           |
| <u>Subtotal</u>        | <u>99.93000</u>  | <u>99.89000</u>  |
| <u>Oxygen/Argon</u>    | <u>0.07</u>      | <u>0.11</u>      |
| <b>Total</b>           | <b>100.00000</b> | <b>100.00000</b> |

|  | <b>Total</b>  | <b>C6+</b>      | <b>C8+</b>      | <b>C10+</b>     |                       |
|--|---------------|-----------------|-----------------|-----------------|-----------------------|
| <b>Calculated Values BTU @</b>             | <b>Sample</b> | <b>Fraction</b> | <b>Fraction</b> | <b>Fraction</b> |                       |
| <b>LHV</b> Net Dry Real:                   | 985.3         | 4509.3          | 5642.1          | #DIV/0!         | <b>Btu/scf</b>        |
| Net Wet Real:                              | 968.1         | 4430.5          | 5543.5          | #DIV/0!         | <b>Btu/scf</b>        |
| <b>HHV</b> Gross Dry Real:                 | 1089.3        | 4858.7          | 6084.5          | #DIV/0!         | <b>Btu/scf</b>        |
| Gross Wet Real:                            | 1070.3        | 4773.8          | 5978.1          | #DIV/0!         | <b>Btu/scf</b>        |
| <b>Other Calculated Values</b>             |               |                 |                 |                 |                       |
| Regualr Wobbe Index*                       | 1327.6        | 2760.0          | 3070.4          | #DIV/0!         | <b>Btu/scf</b>        |
| Net Heating Value (60 °F ideal reaction):  | 19171.9       | 19312.0         | 20137.3         | #DIV/0!         | <b>Btu/lbm</b>        |
| Gross Heating Value (60°F ideal reaction): | 21190.9       | 20809.2         | 21715.6         | #DIV/0!         | <b>Btu/lbm</b>        |
| Molar Mass (MW):                           | 19.51596      | 88.377          | 113.556         | #DIV/0!         | <b>g/mol</b>          |
| Relative Density (AIR=1):                  | 0.6738        | 3.0513          | 3.9205          | #DIV/0!         | <b>SG</b>             |
| Density:                                   | 0.05142       | 0.23288         | 0.29924         | #DIV/0!         | <b>lbm/scf</b>        |
| Compressibility Factor:                    | 0.9974        | 0.9892          | 0.9961          | #DIV/0!         | <b>Z</b>              |
| Liquid Volume real gas @:                  | <b>14.65</b>  | 17.8051         | 0.0748          | 0               | <b>0 gal/1000 scf</b> |

\* 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.

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**EXTENDED NATURAL GAS ANALYSIS (\*DHA)**

**DHA COMPONENT LIST**

PRIMARY DB KEY: **05-103-10152** NAME/DESCRIP : **120280014 FIGURE FOUR 8011D K18 498**  
 LEASE #: INTERMEDIATE CASING  
 FIELD/AREA:

PROJECT NO. : **202503106** ANALYSIS NO. : **02**  
 COMPANY NAME : **QB ENERGY OPERATING, LLC** ANALYSIS DATE: **MARCH 31, 2025 15:25**  
 OFFICE / BRANCH: **PARACHUTE, CO** SAMPLE DATE : **MARCH 13, 2025 13:00**  
 CUSTOMER REF: TO:  
 PRODUCER : **QB ENERGY OPERATING, LLC** EFFECTIVE DATE:

**\*\*\*FIELD DATA\*\*\***

SAMPLE CYCLE: SAMPLE TYPE: **SPOT**  
 SAMPLE PRES. : **502** psig PROBE : **NO**  
 FLOW PRES. : psig CYLINDER NO. : **ECA-777**  
 LAB PRES: psig SAMPLED BY : **NICK SMITH**  
 SAMPLE TEMP. : **30** °f SAMPLING COMPANY: **QB ENERGY**  
 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 @<br>14.65 | GPM @<br>14.73 |
|-----------------------|---------|---------|---------|----------------|----------------|
| Hydrogen              | ---     | 0.51    | 0.05    | ---            | ---            |
| Oxygen/Argon          | ---     | 0.07    | 0.11    | ---            | ---            |
| Nitrogen              | ---     | 5.50    | 7.89    | ---            | ---            |
| Carbon Dioxide        | ---     | 0.60    | 1.35    | ---            | ---            |
| Methane               | P1      | 81.3275 | 66.8638 | ---            | ---            |
| Ethane                | P2      | 7.3175  | 11.2760 | 1.951          | 1.962          |
| Propane               | P3      | 2.8518  | 6.4445  | 0.784          | 0.788          |
| i-Butane              | I4      | 0.5646  | 1.6818  | 0.184          | 0.185          |
| n-Butane              | P4      | 0.6615  | 1.9704  | 0.208          | 0.209          |
| 2,2-Dimethylpropane   | I5      | 0.0038  | 0.0140  | 0.001          | 0.001          |
| i-Pentane             | I5      | 0.2258  | 0.8349  | 0.082          | 0.082          |
| n-Pentane             | P5      | 0.1739  | 0.6430  | 0.063          | 0.063          |
| 2,2-Dimethylbutane    | I6      | 0.0044  | 0.0194  | 0.002          | 0.002          |
| Cyclopentane          | N5      | 0.0061  | 0.0219  | 0.002          | 0.002          |
| 2,3-Dimethylbutane    | I6      | 0.0086  | 0.0380  | 0.004          | 0.004          |
| 2-Methylpentane       | I6      | 0.0397  | 0.1753  | 0.016          | 0.016          |
| 3-Methylpentane       | I6      | 0.0200  | 0.0884  | 0.008          | 0.008          |
| n-Hexane              | P6      | 0.0427  | 0.1886  | 0.018          | 0.018          |
| 2,2-Dimethylpentane   | I7      | 0.0004  | 0.0021  | 0.000          | 0.000          |
| Methylcyclopentane    | N6      | 0.0175  | 0.0755  | 0.006          | 0.006          |
| 2,4-Dimethylpentane   | I7      | 0.0013  | 0.0067  | 0.001          | 0.001          |
| 2,2,3-Trimethylbutane | I7      | 0.0002  | 0.0010  | 0.000          | 0.000          |
| Benzene               | A6      | 0.0024  | 0.0096  | 0.001          | 0.001          |
| 3,3-Dimethylpentane   | I7      | 0.0003  | 0.0015  | 0.000          | 0.000          |
| Cyclohexane           | N6      | 0.0157  | 0.0677  | 0.005          | 0.005          |
| 2-Methylhexane        | I7      | 0.0031  | 0.0159  | 0.001          | 0.001          |

|                               |    |                  |                  |               |               |
|-------------------------------|----|------------------|------------------|---------------|---------------|
| 2,3-Dimethylpentane           | I7 | 0.0020           | 0.0103           | 0.001         | 0.001         |
| 1,1-Dimethylcyclopentane      | N7 | 0.0012           | 0.0061           | 0.000         | 0.000         |
| 3-Methylhexane                | I7 | 0.0034           | 0.0175           | 0.002         | 0.002         |
| 1c,3-Dimethylcyclopentane     | N7 | 0.0015           | 0.0075           | 0.001         | 0.001         |
| 1t,3-Dimethylcyclopentane     | N7 | 0.0013           | 0.0066           | 0.001         | 0.001         |
| 3-Ethylpentane                | I7 | 0.0001           | 0.0005           | 0.000         | 0.000         |
| 1t,2-Dimethylcyclopentane     | N7 | 0.0021           | 0.0106           | 0.001         | 0.001         |
| 2,2,4-Trimethylpentane        | I8 | 0.0001           | 0.0006           | 0.000         | 0.000         |
| n-Heptane                     | P7 | 0.0057           | 0.0293           | 0.003         | 0.003         |
| 1c,2-Dimethylcyclopentane     | N7 | 0.0001           | 0.0005           | 0.000         | 0.000         |
| Methylcyclohexane             | N7 | 0.0112           | 0.0564           | 0.004         | 0.004         |
| 2,2-Dimethylhexane            | I8 | 0.0002           | 0.0012           | 0.000         | 0.000         |
| 1,1,3-Trimethylcyclopentane   | N7 | 0.0001           | 0.0006           | 0.000         | 0.000         |
| Ethylcyclopentane             | N7 | 0.0003           | 0.0015           | 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         |
| 3,3-Dimethylhexane            | I8 | 0.0001           | 0.0006           | 0.000         | 0.000         |
| Toluene                       | A7 | 0.0004           | 0.0019           | 0.000         | 0.000         |
| 2-Methylheptane               | I8 | 0.0002           | 0.0012           | 0.000         | 0.000         |
| 4-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 | 0.0003           | 0.0017           | 0.000         | 0.000         |
| 3-Ethylhexane                 | I8 | 0.0001           | 0.0006           | 0.000         | 0.000         |
| 1t,4-Dimethylcyclohexane      | N8 | 0.0001           | 0.0006           | 0.000         | 0.000         |
| 1t,2-Dimethylcyclohexane      | N8 | 0.0001           | 0.0006           | 0.000         | 0.000         |
| n-Octane                      | P8 | 0.0001           | 0.0006           | 0.000         | 0.000         |
| <b>TOTAL</b>                  |    | <b>100.00000</b> | <b>100.00000</b> | <b>3.3494</b> | <b>3.3674</b> |

**CALCULATED VALUES\*\***

| BTEX COMPONENTS | MOLE%  | WT%    | BTU @                                      |             |                 |
|-----------------|--------|--------|--|-------------|-----------------|
|                 |        |        | 14.65                                      | 14.73       |                 |
| BENZENE         | 0.0024 | 0.0096 | LHV NET DRY REAL :                         | 985.3 /scf  | 990.7 /scf      |
| TOLUENE         | 0.0004 | 0.0019 | NET WET REAL :                             | 968.1 /scf  | 973.5 /scf      |
| ETHYLBENZENE    | 0.0000 | 0.0000 | HHV GROSS DRY REAL :                       | 1089.3 /scf | 1095.2 /scf     |
| XYLENES         | 0.0000 | 0.0000 | GROSS WET REAL :                           | 1070.3 /scf | 1076.2 /scf     |
| TOTAL BTEX      | 0.0028 | 0.0115 | NET HEATING VALUE (60 °F ideal reaction):  |             | 19171.9 Btu/lbm |
|                 |        |        | GROSS HEATING VALUE (60°F ideal reaction): |             | 21190.9 Btu/lbm |
|                 |        |        | RELATIVE DENSITY (AIR=1):                  |             | 0.6738          |
|                 |        |        | DENSITY                                    |             | 0.05142 lb/scf  |
|                 |        |        | COMPRESSIBILITY FACTOR :                   |             | 0.9974          |
|                 |        |        | REGULAR WOBBE INDEX                        |             | 1327.6          |

\*(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   | <u>4474.4</u> /scf | Relative Density - SG (Air=1) | <u>3.0513</u>               | <b>C6+ factors</b> |
| Gross Dry Ideal BTU   | <u>4821.1</u> /scf | Z Compressibility Factor      | <u>0.98916</u>              | <u>0.98872</u>     |
| Net Dry Ideal BTU   | <u>19312</u> /lb   | Density Factor                | <u>232.881</u> lbm/1000 ft3 |                    |
| Gross Dry Ideal BTU   | <u>20809.2</u> /lb | Molar Mass or MW              | <u>88.377</u> g/mol         |                    |
|   |                    | Volume Liquid Ideal gas       | <u>0.075</u> scf/gal        | <u>24.8</u>        |
| <b>This hexanes plus fraction may be applied in place of published C6+ factors. The Z &amp; GPM need additional calc for C6+ factors.</b> |                    |                               |                             |                    |
| <b>#DIV/0 or 0 (zero) will appear in this section when there is no hexanes plus in the sample to calculate C6+ factors.</b>               |                    |                               |                             |                    |

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