



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

**MAIN PAGE**

PRIMARY DB KEY: <b>05-103-10627</b>	NAME/DESCRIP : <b>PICEANCE CREEK UNIT T35X-11G5</b>
LEASE #:	<b>SURFACE CASING</b>
FIELD/AREA:	
PROJECT NO. : <b>202509074</b>	ANALYSIS NO. : <b>03</b>
COMPANY NAME : <b>QB ENERGY OPERATING, LLC</b>	ANALYSIS DATE: <b>SEPTEMBER 21, 2025 06:36</b>
OFFICE / BRANCH: <b>PARACHUTE, CO</b>	SAMPLE DATE : <b>SEPTEMBER 08, 2025</b>
CUSTOMER REF:	TO:
PRODUCER :	EFFECTIVE DATE:

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

SAMPLE CYCLE:	SAMPLE TYPE:
SAMPLE PRES. : 10 psig	PROBE :
FLOW PRES. : psig	CYLINDER NO. : ECA-788
LAB PRES: psig	SAMPLED BY : NICK CROY
SAMPLE TEMP. : °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 @ 14.65</u>	<u>GPM @ 14.73</u>
GLYCOLS	0.0001	0.0004	0.0000	0.0000
ALCOHOLS	0.0052	0.0153	0.0020	0.0020
HELIUM	0.00	0.00	---	---
HYDROGEN	0.17	0.02	---	---
OXYGEN/ARGON	0.01	0.02	---	---
NITROGEN	0.20	0.30	---	---
CARBON DIOXIDE	1.73	4.07	---	---
METHANE	88.6271	75.9472	---	---
ETHANE	5.9056	9.4854	1.5741	1.5827
PROPANE	1.7959	4.2301	0.4937	0.4964
I-BUTANE	0.3900	1.2108	0.1269	0.1276
N-BUTANE	0.4035	1.2527	0.1269	0.1276
I-PENTANE	0.1870	0.7203	0.0680	0.0683
N-PENTANE	0.1310	0.5048	0.0470	0.0472
HEXANES PLUS	0.4446	2.2230	0.1810	0.1815
<b>TOTALS</b>	<b>100.00000</b>	<b>100.00000</b>	<b>2.6196</b>	<b>2.6333</b>

<u>BTEX COMPONENTS</u>	<u>MOLE%</u>	<u>WT%</u>
BENZENE	0.0108	0.0451
TOLUENE	0.0209	0.1029
ETHYLBENZENE	0.0000	0.0000
XYLENES	0.0000	0.0000
<b>TOTAL BTEX</b>	<b>0.0317</b>	<b>0.1480</b>

**CALCULATED VALUES\*\***

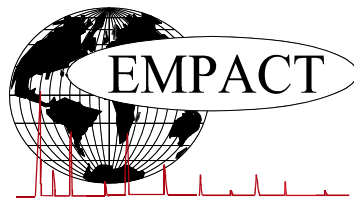
	<u>BTU @ 14.65</u>	<u>14.73</u>
<b>LHV NET DRY REAL :</b>	<b>999.8 /scf</b>	<b>1005.2 /scf</b>
<b>NET WET REAL :</b>	<b>982.3 /scf</b>	<b>987.7 /scf</b>
<b>HHV GROSS DRY REAL :</b>	<b>1106.0 /scf</b>	<b>1112.0 /scf</b>
<b>GROSS WET REAL :</b>	<b>1086.7 /scf</b>	<b>1092.7 /scf</b>
<b>NET HEATING VALUE (60 °F ideal reaction):</b>		<b>20281.8 Btu/lbm</b>
<b>GROSS HEATING VALUE (60°F ideal reaction):</b>		<b>22438.6 Btu/lbm</b>
<b>RELATIVE DENSITY (AIR=1):</b>		<b>0.6459</b>
<b>DENSITY</b>		<b>0.04932 lbm/scf</b>
<b>COMPRESSIBILITY FACTOR :</b>		<b>0.9974</b>
<b>REGULAR WOBBE INDEX</b>		<b>1376.9</b>

*\*(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. :	202509074	ANALYSIS NO. :	03
COMPANY NAME :	QB ENERGY OPERATING, LLC	ANALYSIS DATE:	SEPTEMBER 21, 2025 06:36
ACCOUNT NO. :		SAMPLE DATE :	SEPTEMBER 08, 2025
PRODUCER :		CYLINDER NO. :	ECA-788
LEASE NO. :		SAMPLED BY :	NICK CROY
NAME/DESCRIP :	PICEANCE CREEK UNIT T35X-11G5 SURFACE CASING		

***FIELD DATA***		SAMPLE TEMP. :	
SAMPLE PRES. :	10	AMBIENT TEMP.:	
H2S BY STAIN TUBE:	—		
COMMENTS :			

<u>Componet</u>	<u>Mole %</u>	<u>Wt %</u>
Helium	0.00	0.00
Hydrogen	0.17	0.02
Carbon Dioxide	1.73	4.07
Nitrogen	0.20	0.30
Methane	88.6271	75.9472
Ethane	5.9056	9.4854
Propane	1.7959	4.2301
Isobutane	0.3900	1.2108
n-Butane	0.4035	1.2527
Isopentane	0.1842	0.7098
n-Pentane	0.1310	0.5048
Cyclopentane	0.0028	0.0105
n-Hexane	0.0595	0.2739
Cyclohexane	0.0285	0.1281
Other Hexanes	0.1201	0.5499
Heptanes	0.0986	0.5254
Methylcyclohexane	0.0653	0.3425
2,2,4 Trimethylpentane	0.0000	0.0000
Benzene	0.0108	0.0451
Toluene	0.0209	0.1029
Ethylbenzene	0.0000	0.0000
Xylenes	0.0000	0.0000
C8+ Heavies	0.0409	0.2552
<u>Subtotal</u>	<u>99.98470</u>	<u>99.96430</u>
Oxygen/Argon	0.01	0.02
Glycols	0.0001	0.0004
Alcohols	0.0052	0.0153
<u>Total</u>	<u>100.00000</u>	<u>100.00000</u>

	<u>Total</u>	<u>C6+</u>	<u>C8+</u>	<u>C10+</u>
<u>Calculated Values BTU @</u> <b>14.65</b>	<u>Sample</u>	<u>Fraction</u>	<u>Fraction</u>	<u>Fraction</u>
LHV Net Dry Real:	999.8	4727.9	5905.8	8298.3 Btu/scf
Net Wet Real:	982.3	4645.3	5802.6	8153.2 Btu/scf
HHV Gross Dry Real:	1106.0	5084.0	6365.2	8921.7 Btu/scf
Gross Wet Real:	1086.7	4995.1	6253.9	8765.7 Btu/scf

<u>Other Calculated Values</u>				
Regualr Wobbe Index*	1376.9	2814.6	3168.8	3788.6 Btu/scf
Net Heating Value (60 °F ideal reaction):	20281.8	19264.3	19835.2	17192.8 Btu/lbm
Gross Heating Value (60°F ideal reaction):	22438.6	20715.2	21378.5	18483.0 Btu/lbm
Molar Mass (MW):	18.71935	93.61	116.887	161.584 g/mol
Relative Density (AIR=1):	0.6459	3.2321	4.0354	5.5788 SG
Density:	0.04932	0.24669	0.30801	0.42580 lbm/scf
Compressibility Factor:	0.9974	0.9922	0.9969	0.9999 Z
Liquid Volume real gas @:	<b>14.65</b>	17.8828	0.1804	0.0189
				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.

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

**DHA COMPONENT LIST**

PRIMARY DB KEY: **05-103-10627** NAME/DESCRIP : **PICEANCE CREEK UNIT T35X-11G5**  
 LEASE #: SURFACE CASING  
 FIELD/AREA:

PROJECT NO. : **202509074** ANALYSIS NO. : **03**  
 COMPANY NAME : **QB ENERGY OPERATING, LLC** ANALYSIS DATE: **SEPTEMBER 21, 2025 06:36**  
 OFFICE / BRANCH: **PARACHUTE, CO** SAMPLE DATE : **SEPTEMBER 08, 2025**  
 CUSTOMER REF: TO:  
 PRODUCER : EFFECTIVE DATE:

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

SAMPLE CYCLE: SAMPLE TYPE:  
 SAMPLE PRES. : 10 psig PROBE :  
 FLOW PRES. : psig CYLINDER NO. : **ECA-788**  
 LAB PRES: psig SAMPLED BY : **NICK CROY**  
 SAMPLE TEMP. : °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 @ 14.65	GPM @ 14.73
Hydrogen	---	0.17	0.02	---	---
Oxygen/Argon	---	0.01	0.02	---	---
Nitrogen	---	0.20	0.30	---	---
Carbon Dioxide	---	1.73	4.07	---	---
Methane	P1	88.6271	75.9472	---	---
Ethane	P2	5.9056	9.4854	1.574	1.583
Propane	P3	1.7959	4.2301	0.494	0.496
i-Butane	I4	0.3900	1.2108	0.127	0.128
Methanol	X1	0.0006	0.0010	0.000	0.000
n-Butane	P4	0.4035	1.2527	0.127	0.128
2,2-Dimethylpropane	I5	0.0053	0.0204	0.002	0.002
i-Pentane	I5	0.1789	0.6894	0.065	0.065
Acetone	X3	0.0046	0.0143	0.002	0.002
n-Pentane	P5	0.1310	0.5048	0.047	0.047
2,2-Dimethylbutane	I6	0.0069	0.0318	0.003	0.003
Cyclopentane	N5	0.0028	0.0105	0.001	0.001
2,3-Dimethylbutane	I6	0.0116	0.0534	0.005	0.005
2-Methylpentane	I6	0.0479	0.2205	0.020	0.020
3-Methylpentane	I6	0.0263	0.1210	0.011	0.011
n-Hexane	P6	0.0595	0.2739	0.024	0.024
2,2-Dimethylpentane	I7	0.0021	0.0112	0.001	0.001
Methylcyclopentane	N6	0.0274	0.1232	0.010	0.010
2,4-Dimethylpentane	I7	0.0035	0.0187	0.002	0.002
2,2,3-Trimethylbutane	I7	0.0007	0.0037	0.000	0.000
Benzene	A6	0.0108	0.0451	0.003	0.003
3,3-Dimethylpentane	I7	0.0011	0.0059	0.000	0.000
Cyclohexane	N6	0.0285	0.1281	0.010	0.010
2-Methylhexane	I7	0.0155	0.0830	0.007	0.007

2,3-Dimethylpentane	I7	0.0037	0.0198	0.002	0.002
1,1-Dimethylcyclopentane	N7	0.0031	0.0162	0.001	0.001
3-Methylhexane	I7	0.0137	0.0733	0.006	0.006
1c,3-Dimethylcyclopentane	N7	0.0051	0.0268	0.002	0.002
1t,3-Dimethylcyclopentane	N7	0.0046	0.0241	0.002	0.002
3-Ethylpentane	I7	0.0007	0.0037	0.000	0.000
1t,2-Dimethylcyclopentane	N7	0.0073	0.0383	0.003	0.003
n-Heptane	P7	0.0345	0.1847	0.016	0.016
1c,2-Dimethylcyclopentane	N7	0.0007	0.0037	0.000	0.000
Methylcyclohexane	N7	0.0653	0.3425	0.026	0.026
2,2-Dimethylhexane	I8	0.0016	0.0098	0.001	0.001
1,1,3-Trimethylcyclopentane	N7	0.0003	0.0018	0.000	0.000
Propylene Glycol	GL3	0.0001	0.0004	0.000	0.000
Ethylcyclopentane	N7	0.0020	0.0105	0.001	0.001
2,5-Dimethylhexane	I8	0.0016	0.0098	0.001	0.001
2,2,3-Trimethylpentane	I8	0.0013	0.0080	0.001	0.001
2,4-Dimethylhexane	I8	0.0002	0.0012	0.000	0.000
1c,2t,4-Trimethylcyclopentane	N8	0.0012	0.0072	0.001	0.001
3,3-Dimethylhexane	I8	0.0004	0.0025	0.000	0.000
Toluene	A7	0.0209	0.1029	0.007	0.007
2,3-Dimethylhexane	I8	0.0010	0.0061	0.001	0.001
2-Methyl-3-ethylpentane	I8	0.0002	0.0012	0.000	0.000
2-Methylheptane	I8	0.0057	0.0348	0.003	0.003
4-Methylheptane	I8	0.0017	0.0104	0.001	0.001
3-Methyl-3-ethylpentane	I8	0.0002	0.0012	0.000	0.000
3,4-Dimethylhexane	I8	0.0001	0.0006	0.000	0.000
3-Methylheptane	I8	0.0038	0.0232	0.002	0.002
1c,2t,3-Trimethylcyclopentane	N8	0.0067	0.0402	0.003	0.003
3-Ethylhexane	I8	0.0004	0.0025	0.000	0.000
1t,4-Dimethylcyclohexane	N8	0.0030	0.0180	0.002	0.002
1,1-Dimethylcyclohexane	N8	0.0009	0.0054	0.000	0.000
2,2,5-Trimethylhexane	I9	0.0001	0.0007	0.000	0.000
3c-Ethylmethylcyclopentane	N8	0.0002	0.0012	0.000	0.000
3t-Ethylmethylcyclopentane	N8	0.0002	0.0012	0.000	0.000
2t-Ethylmethylcyclopentane	N8	0.0002	0.0012	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0013	0.0078	0.001	0.001
1t,3-Dimethylcyclohexane	N8	0.0002	0.0012	0.000	0.000
n-Octane	P8	0.0041	0.0250	0.002	0.002
1c,4-Dimethylcyclohexane	N8	0.0008	0.0048	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0002	0.0013	0.000	0.000
2,4-Dimethylheptane	I9	0.0001	0.0007	0.000	0.000
Ethylcyclohexane	N8	0.0001	0.0006	0.000	0.000
UnknownC8s	U8	0.0005	0.0030	0.000	0.000
n-Propylbenzene	A9	0.0001	0.0006	0.000	0.000
1,2-Methyl-i-propylbenzene	A10	0.0007	0.0050	0.000	0.000
1,3-Diethylbenzene	A10	0.0001	0.0007	0.000	0.000
UnknownC10s	U10	0.0001	0.0007	0.000	0.000
n-Undecane	P11	0.0001	0.0008	0.000	0.000
UnknownC11s	U11	0.0001	0.0008	0.000	0.000
n-Dodecane	P12	0.0003	0.0027	0.000	0.000
1,3,5-Triethylbenzene	A12	0.0001	0.0008	0.000	0.000
1,4-Methyl-n-pentylbenzene	A12	0.0001	0.0008	0.000	0.000
n-Hexylbenzene	A12	0.0001	0.0008	0.000	0.000
1,2,3,4,5-Pentamethylbenzene	A13	0.0002	0.0016	0.000	0.000
UnknownC12s	U12	0.0002	0.0017	0.000	0.000
n-Tridecane	P13	0.0002	0.0020	0.000	0.000
UnknownC13s	U13	0.0001	0.0010	0.000	0.000
UnknownC14s	U14	0.0002	0.0021	0.000	0.000
UnknownC15s	U15	0.0001	0.0011	0.000	0.000
UnknownC16s	U16	0.0001	0.0012	0.000	0.000
<b>TOTAL</b>		<b>100.00000</b>	<b>100.00000</b>	<b>2.6196</b>	<b>2.6333</b>

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0108	0.0451
TOLUENE	0.0209	0.1029
ETHYLBENZENE	0.0000	0.0000
XYLENES	0.0000	0.0000
<b>TOTAL BTEX</b>	<b>0.0317</b>	<b>0.1480</b>

\*(DETAILED HYDROCARBON ANALYSIS/NJ 1993)

Mod ASTM D6730, GPA 2261 & GPA 2286.

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

**CALCULATED VALUES\*\***

BTU @	14.65	14.73
LHV NET DRY REAL :	999.8 /scf	1005.2 /scf
NET WET REAL :	982.3 /scf	987.7 /scf
HHV GROSS DRY REAL :	1106.0 /scf	1112.0 /scf
GROSS WET REAL :	1086.7 /scf	1092.7 /scf
NET HEATING VALUE (60 °F ideal reaction):		20281.8 Btu/lbm
GROSS HEATING VALUE (60°F ideal reaction):		22438.6 Btu/lbm
RELATIVE DENSITY (AIR=1):		0.6459
DENSITY		0.04932 lb/scf
COMPRESSIBILITY FACTOR :		0.9974
REGULAR WOBBE INDEX		1376.9

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

Net Dry Ideal BTU	4705.7 /scf	Relative Density - SG (Air=1)	3.2321	<b>C6+ factors</b>
Gross Dry Ideal BTU	5060.1 /scf	Z Compressibility Factor	0.99218	0.9915
Net Dry Ideal BTU	19264.3 /lb	Density Factor	246.687 lbm/1000 ft3	
Gross Dry Ideal BTU	20715.2 /lb	Molar Mass or MW	93.61 g/mol	
		Volume Liquid Ideal gas	0.181 scf/gal	24.5

**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.**

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