



EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

PRIMARY DB KEY: **05-103-10627** NAME/DESCRIP : **PICEANCE CREEK UNIT T35X-11G5**
 LEASE #: INTERMEDIATE CASING
 FIELD/AREA:
 PROJECT NO. : **202509074** ANALYSIS NO. : **02**
 COMPANY NAME : **QB ENERGY OPERATING, LLC** ANALYSIS DATE: **SEPTEMBER 20, 2025 19:09**
 OFFICE / BRANCH: **PARACHUTE, CO** SAMPLE DATE : **SEPTEMBER 08, 2025**
 CUSTOMER REF: TO:
 PRODUCER : EFFECTIVE DATE:

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

SAMPLE CYCLE: SAMPLE TYPE:
 SAMPLE PRES. : 1387 psig PROBE :
 FLOW PRES. : psig CYLINDER NO. : ECA-816
 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	MOLE %	MASS %	GPM @	
			14.65	14.73
ALCOHOLS	0.0045	0.0084	0.0010	0.0010
HELIUM	0.01	0.00	---	---
HYDROGEN	0.23	0.02	---	---
OXYGEN/ARGON	0.00	0.00	---	---
NITROGEN	0.19	0.28	---	---
CARBON DIOXIDE	2.20	5.02	---	---
METHANE	87.5753	72.8111	---	---
ETHANE	5.8628	9.1363	1.5632	1.5717
PROPANE	1.7683	4.0410	0.4858	0.4884
I-BUTANE	0.3893	1.1727	0.1269	0.1276
N-BUTANE	0.4214	1.2694	0.1329	0.1337
I-PENTANE	0.2046	0.7647	0.0750	0.0754
N-PENTANE	0.1501	0.5613	0.0540	0.0543
HEXANES PLUS	0.9937	4.9151	0.4110	0.4126
TOTALS	100.00000	100.00000	2.8498	2.8647

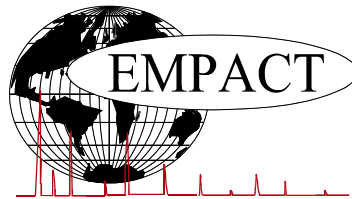
BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0213	0.0862
TOLUENE	0.0746	0.3562
ETHYLBENZENE	0.0001	0.0006
XYLENES	0.0003	0.0017
TOTAL BTEX	0.0963	0.4447

	CALCULATED VALUES**	
	BTU @	
	14.65	14.73
LHV NET DRY REAL :	1016.8 /scf	1022.3 /scf
NET WET REAL :	999.0 /scf	1004.5 /scf
HHV GROSS DRY REAL :	1123.9 /scf	1130.1 /scf
GROSS WET REAL :	1104.3 /scf	1110.5 /scf
NET HEATING VALUE (60 °F ideal reaction):		20031.1 Btu/lbm
GROSS HEATING VALUE (60°F ideal reaction):		22142.5 Btu/lbm
RELATIVE DENSITY (AIR=1):		0.6658
DENSITY		0.05084 lbm/scf
COMPRESSIBILITY FACTOR :		0.9974
REGULAR WOBBE INDEX		1378.1

*(DETAILED HYDROCARBON ANALYSIS/NJ 1993)
 Mod ASTM D6730,GPA 2261 & GPA 2286.

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

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GLYCALC INFORMATION**

PROJECT NO. :	202509074	ANALYSIS NO. :	02
COMPANY NAME :	QB ENERGY OPERATING, LLC	ANALYSIS DATE:	SEPTEMBER 20, 2025 19:09
ACCOUNT NO. :		SAMPLE DATE :	SEPTEMBER 08, 2025
PRODUCER :		CYLINDER NO. :	ECA-816
LEASE NO. :		SAMPLED BY :	NICK CROY
NAME/DESCRIP :	PICEANCE CREEK UNIT T35X-11G5 INTERMEDIATE CASING		

FIELD DATA		SAMPLE TEMP. :	
SAMPLE PRES. :	1387	AMBIENT TEMP.:	
H2S BY STAIN TUBE:	—		
COMMENTS :	—		

<u>Componet</u>	<u>Mole %</u>	<u>Wt %</u>
Helium	0.01	0.00
Hydrogen	0.23	0.02
Carbon Dioxide	2.20	5.02
Nitrogen	0.19	0.28
Methane	87.5753	72.8111
Ethane	5.8628	9.1363
Propane	1.7683	4.0410
Isobutane	0.3893	1.1727
n-Butane	0.4214	1.2694
Isopentane	0.2019	0.7549
n-Pentane	0.1501	0.5613
Cyclopentane	0.0027	0.0098
n-Hexane	0.0996	0.4448
Cyclohexane	0.0569	0.2482
Other Hexanes	0.1860	0.8257
Heptanes	0.2382	1.2317
Methylcyclohexane	0.1827	0.9297
2,2,4 Trimethylpentane	0.0001	0.0006
Benzene	0.0213	0.0862
Toluene	0.0746	0.3562
Ethylbenzene	0.0001	0.0006
Xylenes	0.0003	0.0017
C8+ Heavies	0.1339	0.7897
<u>Subtotal</u>	<u>99.99550</u>	<u>99.99160</u>
Oxygen/Argon	0.00	0.00
Alcohols	0.0045	0.0084
<u>Total</u>	<u>100.00000</u>	<u>100.00000</u>

Calculated Values BTU @		Total	C6+	C8+	C10+
LHV	Net Dry Real:	1016.8	4800.0	5748.6	8903.0 Btu/scf
	Net Wet Real:	999.0	4716.1	5648.1	8747.4 Btu/scf
HHV	Gross Dry Real:	1123.9	5156.3	6197.0	9579.9 Btu/scf
	Gross Wet Real:	1104.3	5066.2	6088.7	9412.4 Btu/scf

Other Calculated Values					
Regualr Wobbe Index*	1378.1	2830.1	3125.3	3883.3	Btu/scf
Net Heating Value (60 °F ideal reaction):	20031.1	19289.6	20156.3	19108.5	Btu/lbm
Gross Heating Value (60 °F ideal reaction):	22142.5	20724.5	21727.6	20561.3	Btu/lbm
Molar Mass (MW):	19.2955	95.441	113.806	177.352	g/mol
Relative Density (AIR=1):	0.6658	3.2955	3.9297	6.1235	SG
Density:	0.05084	0.25150	0.29990	0.46735	lbm/scf
Compressibility Factor:	0.9974	0.9933	0.9966	1.0000	Z
Liquid Volume real gas @:	18.0214	0.4097	0.0648	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

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 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	---	0.23	0.02	---	---
Nitrogen	---	0.19	0.28	---	---
Carbon Dioxide	---	2.20	5.02	---	---
Methane	P1	87.5753	72.8111	---	---
Ethane	P2	5.8628	9.1363	1.563	1.572
Propane	P3	1.7683	4.0410	0.486	0.488
i-Butane	I4	0.3893	1.1727	0.127	0.128
Methanol	X1	0.0040	0.0066	0.001	0.001
n-Butane	P4	0.4214	1.2694	0.133	0.134
2,2-Dimethylpropane	I5	0.0052	0.0194	0.002	0.002
i-Pentane	I5	0.1967	0.7355	0.072	0.072
i-Propanol	X3	0.0001	0.0003	0.000	0.000
n-Pentane	P5	0.1501	0.5613	0.054	0.054
t-Butanol	X4	0.0004	0.0015	0.000	0.000
2,2-Dimethylbutane	I6	0.0089	0.0397	0.004	0.004
Cyclopentane	N5	0.0027	0.0098	0.001	0.001
2,3-Dimethylbutane	I6	0.0166	0.0742	0.007	0.007
2-Methylpentane	I6	0.0707	0.3158	0.029	0.029
3-Methylpentane	I6	0.0404	0.1805	0.016	0.016
n-Hexane	P6	0.0996	0.4448	0.041	0.041
2,2-Dimethylpentane	I7	0.0039	0.0203	0.002	0.002
Methylcyclopentane	N6	0.0494	0.2155	0.017	0.017
2,4-Dimethylpentane	I7	0.0066	0.0343	0.003	0.003
2,2,3-Trimethylbutane	I7	0.0014	0.0073	0.001	0.001
Benzene	A6	0.0213	0.0862	0.006	0.006
3,3-Dimethylpentane	I7	0.0023	0.0119	0.001	0.001
Cyclohexane	N6	0.0569	0.2482	0.019	0.019

2-Methylhexane	I7	0.0347	0.1802	0.016	0.016
2,3-Dimethylpentane	I7	0.0087	0.0452	0.004	0.004
1,1-Dimethylcyclopentane	N7	0.0070	0.0356	0.003	0.003
3-Methylhexane	I7	0.0321	0.1667	0.015	0.015
1c,3-Dimethylcyclopentane	N7	0.0118	0.0601	0.005	0.005
1t,3-Dimethylcyclopentane	N7	0.0110	0.0560	0.005	0.005
3-Ethylpentane	I7	0.0017	0.0088	0.001	0.001
1t,2-Dimethylcyclopentane	N7	0.0175	0.0890	0.008	0.008
2,2,4-Trimethylpentane	I8	0.0001	0.0006	0.000	0.000
n-Heptane	P7	0.0909	0.4720	0.042	0.042
1c,2-Dimethylcyclopentane	N7	0.0019	0.0097	0.001	0.001
Methylcyclohexane	N7	0.1827	0.9297	0.073	0.073
2,2-Dimethylhexane	I8	0.0047	0.0278	0.002	0.002
1,1,3-Trimethylcyclopentane	N7	0.0007	0.0041	0.000	0.000
Ethylcyclopentane	N7	0.0060	0.0305	0.002	0.002
2,5-Dimethylhexane	I8	0.0047	0.0278	0.002	0.002
2,2,3-Trimethylpentane	I8	0.0042	0.0249	0.002	0.002
2,4-Dimethylhexane	I8	0.0004	0.0024	0.000	0.000
1c,2t,4-Trimethylcyclopentane	N8	0.0036	0.0209	0.002	0.002
3,3-Dimethylhexane	I8	0.0014	0.0083	0.001	0.001
2,3,4-Trimethylpentane	I8	0.0001	0.0006	0.000	0.000
2,3,3-Trimethylpentane	I8	0.0002	0.0012	0.000	0.000
Toluene	A7	0.0746	0.3562	0.025	0.025
2,3-Dimethylhexane	I8	0.0036	0.0213	0.002	0.002
2-Methyl-3-ethylpentane	I8	0.0004	0.0024	0.000	0.000
2-Methylheptane	I8	0.0197	0.1166	0.010	0.010
4-Methylheptane	I8	0.0060	0.0355	0.003	0.003
3-Methyl-3-ethylpentane	I8	0.0004	0.0024	0.000	0.000
3,4-Dimethylhexane	I8	0.0005	0.0029	0.000	0.000
1c,2c,4-Trimethylcyclopentane	N8	0.0002	0.0011	0.000	0.000
1c,3-Dimethylcyclohexane	N8	0.0002	0.0011	0.000	0.000
3-Methylheptane	I8	0.0136	0.0805	0.007	0.007
1c,2t,3-Trimethylcyclopentane	N8	0.0246	0.1430	0.013	0.013
3-Ethylhexane	I8	0.0014	0.0083	0.001	0.001
1t,4-Dimethylcyclohexane	N8	0.0111	0.0646	0.006	0.006
1,1-Dimethylcyclohexane	N8	0.0033	0.0192	0.001	0.001
2,2,5-Trimethylhexane	I9	0.0003	0.0020	0.000	0.000
3c-Ethylmethylcyclopentane	N8	0.0008	0.0047	0.000	0.000
3t-Ethylmethylcyclopentane	N8	0.0007	0.0041	0.000	0.000
2t-Ethylmethylcyclopentane	N8	0.0007	0.0041	0.000	0.000
1,1-Methylethylcyclopentane	N8	0.0002	0.0011	0.000	0.000
2,2,4-Trimethylhexane	I9	0.0002	0.0013	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0052	0.0302	0.003	0.003
1t,3-Dimethylcyclohexane	N8	0.0007	0.0041	0.000	0.000
n-Octane	P8	0.0160	0.0947	0.008	0.008
1c,4-Dimethylcyclohexane	N8	0.0031	0.0180	0.002	0.002
i-Propylcyclopentane	I8	0.0001	0.0006	0.000	0.000
2,2-Dimethylheptane	I9	0.0002	0.0013	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0004	0.0026	0.000	0.000
2,2,3-Trimethylhexane	I9	0.0001	0.0007	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
2,5-Dimethylheptane	I9	0.0001	0.0007	0.000	0.000
Ethylbenzene	I8	0.0001	0.0006	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0002	0.0011	0.000	0.000
1,4-Dimethylbenzene (p-Xylene)	A8	0.0001	0.0006	0.000	0.000
n-Decane	P10	0.0001	0.0007	0.000	0.000
n-Undecane	P11	0.0001	0.0008	0.000	0.000
n-Dodecane	P12	0.0001	0.0009	0.000	0.000
n-Tridecane	P13	0.0001	0.0009	0.000	0.000
n-Tetradecane	P14	0.0001	0.0010	0.000	0.000
n-Pentadecane	P15	0.0001	0.0011	0.000	0.000
TOTAL		100.0000	100.00000	2.8498	2.8647

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0213	0.0862
TOLUENE	0.0746	0.3562
ETHYLBENZENE	0.0001	0.0006
XYLENES	0.0003	0.0017
TOTAL BTEX	0.0963	0.4447

*(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 :	1016.8 /scf	1022.3 /scf
NET WET REAL :	999.0 /scf	1004.5 /scf
HHV GROSS DRY REAL :	1123.9 /scf	1130.1 /scf
GROSS WET REAL :	1104.3 /scf	1110.5 /scf
NET HEATING VALUE (60 °F ideal reaction):		20031.1 Btu/lbm
GROSS HEATING VALUE (60°F ideal reaction):		22142.5 Btu/lbm
RELATIVE DENSITY (AIR=1):		0.6658
DENSITY		0.05084 lb/scf
COMPRESSIBILITY FACTOR :		0.9974
REGULAR WOBBE INDEX		1378.1

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

Net Dry Ideal BTU	<u>4782.6 /scf</u>	Relative Density - SG (Air=1)	<u>3.2955</u>	C6+ factors
Gross Dry Ideal BTU	<u>5137.6 /scf</u>	Z Compressibility Factor	<u>0.99326</u>	<u>0.99266</u>
Net Dry Ideal BTU	<u>19289.6 /lb</u>	Density Factor	<u>251.504 lbm/1000 ft3</u>	
Gross Dry Ideal BTU	<u>20724.5 /lb</u>	Molar Mass or MW	<u>95.441 g/mol</u>	
		Volume Liquid Ideal gas	<u>0.411 scf/gal</u>	<u>24.3</u>

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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