EMPACT

EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

PRIMARY DB KEY:	**05-103-10627**	NAME/DESCRIP :	**PICEANCE CREEK UNIT T35X-11G5**
LEASE #:			**PRODUCTION CASING**
FIELD/AREA:			
PROJECT NO. :	**202509074**	ANALYSIS NO. :	**01**
COMPANY NAME :	**QB ENERGY OPERATING, LLC**	ANALYSIS DATE:	SEPTEMBER 20, 2025 17:22
OFFICE / BRANCH:	PARACHUTE, CO	SAMPLE DATE :	SEPTEMBER 08, 2025
CUSTOMER REF:		TO:	
PRODUCER :		EFFECTIVE DATE:	
FIELD DATA			
SAMPLE CYCLE:		SAMPLE TYPE:	
SAMPLE PRES. :	1385 psig	PROBE :	
FLOW PRES. :	psig	CYLINDER NO. :	ECA-803
LAB PRES:	psig	SAMPLED BY :	NICK CROY
SAMPLE TEMP. :	ºf	SAMPLING COMPANY:	QB ENERGY
AMBIENT TEMP.:	ºf	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	GPM @ 14.73
ALCOHOLS	0.1470	0.2473	0.0190	0.0191
HELIUM	0.00	0.00	---	---
HYDROGEN	0.24	0.03	---	---
OXYGEN/ARGON	0.01	0.02	---	---
NITROGEN	0.21	0.31	---	---
CARBON DIOXIDE	2.17	4.99	---	---
METHANE	87.5585	73.3466	---	---
ETHANE	5.8952	9.2562	1.5722	1.5808
PROPANE	1.8461	4.2508	0.5068	0.5095
I-BUTANE	0.4051	1.2295	0.1319	0.1327
N-BUTANE	0.4156	1.2614	0.1309	0.1317
I-PENTANE	0.1997	0.7519	0.0730	0.0733
N-PENTANE	0.1396	0.5259	0.0500	0.0502
HEXANES PLUS	0.7632	3.7804	0.3110	0.3123
TOTALS	100.00000	100.00000	2.7948	2.8096

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0181	0.0738
TOLUENE	0.0517	0.2488
ETHYLBENZENE	0.0001	0.0006
XYLENES	0.0002	0.0012
TOTAL BTEX	0.0701	0.3244

**(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 :	1009.0 **/scf**	1014.5 **/scf**
	NET WET REAL :	991.4 **/scf**	996.9 **/scf**
HHV	GROSS DRY REAL :	1115.4 **/scf**	1121.4 **/scf**
	GROSS WET REAL :	1095.9 **/scf**	1101.9 **/scf**

NET HEATING VALUE (60 °F ideal reaction):	20020.1 **Btu/lbm**
GROSS HEATING VALUE (60°F ideal reaction):	22137.9 **Btu/lbm**
RELATIVE DENSITY (AIR=1):	0.6604
DENSITY	0.05045 **lbm/scf**
COMPRESSIBILITY FACTOR :	0.9974
REGULAR WOBBE INDEX	1373.2

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EXTENDED NATURAL GAS ANALYSIS (*DHA)

GLYCALC INFORMATION

PROJECT NO. :	202509074	ANALYSIS NO. :	01
COMPANY NAME :	QB ENERGY OPERATING, LLC	ANALYSIS DATE:	SEPTEMBER 20, 2025 17:22
ACCOUNT NO. :		SAMPLE DATE :	SEPTEMBER 08, 2025
PRODUCER :		CYLINDER NO. :	ECA-803
LEASE NO. :		SAMPLED BY :	NICK CROY
NAME/DESCRIP :	PICEANCE CREEK UNIT T35X-11G5 PRODUCTION CASING		
FIELD DATA		SAMPLE TEMP. :	
SAMPLE PRES. :	1385	AMBIENT TEMP.:	
H2S BY STAIN TUBE:	_ *ppm mol*		
COMMENTS :			

Componet	Mole %	Wt %
Helium	0.00	0.00
Hydrogen	0.24	0.03
Carbon Dioxide	2.17	4.99
Nitrogen	0.21	0.31
Methane	87.5585	73.3466
Ethane	5.8952	9.2562
Propane	1.8461	4.2508
Isobutane	0.4051	1.2295
n-Butane	0.4156	1.2614
Isopentane	0.1963	0.7395
n-Pentane	0.1396	0.5259
Cyclopentane	0.0034	0.0124
n-Hexane	0.0828	0.3726
Cyclohexane	0.0470	0.2066
Other Hexanes	0.1595	0.7135
Heptanes	0.1777	0.9258
Methylcyclohexane	0.1329	0.6814
2,2,4 Trimethylpentane	0.0001	0.0006
Benzene	0.0181	0.0738
Toluene	0.0517	0.2488
Ethylbenzene	0.0001	0.0006
Xylenes	0.0002	0.0012
C8+ Heavies	0.0931	0.5555
Subtotal	99.84300	99.73270
Oxygen/Argon	0.01	0.02
Alcohols	0.1470	0.2473
Total	100.00000	100.00000

Calculated Values BTU @ **14.65**		**Total Sample**	**C6+ Fraction**	**C8+ Fraction**	**C10+ Fraction**	
LHV	Net Dry Real:	1009.0	4774.1	5768.5	8830.1	**Btu/scf**
	Net Wet Real:	991.4	4690.6	5667.7	8675.7	**Btu/scf**
HHV	Gross Dry Real:	1115.4	5130.0	6218.2	9463.4	**Btu/scf**
	Gross Wet Real:	1095.9	5040.3	6109.5	9298.0	**Btu/scf**
Other Calculated Values						
Regualr Wobbe Index*		1373.2	2823.4	3130.4	3867.3	**Btu/scf**
Net Heating Value (60 °F ideal reaction):		20020.1	19284.7	20134.1	18955.4	**Btu/lbm**
Gross Heating Value (60°F ideal reaction):		22137.9	20722.5	21702.7	20313.8	**Btu/lbm**
Molar Mass (MW):		19.14818	94.859	114.234	174.507	**g/mol**
Relative Density (AIR=1):		0.6604	3.2755	3.9439	6.0252	**SG**
Density:		0.05045	0.24996	0.30102	0.45986	**lbm/scf**
Compressiblity Factor:		0.9974	0.9930	0.9967	1.0000	**Z**
Liquid Volume real gas @:	**14.65**	17.9606	0.31	0.0429	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 uderscore) indicates there was no tube pulled for H2S.

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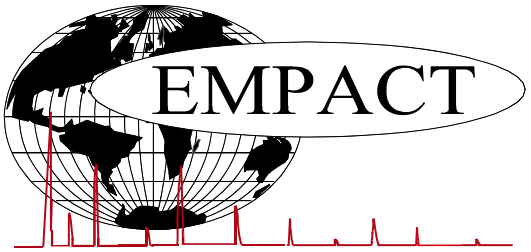

EXTENDED NATURAL GAS ANALYSIS (*DHA)

DHA COMPONENT LIST

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

PROJECT NO. : **202509074** ANALYSIS NO. : **01**
COMPANY NAME : **QB ENERGY OPERATING, LLC** ANALYSIS DATE: SEPTEMBER 20, 2025 17:22
OFFICE / BRANCH: PARACHUTE, CO SAMPLE DATE : SEPTEMBER 08, 2025
CUSTOMER REF: TO:
PRODUCER : EFFECTIVE DATE:
FIELD DATA
SAMPLE CYCLE: SAMPLE TYPE:
SAMPLE PRES. : 1385 psig PROBE :
FLOW PRES. : psig CYLINDER NO. : ECA-803
LAB PRES: psig SAMPLED BY : NICK CROY
SAMPLE TEMP. : ºf SAMPLING COMPANY: QB ENERGY
AMBIENT TEMP.: ºf 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	---	0.24	0.03	---	---
Oxygen/Argon	---	0.01	0.02	---	---
Nitrogen	---	0.21	0.31	---	---
Carbon Dioxide	---	2.17	4.99	---	---
Methane	P1	87.5585	73.3466	---	---
Ethane	P2	5.8952	9.2562	1.572	1.581
Propane	P3	1.8461	4.2508	0.507	0.510
i-Butane	I4	0.4051	1.2295	0.132	0.133
Methanol	X1	0.1463	0.2448	0.019	0.019
n-Butane	P4	0.4156	1.2614	0.131	0.132
2,2-Dimethylpropane	I5	0.0053	0.0199	0.002	0.002
i-Pentane	I5	0.1910	0.7196	0.070	0.070
i-Propanol	X3	0.0003	0.0009	0.000	0.000
n-Pentane	P5	0.1396	0.5259	0.050	0.050
t-Butanol	X4	0.0004	0.0016	0.000	0.000
2,2-Dimethylbutane	I6	0.0082	0.0369	0.003	0.003
Cyclopentane	N5	0.0034	0.0124	0.001	0.001
2,3-Dimethylbutane	I6	0.0146	0.0657	0.006	0.006
2-Methylpentane	I6	0.0614	0.2763	0.025	0.025
3-Methylpentane	I6	0.0348	0.1566	0.014	0.014
n-Hexane	P6	0.0828	0.3726	0.034	0.034
2,2-Dimethylpentane	I7	0.0031	0.0162	0.001	0.001
Methylcyclopentane	N6	0.0405	0.1780	0.014	0.014
2,4-Dimethylpentane	I7	0.0053	0.0277	0.002	0.002
2,2,3-Trimethylbutane	I7	0.0012	0.0063	0.001	0.001
Benzene	A6	0.0181	0.0738	0.005	0.005
3,3-Dimethylpentane	I7	0.0018	0.0094	0.001	0.001
Cyclohexane	N6	0.0470	0.2066	0.016	0.016
2-Methylhexane	I7	0.0267	0.1397	0.012	0.012

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2,3-Dimethylpentane	I7	0.0063	0.0329	0.003	0.003
1,1-Dimethylcyclopentane	N7	0.0053	0.0272	0.002	0.002
3-Methylhexane	I7	0.0242	0.1266	0.011	0.011
1c,3-Dimethylcyclopentane	N7	0.0089	0.0456	0.004	0.004
1t,3-Dimethylcyclopentane	N7	0.0083	0.0426	0.004	0.004
3-Ethylpentane	I7	0.0012	0.0063	0.001	0.001
1t,2-Dimethylcyclopentane	N7	0.0132	0.0677	0.006	0.006
2,2,4-Trimethylpentane	I8	0.0001	0.0006	0.000	0.000
n-Heptane	P7	0.0661	0.3458	0.030	0.030
1c,2-Dimethylcyclopentane	N7	0.0012	0.0062	0.001	0.001
Methylcyclohexane	N7	0.1329	0.6814	0.053	0.053
2,2-Dimethylhexane	I8	0.0032	0.0191	0.001	0.001
1,1,3-Trimethylcyclopentane	N7	0.0007	0.0041	0.000	0.000
Ethylcyclopentane	N7	0.0042	0.0215	0.002	0.002
2,5-Dimethylhexane	I8	0.0033	0.0197	0.002	0.002
2,2,3-Trimethylpentane	I8	0.0029	0.0173	0.001	0.001
2,4-Dimethylhexane	I8	0.0004	0.0024	0.000	0.000
1c,2t,4-Trimethylcyclopentane	N8	0.0026	0.0152	0.001	0.001
3,3-Dimethylhexane	I8	0.0010	0.0059	0.000	0.000
2,3,4-Trimethylpentane	I8	0.0001	0.0006	0.000	0.000
2,3,3-Trimethylpentane	I8	0.0001	0.0006	0.000	0.000
Toluene	A7	0.0517	0.2488	0.017	0.017
2,3-Dimethylhexane	I8	0.0024	0.0143	0.001	0.001
2-Methyl-3-ethylpentane	I8	0.0004	0.0024	0.000	0.000
2-Methylheptane	I8	0.0136	0.0811	0.007	0.007
4-Methylheptane	I8	0.0040	0.0239	0.002	0.002
3-Methyl-3-ethylpentane	I8	0.0004	0.0024	0.000	0.000
3,4-Dimethylhexane	I8	0.0004	0.0024	0.000	0.000
1c,2c,4-Trimethylcyclopentane	N8	0.0001	0.0006	0.000	0.000
1c,3-Dimethylcyclohexane	N8	0.0001	0.0006	0.000	0.000
3-Methylheptane	I8	0.0094	0.0561	0.005	0.005
1c,2t,3-Trimethylcyclopentane	N8	0.0168	0.0984	0.009	0.009
3-Ethylhexane	I8	0.0009	0.0054	0.000	0.000
1t,4-Dimethylcyclohexane	N8	0.0076	0.0445	0.004	0.004
1,1-Dimethylcyclohexane	N8	0.0023	0.0135	0.001	0.001
2,2,5-Trimethylhexane	I9	0.0002	0.0014	0.000	0.000
3c-Ethylmethylcyclopentane	N8	0.0006	0.0035	0.000	0.000
3t-Ethylmethylcyclopentane	N8	0.0005	0.0029	0.000	0.000
2t-Ethylmethylcyclopentane	N8	0.0005	0.0029	0.000	0.000
1,1-Methylethylcyclopentane	N8	0.0001	0.0006	0.000	0.000
2,2,4-Trimethylhexane	I9	0.0002	0.0014	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0036	0.0211	0.002	0.002
1t,3-Dimethylcyclohexane	N8	0.0004	0.0023	0.000	0.000
n-Octane	P8	0.0111	0.0662	0.006	0.006
1c,4-Dimethylcyclohexane	N8	0.0021	0.0123	0.001	0.001
i-Propylcyclopentane	I8	0.0001	0.0006	0.000	0.000
2,2-Dimethylheptane	I9	0.0001	0.0007	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0003	0.0020	0.000	0.000
2,2,3-Trimethylhexane	I9	0.0001	0.0007	0.000	0.000
Ethylcyclohexane	N8	0.0001	0.0006	0.000	0.000
Ethylbenzene	I8	0.0001	0.0006	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0001	0.0006	0.000	0.000
1,4-Dimethylbenzene (p-Xylene)	A8	0.0001	0.0006	0.000	0.000
t-Butylbenzene	A10	0.0001	0.0007	0.000	0.000
n-Undecane	P11	0.0001	0.0008	0.000	0.000
1,2,4,5-Tetramethylbenzene	A11	0.0001	0.0007	0.000	0.000
1,2,4-Triethylbenzene	A12	0.0001	0.0008	0.000	0.000
1-Methylnaphthalene	A11	0.0001	0.0007	0.000	0.000
n-Tetradecane	P14	0.0001	0.0010	0.000	0.000
UnknownC14s	U14	0.0005	0.0052	0.000	0.000
TOTAL		100.00000	100.00000	2.7948	2.8096

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0181	0.0738
TOLUENE	0.0517	0.2488
ETHYLBENZENE	0.0001	0.0006
XYLENES	0.0002	0.0012
TOTAL BTEX	0.0701	0.3244

**(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 :	1009.0 /scf	1014.5 /scf
	NET WET REAL :	991.4 /scf	996.9 /scf
HHV	GROSS DRY REAL :	1115.4 /scf	1121.4 /scf
	GROSS WET REAL :	1095.9 /scf	1101.9 /scf
	NET HEATING VALUE (60 °F ideal reaction):		20020.1 Btu/lbm
	GROSS HEATING VALUE (60°F ideal reaction):		22137.9 Btu/lbm
	RELATIVE DENSITY (AIR=1):		0.6604
	DENSITY		0.05045 lb/scf
	COMPRESSIBILITY FACTOR :		0.9974
	REGULAR WOBBE INDEX		1373.2

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

					C6+factors
Net Dry Ideal BTU	4755.4 /scf	Relative Density - SG (Air=1)	3.2755		
Gross Dry Ideal BTU	5109.9 /scf	**Z** Compressiblity Factor	0.99297		0.99238
Net Dry Ideal BTU	19284.7 /lb	Density Factor	249.96	lbm/1000 ft3	
Gross Dry Ideal BTU	20722.5 /lb	Molar Mass or MW	94.859	g/mol	
		Volume Liquid Ideal gas	0.311	scf/gal	24.2

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.

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