EMPACT

EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

PRIMARY DB KEY:	**05-103-10112**	NAME/DESCRIP :	**PICEANCE CREEK UNIT T35X-11G**
LEASE #:			**PRODUCTION CASING**
FIELD/AREA:			
PROJECT NO. :	**202509072**	ANALYSIS NO. :	**01**
COMPANY NAME :	**QB ENERGY OPERATING, LLC**	ANALYSIS DATE:	SEPTEMBER 20, 2025 08:44
OFFICE / BRANCH:	PARACHUTE, CO	SAMPLE DATE :	SEPTEMBER 08, 2025
CUSTOMER REF:		TO:	
PRODUCER :		EFFECTIVE DATE:	
FIELD DATA			
SAMPLE CYCLE:		SAMPLE TYPE:	
SAMPLE PRES. :	861 psig	PROBE :	
FLOW PRES. :	psig	CYLINDER NO. :	1565
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	0.6940	1.3786	0.0889	0.0894
HELIUM	0.01	0.00	---	---
HYDROGEN	0.65	0.08	---	---
OXYGEN/ARGON	0.00	0.00	---	---
NITROGEN	0.24	0.41	---	---
CARBON DIOXIDE	0.05	0.14	---	---
METHANE	97.4682	96.1073	---	---
ETHANE	0.7043	1.3017	0.1878	0.1888
PROPANE	0.1205	0.3266	0.0330	0.0331
I-BUTANE	0.0247	0.0883	0.0080	0.0080
N-BUTANE	0.0206	0.0736	0.0060	0.0060
I-PENTANE	0.0066	0.0293	0.0020	0.0020
N-PENTANE	0.0041	0.0182	0.0010	0.0010
HEXANES PLUS	0.0070	0.0464	0.0000	0.0000
TOTALS	100.00000	100.00000	0.3267	0.3283

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0000	0.0000
TOLUENE	0.0001	0.0006
ETHYLBENZENE	0.0001	0.0007
XYLENES	0.0005	0.0034
TOTAL BTEX	0.0007	0.0047

**(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 :	908.7 **/scf**	913.6 **/scf**
	NET WET REAL :	892.8 **/scf**	897.7 **/scf**
HHV	GROSS DRY REAL :	1009.1 **/scf**	1014.7 **/scf**
	GROSS WET REAL :	991.5 **/scf**	997.1 **/scf**
	NET HEATING VALUE (60 °F ideal reaction):		21224.3 **Btu/lbm**
	GROSS HEATING VALUE (60°F ideal reaction):		23571.2 **Btu/lbm**
	RELATIVE DENSITY (AIR=1):		0.5615
	DENSITY		0.04287 **lbm/scf**
	COMPRESSIBILITY FACTOR :		0.9979
	REGULAR WOBBE INDEX		1348.1

EMPACT

EXTENDED NATURAL GAS ANALYSIS (*DHA)

GLYCALC INFORMATION

PROJECT NO. :	202509072	ANALYSIS NO. :	01
COMPANY NAME :	QB ENERGY OPERATING, LLC	ANALYSIS DATE:	SEPTEMBER 20, 2025 08:44
ACCOUNT NO. :		SAMPLE DATE :	SEPTEMBER 08, 2025
PRODUCER :		CYLINDER NO. :	1565
LEASE NO. :		SAMPLED BY :	NICK CROY
NAME/DESCRIP :	PICEANCE CREEK UNIT T35X-11G PRODUCTION CASING		
FIELD DATA		SAMPLE TEMP. :	
SAMPLE PRES. :	861	AMBIENT TEMP.:	
H2S BY STAIN TUBE:	_ *ppm mol*		
COMMENTS :			

Componet	Mole %	Wt %
Helium	0.01	0.00
Hydrogen	0.65	0.08
Carbon Dioxide	0.05	0.14
Nitrogen	0.24	0.41
Methane	97.4682	96.1073
Ethane	0.7043	1.3017
Propane	0.1205	0.3266
Isobutane	0.0247	0.0883
n-Butane	0.0206	0.0736
Isopentane	0.0065	0.0289
n-Pentane	0.0041	0.0182
Cyclopentane	0.0001	0.0004
n-Hexane	0.0010	0.0053
Cyclohexane	0.0001	0.0005
Other Hexanes	0.0021	0.0109
Heptanes	0.0005	0.0030
Methylcyclohexane	0.0001	0.0006
2,2,4 Trimethylpentane	0.0000	0.0000
Benzene	0.0000	0.0000
Toluene	0.0001	0.0006
Ethylbenzene	0.0001	0.0007
Xylenes	0.0005	0.0034
C8+ Heavies	0.0025	0.0214
Subtotal	99.30600	98.62140
Oxygen/Argon	0.00	0.00
Alcohols	0.6940	1.3786
Total	100.00000	100.00000

Calculated Values BTU @ **14.65**		**Total Sample**	**C6+ Fraction**	**C8+ Fraction**	**C10+ Fraction**	
LHV	Net Dry Real:	908.7	5306.3	6305.2	7182.3	**Btu/scf**
	Net Wet Real:	892.8	5213.5	6195.0	7056.7	**Btu/scf**
HHV	Gross Dry Real:	1009.1	5687.1	6721.1	7672.7	**Btu/scf**
	Gross Wet Real:	991.5	5587.7	6603.6	7538.6	**Btu/scf**
Other Calculated Values						
Regualr Wobbe Index*		1348.1	2939.4	3147.4	3417.4	**Btu/scf**
Net Heating Value (60 °F ideal reaction):		21224.3	18572.1	18011.9	18661.4	**Btu/lbm**
Gross Heating Value (60°F ideal reaction):		23571.2	19902.3	19197.4	19936.3	**Btu/lbm**
Molar Mass (MW):		16.26986	107.977	132.751	146.827	**g/mol**
Relative Density (AIR=1):		0.5615	3.7280	4.5834	5.0694	**SG**
Density:		0.04287	0.28453	0.34982	0.38691	**lbm/scf**
Compressiblity Factor:		0.9979	0.9948	0.9994	0.9997	**Z**
Liquid Volume real gas @:	**14.65**	16.8491	0	0	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: **05-103-10112** NAME/DESCRIP : **PICEANCE CREEK UNIT T35X-11G**
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FIELD/AREA:

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COMPANY NAME : **QB ENERGY OPERATING, LLC** ANALYSIS DATE: SEPTEMBER 20, 2025 08:44
OFFICE / BRANCH: PARACHUTE, CO SAMPLE DATE : SEPTEMBER 08, 2025
CUSTOMER REF: TO:
PRODUCER : EFFECTIVE DATE:
FIELD DATA
SAMPLE CYCLE: SAMPLE TYPE:
SAMPLE PRES. : 861 psig PROBE :
FLOW PRES. : psig CYLINDER NO. : 1565
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**
Helium	---	0.01	0.00	---	---
Hydrogen	---	0.65	0.08	---	---
Nitrogen	---	0.24	0.41	---	---
Carbon Dioxide	---	0.05	0.14	---	---
Methane	P1	97.4682	96.1073	---	---
Ethane	P2	0.7043	1.3017	0.188	0.189
Propane	P3	0.1205	0.3266	0.033	0.033
i-Butane	I4	0.0247	0.0883	0.008	0.008
Methanol	X1	0.6872	1.3534	0.087	0.087
n-Butane	P4	0.0206	0.0736	0.006	0.006
2,2-Dimethylpropane	I5	0.0003	0.0014	0.000	0.000
i-Pentane	I5	0.0062	0.0275	0.002	0.002
i-Propanol	X3	0.0067	0.0248	0.002	0.002
n-Pentane	P5	0.0041	0.0182	0.001	0.001
t-Butanol	X4	0.0001	0.0004	0.000	0.000
2,2-Dimethylbutane	I6	0.0002	0.0010	0.000	0.000
Cyclopentane	N5	0.0001	0.0004	0.000	0.000
2,3-Dimethylbutane	I6	0.0002	0.0010	0.000	0.000
2-Methylpentane	I6	0.0010	0.0053	0.000	0.000
3-Methylpentane	I6	0.0005	0.0026	0.000	0.000
n-Hexane	P6	0.0010	0.0053	0.000	0.000
Methylcyclopentane	N6	0.0002	0.0010	0.000	0.000
2,4-Dimethylpentane	I7	0.0001	0.0006	0.000	0.000
Cyclohexane	N6	0.0001	0.0005	0.000	0.000
2-Methylhexane	I7	0.0001	0.0006	0.000	0.000
3-Methylhexane	I7	0.0001	0.0006	0.000	0.000
n-Heptane	P7	0.0002	0.0012	0.000	0.000
Methylcyclohexane	N7	0.0001	0.0006	0.000	0.000

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Toluene	A7	0.0001	0.0006	0.000	0.000
n-Octane	P8	0.0001	0.0007	0.000	0.000
Ethylbenzene	I8	0.0001	0.0007	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0003	0.0020	0.000	0.000
1,4-Dimethylbenzene (p-Xylene)	A8	0.0001	0.0007	0.000	0.000
1,2-Dimethylbenzene (o-Xylene)	A8	0.0001	0.0007	0.000	0.000
3-Methyl-5-ethylheptane	I10	0.0001	0.0009	0.000	0.000
1,3-Methylethylbenzene	A9	0.0003	0.0022	0.000	0.000
1,4-Methylethylbenzene	A9	0.0001	0.0007	0.000	0.000
1,3,5-Trimethylbenzene	A9	0.0002	0.0015	0.000	0.000
2-Methylnonane	I10	0.0001	0.0009	0.000	0.000
3-Methylnonane	I10	0.0001	0.0009	0.000	0.000
t-Butylbenzene	A10	0.0006	0.0050	0.000	0.000
n-Decane	P10	0.0001	0.0009	0.000	0.000
1,3-Methyl-i-propylbenzene	A10	0.0001	0.0008	0.000	0.000
n-Butylbenzene	A10	0.0001	0.0008	0.000	0.000
n-Undecane	P11	0.0001	0.0010	0.000	0.000
1,2,4,5-Tetramethylbenzene	A11	0.0001	0.0008	0.000	0.000
UnknownC11s	U11	0.0001	0.0010	0.000	0.000
n-Dodecane	P12	0.0001	0.0010	0.000	0.000
n-Tridecane	P13	0.0001	0.0011	0.000	0.000
n-Tetradecane	P14	0.0001	0.0012	0.000	0.000
TOTAL		100.00000	100.00000	0.3267	0.3283

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0000	0.0000
TOLUENE	0.0001	0.0006
ETHYLBENZENE	0.0001	0.0007
XYLENES	0.0005	0.0034
TOTAL BTEX	0.0007	0.0047

**(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 :	908.7 /scf	913.6 /scf
	NET WET REAL :	892.8 /scf	897.7 /scf
HHV	GROSS DRY REAL :	1009.1 /scf	1014.7 /scf
	GROSS WET REAL :	991.5 /scf	997.1 /scf
	NET HEATING VALUE (60 °F ideal reaction):		21224.3 Btu/lbm
	GROSS HEATING VALUE (60°F ideal reaction):		23571.2 Btu/lbm
	RELATIVE DENSITY (AIR=1):		0.5615
	DENSITY		0.04287 lb/scf
	COMPRESSIBILITY FACTOR :		0.9979
	REGULAR WOBBE INDEX		1348.1

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

Net Dry Ideal BTU	5295.4 /scf	Relative Density - SG (Air=1)	3.728	***C6+factors***
Gross Dry Ideal BTU	5675.4 /scf	**Z** Compressiblity Factor	0.99482	0.99275
Net Dry Ideal BTU	18572.1 /lb	Density Factor	284.533 lbm/1000 ft3	
Gross Dry Ideal BTU	19902.3 /lb	Molar Mass or MW	107.977 g/mol	
		Volume Liquid Ideal gas	0 scf/gal	22.6

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.