



EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

PRIMARY DB KEY: 05-103-10650	NAME/DESCRIP : PICEANCE CREEK UNIT T35X-2G5
LEASE #:	INTERMEDIATE CASING
FIELD/AREA:	
PROJECT NO. : 202509075	ANALYSIS NO. : 02
COMPANY NAME : QB ENERGY OPERATING, LLC	ANALYSIS DATE: SEPTEMBER 21, 2025 10:05
OFFICE / BRANCH: PARACHUTE, CO	SAMPLE DATE : SEPTEMBER 05, 2025
CUSTOMER REF:	TO:
PRODUCER :	EFFECTIVE DATE:

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

SAMPLE CYCLE:	SAMPLE TYPE:
SAMPLE PRES. : 630 psig	PROBE :
FLOW PRES. : psig	CYLINDER NO. : TBI-252
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>
HELIUM	0.01	0.00	---	---
HYDROGEN	0.03	0.00	---	---
OXYGEN/ARGON	0.01	0.02	---	---
NITROGEN	0.16	0.23	---	---
CARBON DIOXIDE	0.01	0.02	---	---
METHANE	84.5369	69.5356	---	---
ETHANE	9.2074	14.1953	2.4558	2.4692
PROPANE	3.7849	8.5573	1.0399	1.0456
I-BUTANE	0.7683	2.2896	0.2510	0.2523
N-BUTANE	0.7704	2.2959	0.2420	0.2433
I-PENTANE	0.2794	1.0331	0.1020	0.1025
N-PENTANE	0.1818	0.6725	0.0660	0.0664
HEXANES PLUS	0.2509	1.1507	0.1000	0.1003
TOTALS	100.0000	100.0000	4.2567	4.2796

<u>BTEX COMPONENTS</u>	<u>MOLE%</u>	<u>WT%</u>
BENZENE	0.0061	0.0244
TOLUENE	0.0052	0.0246
ETHYLBENZENE	0.0001	0.0006
XYLENES	0.0004	0.0022
TOTAL BTEX	0.0118	0.0518

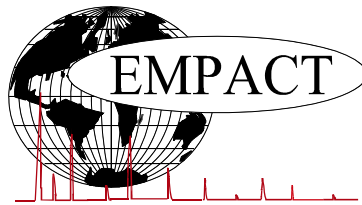
	<u>BTU @ 14.65</u>	<u>14.73</u>
LHV NET DRY REAL :	1079.9 /scf	1085.8 /scf
NET WET REAL :	1061.0 /scf	1066.9 /scf
HHV GROSS DRY REAL :	1192.3 /scf	1198.8 /scf
GROSS WET REAL :	1171.5 /scf	1178.0 /scf
NET HEATING VALUE (60 °F ideal reaction):		21016.5 Btu/lbm
GROSS HEATING VALUE (60°F ideal reaction):		23209.1 Btu/lbm
RELATIVE DENSITY (AIR=1):		0.6731
DENSITY		0.05139 lbm/scf
COMPRESSIBILITY FACTOR :		0.9970
REGULAR WOBBE INDEX		1453.4

**(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. :	202509075	ANALYSIS NO. :	02
COMPANY NAME :	QB ENERGY OPERATING, LLC	ANALYSIS DATE :	SEPTEMBER 21, 2025 10:05
ACCOUNT NO. :		SAMPLE DATE :	SEPTEMBER 05, 2025
PRODUCER :		CYLINDER NO. :	TBI-252
LEASE NO. :		SAMPLED BY :	NICK CROY
NAME/DESCRIP :	PICEANCE CREEK UNIT T35X-2G5 INTERMEDIATE CASING		

FIELD DATA		SAMPLE TEMP. :	
SAMPLE PRES. :	630	AMBIENT TEMP.:	
H2S BY STAIN TUBE:	— ppm mol		
COMMENTS :			

Componet	Mole %	Wt %
Helium	0.01	0.00
Hydrogen	0.03	0.00
Carbon Dioxide	0.01	0.02
Nitrogen	0.16	0.23
Methane	84.5369	69.5356
Ethane	9.2074	14.1953
Propane	3.7849	8.5573
Isobutane	0.7683	2.2896
n-Butane	0.7704	2.2959
Isopentane	0.2742	1.0144
n-Pentane	0.1818	0.6725
Cyclopentane	0.0052	0.0187
n-Hexane	0.0498	0.2201
Cyclohexane	0.0184	0.0794
Other Hexanes	0.1085	0.4773
Heptanes	0.0364	0.1859
Methylcyclohexane	0.0196	0.0987
2,2,4 Trimethylpentane	0.0000	0.0000
Benzene	0.0061	0.0244
Toluene	0.0052	0.0246
Ethylbenzene	0.0001	0.0006
Xylenes	0.0004	0.0022
C8+ Heavies	0.0064	0.0375
<u>Subtotal</u>	<u>99.99000</u>	<u>99.98000</u>
<u>Oxygen/Argon</u>	<u>0.01</u>	<u>0.02</u>
Total	100.00000	100.00000

	Total	C6+	C8+	C10+	
Calculated Values BTU @	Sample	Fraction	Fraction	Fraction	
14.65					
LHV Net Dry Real:	1079.9	4545.5	5681.9	#DIV/0!	Btu/scf
Net Wet Real:	1061.0	4466.0	5582.6	#DIV/0!	Btu/scf
HHV Gross Dry Real:	1192.3	4893.3	6115.4	#DIV/0!	Btu/scf
Gross Wet Real:	1171.5	4807.8	6008.5	#DIV/0!	Btu/scf
Other Calculated Values					
Regualr Wobbe Index*	1453.4	2765.3	3089.2	#DIV/0!	Btu/scf
Net Heating Value (60 °F ideal reaction):	21016.5	19268.5	19892.0	#DIV/0!	Btu/lbm
Gross Heating Value (60°F ideal reaction):	23209.1	20742.4	21409.6	#DIV/0!	Btu/lbm
Molar Mass (MW):	19.50412	89.431	113.5	#DIV/0!	g/mol
Relative Density (AIR=1):	0.6731	3.0879	3.9187	#DIV/0!	SG
Density:	0.05139	0.23566	0.29908	#DIV/0!	lbm/scf
Compressibility Factor:	0.9970	0.9900	0.9969	#DIV/0!	Z
Liquid Volume real gas @:	14.65	18.5189	0.0997	0.002	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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2-Methylhexane	I7	0.0061	0.0313	0.003	0.003
2,3-Dimethylpentane	I7	0.0016	0.0082	0.001	0.001
1,1-Dimethylcyclopentane	N7	0.0014	0.0070	0.001	0.001
3-Methylhexane	I7	0.0052	0.0267	0.002	0.002
1c,3-Dimethylcyclopentane	N7	0.0021	0.0106	0.001	0.001
1t,3-Dimethylcyclopentane	N7	0.0019	0.0096	0.001	0.001
3-Ethylpentane	I7	0.0002	0.0010	0.000	0.000
1t,2-Dimethylcyclopentane	N7	0.0029	0.0146	0.001	0.001
UnknownC6s	U6	0.0001	0.0005	0.000	0.000
n-Heptane	P7	0.0102	0.0524	0.005	0.005
1c,2-Dimethylcyclopentane	N7	0.0004	0.0020	0.000	0.000
Methylcyclohexane	N7	0.0196	0.0987	0.008	0.008
2,2-Dimethylhexane	I8	0.0004	0.0024	0.000	0.000
Ethylcyclopentane	N7	0.0005	0.0025	0.000	0.000
2,5-Dimethylhexane	I8	0.0003	0.0017	0.000	0.000
2,2,3-Trimethylpentane	I8	0.0002	0.0012	0.000	0.000
1c,2t,4-Trimethylcyclopentane	N8	0.0002	0.0011	0.000	0.000
3,3-Dimethylhexane	I8	0.0001	0.0006	0.000	0.000
Toluene	A7	0.0052	0.0246	0.002	0.002
2,3-Dimethylhexane	I8	0.0001	0.0006	0.000	0.000
2-Methylheptane	I8	0.0007	0.0041	0.000	0.000
4-Methylheptane	I8	0.0002	0.0012	0.000	0.000
3-Methylheptane	I8	0.0005	0.0029	0.000	0.000
1c,2t,3-Trimethylcyclopentane	N8	0.0011	0.0063	0.001	0.001
3-Ethylhexane	I8	0.0001	0.0006	0.000	0.000
1t,4-Dimethylcyclohexane	N8	0.0005	0.0029	0.000	0.000
1,1-Dimethylcyclohexane	N8	0.0001	0.0006	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0003	0.0017	0.000	0.000
n-Octane	P8	0.0010	0.0058	0.001	0.001
1c,4-Dimethylcyclohexane	N8	0.0002	0.0011	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	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	0.0003	0.0016	0.000	0.000
1,4-Dimethylbenzene (p-Xylene)	A8	0.0001	0.0006	0.000	0.000
n-Nonane	P9	0.0001	0.0007	0.000	0.000
TOTAL		100.00000	100.00000	4.2567	4.2796

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0061	0.0244
TOLUENE	0.0052	0.0246
ETHYLBENZENE	0.0001	0.0006
XYLENES	0.0004	0.0022
TOTAL BTEX	0.0118	0.0518

*(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 :	1079.9 /scf	1085.8 /scf
NET WET REAL :	1061.0 /scf	1066.9 /scf
HHV GROSS DRY REAL :	1192.3 /scf	1198.8 /scf
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NET HEATING VALUE (60 °F ideal reaction):		21016.5 Btu/lbm
GROSS HEATING VALUE (60°F ideal reaction):		23209.1 Btu/lbm
RELATIVE DENSITY (AIR=1):		0.6731
DENSITY		0.05139 lb/scf
COMPRESSIBILITY FACTOR :		0.9970
REGULAR WOBBE INDEX		1453.4

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

Net Dry Ideal BTU	4513.9 /scf	Relative Density - SG (Air=1)	3.0879	C6+ factors
Gross Dry Ideal BTU	4859.3 /scf	Z Compressibility Factor	0.98995	0.98941
Net Dry Ideal BTU	19268.5 /lb	Density Factor	235.664 lbm/1000 ft3	
Gross Dry Ideal BTU	20742.4 /lb	Molar Mass or MW	89.431 g/mol	
		Volume Liquid Ideal gas	0.1 scf/gal	24.6

**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.**

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