

EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

PRIMARY DB KEY: **05-103-10650** NAME/DESCRIP : **PICEANCE CREEK UNIT T35X-2G5**
 LEASE #: SURFACE CASING
 FIELD/AREA:
 PROJECT NO. : **202509075** ANALYSIS NO. : **03**
 COMPANY NAME : **QB ENERGY OPERATING, LLC** ANALYSIS DATE: **SEPTEMBER 21, 2025 13:29**
 OFFICE / BRANCH: **PARACHUTE, CO** SAMPLE DATE : **SEPTEMBER 05, 2025**
 CUSTOMER REF: TO:
 PRODUCER : EFFECTIVE DATE:

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

SAMPLE CYCLE: SAMPLE TYPE:
 SAMPLE PRES. : 10 psig PROBE :
 FLOW PRES. : psig CYLINDER NO. : **ECA-817**
 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: **LOW PRESSURE.**

COMPONENT	MOLE %	MASS %	GPM @	
			14.65	14.73
ALCOHOLS	0.0071	0.0103	0.0020	0.0020
HELIUM	0.00	0.00	---	---
HYDROGEN	3.29	0.25	---	---
OXYGEN/ARGON	12.28	14.60	---	---
NITROGEN	74.95	78.02	---	---
CARBON DIOXIDE	0.36	0.59	---	---
METHANE	8.0221	4.7819	---	---
ETHANE	0.6046	0.6755	0.1606	0.1614
PROPANE	0.2348	0.3847	0.0648	0.0652
I-BUTANE	0.0589	0.1272	0.0189	0.0191
N-BUTANE	0.0700	0.1512	0.0219	0.0221
I-PENTANE	0.0269	0.0721	0.0100	0.0100
N-PENTANE	0.0283	0.0758	0.0110	0.0110
HEXANES PLUS	0.0710	0.2661	0.0270	0.0270
TOTALS	100.00000	100.00000	0.3162	0.3178

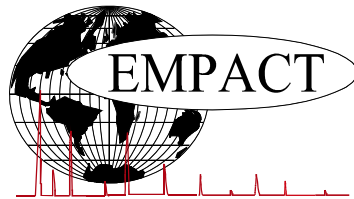
BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0014	0.0040
TOLUENE	0.0031	0.0106
ETHYLBENZENE	0.0000	0.0000
XYLENES	0.0026	0.0102
TOTAL BTEX	0.0071	0.0248

	CALCULATED VALUES**	
	14.65	14.73
BTU @		
LHV NET DRY REAL :	106.4 /scf	107.0 /scf
NET WET REAL :	104.5 /scf	105.1 /scf
HHV GROSS DRY REAL :	118.1 /scf	118.7 /scf
GROSS WET REAL :	116.0 /scf	116.6 /scf
NET HEATING VALUE (60 °F ideal reaction):		1508.4 Btu/lbm
GROSS HEATING VALUE (60°F ideal reaction):		1676.5 Btu/lbm
RELATIVE DENSITY (AIR=1):		0.9286
DENSITY		0.07091 lbm/scf
COMPRESSIBILITY FACTOR :		0.9995
REGULAR WOBBE INDEX		122.9

*(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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**EXTENDED NATURAL GAS ANALYSIS (*DHA)
GLYCALC INFORMATION**

PROJECT NO. :	202509075	ANALYSIS NO. :	03
COMPANY NAME :	QB ENERGY OPERATING, LLC	ANALYSIS DATE:	SEPTEMBER 21, 2025 13:29
ACCOUNT NO. :		SAMPLE DATE :	SEPTEMBER 05, 2025
PRODUCER :		CYLINDER NO. :	ECA-817
LEASE NO. :		SAMPLED BY :	NICK CROY
NAME/DESCRIP :	PICEANCE CREEK UNIT T35X-2G5 SURFACE CASING		

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

LOW PRESSURE.

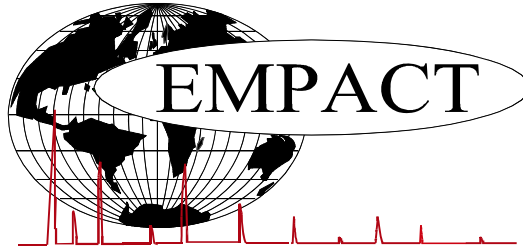
<u>Componet</u>	<u>Mole %</u>	<u>Wt %</u>
Helium	0.00	0.00
Hydrogen	3.29	0.25
Carbon Dioxide	0.36	0.59
Nitrogen	74.95	78.02
Methane	8.0221	4.7819
Ethane	0.6046	0.6755
Propane	0.2348	0.3847
Isobutane	0.0589	0.1272
n-Butane	0.0700	0.1512
Isopentane	0.0266	0.0713
n-Pentane	0.0283	0.0758
Cyclopentane	0.0003	0.0008
n-Hexane	0.0094	0.0301
Cyclohexane	0.0041	0.0128
Other Hexanes	0.0186	0.0592
Heptanes	0.0111	0.0410
Methylcyclohexane	0.0062	0.0226
2,2,4 Trimethylpentane	0.0000	0.0000
Benzene	0.0014	0.0040
Toluene	0.0031	0.0106
Ethylbenzene	0.0000	0.0000
Xylenes	0.0026	0.0102
C8+ Heavies	0.0145	0.0756
<u>Subtotal</u>	<u>87.71290</u>	<u>85.38970</u>
Oxygen/Argon	12.28	14.60
Alcohols	0.0071	0.0103
<u>Total</u>	<u>100.00000</u>	<u>100.00000</u>

Calculated Values BTU @		Total	C6+	C8+	C10+
	14.65				
LHV	Net Dry Real:	106.4	5071.9	7031.4	8645.2 Btu/scf
	Net Wet Real:	104.5	4983.2	6908.5	8494.1 Btu/scf
HHV	Gross Dry Real:	118.1	5453.7	7556.8	9322.6 Btu/scf
	Gross Wet Real:	116.0	5358.4	7424.7	9159.6 Btu/scf

Other Calculated Values					
Regualr Wobbe Index*		122.9	2933.7	3499.8	3987.2 Btu/scf
Net Heating Value (60 °F ideal reaction):		1508.4	19223.3	19296.1	19542.6 Btu/lbm
Gross Heating Value (60 °F ideal reaction):		1676.5	20672.4	20739.2	21078.5 Btu/lbm
Molar Mass (MW):		26.91083	99.398	135.652	159.314 g/mol
Relative Density (AIR=1):		0.9286	3.4321	4.6841	5.5005 SG
Density:		0.07091	0.26194	0.35747	0.41982 lbm/scf
Compressibility Factor:		0.9995	0.9934	0.9992	0.9999 Z
Liquid Volume real gas @:	14.65	11.3055	0.0289	0.008	0.005 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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*****FIELD DATA*****

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 FLOW PRES. : psig CYLINDER NO. : **ECA-817**
 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: **LOW PRESSURE.**

COMPONENT	PIANO #	MOLE %	MASS %	GPM @ 14.65	GPM @ 14.73
Hydrogen	---	3.29	0.25	---	---
Oxygen/Argon	---	12.28	14.60	---	---
Nitrogen	---	74.9463	78.0152	---	---
Carbon Dioxide	---	0.36	0.59	---	---
Methane	P1	8.0221	4.7819	---	---
Ethane	P2	0.6046	0.6755	0.161	0.161
Propane	P3	0.2348	0.3847	0.065	0.065
i-Butane	I4	0.0589	0.1272	0.019	0.019
Methanol	X1	0.0052	0.0062	0.001	0.001
n-Butane	P4	0.0700	0.1512	0.022	0.022
i-Pentane	I5	0.0266	0.0713	0.010	0.010
Acetone	X3	0.0019	0.0041	0.001	0.001
n-Pentane	P5	0.0237	0.0635	0.009	0.009
2,2-Dimethylbutane	I6	0.0012	0.0038	0.000	0.000
Cyclopentane	N5	0.0003	0.0008	0.000	0.000
2,3-Dimethylbutane	I6	0.0016	0.0051	0.001	0.001
2-Methylpentane	I6	0.0081	0.0259	0.003	0.003
3-Methylpentane	I6	0.0043	0.0138	0.002	0.002
UnknownC5s	U5	0.0046	0.0123	0.002	0.002
n-Hexane	P6	0.0094	0.0301	0.004	0.004
Methylcyclopentane	N6	0.0034	0.0106	0.001	0.001
2,4-Dimethylpentane	I7	0.0003	0.0011	0.000	0.000
2,2,3-Trimethylbutane	I7	0.0001	0.0004	0.000	0.000
Benzene	A6	0.0014	0.0040	0.000	0.000
Cyclohexane	N6	0.0041	0.0128	0.001	0.001
2-Methylhexane	I7	0.0021	0.0078	0.001	0.001
2,3-Dimethylpentane	I7	0.0007	0.0026	0.000	0.000
1,1-Dimethylcyclopentane	N7	0.0004	0.0014	0.000	0.000

3-Methylhexane	I7	0.0021	0.0078	0.001	0.001
1c,3-Dimethylcyclopentane	N7	0.0005	0.0018	0.000	0.000
1t,3-Dimethylcyclopentane	N7	0.0003	0.0011	0.000	0.000
1t,2-Dimethylcyclopentane	N7	0.0008	0.0029	0.000	0.000
n-Heptane	P7	0.0035	0.0130	0.002	0.002
Methylcyclohexane	N7	0.0062	0.0226	0.002	0.002
2,2-Dimethylhexane	I8	0.0002	0.0008	0.000	0.000
Toluene	A7	0.0031	0.0106	0.001	0.001
2-Methylheptane	I8	0.0007	0.0030	0.000	0.000
4-Methylheptane	I8	0.0001	0.0004	0.000	0.000
3-Methylheptane	I8	0.0004	0.0017	0.000	0.000
1c,2t,3-Trimethylcyclopentane	N8	0.0008	0.0033	0.000	0.000
1,1-Dimethylcyclohexane	N8	0.0003	0.0013	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0001	0.0004	0.000	0.000
UnknownC7s	U7	0.0003	0.0011	0.000	0.000
n-Octane	P8	0.0010	0.0042	0.001	0.001
1c,4-Dimethylcyclohexane	N8	0.0001	0.0004	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0004	0.0019	0.000	0.000
4,4-Dimethylheptane	I9	0.0005	0.0024	0.000	0.000
2,5-Dimethylheptane	I9	0.0005	0.0024	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0019	0.0075	0.001	0.001
1,4-Dimethylbenzene (p-Xylene)	A8	0.0007	0.0027	0.000	0.000
n-Nonane	P9	0.0010	0.0048	0.001	0.001
1,1-Methylethylcyclohexane	N9	0.0003	0.0014	0.000	0.000
1,3,5-Trimethylbenzene	A9	0.0003	0.0013	0.000	0.000
n-Decane	P10	0.0004	0.0021	0.000	0.000
1,2-Ethyl-i-propylbenzene	A10	0.0002	0.0011	0.000	0.000
UnknownC10s	U10	0.0001	0.0005	0.000	0.000
n-Undecane	P11	0.0007	0.0040	0.000	0.000
Naphthalene	A10	0.0024	0.0114	0.002	0.002
n-Dodecane	P12	0.0007	0.0044	0.001	0.001
UnknownC12s	U12	0.0007	0.0040	0.000	0.000
n-Tridecane	P13	0.0014	0.0096	0.001	0.001
n-Tetradecane	P14	0.0012	0.0088	0.001	0.001
TOTAL		100.00000	100.00000	0.3162	0.3178

CALCULATED VALUES**

BTEX COMPONENTS	MOLE%	WT%	BTU @	14.65	14.73
BENZENE	0.0014	0.0040	LHV NET DRY REAL :	106.4 /scf	107.0 /scf
TOLUENE	0.0031	0.0106	NET WET REAL :	104.5 /scf	105.1 /scf
ETHYLBENZENE	0.0000	0.0000	HHV GROSS DRY REAL :	118.1 /scf	118.7 /scf
XYLENES	0.0026	0.0102	GROSS WET REAL :	116.0 /scf	116.6 /scf
TOTAL BTEX	0.0071	0.0248	NET HEATING VALUE (60 °F ideal reaction):		1508.4 Btu/lbm
			GROSS HEATING VALUE (60°F ideal reaction):		1676.5 Btu/lbm
			RELATIVE DENSITY (AIR=1):		0.9286
			DENSITY		0.07091 lb/scf
			COMPRESSIBILITY FACTOR :		0.9995
			REGULAR WOBBE INDEX		122.9

*(DETAILED HYDROCARBON ANALYSIS/NJ 1993)

Mod ASTM D6730,GPA 2261 & GPA 2286.

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

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

Net Dry Ideal BTU	5054.4 /scf	Relative Density - SG (Air=1)	3.4321	C6+ factors
Gross Dry Ideal BTU	5434.9 /scf	Z Compressibility Factor	0.99343	0.99211
Net Dry Ideal BTU	19223.3 /lb	Density Factor	261.939 lbm/1000 ft3	
Gross Dry Ideal BTU	20672.4 /lb	Molar Mass or MW	99.398 g/mol	
		Volume Liquid Ideal gas	0.029 scf/gal	23.3

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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