

EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

PRIMARY DB KEY:	05-103-12627	NAME/DESCRIP :	ELU A18 15D-18
LEASE #:	05-103-12627		BRADENHEAD
FIELD/AREA:	GRAND VALLEY		
PROJECT NO. :	202512129	ANALYSIS NO. :	01
COMPANY NAME :	QB ENERGY OPERATING, LLC	ANALYSIS DATE:	JANUARY 08, 2026 09:24
OFFICE / BRANCH:	PARACHUTE, CO	SAMPLE DATE :	DECEMBER 8, 2025
CUSTOMER REF:		TO:	
PRODUCER :	QB ENERGY OPERATING, LLC	EFFECTIVE DATE:	

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

SAMPLE CYCLE:		SAMPLE TYPE:	
SAMPLE PRES. :	200 psig	PROBE :	
FLOW PRES. :	psig	CYLINDER NO. :	TBI-575
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:	<i>Low sample volume.</i>		

<u>COMPONENT</u>	<u>MOLE %</u>	<u>MASS %</u>	<u>GPM @ 14.65</u>	<u>GPM @ 14.73</u>
GLYCOLS	0.0001	0.0002	0.0000	0.0000
ALCOHOLS	0.0200	0.0368	0.0060	0.0060
HELIUM	0.00	0.00	---	---
HYDROGEN	0.00	0.00	---	---
OXYGEN/ARGON	18.95	21.90	---	---
NITROGEN	68.92	69.73	---	---
CARBON DIOXIDE	0.29	0.46	---	---
METHANE	10.8709	6.2980	---	---
ETHANE	0.5625	0.6108	0.1496	0.1504
PROPANE	0.1372	0.2185	0.0379	0.0381
I-BUTANE	0.0478	0.1003	0.0160	0.0160
N-BUTANE	0.0277	0.0581	0.0090	0.0090
I-PENTANE	0.0193	0.0502	0.0060	0.0060
N-PENTANE	0.0126	0.0328	0.0050	0.0050
HEXANES PLUS	0.1436	0.5081	0.0500	0.0500
<u>TOTALS</u>	<u>100.00000</u>	<u>100.00000</u>	<u>0.2795</u>	<u>0.2805</u>

<u>BTEX COMPONENTS</u>	<u>MOLE%</u>	<u>WT%</u>
BENZENE	0.0073	0.0206
TOLUENE	0.0188	0.0625
ETHYLBENZENE	0.0008	0.0031
XYLENES	0.0087	0.0334
<u>TOTAL BTEX</u>	<u>0.0356</u>	<u>0.1196</u>

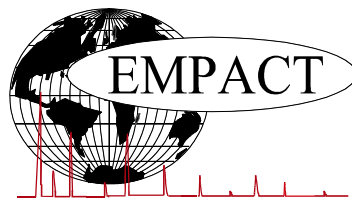
	<u>BTU @ 14.65</u>	<u>BTU @ 14.73</u>
LHV NET DRY REAL :	120.6 /scf	121.2 /scf
NET WET REAL :	118.5 /scf	119.1 /scf
HHV GROSS DRY REAL :	133.6 /scf	134.3 /scf
GROSS WET REAL :	131.3 /scf	132.0 /scf
NET HEATING VALUE (60 °F ideal reaction):		1675.2 Btu/lbm
GROSS HEATING VALUE (60°F ideal reaction):		1851.4 Btu/lbm
RELATIVE DENSITY (AIR=1):		0.9553
DENSITY		0.07296 lbm/scf
COMPRESSIBILITY FACTOR :		0.9995
REGULAR WOBBE INDEX		137.0

*(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. :	202512129	ANALYSIS NO. :	01
COMPANY NAME :	QB ENERGY OPERATING, LLC	ANALYSIS DATE:	JANUARY 08, 2026 09:24
ACCOUNT NO. :		SAMPLE DATE :	DECEMBER 8, 2025
PRODUCER :	QB ENERGY OPERATING, LLC	CYLINDER NO. :	TBI-575
LEASE NO. :	05-103-12627	SAMPLED BY :	NICK CROY
NAME/DESCRIP :	ELU A18 15D-18 BRADENHEAD		

FIELD DATA		SAMPLE TEMP. :	
SAMPLE PRES. :	200	AMBIENT TEMP.:	
H2S BY STAIN TUBE:	— ppm mol		
COMMENTS :	Low sample volume.		

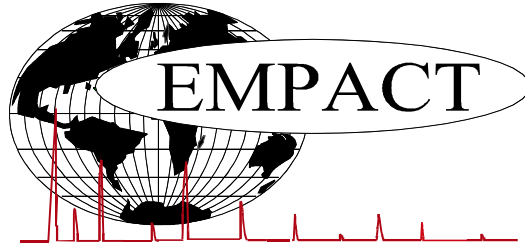
Componet	Mole %	Wt %
Helium	0.00	0.00
Hydrogen	0.00	0.00
Carbon Dioxide	0.29	0.46
Nitrogen	68.92	69.73
Methane	10.8709	6.2980
Ethane	0.5625	0.6108
Propane	0.1372	0.2185
Isobutane	0.0478	0.1003
n-Butane	0.0277	0.0581
Isopentane	0.0185	0.0482
n-Pentane	0.0126	0.0328
Cyclopentane	0.0008	0.0020
n-Hexane	0.0097	0.0302
Cyclohexane	0.0059	0.0179
Other Hexanes	0.0240	0.0743
Heptanes	0.0270	0.0974
Methylcyclohexane	0.0129	0.0458
2,2,4 Trimethylpentane	0.0001	0.0004
Benzene	0.0073	0.0206
Toluene	0.0188	0.0625
Ethylbenzene	0.0008	0.0031
Xylenes	0.0087	0.0334
C8+ Heavies	0.0284	0.1225
Subtotal	81.02990	78.06300
Oxygen/Argon	18.95	21.90
Glycols	0.0001	0.0002
Alcohols	0.0200	0.0368
Total	100.00000	100.00000

	Total	C6+	C8+	C10+
Calculated Values BTU @ 14.65	Sample	Fraction	Fraction	Fraction
LHV Net Dry Real:	120.6	4857.0	5717.4	7298.6 Btu/scf
Net Wet Real:	118.5	4772.1	5617.5	7171.0 Btu/scf
HHV Gross Dry Real:	133.6	5200.7	6123.8	7850.3 Btu/scf
Gross Wet Real:	131.3	5109.8	6016.7	7713.1 Btu/scf

Other Calculated Values				
Regualr Wobbe Index*	137.0	2821.3	3062.6	3501.0 Btu/scf
Net Heating Value (60 °F ideal reaction):	1675.2	19013.0	19185.0	19220.8 Btu/lbm
Gross Heating Value (60°F ideal reaction):	1851.4	20356.8	20554.4	20673.0 Btu/lbm
Molar Mass (MW):	27.68907	97.942	116.048	146.421 g/mol
Relative Density (AIR=1):	0.9553	3.3816	4.0074	5.0555 SG
Density:	0.07296	0.25809	0.30581	0.38584 lbm/scf
Compressibility Factor:	0.9995	0.9945	0.9980	0.9996 Z
Liquid Volume real gas @:	14.65	11.3723	0.0498	0.009
				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

PRIMARY DB KEY: **05-103-12627**
 LEASE #: **05-103-12627**
 FIELD/AREA: **GRAND VALLEY**

NAME/DESCRIP : **ELU A18 15D-18**
BRADENHEAD

PROJECT NO. : **202512129**
 COMPANY NAME : **QB ENERGY OPERATING, LLC**
 OFFICE / BRANCH: **PARACHUTE, CO**
 CUSTOMER REF:
 PRODUCER : **QB ENERGY OPERATING, LLC**

ANALYSIS NO. : **01**
 ANALYSIS DATE: **JANUARY 08, 2026 09:24**
 SAMPLE DATE : **DECEMBER 8, 2025**
 TO:
 EFFECTIVE DATE:

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

SAMPLE CYCLE:
 SAMPLE PRES. : **200** psig
 FLOW PRES. : psig
 LAB PRES: psig
 SAMPLE TEMP. : °f
 AMBIENT TEMP.: °f
 H2O BY STAIN TUBE: **-** #/mmcf
 FIELD COMMENTS:
 LAB COMMENTS: **Low sample volume.**

SAMPLE TYPE:
 PROBE :
 CYLINDER NO. : **TBI-575**
 SAMPLED BY : **NICK CROY**
 SAMPLING COMPANY: **QB ENERGY**
 H2S BY STAIN TUBE: **-** ppm mol
 CO2 BY STAIN TUBE: **-** Mol %

COMPONENT	PIANO #	MOLE %	MASS %	GPM @ 14.65	GPM @ 14.73
Oxygen/Argon	---	18.95	21.90	---	---
Nitrogen	---	68.9183	69.7262	---	---
Carbon Dioxide	---	0.29	0.46	---	---
Methane	P1	10.8709	6.2980	---	---
Ethane	P2	0.5625	0.6108	0.150	0.150
Propane	P3	0.1372	0.2185	0.038	0.038
i-Butane	I4	0.0478	0.1003	0.016	0.016
Methanol	X1	0.0054	0.0062	0.001	0.001
n-Butane	P4	0.0277	0.0581	0.009	0.009
2,2-Dimethylpropane	I5	0.0009	0.0023	0.000	0.000
i-Pentane	I5	0.0176	0.0459	0.006	0.006
Acetone	X3	0.0146	0.0306	0.005	0.005
n-Pentane	P5	0.0126	0.0328	0.005	0.005
2,2-Dimethylbutane	I6	0.0019	0.0059	0.001	0.001
Cyclopentane	N5	0.0008	0.0020	0.000	0.000
2,3-Dimethylbutane	I6	0.0025	0.0078	0.001	0.001
2-Methylpentane	I6	0.0091	0.0283	0.004	0.004
3-Methylpentane	I6	0.0053	0.0165	0.002	0.002
n-Hexane	P6	0.0097	0.0302	0.004	0.004
2,2-Dimethylpentane	I7	0.0007	0.0025	0.000	0.000
Methylcyclopentane	N6	0.0052	0.0158	0.002	0.002
2,4-Dimethylpentane	I7	0.0010	0.0036	0.000	0.000
2,2,3-Trimethylbutane	I7	0.0003	0.0011	0.000	0.000
Benzene	A6	0.0073	0.0206	0.002	0.002
3,3-Dimethylpentane	I7	0.0004	0.0014	0.000	0.000
Cyclohexane	N6	0.0059	0.0179	0.002	0.002
2-Methylhexane	I7	0.0043	0.0156	0.002	0.002

2,3-Dimethylpentane	I7	0.0013	0.0047	0.001	0.001
1,1-Dimethylcyclopentane	N7	0.0009	0.0032	0.000	0.000
3-Methylhexane	I7	0.0042	0.0152	0.002	0.002
1c,3-Dimethylcyclopentane	N7	0.0013	0.0046	0.001	0.001
Ethylene glycol	GL2	0.0001	0.0002	0.000	0.000
1t,3-Dimethylcyclopentane	N7	0.0012	0.0043	0.001	0.001
3-Ethylpentane	I7	0.0003	0.0011	0.000	0.000
1t,2-Dimethylcyclopentane	N7	0.0020	0.0071	0.001	0.001
2,2,4-Trimethylpentane	I8	0.0001	0.0004	0.000	0.000
n-Heptane	P7	0.0080	0.0290	0.004	0.004
1c,2-Dimethylcyclopentane	N7	0.0004	0.0014	0.000	0.000
Methylcyclohexane	N7	0.0129	0.0458	0.005	0.005
2,2-Dimethylhexane	I8	0.0005	0.0021	0.000	0.000
1,1,3-Trimethylcyclopentane	N7	0.0002	0.0008	0.000	0.000
Ethylcyclopentane	N7	0.0005	0.0018	0.000	0.000
2,5-Dimethylhexane	I8	0.0005	0.0021	0.000	0.000
2,2,3-Trimethylpentane	I8	0.0005	0.0021	0.000	0.000
1c,2t,4-Trimethylcyclopentane	N8	0.0004	0.0016	0.000	0.000
3,3-Dimethylhexane	I8	0.0002	0.0008	0.000	0.000
Toluene	A7	0.0188	0.0625	0.006	0.006
2,3-Dimethylhexane	I8	0.0004	0.0017	0.000	0.000
2-Methyl-3-ethylpentane	I8	0.0001	0.0004	0.000	0.000
2-Methylheptane	I8	0.0023	0.0095	0.001	0.001
4-Methylheptane	I8	0.0007	0.0029	0.000	0.000
3-Methyl-3-ethylpentane	I8	0.0001	0.0004	0.000	0.000
3,4-Dimethylhexane	I8	0.0001	0.0004	0.000	0.000
3-Methylheptane	I8	0.0017	0.0070	0.001	0.001
1c,2t,3-Trimethylcyclopentane	N8	0.0019	0.0077	0.001	0.001
3-Ethylhexane	I8	0.0001	0.0004	0.000	0.000
1t,4-Dimethylcyclohexane	N8	0.0008	0.0032	0.000	0.000
1,1-Dimethylcyclohexane	N8	0.0003	0.0012	0.000	0.000
2,2,5-Trimethylhexane	I9	0.0001	0.0005	0.000	0.000
3c-Ethylmethylcyclopentane	N8	0.0001	0.0004	0.000	0.000
3t-Ethylmethylcyclopentane	N8	0.0001	0.0004	0.000	0.000
2t-Ethylmethylcyclopentane	N8	0.0002	0.0008	0.000	0.000
1,1-Methylethylcyclopentane	N8	0.0001	0.0004	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0007	0.0028	0.000	0.000
1t,3-Dimethylcyclohexane	N8	0.0001	0.0004	0.000	0.000
n-Octane	P8	0.0045	0.0186	0.002	0.002
1c,4-Dimethylcyclohexane	N8	0.0004	0.0016	0.000	0.000
2,3,5-Trimethylhexane	I9	0.0001	0.0005	0.000	0.000
2,2-Dimethylheptane	I9	0.0002	0.0009	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0006	0.0027	0.000	0.000
2,2,3-Trimethylhexane	I9	0.0002	0.0009	0.000	0.000
2,4-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
Ethylcyclohexane	N8	0.0007	0.0028	0.000	0.000
n-Propylcyclopentane	N8	0.0007	0.0028	0.000	0.000
1c,3c,5-Trimethylcyclohexane	N9	0.0002	0.0009	0.000	0.000
2,5-Dimethylheptane	I9	0.0005	0.0023	0.000	0.000
3,3-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
2,6-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
1,1,3-Trimethylcyclohexane	N9	0.0001	0.0005	0.000	0.000
Ethylbenzene	I8	0.0008	0.0031	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0059	0.0226	0.002	0.002
1,4-Dimethylbenzene (p-Xylene)	A8	0.0019	0.0073	0.001	0.001
3,4-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
3,4-Dimethylheptane (2)	I9	0.0001	0.0005	0.000	0.000
4-Ethylheptane	I9	0.0001	0.0005	0.000	0.000
4-Methyloctane	I9	0.0005	0.0023	0.000	0.000
2-Methyloctane	I9	0.0008	0.0037	0.000	0.000

3-Ethylheptane	I9	0.0001	0.0005	0.000	0.000
3-Methyloctane	I9	0.0001	0.0005	0.000	0.000
1c,2t,4c-Trimethylcyclohexane	I9	0.0007	0.0032	0.000	0.000
1,2-Dimethylbenzene (o-Xylene)	A8	0.0009	0.0035	0.000	0.000
i-Butylcyclopentane	N9	0.0002	0.0009	0.000	0.000
n-Nonane	P9	0.0022	0.0102	0.001	0.001
1,1-Methylethylcyclohexane	N9	0.0001	0.0005	0.000	0.000
i-Propylbenzene	A9	0.0001	0.0004	0.000	0.000
2,4-Dimethyloctane	I10	0.0001	0.0005	0.000	0.000
n-Butylcyclopentane	N9	0.0002	0.0009	0.000	0.000
n-Propylbenzene	A9	0.0002	0.0009	0.000	0.000
1,3-Methylethylbenzene	A9	0.0001	0.0004	0.000	0.000
1,4-Methylethylbenzene	A9	0.0001	0.0004	0.000	0.000
1,3,5-Trimethylbenzene	A9	0.0003	0.0013	0.000	0.000
2,3-Dimethyloctane	I10	0.0001	0.0005	0.000	0.000
5-Methylnonane	I10	0.0001	0.0005	0.000	0.000
1,2-Methylethylbenzene	A9	0.0001	0.0004	0.000	0.000
3-Methylnonane	I10	0.0001	0.0005	0.000	0.000
t-Butylbenzene	A10	0.0001	0.0005	0.000	0.000
UnknownC9s	U9	0.0003	0.0014	0.000	0.000
n-Decane	P10	0.0003	0.0015	0.000	0.000
UnknownC10s	U10	0.0005	0.0026	0.000	0.000
n-Undecane	P11	0.0001	0.0006	0.000	0.000
n-Tetradecane	P14	0.0001	0.0007	0.000	0.000
TOTAL		100.0000	100.0000	0.2795	0.2805

CALCULATED VALUES**

BTEX COMPONENTS	MOLE%	WT%	BTU @	14.65	14.73
BENZENE	0.0073	0.0206	LHV NET DRY REAL :	120.6 /scf	121.2 /scf
TOLUENE	0.0188	0.0625	NET WET REAL :	118.5 /scf	119.1 /scf
ETHYLBENZENE	0.0008	0.0031	HHV GROSS DRY REAL :	133.6 /scf	134.3 /scf
XYLENES	0.0087	0.0334	GROSS WET REAL :	131.3 /scf	132.0 /scf
TOTAL BTEX	0.0356	0.1196	NET HEATING VALUE (60 °F ideal reaction):		1675.2 Btu/lbm
			GROSS HEATING VALUE (60°F ideal reaction):		1851.4 Btu/lbm
			RELATIVE DENSITY (AIR=1):		0.9553
			DENSITY		0.07296 lb/scf
			COMPRESSIBILITY FACTOR :		0.9995
			REGULAR WOBBE INDEX		137.0

*(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	<u>4845.4</u> /scf	Relative Density - SG (Air=1)	<u>3.3816</u>	C6+ factors
Gross Dry Ideal BTU	<u>5188.2</u> /scf	Z Compressibility Factor	<u>0.99448</u>	<u>0.99367</u>
Net Dry Ideal BTU	<u>19013</u> /lb	Density Factor	<u>258.09</u> lbm/1000 ft3	
Gross Dry Ideal BTU	<u>20356.8</u> /lb	Molar Mass or MW	<u>97.942</u> g/mol	
		Volume Liquid Ideal gas	<u>0.05</u> scf/gal	<u>23.9</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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