EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

PRIMARY DB KEY:	**05-045-15208**	NAME/DESCRIP :	**110165535 NP N30 EF 08A-31 595**
LEASE #:			**BRADEN HEAD**
FIELD/AREA:			

PROJECT NO. :	**202508082**	ANALYSIS NO. :	**02**
COMPANY NAME :	**QB ENERGY OPERATING, LLC**	ANALYSIS DATE:	AUGUST 24, 2025 11:51
OFFICE / BRANCH:	PARACHUTE, CO	SAMPLE DATE :	AUGUST 11, 2025 09:30
CUSTOMER REF:		TO:	
PRODUCER :		EFFECTIVE DATE:	

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

SAMPLE CYCLE:			SAMPLE TYPE:	SPOT
SAMPLE PRES. :	151	psig	PROBE :	NO
FLOW PRES. :		psig	CYLINDER NO. :	ECA-800
LAB PRES:		psig	SAMPLED BY :	ALEX GALLEGOS
SAMPLE TEMP. :	75	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	0.0028	0.0052	0.0000	0.0000
HELIUM	0.02	0.00	---	---
HYDROGEN	0.01	0.00	---	---
OXYGEN/ARGON	0.00	0.00	---	---
NITROGEN	0.65	1.06	---	---
CARBON DIOXIDE	0.95	2.43	---	---
METHANE	94.8379	88.3501	---	---
ETHANE	2.4704	4.3136	0.6584	0.6620
PROPANE	0.4864	1.2455	0.1339	0.1346
I-BUTANE	0.1208	0.4077	0.0390	0.0392
N-BUTANE	0.1020	0.3442	0.0320	0.0321
I-PENTANE	0.0571	0.2390	0.0210	0.0211
N-PENTANE	0.0337	0.1412	0.0120	0.0121
HEXANES PLUS	0.2591	1.4635	0.1040	0.1041
TOTALS	100.00000	100.00000	1.0003	1.0052

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0113	0.0513
TOLUENE	0.0176	0.0942
ETHYLBENZENE	0.0013	0.0080
XYLENES	0.0081	0.0500
TOTAL BTEX	0.0383	0.2035

**(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 :	935.1 **/scf**	940.2 **/scf**
	NET WET REAL :	918.8 **/scf**	923.9 **/scf**
HHV	GROSS DRY REAL :	1036.7 **/scf**	1042.4 **/scf**
	GROSS WET REAL :	1018.6 **/scf**	1024.3 **/scf**

NET HEATING VALUE (60 °F ideal reaction):	20637.5 **Btu/lbm**
GROSS HEATING VALUE (60°F ideal reaction):	22884.0 **Btu/lbm**
RELATIVE DENSITY (AIR=1):	0.5936
DENSITY	0.04537 **lbm/scf**
COMPRESSIBILITY FACTOR :	0.9978
REGULAR WOBBE INDEX	1346.9

EMPACT

EXTENDED NATURAL GAS ANALYSIS (*DHA)

GLYCALC INFORMATION

PROJECT NO. :	202508082	ANALYSIS NO. :	02
COMPANY NAME :	QB ENERGY OPERATING, LLC	ANALYSIS DATE:	AUGUST 24, 2025 11:51
ACCOUNT NO. :		SAMPLE DATE :	AUGUST 11, 2025 09:30
PRODUCER :		CYLINDER NO. :	ECA-800
LEASE NO. :		SAMPLED BY :	ALEX GALLEGOS
NAME/DESCRIP :	110165535 NP N30 EF 08A-31 595 BRADEN HEAD		
FIELD DATA		SAMPLE TEMP. :	75
SAMPLE PRES. :	151	AMBIENT TEMP.:	
H2S BY STAIN TUBE:	_ *ppm mol*		
COMMENTS :	***SPOT*** ***NO PROBE***		

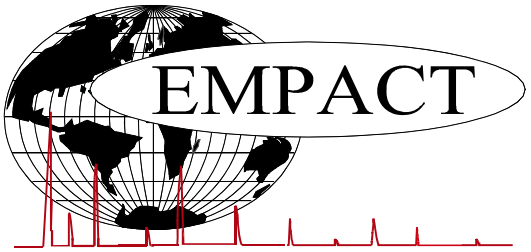
Componet	Mole %	Wt %
Helium	0.02	0.00
Hydrogen	0.01	0.00
Carbon Dioxide	0.95	2.43
Nitrogen	0.65	1.06
Methane	94.8379	88.3501
Ethane	2.4704	4.3136
Propane	0.4864	1.2455
Isobutane	0.1208	0.4077
n-Butane	0.1020	0.3442
Isopentane	0.0551	0.2309
n-Pentane	0.0337	0.1412
Cyclopentane	0.0020	0.0081
n-Hexane	0.0204	0.1021
Cyclohexane	0.0130	0.0635
Other Hexanes	0.0528	0.2628
Heptanes	0.0506	0.2936
Methylcyclohexane	0.0306	0.1744
2,2,4 Trimethylpentane	0.0000	0.0000
Benzene	0.0113	0.0513
Toluene	0.0176	0.0942
Ethylbenzene	0.0013	0.0080
Xylenes	0.0081	0.0500
C8+ Heavies	0.0534	0.3636
Subtotal	99.99720	99.99480
Oxygen/Argon	0.00	0.00
Alcohols	0.0028	0.0052
Total	100.00000	100.00000

Calculated Values BTU @ **14.65**		**Total Sample**	**C6+ Fraction**	**C8+ Fraction**	**C10+ Fraction**	
LHV	Net Dry Real:	935.1	4867.7	5753.9	7330.2	**Btu/scf**
	Net Wet Real:	918.8	4782.6	5653.3	7202.1	**Btu/scf**
HHV	Gross Dry Real:	1036.7	5224.8	6180.0	7868.3	**Btu/scf**
	Gross Wet Real:	1018.6	5133.5	6072.0	7730.8	**Btu/scf**
Other Calculated Values						
Regualr Wobbe Index*		1346.9	2842.8	3097.2	3493.5	**Btu/scf**
Net Heating Value (60 °F ideal reaction):		20637.5	19187.9	19465.3	17118.7	**Btu/lbm**
Gross Heating Value (60°F ideal reaction):		22884.0	20595.0	20908.9	18370.1	**Btu/lbm**
Molar Mass (MW):		17.22052	97.227	115.474	147.735	**g/mol**
Relative Density (AIR=1):		0.5936	3.3568	3.9873	5.1008	**SG**
Density:		0.04537	0.25619	0.30430	0.38930	**lbm/scf**
Compressiblity Factor:		0.9978	0.9937	0.9976	0.9996	**Z**
Liquid Volume real gas @:	**14.65**	17.2199	0.1037	0.0269	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.



EXTENDED NATURAL GAS ANALYSIS (*DHA)

DHA COMPONENT LIST

PRIMARY DB KEY: **05-045-15208** NAME/DESCRIP : **110165535 NP N30 EF 08A-31 595**
LEASE #: **BRADEN HEAD**
FIELD/AREA:

PROJECT NO. : **202508082** ANALYSIS NO. : **02**
COMPANY NAME : **QB ENERGY OPERATING, LLC** ANALYSIS DATE: AUGUST 24, 2025 11:51
OFFICE / BRANCH: PARACHUTE, CO SAMPLE DATE : AUGUST 11, 2025 09:30
CUSTOMER REF: TO:
PRODUCER : EFFECTIVE DATE:
FIELD DATA
SAMPLE CYCLE: SAMPLE TYPE: SPOT
SAMPLE PRES. : 151 psig PROBE : NO
FLOW PRES. : psig CYLINDER NO. : ECA-800
LAB PRES: psig SAMPLED BY : ALEX GALLEGOS
SAMPLE TEMP. : 75 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	---	0.02	0.00	---	---
Hydrogen	---	0.01	0.00	---	---
Nitrogen	---	0.65	1.06	---	---
Carbon Dioxide	---	0.95	2.43	---	---
Methane	P1	94.8379	88.3501	---	---
Ethane	P2	2.4704	4.3136	0.658	0.662
Propane	P3	0.4864	1.2455	0.134	0.135
i-Butane	I4	0.1208	0.4077	0.039	0.039
Methanol	X1	0.0028	0.0052	0.000	0.000
n-Butane	P4	0.1020	0.3442	0.032	0.032
2,2-Dimethylpropane	I5	0.0026	0.0109	0.001	0.001
i-Pentane	I5	0.0525	0.2200	0.019	0.019
n-Pentane	P5	0.0337	0.1412	0.012	0.012
2,2-Dimethylbutane	I6	0.0039	0.0195	0.002	0.002
Cyclopentane	N5	0.0020	0.0081	0.001	0.001
2,3-Dimethylbutane	I6	0.0053	0.0265	0.002	0.002
2-Methylpentane	I6	0.0196	0.0981	0.008	0.008
3-Methylpentane	I6	0.0116	0.0581	0.005	0.005
n-Hexane	P6	0.0204	0.1021	0.008	0.008
2,2-Dimethylpentane	I7	0.0013	0.0076	0.001	0.001
Methylcyclopentane	N6	0.0124	0.0606	0.004	0.004
2,4-Dimethylpentane	I7	0.0018	0.0105	0.001	0.001
2,2,3-Trimethylbutane	I7	0.0006	0.0035	0.000	0.000
Benzene	A6	0.0113	0.0513	0.003	0.003
3,3-Dimethylpentane	I7	0.0008	0.0047	0.000	0.000
Cyclohexane	N6	0.0130	0.0635	0.004	0.004
2-Methylhexane	I7	0.0087	0.0506	0.004	0.004
2,3-Dimethylpentane	I7	0.0023	0.0134	0.001	0.001
1,1-Dimethylcyclopentane	N7	0.0016	0.0091	0.001	0.001

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3-Methylhexane	I7	0.0080	0.0466	0.004	0.004
1c,3-Dimethylcyclopentane	N7	0.0024	0.0137	0.001	0.001
1t,3-Dimethylcyclopentane	N7	0.0023	0.0131	0.001	0.001
3-Ethylpentane	I7	0.0005	0.0029	0.000	0.000
1t,2-Dimethylcyclopentane	N7	0.0035	0.0200	0.002	0.002
n-Heptane	P7	0.0150	0.0873	0.007	0.007
1c,2-Dimethylcyclopentane	N7	0.0004	0.0023	0.000	0.000
Methylcyclohexane	N7	0.0306	0.1744	0.012	0.012
2,2-Dimethylhexane	I8	0.0009	0.0060	0.000	0.000
1,1,3-Trimethylcyclopentane	N7	0.0003	0.0020	0.000	0.000
Ethylcyclopentane	N7	0.0011	0.0063	0.000	0.000
2,5-Dimethylhexane	I8	0.0012	0.0080	0.001	0.001
2,2,3-Trimethylpentane	I8	0.0011	0.0073	0.001	0.001
2,4-Dimethylhexane	I8	0.0001	0.0006	0.000	0.000
1c,2t,4-Trimethylcyclopentane	N8	0.0006	0.0039	0.000	0.000
3,3-Dimethylhexane	I8	0.0004	0.0027	0.000	0.000
2,3,3-Trimethylpentane	I8	0.0001	0.0006	0.000	0.000
Toluene	A7	0.0176	0.0942	0.006	0.006
2,3-Dimethylhexane	I8	0.0009	0.0060	0.000	0.000
2-Methyl-3-ethylpentane	I8	0.0001	0.0006	0.000	0.000
2-Methylheptane	I8	0.0051	0.0339	0.003	0.003
4-Methylheptane	I8	0.0017	0.0113	0.001	0.001
3-Methyl-3-ethylpentane	I8	0.0001	0.0006	0.000	0.000
3,4-Dimethylhexane	I8	0.0001	0.0006	0.000	0.000
3-Methylheptane	I8	0.0044	0.0292	0.002	0.002
1c,2t,3-Trimethylcyclopentane	N8	0.0052	0.0339	0.003	0.003
3-Ethylhexane	I8	0.0003	0.0020	0.000	0.000
1t,4-Dimethylcyclohexane	N8	0.0022	0.0143	0.001	0.001
1,1-Dimethylcyclohexane	N8	0.0009	0.0059	0.000	0.000
2,2,5-Trimethylhexane	I9	0.0002	0.0015	0.000	0.000
3c-Ethylmethylcyclopentane	N8	0.0002	0.0013	0.000	0.000
3t-Ethylmethylcyclopentane	N8	0.0002	0.0013	0.000	0.000
2t-Ethylmethylcyclopentane	N8	0.0002	0.0013	0.000	0.000
1,1-Methylethylcyclopentane	N8	0.0001	0.0006	0.000	0.000
2,2,4-Trimethylhexane	I9	0.0001	0.0008	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0017	0.0111	0.001	0.001
1t,3-Dimethylcyclohexane	N8	0.0002	0.0013	0.000	0.000
n-Octane	P8	0.0102	0.0677	0.005	0.005
1c,4-Dimethylcyclohexane	N8	0.0012	0.0078	0.001	0.001
i-Propylcyclopentane	I8	0.0001	0.0006	0.000	0.000
2,3,5-Trimethylhexane	I9	0.0002	0.0015	0.000	0.000
1c,2-Dimethylcyclohexane	N8	0.0001	0.0006	0.000	0.000
2,2-Dimethylheptane	I9	0.0005	0.0037	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0014	0.0103	0.001	0.001
2,2,3-Trimethylhexane	I9	0.0005	0.0037	0.000	0.000
2,4-Dimethylheptane	I9	0.0001	0.0008	0.000	0.000
4,4-Dimethylheptane	I9	0.0001	0.0008	0.000	0.000
Ethylcyclohexane	N8	0.0011	0.0071	0.000	0.000
n-Propylcyclopentane	N8	0.0005	0.0033	0.000	0.000
1c,3c,5-Trimethylcyclohexane	N9	0.0003	0.0022	0.000	0.000
2,5-Dimethylheptane	I9	0.0010	0.0074	0.001	0.001
3,3-Dimethylheptane	I9	0.0002	0.0015	0.000	0.000
1,1,3-Trimethylcyclohexane	N9	0.0001	0.0008	0.000	0.000
Ethylbenzene	I8	0.0013	0.0080	0.001	0.001
2,3-Dimethylheptane	I9	0.0001	0.0008	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0055	0.0339	0.002	0.002
1,4-Dimethylbenzene (p-Xylene)	A8	0.0017	0.0105	0.001	0.001
3,4-Dimethylheptane	I9	0.0001	0.0008	0.000	0.000
3,4-Dimethylheptane (2)	I9	0.0001	0.0008	0.000	0.000
4-Ethylheptane	I9	0.0001	0.0008	0.000	0.000
4-Methyloctane	I9	0.0006	0.0045	0.000	0.000
2-Methyloctane	I9	0.0009	0.0067	0.001	0.001

3-Methyloctane	I9	0.0001	0.0008	0.000	0.000
1c,2t,4c-Trimethylcyclohexane	I9	0.0008	0.0059	0.000	0.000
3,3-Diethylpentane	I9	0.0001	0.0008	0.000	0.000
1,2-Dimethylbenzene (o-Xylene)	A8	0.0009	0.0056	0.000	0.000
i-Butylcyclopentane	N9	0.0004	0.0029	0.000	0.000
n-Nonane	P9	0.0019	0.0142	0.001	0.001
1,1-Methylethylcyclohexane	N9	0.0002	0.0015	0.000	0.000
2,4-Dimethyloctane	I10	0.0001	0.0008	0.000	0.000
2,6-Dimethyloctane	I10	0.0001	0.0008	0.000	0.000
n-Butylcyclopentane	N9	0.0002	0.0015	0.000	0.000
3,6-Dimethyloctane	I10	0.0001	0.0008	0.000	0.000
1,3-Methylethylbenzene	A9	0.0002	0.0014	0.000	0.000
1,3,5-Trimethylbenzene	A9	0.0001	0.0007	0.000	0.000
UnknownC9s	U9	0.0005	0.0037	0.000	0.000
UnknownC10s	U10	0.0004	0.0033	0.000	0.000
n-Undecane	P11	0.0001	0.0009	0.000	0.000
1,3,5-Triethylbenzene	A12	0.0002	0.0019	0.000	0.000
1,2,3,4,5-Pentamethylbenzene	A13	0.0001	0.0009	0.000	0.000
TOTAL		100.00000	100.00000	1.0003	1.0052

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0113	0.0513
TOLUENE	0.0176	0.0942
ETHYLBENZENE	0.0013	0.0080
XYLENES	0.0081	0.0500
TOTAL BTEX	0.0383	0.2035

**(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
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	NET WET REAL :	918.8 /scf	923.9 /scf
HHV	GROSS DRY REAL :	1036.7 /scf	1042.4 /scf
	GROSS WET REAL :	1018.6 /scf	1024.3 /scf
	NET HEATING VALUE (60 °F ideal reaction):		20637.5 Btu/lbm
	GROSS HEATING VALUE (60°F ideal reaction):		22884.0 Btu/lbm
	RELATIVE DENSITY (AIR=1):		0.5936
	DENSITY		0.04537 lb/scf
	COMPRESSIBILITY FACTOR :		0.9978
	REGULAR WOBBE INDEX		1346.9

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

Net Dry Ideal BTU	4852.4 /scf	Relative Density - SG (Air=1)	3.3568		***C6+factors***
Gross Dry Ideal BTU	5208.4 /scf	**Z** Compressiblity Factor	0.99374		0.99305
Net Dry Ideal BTU	19187.9 /lb	Density Factor	256.188	lbm/1000 ft3	
Gross Dry Ideal BTU	20595 /lb	Molar Mass or MW	97.227	g/mol	
		Volume Liquid Ideal gas	0.104	scf/gal	23.9

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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