



EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

PRIMARY DB KEY: **05-045-14659** NAME/DESCRIP : **N. PARACHUTE #EF12C D31 595**
 LEASE #:
 FIELD/AREA:

PROJECT NO. : **202506129** ANALYSIS NO. : **02**
 COMPANY NAME : **QB ENERGY OPERATING, LLC** ANALYSIS DATE: **JUNE 28, 2025 14:25**
 OFFICE / BRANCH: **PARACHUTE, CO** SAMPLE DATE : **JUNE 23, 2025 11:14**
 CUSTOMER REF: TO:
 PRODUCER : **QB ENERGY OPERATING, LLC** EFFECTIVE DATE:

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

SAMPLE CYCLE: SAMPLE TYPE: **SPOT**
 SAMPLE PRES. : **psig** PROBE :
 FLOW PRES. : **psig** CYLINDER NO. : **1L TEDLAR**
 LAB PRES: **psig** SAMPLED BY : **DEREK HORN**
 SAMPLE TEMP. : **°f** SAMPLING COMPANY: **QB ENERGY OPERATING, LLC**
 AMBIENT TEMP.: **°f** 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	14.73
ALCOHOLS	0.0001	0.0001	0.0000	0.0000
HELIUM	0.00	0.00	---	---
HYDROGEN	0.00	0.00	---	---
OXYGEN/ARGON	18.75	21.43	---	---
NITROGEN	72.99	73.01	---	---
CARBON DIOXIDE	0.63	0.99	---	---
METHANE	7.4115	4.2453	---	---
ETHANE	0.1411	0.1515	0.0379	0.0381
PROPANE	0.0340	0.0535	0.0090	0.0090
I-BUTANE	0.0100	0.0207	0.0030	0.0030
N-BUTANE	0.0090	0.0187	0.0030	0.0030
I-PENTANE	0.0055	0.0142	0.0020	0.0020
N-PENTANE	0.0040	0.0103	0.0010	0.0010
HEXANES PLUS	0.0150	0.0517	0.0030	0.0030
TOTALS	100.00000	100.00000	0.0589	0.0591

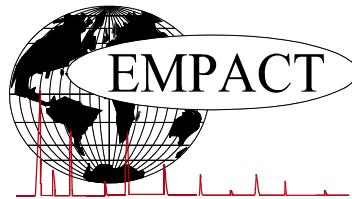
BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0004	0.0011
TOLUENE	0.0003	0.0010
ETHYLBENZENE	0.0000	0.0000
XYLENES	0.0001	0.0004
TOTAL BTEX	0.0008	0.0025

	CALCULATED VALUES**	
	14.65	14.73
LHV NET DRY REAL :	71.6 /scf	72.0 /scf
NET WET REAL :	70.3 /scf	70.7 /scf
HHV GROSS DRY REAL :	79.5 /scf	79.9 /scf
GROSS WET REAL :	78.1 /scf	78.5 /scf
NET HEATING VALUE (60 °F ideal reaction):		978.1 Btu/lbm
GROSS HEATING VALUE (60°F ideal reaction):		1084.3 Btu/lbm
RELATIVE DENSITY (AIR=1):		0.9667
DENSITY		0.07379 lbm/scf
COMPRESSIBILITY FACTOR :		0.9995
REGULAR WOBBE INDEX		81.1

*(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. :	202506129	ANALYSIS NO. :	02
COMPANY NAME :	QB ENERGY OPERATING, LLC	ANALYSIS DATE:	JUNE 28, 2025 14:25
ACCOUNT NO. :		SAMPLE DATE :	JUNE 23, 2025 11:14
PRODUCER :	QB ENERGY OPERATING, LLC	CYLINDER NO. :	1L TEDLAR
LEASE NO. :		SAMPLED BY :	DEREK HORN
NAME/DESCRIP :	N. PARACHUTE #EF12C D31 595		

FIELD DATA

SAMPLE PRES. :
H2S BY STAIN TUBE: — ppm mol
COMMENTS : SPOT

SAMPLE TEMP. :
AMBIENT TEMP.:

<u>Componet</u>	<u>Mole %</u>	<u>Wt %</u>
Helium	0.00	0.00
Hydrogen	0.00	0.00
Carbon Dioxide	0.63	0.99
Nitrogen	72.99	73.01
Methane	7.4115	4.2453
Ethane	0.1411	0.1515
Propane	0.0340	0.0535
Isobutane	0.0100	0.0207
n-Butane	0.0090	0.0187
Isopentane	0.0053	0.0137
n-Pentane	0.0040	0.0103
Cyclopentane	0.0002	0.0005
n-Hexane	0.0017	0.0052
Cyclohexane	0.0009	0.0027
Other Hexanes	0.0038	0.0116
Heptanes	0.0033	0.0119
Methylcyclohexane	0.0015	0.0052
2,2,4 Trimethylpentane	0.0000	0.0000
Benzene	0.0004	0.0011
Toluene	0.0003	0.0010
Ethylbenzene	0.0000	0.0000
Xylenes	0.0001	0.0004
C8+ Heavies	0.0030	0.0126
<u>Subtotal</u>	<u>81.24990</u>	<u>78.56990</u>
Oxygen/Argon	18.75	21.43
Alcohols	0.0001	0.0001
<u>Total</u>	<u>100.00000</u>	<u>100.00000</u>

Calculated Values BTU @		Total	C6+	C8+	C10+
	LHV Net Dry Real:	71.6	4870.6	5861.3	7862.6 Btu/scf
	Net Wet Real:	70.3	4785.5	5758.8	7725.2 Btu/scf
	HHV Gross Dry Real:	79.5	5240.5	6308.6	8464.6 Btu/scf
	Gross Wet Real:	78.1	5148.9	6198.3	8316.6 Btu/scf

Other Calculated Values

Regualr Wobbe Index*	81.1	2862.3	3145.1	3654.3 Btu/scf
Net Heating Value (60 °F ideal reaction):	978.1	19398.8	19712.4	19144.1 Btu/lbm
Gross Heating Value (60 °F ideal reaction):	1084.3	20872.2	21219.2	20610.0 Btu/lbm
Molar Mass (MW):	28.00272	96.315	116.681	156.312 g/mol
Relative Density (AIR=1):	0.9667	3.3252	4.0284	5.3970 SG
Density:	0.07379	0.25379	0.30747	0.41190 lbm/scf
Compressibility Factor:	0.9995	0.9929	0.9975	0.9998 Z
Liquid Volume real gas @:	11.0543	0.003	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 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*****

SAMPLE CYCLE: SAMPLE TYPE: **SPOT**
 SAMPLE PRES. : **psig** PROBE :
 FLOW PRES. : **psig** CYLINDER NO. : **1L TEDLAR**
 LAB PRES: **psig** SAMPLED BY : **DEREK HORN**
 SAMPLE TEMP. : **°f** SAMPLING COMPANY: **QB ENERGY OPERATING, LLC**
 AMBIENT TEMP.: **°f** 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
Oxygen/Argon	---	18.75	21.43	---	---
Nitrogen	---	72.99	73.01	---	---
Carbon Dioxide	---	0.63	0.99	---	---
Methane	P1	7.41150	4.24530	---	---
Ethane	P2	0.1411	0.1515	0.038	0.038
Propane	P3	0.0340	0.0535	0.009	0.009
i-Butane	I4	0.0100	0.0207	0.003	0.003
Methanol	X1	0.0001	0.0001	0.000	0.000
n-Butane	P4	0.0090	0.0187	0.003	0.003
2,2-Dimethylpropane	I5	0.0003	0.0008	0.000	0.000
i-Pentane	I5	0.0050	0.0129	0.002	0.002
n-Pentane	P5	0.0040	0.0103	0.001	0.001
2,2-Dimethylbutane	I6	0.0003	0.0009	0.000	0.000
Cyclopentane	N5	0.0002	0.0005	0.000	0.000
2,3-Dimethylbutane	I6	0.0003	0.0009	0.000	0.000
2-Methylpentane	I6	0.0016	0.0049	0.001	0.001
3-Methylpentane	I6	0.0008	0.0025	0.000	0.000
n-Hexane	P6	0.0017	0.0052	0.001	0.001
Methylcyclopentane	N6	0.0008	0.0024	0.000	0.000
2,4-Dimethylpentane	I7	0.0001	0.0004	0.000	0.000
Benzene	A6	0.0004	0.0011	0.000	0.000
Cyclohexane	N6	0.0009	0.0027	0.000	0.000
2-Methylhexane	I7	0.0005	0.0018	0.000	0.000
2,3-Dimethylpentane	I7	0.0002	0.0007	0.000	0.000
1,1-Dimethylcyclopentane	N7	0.0001	0.0004	0.000	0.000
3-Methylhexane	I7	0.0005	0.0018	0.000	0.000
1c,3-Dimethylcyclopentane	N7	0.0002	0.0007	0.000	0.000
1t,3-Dimethylcyclopentane	N7	0.0002	0.0007	0.000	0.000

1t,2-Dimethylcyclopentane	N7	0.0003	0.0010	0.000	0.000
n-Heptane	P7	0.0010	0.0036	0.000	0.000
1c,2-Dimethylcyclopentane	N7	0.0001	0.0004	0.000	0.000
Methylcyclohexane	N7	0.0015	0.0052	0.001	0.001
2,2-Dimethylhexane	I8	0.0001	0.0004	0.000	0.000
Ethylcyclopentane	N7	0.0001	0.0004	0.000	0.000
2,2,3-Trimethylpentane	I8	0.0001	0.0004	0.000	0.000
1c,2t,4-Trimethylcyclopentane	N8	0.0001	0.0004	0.000	0.000
Toluene	A7	0.0003	0.0010	0.000	0.000
2,3-Dimethylhexane	I8	0.0001	0.0004	0.000	0.000
2-Methylheptane	I8	0.0003	0.0012	0.000	0.000
4-Methylheptane	I8	0.0001	0.0004	0.000	0.000
3-Methylheptane	I8	0.0001	0.0004	0.000	0.000
1c,2t,3-Trimethylcyclopentane	N8	0.0003	0.0012	0.000	0.000
3-Ethylhexane	I8	0.0001	0.0004	0.000	0.000
1t,4-Dimethylcyclohexane	N8	0.0001	0.0004	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0001	0.0004	0.000	0.000
n-Octane	P8	0.0004	0.0016	0.000	0.000
1c,4-Dimethylcyclohexane	N8	0.0001	0.0004	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0002	0.0009	0.000	0.000
Ethylcyclohexane	N8	0.0002	0.0008	0.000	0.000
n-Propylcyclopentane	N8	0.0001	0.0004	0.000	0.000
1,4-Dimethylbenzene (p-Xylene)	A8	0.0001	0.0004	0.000	0.000
1c,2t,4c-Trimethylcyclohexane	I9	0.0001	0.0005	0.000	0.000
UnknownC8s	U8	0.0001	0.0004	0.000	0.000
n-Nonane	P9	0.0001	0.0005	0.000	0.000
n-Butylcyclopentane	N9	0.0001	0.0005	0.000	0.000
UnknownC11s	U11	0.0001	0.0006	0.000	0.000
TOTAL		100.00000	100.00000	0.0589	0.0591

CALCULATED VALUES**

BTEX COMPONENTS	MOLE%	WT%	BTU @	14.65	14.73
BENZENE	0.0004	0.0011	LHV NET DRY REAL :	71.6 /scf	72.0 /scf
TOLUENE	0.0003	0.0010	NET WET REAL :	70.3 /scf	70.7 /scf
ETHYLBENZENE	0.0000	0.0000	HHV GROSS DRY REAL :	79.5 /scf	79.9 /scf
XYLENES	0.0001	0.0004	GROSS WET REAL :	78.1 /scf	78.5 /scf
TOTAL BTEX	0.0008	0.0025	NET HEATING VALUE (60 °F ideal reaction):		978.1 Btu/lbm
			GROSS HEATING VALUE (60°F ideal reaction):		1084.3 Btu/lbm
			RELATIVE DENSITY (AIR=1):		0.9667
			DENSITY		0.07379 lb/scf
			COMPRESSIBILITY FACTOR :		0.9995
			REGULAR WOBBE INDEX		81.1

*(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	4851 /scf	Relative Density - SG (Air=1)	3.3252	C6+ factors
Gross Dry Ideal BTU	5219.4 /scf	Z Compressibility Factor	0.99285	0.99206
Net Dry Ideal BTU	19398.8 /lb	Density Factor	253.793 lbm/1000 ft3	
Gross Dry Ideal BTU	20872.2 /lb	Molar Mass or MW	96.315 g/mol	
		Volume Liquid Ideal gas	0.003 scf/gal	23.5

**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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