EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

PRIMARY DB KEY:	**05-103-10403**	NAME/DESCRIP :	**YCF 33-43-1**
LEASE #:			**SURFACE CASING**
FIELD/AREA:			

PROJECT NO. :	**202508080**	ANALYSIS NO. :	**03**
COMPANY NAME :	**QB ENERGY OPERATING, LLC**	ANALYSIS DATE:	AUGUST 23, 2025 14:44
OFFICE / BRANCH:	PARACHUTE, CO	SAMPLE DATE :	AUGUST 08, 2025 09:30
CUSTOMER REF:		TO:	
PRODUCER :		EFFECTIVE DATE:	

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

SAMPLE CYCLE:		SAMPLE TYPE:	
SAMPLE PRES. :	78 psig	PROBE :	
FLOW PRES. :	psig	CYLINDER NO. :	ECA-808
LAB PRES:	psig	SAMPLED BY :	NICK COY
SAMPLE TEMP. :	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	0.0005	0.0016	0.0000	0.0000
HELIUM	0.00	0.00	---	---
HYDROGEN	0.00	0.00	---	---
OXYGEN/ARGON	0.01	0.02	---	---
NITROGEN	0.29	0.44	---	---
CARBON DIOXIDE	0.02	0.05	---	---
METHANE	88.5576	76.1355	---	---
ETHANE	7.0995	11.4402	1.8932	1.9036
PROPANE	2.1832	5.1591	0.5998	0.6030
I-BUTANE	0.4127	1.2855	0.1349	0.1357
N-BUTANE	0.5937	1.8492	0.1869	0.1879
I-PENTANE	0.2507	0.9683	0.0910	0.0914
N-PENTANE	0.2075	0.8023	0.0750	0.0754
HEXANES PLUS	0.3747	1.8485	0.1450	0.1457
TOTALS	100.00000	100.00000	3.1258	3.1427

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0024	0.0100
TOLUENE	0.0012	0.0059
ETHYLBENZENE	0.0002	0.0011
XYLENES	0.0005	0.0029
TOTAL BTEX	0.0043	0.0199

**(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 :	1033.7 **/scf**	1039.3 **/scf**
	NET WET REAL :	1015.6 **/scf**	1021.2 **/scf**
HHV	GROSS DRY REAL :	1143.2 **/scf**	1149.5 **/scf**
	GROSS WET REAL :	1123.2 **/scf**	1129.5 **/scf**

NET HEATING VALUE (60 °F ideal reaction):	21058.8 **Btu/lbm**
GROSS HEATING VALUE (60°F ideal reaction):	23286.4 **Btu/lbm**
RELATIVE DENSITY (AIR=1):	0.6435
DENSITY	0.04916 **lbm/scf**
COMPRESSIBILITY FACTOR :	0.9973
REGULAR WOBBE INDEX	1425.7

EMPACT

EXTENDED NATURAL GAS ANALYSIS (*DHA)

GLYCALC INFORMATION

PROJECT NO. :	202508080	ANALYSIS NO. :	03
COMPANY NAME :	QB ENERGY OPERATING, LLC	ANALYSIS DATE:	AUGUST 23, 2025 14:44
ACCOUNT NO. :		SAMPLE DATE :	AUGUST 08, 2025 09:30
PRODUCER :		CYLINDER NO. :	ECA-808
LEASE NO. :		SAMPLED BY :	NICK COY
NAME/DESCRIP :	YCF 33-43-1 SURFACE CASING		
FIELD DATA		SAMPLE TEMP. :	
SAMPLE PRES. :	78	AMBIENT TEMP.:	
H2S BY STAIN TUBE:	_ *ppm mol*		
COMMENTS :			

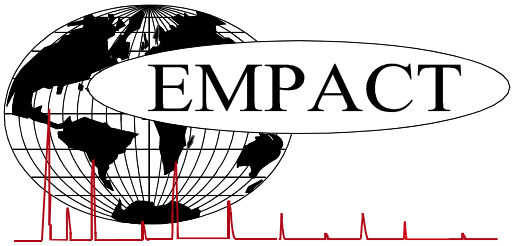
Componet	Mole %	Wt %
Helium	0.00	0.00
Hydrogen	0.00	0.00
Carbon Dioxide	0.02	0.05
Nitrogen	0.29	0.44
Methane	88.5576	76.1355
Ethane	7.0995	11.4402
Propane	2.1832	5.1591
Isobutane	0.4127	1.2855
n-Butane	0.5937	1.8492
Isopentane	0.2414	0.9334
n-Pentane	0.2075	0.8023
Cyclopentane	0.0093	0.0349
n-Hexane	0.0731	0.3376
Cyclohexane	0.0358	0.1615
Other Hexanes	0.1407	0.6467
Heptanes	0.0608	0.3251
Methylcyclohexane	0.0320	0.1684
2,2,4 Trimethylpentane	0.0000	0.0000
Benzene	0.0024	0.0100
Toluene	0.0012	0.0059
Ethylbenzene	0.0002	0.0011
Xylenes	0.0005	0.0029
C8+ Heavies	0.0280	0.1893
Subtotal	99.98950	99.97840
Oxygen/Argon	0.01	0.02
Alcohols	0.0005	0.0016
Total	100.00000	100.00000

Calculated Values BTU @ **14.65**		**Total Sample**	**C6+ Fraction**	**C8+ Fraction**	**C10+ Fraction**	
LHV	Net Dry Real:	1033.7	4682.9	6317.5	8257.4	**Btu/scf**
	Net Wet Real:	1015.6	4601.0	6207.1	8113.1	**Btu/scf**
HHV	Gross Dry Real:	1143.2	5048.1	6818.9	8965.0	**Btu/scf**
	Gross Wet Real:	1123.2	4959.9	6699.7	8808.3	**Btu/scf**
Other Calculated Values						
Regualr Wobbe Index*		1425.7	2813.8	3274.5	3771.0	**Btu/scf**
Net Heating Value (60 °F ideal reaction):		21058.8	19314.9	19564.2	19107.5	**Btu/lbm**
Gross Heating Value (60°F ideal reaction):		23286.4	20811.9	21113.7	20741.7	**Btu/lbm**
Molar Mass (MW):		18.65815	92.075	125.918	164.691	**g/mol**
Relative Density (AIR=1):		0.6435	3.1796	4.3472	5.6863	**SG**
Density:		0.04916	0.24264	0.33181	0.43399	**lbm/scf**
Compressiblity Factor:		0.9973	0.9908	0.9981	0.9999	**Z**
Liquid Volume real gas @:	**14.65**	18.0812	0.1445	0.007	0.001	**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:	**05-103-10403**	NAME/DESCRIP :	**YCF 33-43-1**
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SAMPLE TEMP. :	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**
Oxygen/Argon	---	0.01	0.02	---	---
Nitrogen	---	0.29	0.44	---	---
Carbon Dioxide	---	0.02	0.05	---	---
Methane	P1	88.5576	76.1355	---	---
Ethane	P2	7.0995	11.4402	1.893	1.904
Propane	P3	2.1832	5.1591	0.600	0.603
i-Butane	I4	0.4127	1.2855	0.135	0.136
n-Butane	P4	0.5933	1.8480	0.187	0.188
2,2-Dimethylpropane	I5	0.0062	0.0240	0.002	0.002
Ethanol	X2	0.0001	0.0003	0.000	0.000
i-Pentane	I5	0.2352	0.9094	0.086	0.086
Acetone	X3	0.0002	0.0006	0.000	0.000
i-Propanol	X3	0.0001	0.0003	0.000	0.000
UnknownC4s	U4	0.0004	0.0012	0.000	0.000
n-Pentane	P5	0.2074	0.8019	0.075	0.075
t-Butanol	X4	0.0001	0.0004	0.000	0.000
2,2-Dimethylbutane	I6	0.0087	0.0402	0.004	0.004
Cyclopentane	N5	0.0093	0.0349	0.003	0.003
2,3-Dimethylbutane	I6	0.0133	0.0614	0.005	0.005
2-Methylpentane	I6	0.0592	0.2734	0.025	0.025
3-Methylpentane	I6	0.0307	0.1418	0.012	0.012
UnknownC5s	U5	0.0001	0.0004	0.000	0.000
n-Hexane	P6	0.0731	0.3376	0.030	0.030
2,2-Dimethylpentane	I7	0.0017	0.0091	0.001	0.001
Methylcyclopentane	N6	0.0288	0.1299	0.010	0.010
2,4-Dimethylpentane	I7	0.0027	0.0145	0.001	0.001
2,2,3-Trimethylbutane	I7	0.0007	0.0037	0.000	0.000
Benzene	A6	0.0024	0.0100	0.001	0.001

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3,3-Dimethylpentane	I7	0.0009	0.0048	0.000	0.000
Cyclohexane	N6	0.0358	0.1615	0.012	0.012
2-Methylhexane	I7	0.0102	0.0548	0.005	0.005
2,3-Dimethylpentane	I7	0.0028	0.0151	0.001	0.001
1,1-Dimethylcyclopentane	N7	0.0020	0.0105	0.001	0.001
3-Methylhexane	I7	0.0087	0.0467	0.004	0.004
1c,3-Dimethylcyclopentane	N7	0.0029	0.0153	0.001	0.001
1t,3-Dimethylcyclopentane	N7	0.0026	0.0137	0.001	0.001
3-Ethylpentane	I7	0.0004	0.0021	0.000	0.000
1t,2-Dimethylcyclopentane	N7	0.0040	0.0211	0.002	0.002
n-Heptane	P7	0.0198	0.1063	0.009	0.009
1c,2-Dimethylcyclopentane	N7	0.0003	0.0015	0.000	0.000
Methylcyclohexane	N7	0.0320	0.1684	0.013	0.013
2,2-Dimethylhexane	I8	0.0007	0.0043	0.000	0.000
1,1,3-Trimethylcyclopentane	N7	0.0002	0.0012	0.000	0.000
Ethylcyclopentane	N7	0.0009	0.0047	0.000	0.000
2,5-Dimethylhexane	I8	0.0007	0.0043	0.000	0.000
2,2,3-Trimethylpentane	I8	0.0005	0.0030	0.000	0.000
2,4-Dimethylhexane	I8	0.0001	0.0006	0.000	0.000
1c,2t,4-Trimethylcyclopentane	N8	0.0005	0.0030	0.000	0.000
3,3-Dimethylhexane	I8	0.0002	0.0012	0.000	0.000
Toluene	A7	0.0012	0.0059	0.000	0.000
2,3-Dimethylhexane	I8	0.0004	0.0025	0.000	0.000
2-Methyl-3-ethylpentane	I8	0.0001	0.0006	0.000	0.000
2-Methylheptane	I8	0.0023	0.0141	0.001	0.001
4-Methylheptane	I8	0.0007	0.0043	0.000	0.000
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	0.0015	0.0092	0.001	0.001
1c,2t,3-Trimethylcyclopentane	N8	0.0022	0.0132	0.001	0.001
3-Ethylhexane	I8	0.0001	0.0006	0.000	0.000
1t,4-Dimethylcyclohexane	N8	0.0009	0.0054	0.000	0.000
1,1-Dimethylcyclohexane	N8	0.0003	0.0018	0.000	0.000
3c-Ethylmethylcyclopentane	N8	0.0001	0.0006	0.000	0.000
3t-Ethylmethylcyclopentane	N8	0.0001	0.0006	0.000	0.000
2t-Ethylmethylcyclopentane	N8	0.0001	0.0006	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0007	0.0042	0.000	0.000
n-Octane	P8	0.0041	0.0251	0.002	0.002
1c,4-Dimethylcyclohexane	N8	0.0003	0.0018	0.000	0.000
2,3,5-Trimethylhexane	I9	0.0001	0.0007	0.000	0.000
2,2-Dimethylheptane	I9	0.0002	0.0014	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0005	0.0034	0.000	0.000
2,2,3-Trimethylhexane	I9	0.0002	0.0014	0.000	0.000
2,4-Dimethylheptane	I9	0.0001	0.0007	0.000	0.000
4,4-Dimethylheptane	I9	0.0001	0.0007	0.000	0.000
Ethylcyclohexane	N8	0.0005	0.0030	0.000	0.000
n-Propylcyclopentane	N8	0.0002	0.0012	0.000	0.000
1c,3c,5-Trimethylcyclohexane	N9	0.0001	0.0007	0.000	0.000
2,5-Dimethylheptane	I9	0.0003	0.0020	0.000	0.000
3,3-Dimethylheptane	I9	0.0001	0.0007	0.000	0.000
2,6-Dimethylheptane	I9	0.0001	0.0007	0.000	0.000
Ethylbenzene	I8	0.0002	0.0011	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0003	0.0017	0.000	0.000
1,4-Dimethylbenzene (p-Xylene)	A8	0.0001	0.0006	0.000	0.000
4-Ethylheptane	I9	0.0001	0.0007	0.000	0.000
4-Methyloctane	I9	0.0002	0.0014	0.000	0.000
2-Methyloctane	I9	0.0003	0.0020	0.000	0.000
1c,2t,4c-Trimethylcyclohexane	I9	0.0003	0.0020	0.000	0.000
1,2-Dimethylbenzene (o-Xylene)	A8	0.0001	0.0006	0.000	0.000
i-Butylcyclopentane	N9	0.0001	0.0007	0.000	0.000
n-Nonane	P9	0.0010	0.0069	0.001	0.001
1,1-Methylethylcyclohexane	N9	0.0001	0.0007	0.000	0.000
n-Butylcyclopentane	N9	0.0001	0.0007	0.000	0.000

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n-Propylbenzene	A9	0.0001	0.0006	0.000	0.000
1,3-Methylethylbenzene	A9	0.0001	0.0006	0.000	0.000
5-Methylnonane	I10	0.0001	0.0007	0.000	0.000
1,2-Methylethylbenzene	A9	0.0001	0.0006	0.000	0.000
t-Butylbenzene	A10	0.0001	0.0007	0.000	0.000
UnknownC9s	U9	0.0003	0.0020	0.000	0.000
n-Decane	P10	0.0003	0.0023	0.000	0.000
1,2,3-Trimethylbenzene	A9	0.0001	0.0006	0.000	0.000
Sec-Butylcyclohexane	A10	0.0001	0.0007	0.000	0.000
3-Ethylnonane	I10	0.0001	0.0009	0.000	0.000
1,3-Diethylbenzene	A10	0.0001	0.0007	0.000	0.000
n-Butylbenzene	A10	0.0001	0.0007	0.000	0.000
1,3-Dimethyl-4-ethylbenzene	A10	0.0001	0.0007	0.000	0.000
1,2-Dimethyl-4-ethylbenzene	A10	0.0001	0.0007	0.000	0.000
1,2-Ethyl-i-propylbenzene	A10	0.0001	0.0008	0.000	0.000
1,4-Methyl-t-butylbenzene	A11	0.0001	0.0008	0.000	0.000
UnknownC10s	U10	0.0004	0.0030	0.000	0.000
n-Undecane	P11	0.0003	0.0025	0.000	0.000
5-Methylindan	A11	0.0001	0.0007	0.000	0.000
1,2-Ethyl-n-propylbenzene	A11	0.0001	0.0008	0.000	0.000
1,3-Methyl-n-butylbenzene	A11	0.0001	0.0008	0.000	0.000
1,3-Di-i-propylbenzene	A11	0.0001	0.0009	0.000	0.000
1,4-Ethyl-t-butylbenzene	A11	0.0001	0.0009	0.000	0.000
UnknownC11s	U11	0.0005	0.0042	0.000	0.000
n-Dodecane	P12	0.0002	0.0018	0.000	0.000
1,3,5-Triethylbenzene	A12	0.0001	0.0009	0.000	0.000
n-Hexylbenzene	A12	0.0001	0.0009	0.000	0.000
2-Methylnaphthalene	A11	0.0001	0.0007	0.000	0.000
UnknownC12s	U12	0.0005	0.0042	0.000	0.000
n-Tridecane	P13	0.0002	0.0020	0.000	0.000
UnknownC13s	U13	0.0005	0.0049	0.000	0.000
n-Tetradecane	P14	0.0001	0.0011	0.000	0.000
UnknownC14s	U14	0.0007	0.0074	0.001	0.001
n-Pentadecane	P15	0.0001	0.0011	0.000	0.000
n-Hexadecane	P16	0.0001	0.0012	0.000	0.000
UnknownC17s	U17	0.0001	0.0013	0.000	0.000
TOTAL		100.00000	100.00000	3.1258	3.1427

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0024	0.0100
TOLUENE	0.0012	0.0059
ETHYLBENZENE	0.0002	0.0011
XYLENES	0.0005	0.0029
TOTAL BTEX	0.0043	0.0199

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Mod ASTM D6730,GPA 2261 & GPA 2286.

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

CALCULATED VALUES**

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	NET WET REAL :	1015.6 /scf	1021.2 /scf
HHV	GROSS DRY REAL :	1143.2 /scf	1149.5 /scf
	GROSS WET REAL :	1123.2 /scf	1129.5 /scf
	NET HEATING VALUE (60 °F ideal reaction):		21058.8 Btu/lbm
	GROSS HEATING VALUE (60°F ideal reaction):		23286.4 Btu/lbm
	RELATIVE DENSITY (AIR=1):		0.6435
	DENSITY		0.04916 lb/scf
	COMPRESSIBILITY FACTOR :		0.9973
	REGULAR WOBBE INDEX		1425.7

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

Net Dry Ideal BTU	4654.4 /scf	Relative Density - SG (Air=1)	3.1796	***C6+factors***
Gross Dry Ideal BTU	5017.4 /scf	**Z** Compressiblity Factor	0.9908	0.99025
Net Dry Ideal BTU	19314.9 /lb	Density Factor	242.638 lbm/1000 ft3	
Gross Dry Ideal BTU	20811.9 /lb	Molar Mass or MW	92.075 g/mol	
		Volume Liquid Ideal gas	0.145 scf/gal	23.6

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.