EMPACT

EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

PRIMARY DB KEY:	**05-045-19137**	NAME/DESCRIP :	**F25 496, SGU 8510AX-25**
LEASE #:	**05-045-19137**		**SURFACE CASING**
FIELD/AREA:	**GRAND VALLEY**		

PROJECT NO. :	**202601026**	ANALYSIS NO. :	**02**
COMPANY NAME :	**QB ENERGY OPERATING, LLC**	ANALYSIS DATE:	JANUARY 24, 2026 15:44
OFFICE / BRANCH:	PARACHUTE, CO	SAMPLE DATE :	JANUARY 5, 2026 11:00
CUSTOMER REF:		TO:	
PRODUCER :	QB ENERGY OPERATING LLC	EFFECTIVE DATE:	

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

SAMPLE CYCLE:			SAMPLE TYPE:	
SAMPLE PRES. :	176	psig	PROBE :	
FLOW PRES. :		psig	CYLINDER NO. :	ECA-711
LAB PRES:		psig	SAMPLED BY :	JASON SMITH
SAMPLE TEMP. :	31	ºf	SAMPLING COMPANY:	QB ENERGY OPERATING
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	0.0001	0.0002	0.0000	0.0000
HELIUM	0.01	0.00	---	---
HYDROGEN	0.01	0.00	---	---
OXYGEN/ARGON	0.00	0.00	---	---
NITROGEN	0.09	0.14	---	---
CARBON DIOXIDE	2.74	6.50	---	---
METHANE	89.2018	77.0748	---	---
ETHANE	5.6417	9.1369	1.5040	1.5123
PROPANE	1.1160	2.6505	0.3068	0.3085
I-BUTANE	0.3683	1.1529	0.1199	0.1206
N-BUTANE	0.2585	0.8093	0.0809	0.0814
I-PENTANE	0.1470	0.5708	0.0530	0.0532
N-PENTANE	0.0809	0.3144	0.0290	0.0291
HEXANES PLUS	0.3357	1.6502	0.1300	0.1303
TOTALS	100.00000	100.00000	2.2236	2.2354

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0227	0.0955
TOLUENE	0.0244	0.1211
ETHYLBENZENE	0.0000	0.0000
XYLENES	0.0000	0.0000
TOTAL BTEX	0.0471	0.2166

**(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 :	970.0	/scf	975.3	/scf
	NET WET REAL :	953.0	/scf	958.3	/scf
HHV	GROSS DRY REAL :	1073.8	/scf	1079.7	/scf
	GROSS WET REAL :	1055.0	/scf	1060.9	/scf

NET HEATING VALUE (60 °F ideal reaction):	19847.2	**Btu/lbm**
GROSS HEATING VALUE (60°F ideal reaction):	21971.7	**Btu/lbm**
RELATIVE DENSITY (AIR=1):	0.6406	
DENSITY	0.04892	**lbm/scf**
COMPRESSIBILITY FACTOR :	0.9975	
REGULAR WOBBE INDEX	1342.5	

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EXTENDED NATURAL GAS ANALYSIS (*DHA)

GLYCALC INFORMATION

PROJECT NO. :	202601026	ANALYSIS NO. :	02
COMPANY NAME :	QB ENERGY OPERATING, LLC	ANALYSIS DATE:	JANUARY 24, 2026 15:44
ACCOUNT NO. :		SAMPLE DATE :	JANUARY 5, 2026 11:00
PRODUCER :	QB ENERGY OPERATING LLC	CYLINDER NO. :	ECA-711
LEASE NO. :	05-045-19137	SAMPLED BY :	JASON SMITH
NAME/DESCRIP :	F25 496, SGU 8510AX-25 SURFACE CASING		
FIELD DATA		SAMPLE TEMP. :	31
SAMPLE PRES. :	176	AMBIENT TEMP.:	
H2S BY STAIN TUBE:	_ *ppm mol*		
COMMENTS :			

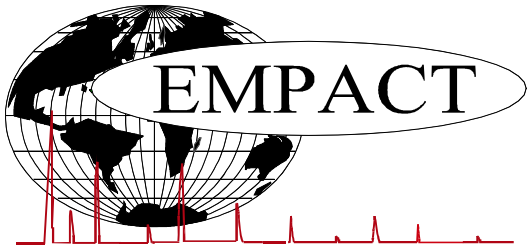
Componet	Mole %	Wt %
Helium	0.01	0.00
Hydrogen	0.01	0.00
Carbon Dioxide	2.74	6.50
Nitrogen	0.09	0.14
Methane	89.2018	77.0748
Ethane	5.6417	9.1369
Propane	1.1160	2.6505
Isobutane	0.3683	1.1529
n-Butane	0.2585	0.8093
Isopentane	0.1433	0.5569
n-Pentane	0.0809	0.3144
Cyclopentane	0.0037	0.0139
n-Hexane	0.0405	0.1880
Cyclohexane	0.0237	0.1075
Other Hexanes	0.0999	0.4612
Heptanes	0.0690	0.3707
Methylcyclohexane	0.0398	0.2105
2,2,4 Trimethylpentane	0.0000	0.0000
Benzene	0.0227	0.0955
Toluene	0.0244	0.1211
Ethylbenzene	0.0000	0.0000
Xylenes	0.0000	0.0000
C8+ Heavies	0.0157	0.0957
Subtotal	99.99990	99.99980
Oxygen/Argon	0.00	0.00
Alcohols	0.0001	0.0002
Total	100.00000	100.00000

Calculated Values BTU @ **14.65**		**Total Sample**	**C6+ Fraction**	**C8+ Fraction**	**C10+ Fraction**	
LHV	Net Dry Real:	970.0	4585.8	5711.0	#DIV/0!	**Btu/scf**
	Net Wet Real:	953.0	4505.6	5611.2	#DIV/0!	**Btu/scf**
HHV	Gross Dry Real:	1073.8	4922.8	6156.8	#DIV/0!	**Btu/scf**
	Gross Wet Real:	1055.0	4836.7	6049.2	#DIV/0!	**Btu/scf**
Other Calculated Values						
Regualr Wobbe Index*		1342.5	2759.0	3108.0	#DIV/0!	**Btu/scf**
Net Heating Value (60 °F ideal reaction):		19847.2	19142.6	20254.4	#DIV/0!	**Btu/lbm**
Gross Heating Value (60°F ideal reaction):		21971.7	20547.6	21836.0	#DIV/0!	**Btu/lbm**
Molar Mass (MW):		18.5655	91.28	113.524	#DIV/0!	**g/mol**
Relative Density (AIR=1):		0.6406	3.1517	3.9199	#DIV/0!	**SG**
Density:		0.04892	0.24055	0.29915	#DIV/0!	**lbm/scf**
Compressiblity Factor:		0.9975	0.9918	0.9963	#DIV/0!	**Z**
Liquid Volume real gas @:	**14.65**	17.7313	0.1296	0.005	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:	**05-045-19137**	NAME/DESCRIP :	**F25 496, SGU 8510AX-25**
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SAMPLE PRES. :	176 psig	PROBE :	
FLOW PRES. :	psig	CYLINDER NO. :	ECA-711
LAB PRES:	psig	SAMPLED BY :	JASON SMITH
SAMPLE TEMP. :	31 ºf	SAMPLING COMPANY:	QB ENERGY OPERATING
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	---	0.01	0.00	---	---
Hydrogen	---	0.01	0.00	---	---
Nitrogen	---	0.09	0.14	---	---
Carbon Dioxide	---	2.74	6.50	---	---
Methane	P1	89.2018	77.0748	---	---
Ethane	P2	5.6417	9.1369	1.504	1.512
Propane	P3	1.1160	2.6505	0.307	0.309
i-Butane	I4	0.3683	1.1529	0.120	0.121
Methanol	X1	0.0001	0.0002	0.000	0.000
n-Butane	P4	0.2585	0.8093	0.081	0.081
2,2-Dimethylpropane	I5	0.0055	0.0214	0.002	0.002
i-Pentane	I5	0.1378	0.5355	0.050	0.050
n-Pentane	P5	0.0809	0.3144	0.029	0.029
2,2-Dimethylbutane	I6	0.0073	0.0339	0.003	0.003
Cyclopentane	N5	0.0037	0.0139	0.001	0.001
2,3-Dimethylbutane	I6	0.0102	0.0473	0.004	0.004
2-Methylpentane	I6	0.0375	0.1741	0.016	0.016
3-Methylpentane	I6	0.0217	0.1007	0.009	0.009
n-Hexane	P6	0.0405	0.1880	0.017	0.017
2,2-Dimethylpentane	I7	0.0019	0.0102	0.001	0.001
Methylcyclopentane	N6	0.0232	0.1052	0.008	0.008
2,4-Dimethylpentane	I7	0.0028	0.0151	0.001	0.001
2,2,3-Trimethylbutane	I7	0.0008	0.0043	0.000	0.000
Benzene	A6	0.0227	0.0955	0.006	0.006
3,3-Dimethylpentane	I7	0.0011	0.0059	0.000	0.000
Cyclohexane	N6	0.0237	0.1075	0.008	0.008
2-Methylhexane	I7	0.0119	0.0642	0.006	0.006

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2,3-Dimethylpentane	I7	0.0030	0.0162	0.001	0.001
1,1-Dimethylcyclopentane	N7	0.0025	0.0132	0.001	0.001
3-Methylhexane	I7	0.0105	0.0567	0.005	0.005
1c,3-Dimethylcyclopentane	N7	0.0035	0.0185	0.002	0.002
1t,3-Dimethylcyclopentane	N7	0.0032	0.0169	0.001	0.001
3-Ethylpentane	I7	0.0005	0.0027	0.000	0.000
1t,2-Dimethylcyclopentane	N7	0.0052	0.0275	0.002	0.002
n-Heptane	P7	0.0192	0.1036	0.009	0.009
1c,2-Dimethylcyclopentane	N7	0.0013	0.0069	0.001	0.001
Methylcyclohexane	N7	0.0398	0.2105	0.016	0.016
2,2-Dimethylhexane	I8	0.0008	0.0049	0.000	0.000
1,1,3-Trimethylcyclopentane	N7	0.0004	0.0024	0.000	0.000
Ethylcyclopentane	N7	0.0012	0.0064	0.000	0.000
2,5-Dimethylhexane	I8	0.0009	0.0055	0.000	0.000
2,2,3-Trimethylpentane	I8	0.0008	0.0049	0.000	0.000
1c,2t,4-Trimethylcyclopentane	N8	0.0006	0.0036	0.000	0.000
3,3-Dimethylhexane	I8	0.0003	0.0018	0.000	0.000
Toluene	A7	0.0244	0.1211	0.008	0.008
2,3-Dimethylhexane	I8	0.0005	0.0031	0.000	0.000
2-Methyl-3-ethylpentane	I8	0.0001	0.0006	0.000	0.000
2-Methylheptane	I8	0.0023	0.0142	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-Methylheptane	I8	0.0017	0.0104	0.001	0.001
1c,2t,3-Trimethylcyclopentane	N8	0.0031	0.0187	0.002	0.002
3-Ethylhexane	I8	0.0001	0.0006	0.000	0.000
1t,4-Dimethylcyclohexane	N8	0.0014	0.0085	0.001	0.001
1,1-Dimethylcyclohexane	N8	0.0006	0.0036	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
2,2,4-Trimethylhexane	I9	0.0001	0.0007	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0009	0.0054	0.000	0.000
n-Octane	P8	0.0003	0.0018	0.000	0.000
n-Nonane	P9	0.0001	0.0007	0.000	0.000
TOTAL		100.00000	100.00000	2.2236	2.2354

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0227	0.0955
TOLUENE	0.0244	0.1211
ETHYLBENZENE	0.0000	0.0000
XYLENES	0.0000	0.0000
TOTAL BTEX	0.0471	0.2166

**(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 :	970.0 /scf	975.3	/scf
	NET WET REAL :	953.0 /scf	958.3	/scf
HHV	GROSS DRY REAL :	1073.8 /scf	1079.7	/scf
	GROSS WET REAL :	1055.0 /scf	1060.9	/scf
	NET HEATING VALUE (60 °F ideal reaction):		19847.2	Btu/lbm
	GROSS HEATING VALUE (60°F ideal reaction):		21971.7	Btu/lbm
	RELATIVE DENSITY (AIR=1):		0.6406	
	DENSITY		0.04892	lb/scf
	COMPRESSIBILITY FACTOR :		0.9975	
	REGULAR WOBBE INDEX		1342.5	

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

Net Dry Ideal BTU	4562.7 /scf	Relative Density - SG (Air=1)	3.1517	***C6+factors***
Gross Dry Ideal BTU	4898 /scf	**Z** Compressiblity Factor	0.99184	0.99125
Net Dry Ideal BTU	19142.6 /lb	Density Factor	240.545 lbm/1000 ft3	
Gross Dry Ideal BTU	20547.6 /lb	Molar Mass or MW	91.28 g/mol	
		Volume Liquid Ideal gas	0.13 scf/gal	25.4

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.