



EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

PRIMARY DB KEY:	05-045-15688	NAME/DESCRIP :	PARACHUTE RANCH #26-34D
LEASE #:	300115073		GARFIELD COUNTY #045
FIELD/AREA:	GRAND VALLEY - #31290		BRAIDEN HEAD
PROJECT NO. :	202312018	ANALYSIS NO. :	02
COMPANY NAME :	CAERUS OIL & GAS LLC	ANALYSIS DATE:	DECEMBER 18, 2023 05:17
OFFICE / BRANCH:	PARACHUTE, CO	SAMPLE DATE :	NOVEMBER 22, 2023 14:00
CUSTOMER REF:		TO:	
PRODUCER :	CAERUS PICEANCE LLC	EFFECTIVE DATE:	

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

SAMPLE CYCLE:		SAMPLE TYPE:	SPOT
SAMPLE PRES. :	314 psig	PROBE :	NO
FLOW PRES. :	psig	CYLINDER NO. :	ECA-807
LAB PRES:	psig	SAMPLED BY :	MIKE KELLEY
SAMPLE TEMP. :	41 °f	SAMPLING COMPANY:	CAERUS OIL & GAS LLC
AMBIENT TEMP.:	°f	H2S BY STAIN TUBE:	- ppm mol
H2O BY STAIN TUBE:	- #/mmcf	CO2 BY STAIN TUBE:	- Mol %
FIELD COMMENTS:			
LAB COMMENTS:			

<u>COMPONENT</u>	<u>MOLE %</u>	<u>MASS %</u>	<u>GPM @ 14.65</u>	<u>GPM @ 14.73</u>
HELIUM	0.01	0.00	---	---
HYDROGEN	0.00	0.00	---	---
OXYGEN/ARGON	0.00	0.00	---	---
NITROGEN	0.30	0.49	---	---
CARBON DIOXIDE	0.05	0.13	---	---
METHANE	94.6142	88.3627	---	---
ETHANE	3.4941	6.1163	0.9312	0.9363
PROPANE	0.8747	2.2454	0.2398	0.2411
I-BUTANE	0.1887	0.6385	0.0619	0.0623
N-BUTANE	0.1779	0.6019	0.0560	0.0563
I-PENTANE	0.0821	0.3446	0.0310	0.0311
N-PENTANE	0.0522	0.2192	0.0190	0.0191
HEXANES PLUS	0.1561	0.8514	0.0610	0.0610
TOTALS	100.0000	100.0000	1.3999	1.4072

<u>BTEX COMPONENTS</u>	<u>MOLE%</u>	<u>WT%</u>
BENZENE	0.0017	0.0077
TOLUENE	0.0003	0.0016
ETHYLBENZENE	0.0001	0.0006
XYLENES	0.0002	0.0012
TOTAL BTEX	0.0023	0.0111

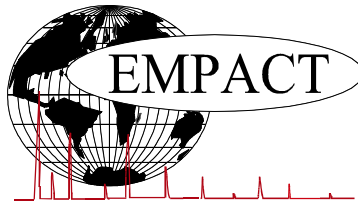
	<u>CALCULATED VALUES**</u>	
<u>BTU @</u>	<u>14.65</u>	<u>14.73</u>
LHV NET DRY REAL :	959.2 /scf	964.4 /scf
NET WET REAL :	942.4 /scf	947.6 /scf
HHV GROSS DRY REAL :	1063.0 /scf	1068.8 /scf
GROSS WET REAL :	1044.4 /scf	1050.2 /scf
NET HEATING VALUE (60 °F ideal reaction):		21223.0 Btu/lbm
GROSS HEATING VALUE (60°F ideal reaction):		23523.7 Btu/lbm
RELATIVE DENSITY (AIR=1):		0.5928
DENSITY		0.04526 lbm/scf
COMPRESSIBILITY FACTOR :		0.9977
REGULAR WOBBE INDEX		1381.8

**(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. :	202312018	ANALYSIS NO. :	02
COMPANY NAME :	CAERUS OIL & GAS LLC	ANALYSIS DATE :	DECEMBER 18, 2023 05:17
ACCOUNT NO. :		SAMPLE DATE :	NOVEMBER 22, 2023 14:00
PRODUCER :	CAERUS PICEANCE LLC	CYLINDER NO. :	ECA-807
LEASE NO. :	300115073	SAMPLED BY :	MIKE KELLEY
NAME/DESCRIP :	PARACHUTE RANCH #26-34D GARFIELD COUNTY #045 BRAIDEN HEAD		

FIELD DATA

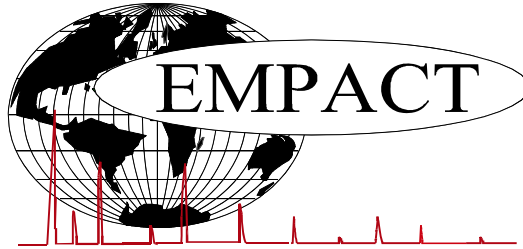
SAMPLE PRES. :	314	SAMPLE TEMP. :	41
H2S BY STAIN TUBE:	—	AMBIENT TEMP.:	
COMMENTS :	<i>SPOT</i> <i>ppm mol</i> <i>NO PROBE</i>		

<u>Componet</u>	<u>Mole %</u>	<u>Wt %</u>
Helium	0.01	0.00
Hydrogen	0.00	0.00
Carbon Dioxide	0.05	0.13
Nitrogen	0.30	0.49
Methane	94.6142	88.3627
Ethane	3.4941	6.1163
Propane	0.8747	2.2454
Isobutane	0.1887	0.6385
n-Butane	0.1779	0.6019
Isopentane	0.0797	0.3348
n-Pentane	0.0522	0.2192
Cyclopentane	0.0024	0.0098
n-Hexane	0.0233	0.1169
Cyclohexane	0.0110	0.0539
Other Hexanes	0.0500	0.2498
Heptanes	0.0345	0.2002
Methylcyclohexane	0.0165	0.0943
2,2,4 Trimethylpentane	0.0001	0.0006
Benzene	0.0017	0.0077
Toluene	0.0003	0.0016
Ethylbenzene	0.0001	0.0006
Xylenes	0.0002	0.0012
C8+ Heavies	0.0184	0.1246
<u>Subtotal</u>	<u>100.00000</u>	<u>100.00000</u>
<u>Oxygen/Argon</u>	<u>0.00</u>	<u>0.00</u>
Total	100.00000	100.00000

	Total	C6+	C8+	C10+
Calculated Values BTU @	Sample	Fraction	Fraction	Fraction
14.65				
LHV Net Dry Real:	959.2	4761.3	5838.1	6752.7 Btu/scf
Net Wet Real:	942.4	4678.1	5736.0	6634.7 Btu/scf
HHV Gross Dry Real:	1063.0	5128.8	6288.1	7204.0 Btu/scf
Gross Wet Real:	1044.4	5039.1	6178.2	7078.1 Btu/scf
Other Calculated Values				
Regualr Wobbe Index*	1381.8	2835.9	3140.5	3306.2 Btu/scf
Net Heating Value (60 °F ideal reaction):	21223.0	19372.4	19770.0	18567.3 Btu/lbm
Gross Heating Value (60°F ideal reaction):	23523.7	20867.1	21297.2	19802.4 Btu/lbm
Molar Mass (MW):	17.17753	93.726	116.186	138.252 g/mol
Relative Density (AIR=1):	0.5928	3.2357	4.0116	4.7735 SG
Density:	0.04526	0.24698	0.30617	0.36431 lbm/scf
Compressibility Factor:	0.9977	0.9915	0.9972	0.9996 Z
Liquid Volume real gas @:	14.65	17.3884	0.0608	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 underscore) indicates there was no tube pulled for H2S.

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EXTENDED NATURAL GAS ANALYSIS (*DHA)

DHA COMPONENT LIST

PRIMARY DB KEY: **05-045-15688** NAME/DESCRIP : **PARACHUTE RANCH #26-34D**
 LEASE #: **300115073** **GARFIELD COUNTY #045**
 FIELD/AREA: **GRAND VALLEY - #31290** **BRAIDEN HEAD**

PROJECT NO. : **202312018** ANALYSIS NO. : **02**
 COMPANY NAME : **CAERUS OIL & GAS LLC** ANALYSIS DATE: **DECEMBER 18, 2023 05:17**
 OFFICE / BRANCH: **PARACHUTE, CO** SAMPLE DATE : **NOVEMBER 22, 2023 14:00**
 CUSTOMER REF: TO:
 PRODUCER : **CAERUS PICEANCE LLC** EFFECTIVE DATE:

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

SAMPLE CYCLE: SAMPLE TYPE: SPOT
 SAMPLE PRES. : 314 psig PROBE : NO
 FLOW PRES. : psig CYLINDER NO. : ECA-807
 LAB PRES: psig SAMPLED BY : MIKE KELLEY
 SAMPLE TEMP. : 41 °f SAMPLING COMPANY: CAERUS OIL & GAS 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
Helium	---	0.01	0.00	---	---
Hydrogen	---	0.00	0.00	---	---
Oxygen/Argon	---	0.00	0.00	---	---
Nitrogen	---	0.30	0.49	---	---
Carbon Dioxide	---	0.05	0.13	---	---
Methane	P1	94.6142	88.3627	---	---
Ethane	P2	3.4941	6.1163	0.931	0.936
Propane	P3	0.8747	2.2454	0.240	0.241
i-Butane	I4	0.1887	0.6385	0.062	0.062
n-Butane	P4	0.1779	0.6019	0.056	0.056
2,2-Dimethylpropane	I5	0.0040	0.0168	0.002	0.002
i-Pentane	I5	0.0757	0.3180	0.028	0.028
n-Pentane	P5	0.0521	0.2188	0.019	0.019
2,2-Dimethylbutane	I6	0.0039	0.0196	0.002	0.002
Cyclopentane	N5	0.0024	0.0098	0.001	0.001
2,3-Dimethylbutane	I6	0.0050	0.0251	0.002	0.002
2-Methylpentane	I6	0.0203	0.1018	0.008	0.008
3-Methylpentane	I6	0.0113	0.0567	0.005	0.005
UnknownC5s	U5	0.0001	0.0004	0.000	0.000
n-Hexane	P6	0.0233	0.1169	0.010	0.010
2,2-Dimethylpentane	I7	0.0009	0.0052	0.000	0.000
Methylcyclopentane	N6	0.0095	0.0466	0.003	0.003
2,4-Dimethylpentane	I7	0.0015	0.0087	0.001	0.001
2,2,3-Trimethylbutane	I7	0.0005	0.0029	0.000	0.000
Benzene	A6	0.0017	0.0077	0.000	0.000
3,3-Dimethylpentane	I7	0.0006	0.0035	0.000	0.000
Cyclohexane	N6	0.0110	0.0539	0.004	0.004
2-Methylhexane	I7	0.0061	0.0356	0.003	0.003
2,3-Dimethylpentane	I7	0.0016	0.0093	0.001	0.001
1,1-Dimethylcyclopentane	N7	0.0011	0.0063	0.000	0.000

3-Methylhexane	I7	0.0053	0.0309	0.002	0.002
1c,3-Dimethylcyclopentane	N7	0.0015	0.0086	0.001	0.001
1t,3-Dimethylcyclopentane	N7	0.0013	0.0074	0.001	0.001
3-Ethylpentane	I7	0.0003	0.0017	0.000	0.000
1t,2-Dimethylcyclopentane	N7	0.0022	0.0126	0.001	0.001
2,2,4-Trimethylpentane	I8	0.0001	0.0006	0.000	0.000
n-Heptane	P7	0.0107	0.0624	0.005	0.005
1c,2-Dimethylcyclopentane	N7	0.0003	0.0017	0.000	0.000
Methylcyclohexane	N7	0.0165	0.0943	0.007	0.007
2,2-Dimethylhexane	I8	0.0006	0.0040	0.000	0.000
1,1,3-Trimethylcyclopentane	N7	0.0001	0.0006	0.000	0.000
Ethylcyclopentane	N7	0.0005	0.0028	0.000	0.000
2,5-Dimethylhexane	I8	0.0006	0.0040	0.000	0.000
2,2,3-Trimethylpentane	I8	0.0006	0.0040	0.000	0.000
2,4-Dimethylhexane	I8	0.0004	0.0027	0.000	0.000
1c,2t,4-Trimethylcyclopentane	N8	0.0002	0.0013	0.000	0.000
Toluene	A7	0.0003	0.0016	0.000	0.000
2,3-Dimethylhexane	I8	0.0004	0.0027	0.000	0.000
2-Methyl-3-ethylpentane	I8	0.0001	0.0006	0.000	0.000
2-Methylheptane	I8	0.0021	0.0140	0.001	0.001
4-Methylheptane	I8	0.0006	0.0040	0.000	0.000
3-Methyl-3-ethylpentane	I8	0.0001	0.0006	0.000	0.000
3-Methylheptane	I8	0.0014	0.0093	0.001	0.001
1c,2t,3-Trimethylcyclopentane	N8	0.0019	0.0124	0.001	0.001
3-Ethylhexane	I8	0.0002	0.0013	0.000	0.000
1t,4-Dimethylcyclohexane	N8	0.0008	0.0052	0.000	0.000
1,1-Dimethylcyclohexane	N8	0.0003	0.0020	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	0.0005	0.0033	0.000	0.000
1t,3-Dimethylcyclohexane	N8	0.0001	0.0006	0.000	0.000
n-Octane	P8	0.0030	0.0200	0.002	0.002
1c,4-Dimethylcyclohexane	N8	0.0004	0.0026	0.000	0.000
i-Propylcyclopentane	I8	0.0001	0.0006	0.000	0.000
2,2-Dimethylheptane	I9	0.0001	0.0008	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0004	0.0029	0.000	0.000
2,2,3-Trimethylhexane	I9	0.0002	0.0015	0.000	0.000
n-Propylcyclopentane	N8	0.0002	0.0013	0.000	0.000
1c,3c,5-Trimethylcyclohexane	N9	0.0001	0.0008	0.000	0.000
2,5-Dimethylheptane	I9	0.0004	0.0030	0.000	0.000
3,3-Dimethylheptane	I9	0.0002	0.0015	0.000	0.000
3,5-Dimethylheptane	I9	0.0001	0.0008	0.000	0.000
2,6-Dimethylheptane	I9	0.0002	0.0015	0.000	0.000
Ethylbenzene	I8	0.0001	0.0006	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0001	0.0006	0.000	0.000
1,4-Dimethylbenzene (p-Xylene)	A8	0.0001	0.0006	0.000	0.000
4-Methyloctane	I9	0.0002	0.0015	0.000	0.000
2-Methyloctane	I9	0.0002	0.0015	0.000	0.000
1c,2t,4c-Trimethylcyclohexane	I9	0.0002	0.0015	0.000	0.000
n-Nonane	P9	0.0004	0.0030	0.000	0.000
n-Propylbenzene	A9	0.0001	0.0007	0.000	0.000
t-Butylbenzene	A10	0.0001	0.0008	0.000	0.000
UnknownC9s	U9	0.0005	0.0037	0.000	0.000
n-Decane	P10	0.0001	0.0008	0.000	0.000
TOTAL		100.00000	100.00000	1.3999	1.4072

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0017	0.0077
TOLUENE	0.0003	0.0016
ETHYLBENZENE	0.0001	0.0006
XYLENES	0.0002	0.0012
TOTAL BTEX	0.0023	0.0111

*(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 :	959.2 /scf	964.4 /scf
NET WET REAL :	942.4 /scf	947.6 /scf
HHV GROSS DRY REAL :	1063.0 /scf	1068.8 /scf
GROSS WET REAL :	1044.4 /scf	1050.2 /scf
NET HEATING VALUE (60 °F ideal reaction):		21223.0 Btu/lbm
GROSS HEATING VALUE (60°F ideal reaction):		23523.7 Btu/lbm
RELATIVE DENSITY (AIR=1):		0.5928
DENSITY		0.04526 lb/scf
COMPRESSIBILITY FACTOR :		0.9977
REGULAR WOBBE INDEX		1381.8

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

Net Dry Ideal BTU	<u>4735.7 /scf</u>	Relative Density - SG (Air=1)	<u>3.2357</u>	C6+ factors
Gross Dry Ideal BTU	<u>5101.2 /scf</u>	Z Compressibility Factor	<u>0.99151</u>	<u>0.99087</u>
Net Dry Ideal BTU	<u>19372.4 /lb</u>	Density Factor	<u>246.979 lbm/1000 ft3</u>	
Gross Dry Ideal BTU	<u>20867.1 /lb</u>	Molar Mass or MW	<u>93.726 g/mol</u>	
		Volume Liquid Ideal gas	<u>0.061 scf/gal</u>	<u>23.5</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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