



**EXTENDED NATURAL GAS ANALYSIS (\*DHA)**

**MAIN PAGE**

PRIMARY DB KEY:	<b>05-103-08907</b>	NAME/DESCRIP :	<b>CORRAL CREEK #4508</b>
LEASE #:			<b>BRAIDEN HEAD</b>
FIELD/AREA:	<b>CORRAL CREEK - #12000</b>		
PROJECT NO. :	<b>202405083</b>	ANALYSIS NO. :	<b>07</b>
COMPANY NAME :	<b>CAERUS OIL &amp; GAS LLC</b>	ANALYSIS DATE:	<b>MAY 17, 2024 06:39</b>
OFFICE / BRANCH:	<b>PARACHUTE, CO</b>	SAMPLE DATE :	<b>MAY 8, 2024</b>
CUSTOMER REF:		TO:	
PRODUCER :	<b>CAERUS PICEANCE LLC</b>	EFFECTIVE DATE:	

**\*\*\*FIELD DATA\*\*\***

SAMPLE CYCLE:		SAMPLE TYPE:	<b>SPOT</b>
SAMPLE PRES. :	200 psig	PROBE :	<b>NO</b>
FLOW PRES. :	psig	CYLINDER NO. :	<b>ECA-818</b>
LAB PRES:	psig	SAMPLED BY :	<b>MIKE KELLEY</b>
SAMPLE TEMP. :	43 °f	SAMPLING COMPANY:	<b>CAERUS OIL &amp; GAS LLC</b>
AMBIENT TEMP.:	°f	H2S BY STAIN TUBE:	<b>- ppm mol</b>
H2O BY STAIN TUBE:	- #/mmcf	CO2 BY STAIN TUBE:	<b>- Mol %</b>
FIELD COMMENTS:			
LAB COMMENTS:			

<u>COMPONENT</u>	<u>MOLE %</u>	<u>MASS %</u>	<u>GPM @ 14.65</u>	<u>GPM @ 14.73</u>
ALCOHOLS	0.0001	0.0003	0.0000	0.0000
HELIUM	0.01	0.00	---	---
HYDROGEN	0.01	0.00	---	---
OXYGEN/ARGON	0.00	0.00	---	---
NITROGEN	0.14	0.14	---	---
CARBON DIOXIDE	17.80	27.92	---	---
METHANE	55.1307	31.5283	---	---
ETHANE	11.2166	12.0225	2.9971	3.0134
PROPANE	9.6208	15.1224	2.6485	2.6630
I-BUTANE	2.8499	5.9045	0.9316	0.9367
N-BUTANE	2.0070	4.1582	0.6321	0.6355
I-PENTANE	0.7519	1.9330	0.2735	0.2749
N-PENTANE	0.4141	1.0650	0.1503	0.1511
HEXANES PLUS	0.0489	0.2058	0.0240	0.0241
<b>TOTALS</b>	<b>100.00000</b>	<b>100.00000</b>	<b>7.6571</b>	<b>7.6987</b>

<u>BTEX COMPONENTS</u>	<u>MOLE%</u>	<u>WT%</u>
BENZENE	0.0004	0.0011
TOLUENE	0.0000	0.0000
ETHYLBENZENE	0.0000	0.0000
XYLENES	0.0000	0.0000
<b>TOTAL BTEX</b>	<b>0.0004</b>	<b>0.0011</b>

	<u>BTU @ 14.65</u>	<u>14.73</u>
<b>LHV NET DRY REAL :</b>	<b>1099.6 /scf</b>	<b>1105.6 /scf</b>
<b>NET WET REAL :</b>	<b>1080.4 /scf</b>	<b>1086.4 /scf</b>
<b>HHV GROSS DRY REAL :</b>	<b>1207.1 /scf</b>	<b>1213.7 /scf</b>
<b>GROSS WET REAL :</b>	<b>1186.0 /scf</b>	<b>1192.6 /scf</b>
<b>NET HEATING VALUE (60 °F ideal reaction):</b>	<b>14853.9 Btu/lbm</b>	<b>14853.9 Btu/lbm</b>
<b>GROSS HEATING VALUE (60°F ideal reaction):</b>	<b>16311.2 Btu/lbm</b>	<b>16311.2 Btu/lbm</b>
<b>RELATIVE DENSITY (AIR=1):</b>	<b>0.9687</b>	<b>0.9687</b>
<b>DENSITY</b>	<b>0.07393 lbm/scf</b>	<b>0.07393 lbm/scf</b>
<b>COMPRESSIBILITY FACTOR :</b>	<b>0.9952</b>	<b>0.9952</b>
<b>REGULAR WOBBE INDEX</b>	<b>1224.4</b>	<b>1224.4</b>

\*(DETAILED HYDROCARBON ANALYSIS/NJ 1993)

Mod ASTM D6730,GPA 2261 & GPA 2286.

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

*The data presented herein has been acquired by means of current analytical techniques and represents the judicious conclusion EMPACT Analytical Systems, Inc. Results of the analysis can be affected by the sampling conditions, therefore, are only warranted through proper lab protocol. EMPACT assumes no responsibility for interpretation or any consequences from application of the reported information and is the sole liability of the user. The reproduction in any media of this reported information may not be made, in portion or as a whole, without the written permission of EMPACT Analytical Systems, Inc.*



**EXTENDED NATURAL GAS ANALYSIS (\*DHA)  
GLYCALC INFORMATION**

PROJECT NO. :	202405083	ANALYSIS NO. :	07
COMPANY NAME :	CAERUS OIL & GAS LLC	ANALYSIS DATE:	MAY 17, 2024 06:39
ACCOUNT NO. :		SAMPLE DATE :	MAY 8, 2024
PRODUCER :	CAERUS PICEANCE LLC	CYLINDER NO. :	ECA-818
LEASE NO. :		SAMPLED BY :	MIKE KELLEY
NAME/DESCRIP :	CORRAL CREEK #4508 BRAIDEN HEAD		

***FIELD DATA***		SAMPLE TEMP. :	43
SAMPLE PRES. :	200	AMBIENT TEMP.:	
H2S BY STAIN TUBE:	—		
COMMENTS :	<i>SPOT</i>		<i>NO PROBE</i>

<u>Componet</u>	<u>Mole %</u>	<u>Wt %</u>
Helium	0.01	0.00
Hydrogen	0.01	0.00
Carbon Dioxide	17.80	27.92
Nitrogen	0.14	0.14
Methane	55.1307	31.5283
Ethane	11.2166	12.0225
Propane	9.6208	15.1224
Isobutane	2.8499	5.9045
n-Butane	2.0070	4.1582
Isopentane	0.7407	1.9050
n-Pentane	0.4141	1.0650
Cyclopentane	0.0112	0.0280
n-Hexane	0.0013	0.0040
Cyclohexane	0.0000	0.0000
Other Hexanes	0.0394	0.1210
Heptanes	0.0000	0.0000
Methylcyclohexane	0.0000	0.0000
2,2,4 Trimethylpentane	0.0000	0.0000
Benzene	0.0004	0.0011
Toluene	0.0000	0.0000
Ethylbenzene	0.0000	0.0000
Xylenes	0.0000	0.0000
C8+ Heavies	0.0078	0.0797
<u>Subtotal</u>	<u>99.99990</u>	<u>99.99970</u>
Oxygen/Argon	0.00	0.00
Alcohols	0.0001	0.0003
<u>Total</u>	<u>100.00000</u>	<u>100.00000</u>

	<u>Total</u>	<u>C6+</u>	<u>C8+</u>	<u>C10+</u>
<b>Calculated Values BTU @ <u>14.65</u></b>	<b>Sample</b>	<b>Fraction</b>	<b>Fraction</b>	<b>Fraction</b>
LHV Net Dry Real:	1099.6	6026.1	14334.2	14334.2 Btu/scf
Net Wet Real:	1080.4	5920.8	14083.6	14083.6 Btu/scf
HHV Gross Dry Real:	1207.1	6495.5	15407.3	15407.3 Btu/scf
Gross Wet Real:	1186.0	6382.0	15138.0	15138.0 Btu/scf
<b>Other Calculated Values</b>				
Regualr Wobbe Index*	1224.4	3191.2	4910.3	4910.3 Btu/scf
Net Heating Value (60 °F ideal reaction):	14853.9	21951.8	26099.5	26099.5 Btu/lbm
Gross Heating Value (60°F ideal reaction):	16311.2	23652.8	28052.5	28052.5 Btu/lbm
Molar Mass (MW):	28.05435	118.118	286.947	286.947 g/mol
Relative Density (AIR=1):	0.9687	4.0784	9.9074	9.9074 SG
Density:	0.07393	0.31127	0.75615	0.75615 lbm/scf
Compressibility Factor:	0.9952	0.9891	1.0000	1.0000 Z
Liquid Volume real gas @: <u>14.65</u>	19.9514	0.0239	0.007	0.007 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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UnknownC19s	U19	0.0008	0.0077	0.001	0.001
n-Eicosane	P20	0.0011	0.0110	0.001	0.001
n-Heneicosane	P21	0.0002	0.0021	0.000	0.000
UnknownC21s	U21	0.0006	0.0063	0.001	0.001
n-Docosane	P22	0.0001	0.0011	0.000	0.000
UnknownC22s	U22	0.0008	0.0088	0.001	0.001
n-Tricosane	P23	0.0001	0.0011	0.000	0.000
UnknownC23s	U23	0.0006	0.0070	0.001	0.001
n-Tetracosane	P24	0.0001	0.0012	0.000	0.000
UnknownC24s	U24	0.0010	0.0121	0.001	0.001
<b>TOTAL</b>		<b>100.0000</b>	<b>100.0000</b>	<b>7.6571</b>	<b>7.6987</b>

**CALCULATED VALUES\*\***

BTEX COMPONENTS	MOLE%	WT%	BTU @	14.65	14.73
BENZENE	0.0004	0.0011	LHV NET DRY REAL :	1099.6 /scf	1105.6 /scf
TOLUENE	0.0000	0.0000	NET WET REAL :	1080.4 /scf	1086.4 /scf
ETHYLBENZENE	0.0000	0.0000	HHV GROSS DRY REAL :	1207.1 /scf	1213.7 /scf
XYLENES	0.0000	0.0000	GROSS WET REAL :	1186.0 /scf	1192.6 /scf
TOTAL BTEX	0.0004	0.0011	NET HEATING VALUE (60 °F ideal reaction):		14853.9 Btu/lbm
			GROSS HEATING VALUE (60°F ideal reaction):		16311.2 Btu/lbm
			RELATIVE DENSITY (AIR=1):		0.9687
			DENSITY		0.07393 lb/scf
			COMPRESSIBILITY FACTOR :		0.9952
			REGULAR WOBBE INDEX		1224.4

\*(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	5978.9 /scf	Relative Density - SG (Air=1)	4.0784	<b>C6+ factors</b>
Gross Dry Ideal BTU	6444.6 /scf	Z Compressibility Factor	0.98906	0.98696
Net Dry Ideal BTU	21951.8 /lb	Density Factor	311.266 lbm/1000 ft3	
Gross Dry Ideal BTU	23652.8 /lb	Molar Mass or MW	118.118 g/mol	
		Volume Liquid Ideal gas	0.024 scf/gal	22

**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.**

The data presented herein has been acquired by means of current analytical techniques and represents the judicious conclusion EMPACT Analytical Systems, Inc. Results of the analysis can be affected by the sampling conditions, therefore, are only warranted through proper lab protocol. EMPACT assumes no responsibility for interpretation or any consequences from application of the reported information and is the sole liability of the user. The reproduction in any media of this reported information may not be made, in portion or as a whole, without the written permission of EMPACT Analytical Systems, Inc.