EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

PRIMARY DB KEY:	**05-103-10122**	NAME/DESCRIP :	**RIO BLANCO #103; PICEANCE CREEK - #68800**
LEASE #:	**05-103-10122**		**PICEANCE CREEK UNIT #T21X-19G**
FIELD/AREA:			**BRAIDEN HEAD SAMPLE**
PROJECT NO. :	**202305047**	ANALYSIS NO. :	**02**
COMPANY NAME :	**CAERUS OIL & GAS LLC**	ANALYSIS DATE:	MAY 10, 2023 07:01
OFFICE / BRANCH:	PARACHUTE, CO	SAMPLE DATE :	APRIL 26, 2023
CUSTOMER REF:		TO:	
PRODUCER :	CAERUS PICEANCE LLC	EFFECTIVE DATE:	

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

SAMPLE CYCLE:			SAMPLE TYPE:	SPOT
SAMPLE PRES. :	800	psig	PROBE :	NO
FLOW PRES. :		psig	CYLINDER NO. :	ECA-729
LAB PRES:		psig	SAMPLED BY :	PAUL HACKING
SAMPLE TEMP. :	50	ºf	SAMPLING COMPANY:	CAERUS OIL & GAS LLC
AMBIENT TEMP.:		ºf	H2S BY STAIN TUBE:	ppm mol
H2O BY STAIN TUBE:		#/mmcf	CO2 BY STAIN TUBE:	Mol %

FIELD COMMENTS:

LAB COMMENTS: ***Possible moisture in sample***

COMPONENT	MOLE %	MASS %	GPM @ 14.65	GPM @ 14.73
GLYCOLS	0.0032	0.0196	0.0020	0.0020
ALCOHOLS	0.0015	0.0028	0.0000	0.0000
HELIUM	0.01	0.00	---	---
HYDROGEN	0.01	0.00	---	---
OXYGEN/ARGON	0.02	0.04	---	---
NITROGEN	1.74	2.80	---	---
CARBON DIOXIDE	0.76	1.92	---	---
METHANE	94.7548	87.4032	---	---
ETHANE	1.8178	3.1428	0.4845	0.4871
PROPANE	0.1851	0.4693	0.0509	0.0512
I-BUTANE	0.0252	0.0842	0.0080	0.0080
N-BUTANE	0.0241	0.0806	0.0080	0.0080
I-PENTANE	0.0122	0.0506	0.0040	0.0040
N-PENTANE	0.0070	0.0290	0.0030	0.0030
HEXANES PLUS	0.6291	3.9579	0.2780	0.2786
TOTALS	100.00000	100.00000	0.8384	0.8419

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0104	0.0467
TOLUENE	0.0437	0.2315
ETHYLBENZENE	0.0058	0.0354
XYLENES	0.0554	0.3381
TOTAL BTEX	0.1153	0.6517

**(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 :	929.9 /scf	935.0 /scf
	NET WET REAL :	913.6 /scf	918.7 /scf
HHV	GROSS DRY REAL :	1030.7 /scf	1036.3 /scf
	GROSS WET REAL :	1012.7 /scf	1018.3 /scf

NET HEATING VALUE (60 °F ideal reaction):	20345.5 **Btu/lbm**
GROSS HEATING VALUE (60°F ideal reaction):	22553.8 **Btu/lbm**
RELATIVE DENSITY (AIR=1):	0.5990
DENSITY	0.04583 **lbm/scf**
COMPRESSIBILITY FACTOR :	0.9979
REGULAR WOBBE INDEX	1333.2

EMPACT

EXTENDED NATURAL GAS ANALYSIS (*DHA)

GLYCALC INFORMATION

PROJECT NO. :	202305047	ANALYSIS NO. :	02
COMPANY NAME :	CAERUS OIL & GAS LLC	ANALYSIS DATE:	MAY 10, 2023 07:01
ACCOUNT NO. :		SAMPLE DATE :	APRIL 26, 2023
PRODUCER :	CAERUS PICEANCE LLC	CYLINDER NO. :	ECA-729
LEASE NO. :	05-103-10122	SAMPLED BY :	PAUL HACKING
NAME/DESCRIP :	RIO BLANCO #103; PICEANCE CREEK - #68800 PICEANCE CREEK UNIT #T21X-19G BRAIDEN HEAD SAMPLE		
FIELD DATA		SAMPLE TEMP. :	50
SAMPLE PRES. :	800	AMBIENT TEMP.:	
H2S BY STAIN TUBE:	_ *ppm mol*		
COMMENTS :	***SPOT*** ***NO PROBE*** ***Possible moisture in sample***		

Componet	Mole %	Wt %
Helium	0.01	0.00
Hydrogen	0.01	0.00
Carbon Dioxide	0.76	1.92
Nitrogen	1.74	2.80
Methane	94.7548	87.4032
Ethane	1.8178	3.1428
Propane	0.1851	0.4693
Isobutane	0.0252	0.0842
n-Butane	0.0241	0.0806
Isopentane	0.0115	0.0478
n-Pentane	0.0070	0.0290
Cyclopentane	0.0007	0.0028
n-Hexane	0.0146	0.0723
Cyclohexane	0.0147	0.0711
Other Hexanes	0.0265	0.1303
Heptanes	0.0902	0.5178
Methylcyclohexane	0.0695	0.3924
2,2,4 Trimethylpentane	0.0001	0.0006
Benzene	0.0104	0.0467
Toluene	0.0437	0.2315
Ethylbenzene	0.0058	0.0354
Xylenes	0.0554	0.3381
C8+ Heavies	0.2982	2.1217
Subtotal	99.97530	99.93760
Oxygen/Argon	0.02	0.04
Glycols	0.0032	0.0196
Alcohols	0.0015	0.0028
Total	100.00000	100.00000

Calculated Values BTU @ **14.65**		**Total Sample**	**C6+ Fraction**	**C8+ Fraction**	**C10+ Fraction**	
LHV	Net Dry Real:	929.9	5429.8	5984.6	7267.5	**Btu/scf**
	Net Wet Real:	913.6	5334.9	5880.0	7140.5	**Btu/scf**
HHV	Gross Dry Real:	1030.7	5822.8	6424.1	7843.6	**Btu/scf**
	Gross Wet Real:	1012.7	5721.0	6311.8	7706.5	**Btu/scf**
Other Calculated Values						
Regualr Wobbe Index*		1333.2	2996.1	3151.2	3514.2	**Btu/scf**
Net Heating Value (60 °F ideal reaction):		20345.5	19109.7	19192.7	19077.8	**Btu/lbm**
Gross Heating Value (60°F ideal reaction):		22553.8	20495.2	20601.9	20587.5	**Btu/lbm**
Molar Mass (MW):		17.3927	109.406	120.716	145.086	**g/mol**
Relative Density (AIR=1):		0.5990	3.7772	4.1687	5.0093	**SG**
Density:		0.04583	0.28830	0.31812	0.38232	**lbm/scf**
Compressiblity Factor:		0.9979	0.9969	0.9984	0.9996	**Z**
Liquid Volume real gas @:	**14.65**	17.1322	0.2771	0.1705	0.0279	**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.

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EXTENDED NATURAL GAS ANALYSIS (*DHA)

DHA COMPONENT LIST

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AMBIENT TEMP.:	ºf	H2S BY STAIN TUBE:	ppm mol
H2O BY STAIN TUBE:	#/mmcf	CO2 BY STAIN TUBE:	Mol %
FIELD COMMENTS:			
LAB COMMENTS:	***Possible moisture in sample***		

COMPONENT	PIANO #	MOLE %	MASS %	GPM @ **14.65**	GPM @ **14.73**
Helium	---	0.01	0.00	---	---
Hydrogen	---	0.01	0.00	---	---
Oxygen/Argon	---	0.02	0.04	---	---
Nitrogen	---	1.74	2.80	---	---
Carbon Dioxide	---	0.76	1.92	---	---
Methane	P1	94.7548	87.4032	---	---
Ethane	P2	1.8178	3.1428	0.485	0.487
Propane	P3	0.1851	0.4693	0.051	0.051
i-Butane	I4	0.0252	0.0842	0.008	0.008
Methanol	X1	0.0015	0.0028	0.000	0.000
n-Butane	P4	0.0241	0.0806	0.008	0.008
2,2-Dimethylpropane	I5	0.0004	0.0017	0.000	0.000
i-Pentane	I5	0.0111	0.0461	0.004	0.004
n-Pentane	P5	0.0070	0.0290	0.003	0.003
2,2-Dimethylbutane	I6	0.0009	0.0045	0.000	0.000
Cyclopentane	N5	0.0007	0.0028	0.000	0.000
2,3-Dimethylbutane	I6	0.0018	0.0089	0.001	0.001
2-Methylpentane	I6	0.0082	0.0407	0.003	0.003
3-Methylpentane	I6	0.0056	0.0278	0.002	0.002
n-Hexane	P6	0.0146	0.0723	0.006	0.006
2,2-Dimethylpentane	I7	0.0003	0.0017	0.000	0.000
Methylcyclopentane	N6	0.0100	0.0484	0.004	0.004
2,4-Dimethylpentane	I7	0.0019	0.0109	0.001	0.001
2,2,3-Trimethylbutane	I7	0.0005	0.0029	0.000	0.000
Benzene	A6	0.0104	0.0467	0.003	0.003
3,3-Dimethylpentane	I7	0.0010	0.0058	0.000	0.000
Cyclohexane	N6	0.0147	0.0711	0.005	0.005
2-Methylhexane	I7	0.0134	0.0772	0.006	0.006
2,3-Dimethylpentane	I7	0.0036	0.0208	0.002	0.002
1,1-Dimethylcyclopentane	N7	0.0025	0.0141	0.001	0.001

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3-Methylhexane	I7	0.0132	0.0761	0.006	0.006
1c,3-Dimethylcyclopentane	N7	0.0038	0.0215	0.002	0.002
1t,3-Dimethylcyclopentane	N7	0.0036	0.0203	0.002	0.002
3-Ethylpentane	I7	0.0006	0.0035	0.000	0.000
1t,2-Dimethylcyclopentane	N7	0.0061	0.0344	0.003	0.003
2,2,4-Trimethylpentane	I8	0.0001	0.0006	0.000	0.000
n-Heptane	P7	0.0356	0.2051	0.016	0.016
1c,2-Dimethylcyclopentane	N7	0.0010	0.0056	0.000	0.000
Methylcyclohexane	N7	0.0695	0.3924	0.028	0.028
2,2-Dimethylhexane	I8	0.0024	0.0158	0.001	0.001
1,1,3-Trimethylcyclopentane	N7	0.0005	0.0032	0.000	0.000
Ethylcyclopentane	N7	0.0026	0.0147	0.001	0.001
2,5-Dimethylhexane	I8	0.0030	0.0197	0.002	0.002
2,2,3-Trimethylpentane	I8	0.0030	0.0197	0.002	0.002
1c,2t,4-Trimethylcyclopentane	N8	0.0017	0.0110	0.001	0.001
3,3-Dimethylhexane	I8	0.0010	0.0066	0.000	0.000
2,3,3-Trimethylpentane	I8	0.0001	0.0006	0.000	0.000
Toluene	A7	0.0437	0.2315	0.015	0.015
2,3-Dimethylhexane	I8	0.0023	0.0151	0.001	0.001
2-Methyl-3-ethylpentane	I8	0.0005	0.0033	0.000	0.000
1,1,2-Trimethylcyclopentane	N8	0.0002	0.0013	0.000	0.000
2-Methylheptane	I8	0.0151	0.0992	0.008	0.008
4-Methylheptane	I8	0.0047	0.0309	0.002	0.002
3-Methyl-3-ethylpentane	I8	0.0006	0.0040	0.000	0.000
3,4-Dimethylhexane	I8	0.0005	0.0033	0.000	0.000
1c,3-Dimethylcyclohexane	N8	0.0002	0.0013	0.000	0.000
3-Methylheptane	I8	0.0109	0.0716	0.006	0.006
1c,2t,3-Trimethylcyclopentane	N8	0.0183	0.1180	0.009	0.009
3-Ethylhexane	I8	0.0015	0.0098	0.001	0.001
1t,4-Dimethylcyclohexane	N8	0.0079	0.0509	0.004	0.004
1,1-Dimethylcyclohexane	N8	0.0027	0.0174	0.001	0.001
2,2,5-Trimethylhexane	I9	0.0004	0.0029	0.000	0.000
3c-Ethylmethylcyclopentane	N8	0.0007	0.0045	0.000	0.000
3t-Ethylmethylcyclopentane	N8	0.0006	0.0039	0.000	0.000
2t-Ethylmethylcyclopentane	N8	0.0002	0.0013	0.000	0.000
1,1-Methylethylcyclopentane	N8	0.0007	0.0045	0.000	0.000
2,2,4-Trimethylhexane	I9	0.0002	0.0015	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0061	0.0393	0.003	0.003
1t,3-Dimethylcyclohexane	N8	0.0001	0.0006	0.000	0.000
n-Octane	P8	0.0401	0.2634	0.020	0.020
1c,4-Dimethylcyclohexane	N8	0.0070	0.0451	0.004	0.004
i-Propylcyclopentane	I8	0.0003	0.0020	0.000	0.000
2,3,5-Trimethylhexane	I9	0.0008	0.0059	0.000	0.000
2,2,3,4-Tetramethylpentane	I9	0.0001	0.0008	0.000	0.000
2,3,4-Trimethylhexane	I9	0.0003	0.0022	0.000	0.000
1c,2-Dimethylcyclohexane	N8	0.0002	0.0013	0.000	0.000
2,2-Dimethylheptane	I9	0.0023	0.0170	0.001	0.001
1,1,4-Trimethylcyclohexane	N9	0.0077	0.0559	0.004	0.004
2,2,3-Trimethylhexane	I9	0.0009	0.0066	0.000	0.000
2,4-Dimethylheptane	I9	0.0006	0.0044	0.000	0.000
Ethylcyclohexane	N8	0.0066	0.0426	0.003	0.003
n-Propylcyclopentane	N8	0.0023	0.0148	0.001	0.001
2,5-Dimethylheptane	I9	0.0065	0.0480	0.004	0.004
3,3-Dimethylheptane	I9	0.0009	0.0066	0.000	0.000
3,5-Dimethylheptane	I9	0.0002	0.0015	0.000	0.000
2,6-Dimethylheptane	I9	0.0002	0.0015	0.000	0.000
1,1,3-Trimethylcyclohexane	N9	0.0003	0.0022	0.000	0.000
Ethylbenzene	I8	0.0058	0.0354	0.002	0.002
1c,2t,4t-Trimethylcyclohexane	N9	0.0002	0.0014	0.000	0.000
2,3-Dimethylheptane	I9	0.0003	0.0022	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0364	0.2222	0.014	0.014
1,4-Dimethylbenzene (p-Xylene)	A8	0.0126	0.0769	0.005	0.005
3,4-Dimethylheptane	I9	0.0003	0.0022	0.000	0.000

3,4-Dimethylheptane (2)	I9	0.0007	0.0052	0.000	0.000
4-Ethylheptane	I9	0.0006	0.0044	0.000	0.000
4-Methyloctane	I9	0.0046	0.0339	0.003	0.003
2-Methyloctane	I9	0.0070	0.0516	0.004	0.004
1c,2t,3-Trimethylcyclohexane	N9	0.0003	0.0022	0.000	0.000
3-Ethylheptane	I9	0.0003	0.0022	0.000	0.000
3-Methyloctane	I9	0.0010	0.0074	0.001	0.001
1c,2t,4c-Trimethylcyclohexane	I9	0.0066	0.0479	0.004	0.004
1,1,2-Trimethylcyclohexane	N9	0.0002	0.0014	0.000	0.000
3,3-Diethylpentane	I9	0.0005	0.0037	0.000	0.000
1,2-Dimethylbenzene (o-Xylene)	A8	0.0064	0.0390	0.002	0.002
i-Butylcyclopentane	N9	0.0038	0.0276	0.002	0.002
UnknownC8s	U8	0.0001	0.0006	0.000	0.000
n-Nonane	P9	0.0290	0.2138	0.016	0.016
1,1-Methylethylcyclohexane	N9	0.0018	0.0131	0.001	0.001
i-Propylbenzene	A9	0.0011	0.0076	0.000	0.000
i-Propylcyclohexane	N9	0.0006	0.0044	0.000	0.000
2,2-Dimethyloctane	I10	0.0003	0.0025	0.000	0.000
2,4-Dimethyloctane	I10	0.0002	0.0016	0.000	0.000
2,6-Dimethyloctane	I10	0.0009	0.0074	0.001	0.001
2,5-Dimethyloctane	I10	0.0002	0.0016	0.000	0.000
n-Butylcyclopentane	N9	0.0024	0.0174	0.001	0.001
3,3-Dimethyloctane	I10	0.0016	0.0131	0.001	0.001
n-Propylbenzene	A9	0.0034	0.0235	0.001	0.001
Diethylene glycol	GL4	0.0032	0.0196	0.002	0.002
3,6-Dimethyloctane	I10	0.0012	0.0098	0.001	0.001
3-Methyl-5-ethylheptane	I10	0.0004	0.0033	0.000	0.000
1,3-Methylethylbenzene	A9	0.0036	0.0249	0.002	0.002
1,4-Methylethylbenzene	A9	0.0013	0.0090	0.001	0.001
1,3,5-Trimethylbenzene	A9	0.0060	0.0415	0.003	0.003
2,3-Dimethyloctane	I10	0.0007	0.0058	0.000	0.000
5-Methylnonane	I10	0.0020	0.0164	0.001	0.001
2-Methylnonane	I10	0.0028	0.0229	0.002	0.002
3-Ethyloctane	I10	0.0004	0.0033	0.000	0.000
3-Methylnonane	I10	0.0019	0.0155	0.001	0.001
t-Butylbenzene	A10	0.0049	0.0378	0.002	0.002
i-Butylcyclohexane	N10	0.0007	0.0056	0.000	0.000
1t-Methyl-2-n-propylcyclohexane	I10	0.0002	0.0016	0.000	0.000
i-Butylbenzene	A10	0.0002	0.0016	0.000	0.000
sec-Butylbenzene	A10	0.0001	0.0008	0.000	0.000
UnknownC9s	U9	0.0045	0.0332	0.003	0.003
n-Decane	P10	0.0107	0.0875	0.007	0.007
1,2,3-Trimethylbenzene	A9	0.0005	0.0035	0.000	0.000
1,3-Methyl-i-propylbenzene	A10	0.0002	0.0016	0.000	0.000
1,4-Methyl-i-propylbenzene	A10	0.0015	0.0116	0.001	0.001
Sec-Butylcyclohexane	A10	0.0001	0.0008	0.000	0.000
1,2-Methyl-i-propylbenzene	A10	0.0007	0.0054	0.000	0.000
3-Ethylnonane	I10	0.0002	0.0018	0.000	0.000
1,3-Diethylbenzene	A10	0.0001	0.0008	0.000	0.000
1,3-Methyl-n-propylbenzene	A10	0.0004	0.0031	0.000	0.000
1,4-Diethylbenzene	A10	0.0007	0.0054	0.000	0.000
1,4-Methyl-n-propylbenzene	A10	0.0002	0.0016	0.000	0.000
n-Butylbenzene	A10	0.0006	0.0047	0.000	0.000
1,3-Dimethyl-5-ethylbenzene	A10	0.0001	0.0008	0.000	0.000
1,2-Diethylbenzene	A10	0.0001	0.0008	0.000	0.000
t-Decahydronaphthalene	A9	0.0001	0.0009	0.000	0.000
1,2-Methyl-n-propylbenzene	A10	0.0004	0.0031	0.000	0.000
1,3-Dimethyl-4-ethylbenzene	A10	0.0008	0.0062	0.001	0.001
1,2-Dimethyl-4-ethylbenzene	A10	0.0003	0.0023	0.000	0.000
1,3-Dimethyl-2-ethylbenzene	A10	0.0001	0.0008	0.000	0.000
1,2-Ethyl-i-propylbenzene	A10	0.0003	0.0025	0.000	0.000
1,4-Methyl-t-butylbenzene	A11	0.0002	0.0017	0.000	0.000
UnknownC10s	U10	0.0058	0.0474	0.004	0.004
n-Undecane	P11	0.0033	0.0297	0.002	0.002

1,4-Ethyl-i-propylbenzene	A11	0.0001	0.0009	0.000	0.000
1,2,4,5-Tetramethylbenzene	A11	0.0001	0.0008	0.000	0.000
1,2-Methyl-n-butylbenzene	A11	0.0001	0.0009	0.000	0.000
1,2,3,5-Tetramethylbenzene	A11	0.0001	0.0008	0.000	0.000
1,2-Ethyl-n-propylbenzene	A11	0.0001	0.0009	0.000	0.000
2-Methylindan	A11	0.0002	0.0015	0.000	0.000
1,3-Di-i-propylbenzene	A11	0.0001	0.0009	0.000	0.000
1,2-Di-n-propylbenzene	A11	0.0001	0.0009	0.000	0.000
1,4-Di-i-propylbenzene	A11	0.0001	0.0009	0.000	0.000
Naphthalene	A10	0.0001	0.0008	0.000	0.000
1,3-Di-n-propylbenzene	A12	0.0001	0.0009	0.000	0.000
UnknownC11s	U11	0.0032	0.0288	0.002	0.002
n-Dodecane	P12	0.0010	0.0098	0.001	0.001
1,3,5-Triethylbenzene	A12	0.0002	0.0018	0.000	0.000
1,2,3,4,5-Pentamethylbenzene	A13	0.0001	0.0009	0.000	0.000
2-Methylnaphthalene	A11	0.0001	0.0008	0.000	0.000
1-Methylnaphthalene	A11	0.0001	0.0008	0.000	0.000
UnknownC12s	U12	0.0015	0.0135	0.001	0.001
n-Tridecane	P13	0.0003	0.0032	0.000	0.000
UnknownC13s	U13	0.0005	0.0053	0.000	0.000
n-Tetradecane	P14	0.0002	0.0023	0.000	0.000
UnknownC14s	U14	0.0001	0.0012	0.000	0.000
n-Pentadecane	P15	0.0001	0.0012	0.000	0.000
UnknownC15s	U15	0.0001	0.0012	0.000	0.000
n-Hexadecane	P16	0.0001	0.0013	0.000	0.000
UnknownC16s	U16	0.0001	0.0013	0.000	0.000
n-Heptadecane	P17	0.0001	0.0014	0.000	0.000
TOTAL		100.00000	100.00000	0.8384	0.8419

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0104	0.0467
TOLUENE	0.0437	0.2315
ETHYLBENZENE	0.0058	0.0354
XYLENES	0.0554	0.3381
TOTAL BTEX	0.1153	0.6517

**(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 :	929.9 /scf	935.0 /scf
	NET WET REAL :	913.6 /scf	918.7 /scf
HHV	GROSS DRY REAL :	1030.7 /scf	1036.3 /scf
	GROSS WET REAL :	1012.7 /scf	1018.3 /scf
	NET HEATING VALUE (60 °F ideal reaction):		20345.5 Btu/lbm
	GROSS HEATING VALUE (60°F ideal reaction):		22553.8 Btu/lbm
	RELATIVE DENSITY (AIR=1):		0.5990
	DENSITY		0.04583 lb/scf
	COMPRESSIBILITY FACTOR :		0.9979
	REGULAR WOBBE INDEX		1333.2

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

Net Dry Ideal BTU	5429.9 /scf	Relative Density - SG (Air=1)	3.7772		***C6+factors***
Gross Dry Ideal BTU	5822.9 /scf	**Z** Compressiblity Factor	0.99688		0.99639
Net Dry Ideal BTU	19109.7 /lb	Density Factor	288.302	lbm/1000 ft3	
Gross Dry Ideal BTU	20495.2 /lb	Molar Mass or MW	109.406	g/mol	
		Volume Liquid Ideal gas	0.278	scf/gal	21.3

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.

ISOTOPIC NATURAL GAS ANALYSIS

PRIMARY DB KEY:	**05-103-10122**	NAME/DESCRIP :	**RIO BLANCO #103; PICEANCE CREEK - #68800**
LEASE #:	**05-103-10122**		**PICEANCE CREEK UNIT #T21X-19G**
FIELD/AREA:			**BRAIDEN HEAD SAMPLE**
PROJECT NO. :	**202305047**	ANALYSIS NO. :	**02**
COMPANY NAME :	**CAERUS OIL & GAS LLC**	ANALYSIS DATE:	MAY 24, 2023 00:00
OFFICE / BRANCH:	PARACHUTE, CO	SAMPLE DATE :	APRIL 26, 2023
CUSTOMER REF:		TO:	
PRODUCER :	CAERUS PICEANCE LLC	EFFECTIVE DATE:	
FIELD DATA			
SAMPLE CYCLE:		SAMPLE TYPE:	SPOT
SAMPLE PRES. :	800 psig	PROBE :	NO
FLOW PRES. :	psig	CYLINDER NO. :	ECA-729
LAB PRES:	psig	SAMPLED BY :	PAUL HACKING
SAMPLE TEMP. :	50 °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:	***Possible moisture in sample***		

COMPONENTS	NORM. MOLE%	GPM @ 14.65	d13C ‰ VPDB	dD ‰ VSMOW
HELIUM	0.01	-	-	-
HYDROGEN	0.01	-	-	-
OXYGEN/ARGON	0.02	-	-	-
NITROGEN	1.74	-	-	-
CO2	0.76	-	-9.7	-
METHANE	94.75	-	-36.7	-175
ETHANE	1.82	0.4845	-25.6	-
PROPANE	0.19	0.0489	-24.5	-
ISOBUTANE	0.03	0.0100	-24.2	-
N-BUTANE	0.02	0.0060	-25.7	-
ISOPENTANE	0.01	0.0040	0.0	-
N-PENTANE	0.01	0.0040	0.0	-
HEXANES+	0.63	0.3846	-	-
TOTAL	100.00	0.9420		

BTU @ 60 DEG F	**14.65**	
GROSS DRY REAL =	1038.3	**/scf**
GROSS SATURATED REAL =	1020.1	**/scf**

RELATIVE DENSITY (AIR=1 @14.696 PSIA 60F)	0.6035
GRAVITY (LB/SCF)	0.04608
COMPRESSIBILITY FACTOR :	0.99790

NOTE: REFERENCE GPA 2261(ASTM D1945 & ASME-PTC), 2145, & 2172 CURRENT PUBLICATIONS

Reference: Per GPA 2172-14 sec 9 ***The C6+ is derived from the following ratios of C6, C7 & C8+ respectively:*** **60% 30% 10%**

The NG Composition File #: **202305047-02-A-780**
The Isotopic Data File #: **DIG-032014**

Note:Stable isotope results based on multi-point laboratory calibration
Presicion $\delta^{13}C$ < 0.5 ‰ **Precision δD < 5.0 ‰**
Values in red represent low peak heights. Interpret with caution.