EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

PRIMARY DB KEY:	**05-045-19136**	NAME/DESCRIP :	**SGV FEDERAL #6-44D (8D)**
LEASE #:	**300115252, COC-23443**		**BRAIDEN HEAD**
FIELD/AREA:	**PARACHUTE - #67350**		

PROJECT NO. :	**202405084**	ANALYSIS NO. :	**04**
COMPANY NAME :	**CAERUS OIL & GAS LLC**	ANALYSIS DATE:	MAY 21, 2024 06:38
OFFICE / BRANCH:	PARACHUTE, CO	SAMPLE DATE :	MAY 9, 2024 9:00
CUSTOMER REF:		TO:	
PRODUCER :	CAERUS PICEANCE LLC	EFFECTIVE DATE:	

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

SAMPLE CYCLE:			SAMPLE TYPE:	SPOT
SAMPLE PRES. :	39	psig	PROBE :	NO
FLOW PRES. :		psig	CYLINDER NO. :	ECA-796
LAB PRES:		psig	SAMPLED BY :	ALEX GALLEGOS
SAMPLE TEMP. :	51	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:

COMPONENT	MOLE %	MASS %	GPM @ 14.65	GPM @ 14.73
ALCOHOLS	0.0007	0.0013	0.0000	0.0000
HELIUM	0.02	0.00	---	---
HYDROGEN	0.05	0.01	---	---
OXYGEN/ARGON	0.01	0.02	---	---
NITROGEN	0.59	0.95	---	---
CARBON DIOXIDE	0.03	0.08	---	---
METHANE	93.2076	86.3684	---	---
ETHANE	4.4003	7.6425	1.1731	1.1795
PROPANE	1.1687	2.9767	0.3207	0.3225
I-BUTANE	0.1943	0.6523	0.0629	0.0633
N-BUTANE	0.1744	0.5855	0.0550	0.0553
I-PENTANE	0.0629	0.2620	0.0230	0.0231
N-PENTANE	0.0371	0.1546	0.0130	0.0131
HEXANES PLUS	0.0540	0.2967	0.0180	0.0180
TOTALS	100.00000	100.00000	1.6657	1.6748

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0001	0.0005
TOLUENE	0.0003	0.0016
ETHYLBENZENE	0.0000	0.0000
XYLENES	0.0001	0.0006
TOTAL BTEX	0.0005	0.0027

**(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 :	961.8	/scf	967.1	/scf
	NET WET REAL :	945.0	/scf	950.3	/scf
HHV	GROSS DRY REAL :	1066.1	/scf	1072.0	/scf
	GROSS WET REAL :	1047.5	/scf	1053.4	/scf
	NET HEATING VALUE (60 °F ideal reaction):			21119.6	Btu/lbm
	GROSS HEATING VALUE (60°F ideal reaction):			23405.1	Btu/lbm
	RELATIVE DENSITY (AIR=1):			0.5975	
	DENSITY			0.04562	lbm/scf
	COMPRESSIBILITY FACTOR :			0.9977	
	REGULAR WOBBE INDEX			1380.4	

EMPACT

EXTENDED NATURAL GAS ANALYSIS (*DHA)

GLYCALC INFORMATION

PROJECT NO. :	202405084	ANALYSIS NO. :	04
COMPANY NAME :	CAERUS OIL & GAS LLC	ANALYSIS DATE:	MAY 21, 2024 06:38
ACCOUNT NO. :		SAMPLE DATE :	MAY 9, 2024 9:00
PRODUCER :	CAERUS PICEANCE LLC	CYLINDER NO. :	ECA-796
LEASE NO. :	300115252, COC-23443	SAMPLED BY :	ALEX GALLEGOS
NAME/DESCRIP :	SGV FEDERAL #6-44D (8D) BRAIDEN HEAD		
FIELD DATA		SAMPLE TEMP. :	51
SAMPLE PRES. :	39	AMBIENT TEMP.:	
H2S BY STAIN TUBE:	_ *ppm mol*		
COMMENTS :	*SPOT* *NO PROBE*		

Componet	Mole %	Wt %
Helium	0.02	0.00
Hydrogen	0.05	0.01
Carbon Dioxide	0.03	0.08
Nitrogen	0.59	0.95
Methane	93.2076	86.3684
Ethane	4.4003	7.6425
Propane	1.1687	2.9767
Isobutane	0.1943	0.6523
n-Butane	0.1744	0.5855
Isopentane	0.0624	0.2600
n-Pentane	0.0371	0.1546
Cyclopentane	0.0005	0.0020
n-Hexane	0.0098	0.0488
Cyclohexane	0.0010	0.0048
Other Hexanes	0.0249	0.1236
Heptanes	0.0092	0.0530
Methylcyclohexane	0.0015	0.0085
2,2,4 Trimethylpentane	0.0000	0.0000
Benzene	0.0001	0.0005
Toluene	0.0003	0.0016
Ethylbenzene	0.0000	0.0000
Xylenes	0.0001	0.0006
C8+ Heavies	0.0071	0.0553
Subtotal	99.98930	99.97870
Oxygen/Argon	0.01	0.02
Alcohols	0.0007	0.0013
Total	100.00000	100.00000

Calculated Values BTU @ **14.65**		**Total Sample**	**C6+ Fraction**	**C8+ Fraction**	**C10+ Fraction**	
LHV	Net Dry Real:	961.8	4869.3	6824.4	7808.7	**Btu/scf**
	Net Wet Real:	945.0	4784.2	6705.1	7672.2	**Btu/scf**
HHV	Gross Dry Real:	1066.1	5253.9	7366.1	8453.1	**Btu/scf**
	Gross Wet Real:	1047.5	5162.1	7237.3	8305.3	**Btu/scf**
Other Calculated Values						
Regualr Wobbe Index*		1380.4	2875.6	3403.0	3671.3	**Btu/scf**
Net Heating Value (60 °F ideal reaction):		21119.6	19324.9	19152.8	19063.2	**Btu/lbm**
Gross Heating Value (60°F ideal reaction):		23405.1	20847.5	20670.1	20629.9	**Btu/lbm**
Molar Mass (MW):		17.31295	95.422	136.285	154.458	**g/mol**
Relative Density (AIR=1):		0.5975	3.2948	4.7056	5.3329	**SG**
Density:		0.04562	0.25142	0.35914	0.40702	**lbm/scf**
Compressiblity Factor:		0.9977	0.9904	0.9990	0.9998	**Z**
Liquid Volume real gas @:	**14.65**	17.4502	0.0179	0	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:	**05-045-19136**	NAME/DESCRIP :	**SGV FEDERAL #6-44D (8D)**
LEASE #:	**300115252, COC-23443**		**BRAIDEN HEAD**
FIELD/AREA:	**PARACHUTE - #67350**		
PROJECT NO. :	**202405084**	ANALYSIS NO. :	**04**
COMPANY NAME :	**CAERUS OIL & GAS LLC**	ANALYSIS DATE:	MAY 21, 2024 06:38
OFFICE / BRANCH:	PARACHUTE, CO	SAMPLE DATE :	MAY 9, 2024 9:00
CUSTOMER REF:		TO:	
PRODUCER :	CAERUS PICEANCE LLC	EFFECTIVE DATE:	
FIELD DATA			
SAMPLE CYCLE:		SAMPLE TYPE:	SPOT
SAMPLE PRES. :	39 psig	PROBE :	NO
FLOW PRES. :	psig	CYLINDER NO. :	ECA-796
LAB PRES:	psig	SAMPLED BY :	ALEX GALLEGOS
SAMPLE TEMP. :	51 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:			

COMPONENT	PIANO #	MOLE %	MASS %	GPM @ **14.65**	GPM @ **14.73**
Helium	---	0.02	0.00	---	---
Hydrogen	---	0.05	0.01	---	---
Oxygen/Argon	---	0.01	0.02	---	---
Nitrogen	---	0.59	0.95	---	---
Carbon Dioxide	---	0.03	0.08	---	---
Methane	P1	93.2076	86.3684	---	---
Ethane	P2	4.4003	7.6425	1.173	1.180
Propane	P3	1.1687	2.9767	0.321	0.323
i-Butane	I4	0.1943	0.6523	0.063	0.063
Methanol	X1	0.0007	0.0013	0.000	0.000
n-Butane	P4	0.1742	0.5848	0.055	0.055
2,2-Dimethylpropane	I5	0.0023	0.0096	0.001	0.001
i-Pentane	I5	0.0601	0.2504	0.022	0.022
UnknownC4s	U4	0.0002	0.0007	0.000	0.000
n-Pentane	P5	0.0371	0.1546	0.013	0.013
2,2-Dimethylbutane	I6	0.0018	0.0089	0.001	0.001
Cyclopentane	N5	0.0005	0.0020	0.000	0.000
2,3-Dimethylbutane	I6	0.0027	0.0135	0.001	0.001
2-Methylpentane	I6	0.0119	0.0593	0.005	0.005
3-Methylpentane	I6	0.0059	0.0293	0.002	0.002
n-Hexane	P6	0.0098	0.0488	0.004	0.004
2,2-Dimethylpentane	I7	0.0004	0.0023	0.000	0.000
Methylcyclopentane	N6	0.0026	0.0126	0.001	0.001
2,4-Dimethylpentane	I7	0.0007	0.0040	0.000	0.000
2,2,3-Trimethylbutane	I7	0.0001	0.0006	0.000	0.000
Benzene	A6	0.0001	0.0005	0.000	0.000
3,3-Dimethylpentane	I7	0.0002	0.0012	0.000	0.000

EMPACT Analytical Systems, Inc 365 S. Main Street, Brighton, CO 80601 303-637-0150

Cyclohexane	N6	0.0010	0.0048	0.000	0.000
2-Methylhexane	I7	0.0023	0.0133	0.001	0.001
2,3-Dimethylpentane	I7	0.0005	0.0029	0.000	0.000
1,1-Dimethylcyclopentane	N7	0.0002	0.0012	0.000	0.000
3-Methylhexane	I7	0.0020	0.0115	0.001	0.001
1c,3-Dimethylcyclopentane	N7	0.0004	0.0022	0.000	0.000
1t,3-Dimethylcyclopentane	N7	0.0003	0.0017	0.000	0.000
3-Ethylpentane	I7	0.0001	0.0006	0.000	0.000
1t,2-Dimethylcyclopentane	N7	0.0005	0.0028	0.000	0.000
n-Heptane	P7	0.0014	0.0081	0.001	0.001
1c,2-Dimethylcyclopentane	N7	0.0001	0.0006	0.000	0.000
Methylcyclohexane	N7	0.0015	0.0085	0.001	0.001
2,2-Dimethylhexane	I8	0.0002	0.0013	0.000	0.000
2,5-Dimethylhexane	I8	0.0002	0.0013	0.000	0.000
2,2,3-Trimethylpentane	I8	0.0001	0.0006	0.000	0.000
1c,2t,4-Trimethylcyclopentane	N8	0.0001	0.0006	0.000	0.000
Toluene	A7	0.0003	0.0016	0.000	0.000
2,3-Dimethylhexane	I8	0.0001	0.0006	0.000	0.000
2-Methylheptane	I8	0.0003	0.0020	0.000	0.000
4-Methylheptane	I8	0.0001	0.0006	0.000	0.000
3-Methylheptane	I8	0.0002	0.0013	0.000	0.000
1c,2t,3-Trimethylcyclopentane	N8	0.0002	0.0013	0.000	0.000
1t,4-Dimethylcyclohexane	N8	0.0001	0.0006	0.000	0.000
n-Octane	P8	0.0002	0.0013	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0002	0.0014	0.000	0.000
2,2,3-Trimethylhexane	I9	0.0001	0.0007	0.000	0.000
4,4-Dimethylheptane	I9	0.0001	0.0007	0.000	0.000
Ethylcyclohexane	N8	0.0002	0.0013	0.000	0.000
n-Propylcyclopentane	N8	0.0001	0.0006	0.000	0.000
1c,3c,5-Trimethylcyclohexane	N9	0.0001	0.0007	0.000	0.000
2,5-Dimethylheptane	I9	0.0001	0.0007	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0001	0.0006	0.000	0.000
3-Methyloctane	I9	0.0001	0.0007	0.000	0.000
n-Nonane	P9	0.0002	0.0015	0.000	0.000
1,1-Methylethylcyclohexane	N9	0.0001	0.0007	0.000	0.000
n-Butylcyclopentane	N9	0.0001	0.0007	0.000	0.000
n-Propylbenzene	A9	0.0001	0.0007	0.000	0.000
1,3-Methylethylbenzene	A9	0.0001	0.0007	0.000	0.000
1,3,5-Trimethylbenzene	A9	0.0001	0.0007	0.000	0.000
3-Methylnonane	I10	0.0001	0.0008	0.000	0.000
t-Butylbenzene	A10	0.0002	0.0016	0.000	0.000
n-Decane	P10	0.0003	0.0025	0.000	0.000
1,4-Methyl-i-propylbenzene	A10	0.0001	0.0007	0.000	0.000
n-Butylbenzene	A10	0.0001	0.0007	0.000	0.000
1,3-Dimethyl-5-ethylbenzene	A10	0.0001	0.0007	0.000	0.000
UnknownC10s	U10	0.0003	0.0025	0.000	0.000
n-Undecane	P11	0.0003	0.0027	0.000	0.000
1,4-Ethyl-i-propylbenzene	A11	0.0001	0.0009	0.000	0.000
1,2-Ethyl-n-propylbenzene	A11	0.0001	0.0009	0.000	0.000
n-Pentylbenzene	A11	0.0001	0.0009	0.000	0.000
1,2-Di-n-propylbenzene	A11	0.0001	0.0009	0.000	0.000
Naphthalene	A10	0.0001	0.0007	0.000	0.000
1,4-Ethyl-t-butylbenzene	A11	0.0001	0.0009	0.000	0.000
UnknownC11s	U11	0.0003	0.0027	0.000	0.000
n-Dodecane	P12	0.0002	0.0020	0.000	0.000
UnknownC12s	U12	0.0005	0.0045	0.000	0.000
n-Tridecane	P13	0.0001	0.0010	0.000	0.000
UnknownC13s	U13	0.0003	0.0032	0.000	0.000
UnknownC14s	U14	0.0001	0.0012	0.000	0.000
TOTAL		100.00000	100.00000	1.6657	1.6748

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0001	0.0005
TOLUENE	0.0003	0.0016
ETHYLBENZENE	0.0000	0.0000
XYLENES	0.0001	0.0006
TOTAL BTEX	0.0005	0.0027

**(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 :	961.8 /scf	967.1 /scf
	NET WET REAL :	945.0 /scf	950.3 /scf
HHV	GROSS DRY REAL :	1066.1 /scf	1072.0 /scf
	GROSS WET REAL :	1047.5 /scf	1053.4 /scf

NET HEATING VALUE (60 °F ideal reaction):	21119.6 Btu/lbm
GROSS HEATING VALUE (60°F ideal reaction):	23405.1 Btu/lbm
RELATIVE DENSITY (AIR=1):	0.5975
DENSITY	0.04562 lb/scf
COMPRESSIBILITY FACTOR :	0.9977
REGULAR WOBBE INDEX	1380.4

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

Net Dry Ideal BTU	4837.6 /scf	Relative Density - SG (Air=1)	3.2948	***C6+factors***
Gross Dry Ideal BTU	5219.7 /scf	**Z** Compressiblity Factor	0.99039	0.98929
Net Dry Ideal BTU	19324.9 /lb	Density Factor	251.425 lbm/1000 ft3	
Gross Dry Ideal BTU	20847.5 /lb	Molar Mass or MW	95.422 g/mol	
		Volume Liquid Ideal gas	0.018 scf/gal	22.7

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.