EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

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

PROJECT NO. :	**202405084**	ANALYSIS NO. :	**03**
COMPANY NAME :	**CAERUS OIL & GAS LLC**	ANALYSIS DATE:	MAY 17, 2024 08:48
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. :	628	psig	PROBE :	NO
FLOW PRES. :		psig	CYLINDER NO. :	ECA-751
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	0.1616	0.2899	0.0210	0.0211
HELIUM	0.01	0.00	---	---
HYDROGEN	0.08	0.01	---	---
OXYGEN/ARGON	0.00	0.00	---	---
NITROGEN	0.10	0.16	---	---
CARBON DIOXIDE	0.02	0.05	---	---
METHANE	91.6677	82.2458	---	---
ETHANE	5.1664	8.6883	1.3771	1.3847
PROPANE	1.6012	3.9488	0.4397	0.4421
I-BUTANE	0.3132	1.0181	0.1019	0.1025
N-BUTANE	0.3527	1.1465	0.1109	0.1115
I-PENTANE	0.1464	0.5901	0.0530	0.0532
N-PENTANE	0.1110	0.4479	0.0400	0.0402
HEXANES PLUS	0.2698	1.4046	0.1060	0.1063
TOTALS	100.00000	100.00000	2.2496	2.2616

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0001	0.0004
TOLUENE	0.0002	0.0010
ETHYLBENZENE	0.0001	0.0006
XYLENES	0.0001	0.0006
TOTAL BTEX	0.0005	0.0026

**(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 :	996.4	/scf	1001.8	/scf
	NET WET REAL :	979.0	/scf	984.4	/scf
HHV	GROSS DRY REAL :	1103.5	/scf	1109.5	/scf
	GROSS WET REAL :	1084.2	/scf	1090.2	/scf

NET HEATING VALUE (60 °F ideal reaction):	21184.2	Btu/lbm
GROSS HEATING VALUE (60°F ideal reaction):	23453.4	Btu/lbm
RELATIVE DENSITY (AIR=1):	0.6167	
DENSITY	0.04711	lbm/scf
COMPRESSIBILITY FACTOR :	0.9975	
REGULAR WOBBE INDEX	1406.1	

EMPACT

EXTENDED NATURAL GAS ANALYSIS (*DHA)

GLYCALC INFORMATION

PROJECT NO. :	202405084	ANALYSIS NO. :	03
COMPANY NAME :	CAERUS OIL & GAS LLC	ANALYSIS DATE:	MAY 17, 2024 08:48
ACCOUNT NO. :		SAMPLE DATE :	MAY 9, 2024 9:00
PRODUCER :	CAERUS PICEANCE LLC	CYLINDER NO. :	ECA-751
LEASE NO. :	300115252, COC-23443	SAMPLED BY :	ALEX GALLEGOS
NAME/DESCRIP :	SGV FEDERAL #6-44D (8D) CASING		
FIELD DATA		SAMPLE TEMP. :	51
SAMPLE PRES. :	628	AMBIENT TEMP.:	
H2S BY STAIN TUBE:	_ *ppm mol*		
COMMENTS :	*SPOT* *NO PROBE*		

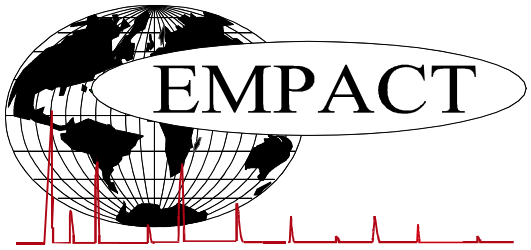
Componet	Mole %	Wt %
Helium	0.01	0.00
Hydrogen	0.08	0.01
Carbon Dioxide	0.02	0.05
Nitrogen	0.10	0.16
Methane	91.6677	82.2458
Ethane	5.1664	8.6883
Propane	1.6012	3.9488
Isobutane	0.3132	1.0181
n-Butane	0.3527	1.1465
Isopentane	0.1408	0.5681
n-Pentane	0.1110	0.4479
Cyclopentane	0.0056	0.0220
n-Hexane	0.0495	0.2386
Cyclohexane	0.0175	0.0824
Other Hexanes	0.0901	0.4319
Heptanes	0.0561	0.3127
Methylcyclohexane	0.0293	0.1609
2,2,4 Trimethylpentane	0.0000	0.0000
Benzene	0.0001	0.0004
Toluene	0.0002	0.0010
Ethylbenzene	0.0001	0.0006
Xylenes	0.0001	0.0006
C8+ Heavies	0.0268	0.1755
Subtotal	99.83840	99.71010
Oxygen/Argon	0.00	0.00
Alcohols	0.1616	0.2899
Total	100.00000	100.00000

Calculated Values BTU @ **14.65**		**Total Sample**	**C6+ Fraction**	**C8+ Fraction**	**C10+ Fraction**	
LHV	Net Dry Real:	996.4	4737.3	5883.5	6971.1	**Btu/scf**
	Net Wet Real:	979.0	4654.5	5780.6	6849.2	**Btu/scf**
HHV	Gross Dry Real:	1103.5	5103.7	6335.9	7486.7	**Btu/scf**
	Gross Wet Real:	1084.2	5014.5	6225.1	7355.8	**Btu/scf**
Other Calculated Values						
Regualr Wobbe Index*		1406.1	2830.0	3146.3	3400.2	**Btu/scf**
Net Heating Value (60 °F ideal reaction):		21184.2	19370.5	19646.7	18820.8	**Btu/lbm**
Gross Heating Value (60°F ideal reaction):		23453.4	20871.5	21160.9	20214.9	**Btu/lbm**
Molar Mass (MW):		17.87991	93.17	117.568	141.176	**g/mol**
Relative Density (AIR=1):		0.6167	3.2159	4.0597	4.8745	**SG**
Density:		0.04711	0.24550	0.30982	0.37202	**lbm/scf**
Compressiblity Factor:		0.9975	0.9913	0.9974	0.9996	**Z**
Liquid Volume real gas @:	**14.65**	17.7184	0.1057	0.007	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)**
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SAMPLE PRES. :	628 psig	PROBE :	NO
FLOW PRES. :	psig	CYLINDER NO. :	ECA-751
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	---	0.01	0.00	---	---
Hydrogen	---	0.08	0.01	---	---
Oxygen/Argon	---	0.00	0.00	---	---
Nitrogen	---	0.10	0.16	---	---
Carbon Dioxide	---	0.02	0.05	---	---
Carbon Monoxide	---	0.00	0.00	---	---
Methane	P1	91.6677	82.2458	---	---
Ethane	P2	5.1664	8.6883	1.377	1.385
Propane	P3	1.6012	3.9488	0.440	0.442
i-Butane	I4	0.3132	1.0181	0.102	0.103
Methanol	X1	0.1614	0.2893	0.021	0.021
n-Butane	P4	0.3526	1.1462	0.111	0.112
2,2-Dimethylpropane	I5	0.0039	0.0157	0.001	0.001
Ethanol	X2	0.0001	0.0003	0.000	0.000
i-Pentane	I5	0.1369	0.5524	0.050	0.050
i-Propanol	X3	0.0001	0.0003	0.000	0.000
UnknownC4s	U4	0.0001	0.0003	0.000	0.000
n-Pentane	P5	0.1110	0.4479	0.040	0.040
2,2-Dimethylbutane	I6	0.0045	0.0217	0.002	0.002
Cyclopentane	N5	0.0056	0.0220	0.002	0.002
2,3-Dimethylbutane	I6	0.0079	0.0381	0.003	0.003
2-Methylpentane	I6	0.0369	0.1778	0.015	0.015
3-Methylpentane	I6	0.0192	0.0926	0.008	0.008
n-Hexane	P6	0.0495	0.2386	0.020	0.020
2,2-Dimethylpentane	I7	0.0011	0.0061	0.001	0.001
Methylcyclopentane	N6	0.0216	0.1017	0.008	0.008
2,4-Dimethylpentane	I7	0.0021	0.0117	0.001	0.001
2,2,3-Trimethylbutane	I7	0.0004	0.0022	0.000	0.000
Benzene	A6	0.0001	0.0004	0.000	0.000
3,3-Dimethylpentane	I7	0.0005	0.0028	0.000	0.000

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Cyclohexane	N6	0.0175	0.0824	0.006	0.006
2-Methylhexane	I7	0.0094	0.0527	0.004	0.004
2,3-Dimethylpentane	I7	0.0022	0.0123	0.001	0.001
1,1-Dimethylcyclopentane	N7	0.0015	0.0082	0.001	0.001
3-Methylhexane	I7	0.0080	0.0448	0.004	0.004
1c,3-Dimethylcyclopentane	N7	0.0029	0.0159	0.001	0.001
1t,3-Dimethylcyclopentane	N7	0.0026	0.0143	0.001	0.001
3-Ethylpentane	I7	0.0004	0.0022	0.000	0.000
1t,2-Dimethylcyclopentane	N7	0.0039	0.0214	0.002	0.002
n-Heptane	P7	0.0197	0.1104	0.009	0.009
1c,2-Dimethylcyclopentane	N7	0.0003	0.0016	0.000	0.000
Methylcyclohexane	N7	0.0293	0.1609	0.012	0.012
2,2-Dimethylhexane	I8	0.0008	0.0051	0.000	0.000
1,1,3-Trimethylcyclopentane	N7	0.0001	0.0006	0.000	0.000
Ethylcyclopentane	N7	0.0010	0.0055	0.000	0.000
2,5-Dimethylhexane	I8	0.0008	0.0051	0.000	0.000
2,2,3-Trimethylpentane	I8	0.0006	0.0039	0.000	0.000
2,4-Dimethylhexane	I8	0.0001	0.0006	0.000	0.000
1c,2t,4-Trimethylcyclopentane	N8	0.0006	0.0037	0.000	0.000
3,3-Dimethylhexane	I8	0.0002	0.0013	0.000	0.000
Toluene	A7	0.0002	0.0010	0.000	0.000
2,3-Dimethylhexane	I8	0.0005	0.0032	0.000	0.000
2-Methyl-3-ethylpentane	I8	0.0001	0.0006	0.000	0.000
2-Methylheptane	I8	0.0029	0.0185	0.001	0.001
4-Methylheptane	I8	0.0008	0.0051	0.000	0.000
3-Methyl-3-ethylpentane	I8	0.0001	0.0006	0.000	0.000
3,4-Dimethylhexane	I8	0.0001	0.0006	0.000	0.000
3-Methylheptane	I8	0.0018	0.0115	0.001	0.001
1c,2t,3-Trimethylcyclopentane	N8	0.0030	0.0188	0.002	0.002
3-Ethylhexane	I8	0.0001	0.0006	0.000	0.000
1t,4-Dimethylcyclohexane	N8	0.0012	0.0075	0.001	0.001
1,1-Dimethylcyclohexane	N8	0.0004	0.0025	0.000	0.000
2,2,5-Trimethylhexane	I9	0.0001	0.0007	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	0.0007	0.0044	0.000	0.000
n-Octane	P8	0.0046	0.0294	0.002	0.002
1c,4-Dimethylcyclohexane	N8	0.0006	0.0037	0.000	0.000
2,3,5-Trimethylhexane	I9	0.0001	0.0007	0.000	0.000
2,2-Dimethylheptane	I9	0.0002	0.0014	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0005	0.0035	0.000	0.000
Ethylcyclohexane	N8	0.0004	0.0025	0.000	0.000
n-Propylcyclopentane	N8	0.0001	0.0006	0.000	0.000
2,5-Dimethylheptane	I9	0.0003	0.0021	0.000	0.000
3,3-Dimethylheptane	I9	0.0001	0.0007	0.000	0.000
2,6-Dimethylheptane	I9	0.0001	0.0007	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
4-Methyloctane	I9	0.0002	0.0014	0.000	0.000
2-Methyloctane	I9	0.0002	0.0014	0.000	0.000
1c,2t,4c-Trimethylcyclohexane	I9	0.0002	0.0014	0.000	0.000
n-Nonane	P9	0.0005	0.0036	0.000	0.000
3,3-Dimethyloctane	I10	0.0001	0.0008	0.000	0.000
n-Propylbenzene	A9	0.0001	0.0007	0.000	0.000
3,6-Dimethyloctane	I10	0.0001	0.0008	0.000	0.000
1,3-Methylethylbenzene	A9	0.0004	0.0027	0.000	0.000
1,4-Methylethylbenzene	A9	0.0001	0.0007	0.000	0.000
1,3,5-Trimethylbenzene	A9	0.0002	0.0013	0.000	0.000
5-Methylnonane	I10	0.0001	0.0008	0.000	0.000
2-Methylnonane	I10	0.0002	0.0016	0.000	0.000
3-Methylnonane	I10	0.0001	0.0008	0.000	0.000

t-Butylbenzene	A10	0.0008	0.0060	0.000	0.000
UnknownC9s	U9	0.0001	0.0007	0.000	0.000
n-Decane	P10	0.0001	0.0008	0.000	0.000
1,2,3-Trimethylbenzene	A9	0.0001	0.0007	0.000	0.000
1,3-Methyl-i-propylbenzene	A10	0.0001	0.0007	0.000	0.000
1,3-Methyl-n-propylbenzene	A10	0.0001	0.0007	0.000	0.000
n-Butylbenzene	A10	0.0001	0.0007	0.000	0.000
1,4-Methyl-t-butylbenzene	A11	0.0001	0.0008	0.000	0.000
UnknownC10s	U10	0.0001	0.0008	0.000	0.000
UnknownC11s	U11	0.0003	0.0026	0.000	0.000
UnknownC12s	U12	0.0001	0.0009	0.000	0.000
TOTAL		100.00000	100.00000	2.2496	2.2616

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0001	0.0004
TOLUENE	0.0002	0.0010
ETHYLBENZENE	0.0001	0.0006
XYLENES	0.0001	0.0006
TOTAL BTEX	0.0005	0.0026

**(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 :	996.4	/scf	1001.8	/scf
	NET WET REAL :	979.0	/scf	984.4	/scf
HHV	GROSS DRY REAL :	1103.5	/scf	1109.5	/scf
	GROSS WET REAL :	1084.2	/scf	1090.2	/scf
	NET HEATING VALUE (60 °F ideal reaction):			21184.2	Btu/lbm
	GROSS HEATING VALUE (60°F ideal reaction):			23453.4	Btu/lbm
	RELATIVE DENSITY (AIR=1):			0.6167	
	DENSITY			0.04711	lb/scf
	COMPRESSIBILITY FACTOR :			0.9975	
	REGULAR WOBBE INDEX			1406.1	

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

Net Dry Ideal BTU	4710.8 /scf	Relative Density - SG (Air=1)	3.2159		***C6+factors***
Gross Dry Ideal BTU	5075.1 /scf	**Z** Compressiblity Factor	0.99129		0.99067
Net Dry Ideal BTU	19370.5 /lb	Density Factor	245.502	lbm/1000 ft3	
Gross Dry Ideal BTU	20871.5 /lb	Molar Mass or MW	93.17	g/mol	
		Volume Liquid Ideal gas	0.106	scf/gal	23.3

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.