



NATURAL GAS ANALYSIS

PRIMARY DB KEY: NAME/DESCRIP : SALEN 14-35
 LEASE #:
 FIELD/ AREA:

PROJECT NO. : 202307046 ANALYSIS NO. : 01
 COMPANY NAME : GRAND MESA OPERATING ANALYSIS DATE: JULY 17, 2023 08:09
 OFFICE / BRANCH: WICHITA, KS SAMPLE DATE : JULY 15, 2023
 CUSTOMER REF: TO:
 PRODUCER : EFFECTIVE DATE:

FIELD DATA

SAMPLE CYCLE: SAMPLE TYPE:
 SAMPLE PRES. : psig PROBE :
 FLOW PRES. : psig CYLINDER NO. : 1L TEDLAR
 LAB PRES: psig SAMPLED BY :
 SAMPLE TEMP. : °f SAMPLING COMPANY: GRAND MESA
 AMBIENT TEMP.: °f H2S BY STAIN TUBE: - ppm mol
 H2O BY STAIN TUBE: - #/mmcf CO2 BY STAIN TUBE: - Mol %
 FIELD COMMENTS:
 LAB COMMENTS:

COMPONENTS	NORM. MOLE%	GPM @ 14.73	GPM @ 14.65
HELIUM	0.02	-	-
HYDROGEN	0.06	-	-
OXYGEN/ARGON	0.88	-	-
NITROGEN	3.26	-	-
CO2	0.13	-	-
METHANE	1.03	-	-
ETHANE	1.21	0.3291	0.3273
PROPANE	90.09	25.2219	25.0849
ISOBUTANE	2.19	0.7285	0.7245
N-BUTANE	0.72	0.2303	0.2290
ISOPENTANE	0.18	0.0672	0.0669
N-PENTANE	0.09	0.0336	0.0334
HEXANES+	0.14	0.0621	0.0618
TOTAL	100.00	26.6727	26.5278

BTU @ 60 DEG F

	14.73	14.65
GROSS DRY REAL =	2456.9 /scf	2443.5 /scf
GROSS SATURATED REAL =	2414.2 /scf	2400.8 /scf
RELATIVE DENSITY (AIR=1 @14.696 PSIA 60F)	1.5026	
DENSITY (lbm/scf)	0.11470	
COMPRESSIBILITY FACTOR :	0.9838	

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%

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SULFUR IN NATURAL GAS ANALYSIS

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PROJECT NO. : **202307046**
COMPANY NAME : **GRAND MESA OPERATING**
OFFICE / BRANCH: **WICHITA, KS**
CUSTOMER REF:
PRODUCER :

ANALYSIS NO. : **01**
ANALYSIS DATE: **JULY 17, 2023 09:03**
SAMPLE DATE : **JULY 15, 2023**
TO:
EFFECTIVE DATE:

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

SAMPLE CYCLE:
SAMPLE PRES. : psig
FLOW PRES. : psig
LAB PRES: psig
SAMPLE TEMP. : °F
AMBIENT TEMP.: °F
H2O BY STAIN TUBE: - #/mmcf
FIELD COMMENTS:
LAB COMMENTS:

SAMPLE TYPE:
PROBE :
CYLINDER NO. : 1L TEDLAR
SAMPLED BY :
SAMPLING COMPANY: GRAND MESA
H2S BY STAIN TUBE: - ppm mol
CO2 BY STAIN TUBE: - Mol %

<u>COMPONENT</u>	SULFUR	
	<u>ppm mole (ul/L)</u>	<u>ppm wt (ug/g)</u>
Hydrogen Sulfide (H2S)	1.6	1.1
Carbonyl Sulfide (COS)/Sulfur Dioxide (SO2)	0.1	0.1
Methanethiol (MeSH)	1.7	1.3
Ethanethiol (EtSH)	26.1	19.0
Dimethylsulfide (DMS)	BDL	
Carbon Disulfide (CS2)	BDL	
i-Propanethiol (i-PrSH)	0.1	0.1
t-Butanethiol (t-BuSH)	0.3	0.3
n-Propanethiol (n-PrSH)	BDL	
Methylethylsulfide (MES)	BDL	
s-Butanethiol (s-BuSH)	BDL	
i-Butanethiol (i-BuSH)	BDL	
Thiophene (TP)	BDL	
Diethylsulfide (DES)	BDL	
n-Butanethiol (n-BuSH)	BDL	
Dimethyldisulfide (DMDS)	BDL	
Unidentified Sulfurs - Light Ends	0.8	1.2
Methylthiophenes (MTP)	0.6	0.4
2-Ethylthiophene (2-ETP)	BDL	
Methylethylsulfide (MEDS)	BDL	
Dimethylthiophenes (DMTP)	BDL	
Diethyldisulfide (DEDS)	0.6	0.9
Benzothiophene (BzTP)	BDL	
Unidentified Sulfurs - Mid Range	BDL	
Methylbenzothiophenes (MBzTP)	BDL	
Dimethylbenzothiophenes (DMBzTP)	BDL	
Trimethylbenzothiophenes (TMBzTP)	BDL	
Dibenzothiophenes (DBzTP)	BDL	
Methyldibenzothiophenes (MDBzTP)	BDL	
<u>Unidentified Sulfurs - Heavy Ends</u>	<u>BDL</u>	
TOTAL SULFUR	31.9	24.4

GRAINS OF H2S	0.0963 / 100 scf	TOTAL GRAINS OF SULFUR	1.9585 / 100 scf
POUNDS OF H2S	0.00014 / 1000 scf	TOTAL POUNDS OF SULFUR	0.0028 / 1000 scf
WT% OF H2S	0.00011 / 1000 scf	TOTAL WT% OF SULFUR	0.00244 / 1000 scf

* ASTM D5504 ** DETECTION LIMIT DETERMINED TO BE 0.1 ppm (ul/L) Sulfur - BDL (BELOW DETECTION LIMIT)
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