

Gas Composition and Properties

Anadarko, Kerr McGee Gath, Western Gas
Partners

Effective December 12, 2017 00:00 - January 18, 2038 21:14

Source #: 100204049
Name: FERGUSON 25

Component	Mole %	Liquid Content	Mass %
Carbon Dioxide, CO2	2.4310		4.1136
Nitrogen, N2	2.1093		2.2719
Methane, C1	62.3949		38.4872
Ethane, C2	13.8520	3.7236	16.0150
Propane, C3	11.4496	3.1706	19.4124
iso-Butane, iC4	1.2717	0.4183	2.8420
n-Butane, nC4	3.9066	1.2380	8.7304
iso-Pentane, iC5	0.8212	0.3019	2.2781
n-Pentane, nC5	0.8812	0.3211	2.4445
Neo-Pentane, NeoC5			
Hexanes, C6	0.3789	0.1566	1.2555
Heptanes, C7	0.2311	0.1072	0.8904
Octanes, C8	0.1572	0.0809	0.6904
Nonanes Plus, C9+	0.1153	0.0652	0.5686
Water, H2O			
Hydrogen Sulfide, H2S			
Oxygen, O2			
Carbon Monoxide, CO			
Hydrogen, H2			
Helium, He			
Argon, Ar			

Property	Total Sample	C9 Plus Fraction
Pressure Base	14.730	
Temperature Base	60.00	
HCDP @ Sample Pressure	70.220	
Cricondentherm	157.744	
HV, Dry @ Base P, T	1460.23	
HV, Sat @ Base P, T	1434.82	
HV, Sat @ Sample P, T	1365.34	
Relative Density	0.9025	

Totals	100.0000	9.5840	100.0000
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Sample

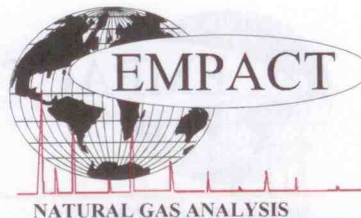
Date: 12/12/2017 Pressure: 22.0
Type: Spot Temperature 130.0
Tech: C. RIOS H2O: lbs/mm
H2S: 2 ppm

Remarks:

Analysis

Date: 12/19/2017 Instrument: 104
Cylinder:
Tech: B. GEHRMAN

Remarks:



NATURAL GAS ANALYSIS

PRIMARY DB KEY: NAME/DESCRIP : FERGUSON 25 TANK BATTERY
 LEASE #: 05-001-06482
 FIELD/ AREA:

PROJECT NO. : 201907047 ANALYSIS NO. : 10
 COMPANY NAME : RENEGADE OIL & GAS COMPANY ANALYSIS DATE: JULY 16, 2019 09:35
 OFFICE / BRANCH: AURORA, CO SAMPLE DATE : JULY 9, 2019
 CUSTOMER REF: TO:
 PRODUCER : EFFECTIVE DATE:

FIELD DATA

SAMPLE CYCLE: SAMPLE TYPE:
 SAMPLE PRES.: 22 psig PROBE :
 FLOW PRES.: psig CYLINDER NO. : 1816
 LAB PRES.: psig SAMPLED BY : CODY BAYLIS
 SAMPLE TEMP.: 90 °f SAMPLING COMPANY: RENEGADE
 AMBIENT TEMP.: °f H2S BY STAIN TUBE: .25 ppm
 H2O BY STAIN TUBE #/mmcf CO2 BY STAIN TUBE: Mol %
 FIELD COMMENTS:
 LAB COMMENTS:

COMPONENTS	NORM. MOLE%	GPM @ 14.65	GPM @ 14.73
HELIUM	0.01	-	-
HYDROGEN	0.00	-	-
OXYGEN/ARGON	0.01	-	-
NITROGEN	1.25	-	-
CO2	2.20	-	-
METHANE	57.39	-	-
ETHANE	14.63	3.9145	3.9358
PROPANE	13.31	3.6677	3.6878
ISOBUTANE	1.51	0.4944	0.4971
N-BUTANE	5.04	1.5897	1.5983
ISOPENTANE	1.23	0.4503	0.4528
N-PENTANE	1.37	0.4965	0.4992
HEXANES+	2.05	0.8896	0.8945
TOTAL	100.00	11.5027	11.5655

BTU @ 60 DEG F

	14.65	14.73
GROSS DRY REAL =	1600.7 /scf	1609.4 /scf
GROSS SATURATED REAL =	1572.7 /scf	1581.4 /scf
RELATIVE DENSITY (AIR=1 @14.696 PSIA 60F)	0.98	
GRAVITY (LB/SCF)	0.07481	
COMPRESSIBILITY FACTOR :	0.99395	

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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