LARAMIE ENERGY, LLC Field Sample

Mobile Laboratory Services
2524 W. Pinyon Ave. Grand Junction CO 81505
(970) 245 2490

	SAMPLE INFORMATION
Sample Name	Hawkins Ranch 10-7B 20200307
Meter Number	RM01339
Sampling notes	Checked H2S levels with RAE tube and entered analysis results into field RTU
Sample Type/Method	Spot Cylinder empty-fill
Flowing sample conditions	Temp- 73 DEG F, Pressure- 93 PSIG, Flow Rate- 1,008 MCF/DAY, Air Temp- 52 DEG F
Analyzing system	Agilent CP-4900 Micro GC, Serial # CP4911124
Last Calibration/Validation Date	03/04/2020
Company/Operator name	NRG Services - Ross A Deters
NGA Phs. Property Data Source	GPA 2172-09/API 14.5 Report with GPA 2145-16 Physical Properties
Method Name	Gas Analysis.met
Injection Date	2020-03-07 13:22:53
Report Date	2020-03-07 13:28:59

Component Name	Peak Area	Raw Amount	Response Factor	Norm Mole%	Gross HV (Dry) (BTU/Ideal cu.ft.)	Relative Gas Density (Dry)	GPM (Dry) Gal/(MCF)
Nitrogen	106223.0	0.0511	0.00000048	0.0516	0.0	0.00050	0.000
Methane	54751214.0	77.8034	0.00000142	78.5011	794.7	0.43482	0.000
Carbon Dioxide	6209418.0	6.1247	0.00000099	6.1796	0.0	0.09390	0.000
Ethane	9276911.0	8.4944	0.00000092	8.5705	152.0	0.08898	2.299
Propane	4985157.0	3.7190	0.00000075	3.7523	94.6	0.05713	1.037
i-Butane	1160703.0	0.7946	0.00000068	0.8017	26.1	0.01609	0.263
n-Butane	1390384.0	0.9389	0.00000068	0.9473	31.0	0.01901	0.300
i-Pentane	522214.0	0.3148	0.00000060	0.3176	12.7	0.00791	0.117
n-Pentane	469804.0	0.2782	0.00000059	0.2807	11.3	0.00699	0.102
Hexanes	652773.0	0.3550	0.00000054	0.3582	17.1	0.01066	0.148
Heptanes	455903.0	0.2155	0.00000047	0.2174	12.0	0.00752	0.101
Octanes	36289.0	0.0161	0.00000044	0.0162	1.0	0.00064	0.008
Nonanes	3991.0	0.0018	0.00000045	0.0018	0.1	0.00008	0.001
hydrogen sulfide	0.0	0.0040	0.00000000	0.0040	0.0	0.00005	0.001
Total:		99.1115		100.0000	1152.7	0.74427	4.376

Result	Dry
Total Un-Normalized Mole%	99.1115
Pressure Base (psia)	14.730
Temperature Base	60.0
Gross Heating Value (BTU / Ideal cu.ft.)	1152.7
Gross Heating Value (BTU / Real cu.ft.)	1156.7
Relative Density (G), Real	0.7465
Compressibility (Z) Factor	0.9965
Wobbe Index	1338.7

Parameter	Value	Lower Limit	Upper Limit	Status
Total un-normalized amount	99.1115	97.0000	103.0000	Pass