



2030 Afton Place
Farmington, NM 87401
(505) 325-6622

Analysis No: LG180173
Cust No: 46600-11265

Well/Lease Information

Customer Name: LOGOS OPERATING LLC
Well Name: RICHARDSON #2; BHD
County/State: SAN JUAN NM
Location:
Field: SOUTH
Formation: FC
Cust. Str. No.: CC# 3132097B

Source: BRADENHEAD
Well Flowing: N
Pressure: 118 PSIG
Flow Temp: DEG. F
Ambient Temp: 73 DEG. F
Flow Rate: MCF/D
Sample Method: Purge & Fill
Sample Date: 06/25/2018
Sample Time: 9.45 AM
Sampled By: EUGENE BURBANK
Sampled by (CO): LOGOS

Heat Trace: N
Remarks:

30-045-06021

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	2.9206	2.9216	0.3220	0.00	0.0282
CO2	0.0613	0.0613	0.0100	0.00	0.0009
Methane	91.7389	91.7712	15.5840	926.56	0.5081
Ethane	3.3281	3.3293	0.8920	58.90	0.0346
Propane	1.1954	1.1958	0.3300	30.08	0.0182
Iso-Butane	0.2370	0.2371	0.0780	7.71	0.0048
N-Butane	0.2466	0.2467	0.0780	8.04	0.0049
I-Pentane	0.0900	0.0900	0.0330	3.60	0.0022
N-Pentane	0.0543	0.0543	0.0200	2.18	0.0014
Hexane Plus	0.1278	0.1278	0.0570	6.74	0.0042
Total	100.0000	100.0351	17.4040	1043.80	0.6076

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0023
BTU/CU.FT IDEAL: 1046.2
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1048.6
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1030.4
DRY BTU @ 15.025: 1069.6
REAL SPECIFIC GRAVITY: 0.6088

CYLINDER #: 6143
CYLINDER PRESSURE: 85 PSIG
ANALYSIS DATE: 06/28/2018
ANALYSIS TIME: 02:32:29 PM
ANALYSIS RUN BY: SHYANN ELLEDGE

GPM, BTU, and SPG calculations as shown above are based on current GPA constants.

GPA Standard: GPA-2261

GC: Danalyzer Model 500

Last Cal/Verify: 07/02/2018

GC Method: C6+ Gas



LOGOS OPERATING LLC
WELL ANALYSIS COMPARISON

Lease: RICHARDSON #2; BHD
Stn. No.: CC# 3132097B
Mtr. No.:

BRADENHEAD
FC

07/02/2018
46600-11265

Smpl Date: 06/25/2018
Test Date: 06/28/2018
Run No: LG180173

Nitrogen: 2.9206
CO2: 0.0613
Methane: 91.7389
Ethane: 3.3281
Propane: 1.1954
I-Butane: 0.2370
N-Butane: 0.2466
I-Pentane: 0.0900
N-Pentane: 0.0543
Hexane+: 0.1278

BTU: 1048.6
GPM: 17.4040
SPG: 0.6088



2030 Afton Place
Farmington, NM 87401
(505) 325-6622

Analysis No: LG180174
Cust No: 46600-11270

Well/Lease Information

Customer Name: LOGOS OPERATING LLC
Well Name: RICHARDSON #2; CSG
County/State: SAN JUAN NM
Location:
Field: SOUTH
Formation: FC
Cust. Stn. No.: CC# 3132097B

Source: CASING
Well Flowing: N
Pressure: 118 PSIG
Flow Temp: DEG. F
Ambient Temp: 73 DEG. F
Flow Rate: MCF/D
Sample Method: Purge & Fill
Sample Date: 06/25/2018
Sample Time: 9.30 AM
Sampled By: EUGENE BURBANK
Sampled by (CO): LOGOS

Heat Trace: N

Remarks:

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	2.9999	2.9464	0.3310	0.00	0.0290
CO2	0.0581	0.0571	0.0100	0.00	0.0009
Methane	91.6752	90.0400	15.5740	925.92	0.5078
Ethane	3.3295	3.2701	0.8920	58.92	0.0346
Propane	1.2064	1.1849	0.3330	30.35	0.0184
Iso-Butane	0.2314	0.2273	0.0760	7.52	0.0046
N-Butane	0.2449	0.2405	0.0770	7.99	0.0049
I-Pentane	0.0874	0.0858	0.0320	3.50	0.0022
N-Pentane	0.0520	0.0511	0.0190	2.08	0.0013
Hexane Plus	0.1152	0.1131	0.0510	6.07	0.0038
Total	100.0000	98.2163	17.3950	1042.36	0.6075

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0023
BTU/CU.FT IDEAL: 1044.8
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1047.2
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1029.0
DRY BTU @ 15.025: 1068.2
REAL SPECIFIC GRAVITY: 0.6086

CYLINDER #: 4214
CYLINDER PRESSURE: 118 PSIG
ANALYSIS DATE: 06/28/2018
ANALYSIS TIME: 02:42:33 PM
ANALYSIS RUN BY: PATRICIA KING

GPM, BTU, and SPG calculations as shown above are based on current GPA constants.

GPA Standard: GPA-2261

GC: Danalyzer Model 500

Last Cal/Verify: 07/02/2018

GC Method: C6+ Gas



LOGOS OPERATING LLC
WELL ANALYSIS COMPARISON

Lease: RICHARDSON #2; CSG
Stn. No.: CC# 3132097B
Mtr. No.:

CASING
FC

07/02/2018
46600-11270

Smpl Date: 06/25/2018
Test Date: 06/28/2018
Run No: LG180174

Nitrogen: 2.9999
CO2: 0.0581
Methane: 91.6752
Ethane: 3.3295
Propane: 1.2064
I-Butane: 0.2314
N-Butane: 0.2449
I-Pentane: 0.0874
N-Pentane: 0.0520
Hexane+: 0.1152

BTU: 1047.2
GPM: 17.3950
SPG: 0.6086