



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

Analysis No: GW190001
Cust No: 33050-10125

Well/Lease Information

Customer Name: GREAT WESTERN DRILLING
Well Name: ATLANTIC A 101 BHD
County/State: SAN JUAN NM
Location:
Lease/PA/CA:
Formation: BASIN DAKOTA
Cust. Stn. No.: 94574
API # 30-045-25340

Source: BRADENHEAD
Well Flowing: Y
Pressure: 93 PSIG
Flow Temp: 74 DEG. F
Ambient Temp: 66 DEG. F
Flow Rate: 1 MCF/D
Sample Method: Purge & Fill
Sample Date: 06/13/2019
Sample Time: 7.52 AM
Sampled By: CULLAN KELLER
Sampled by (CO): GREAT WESTERN

Heat Trace: N
Remarks:

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.6068	0.6067	0.0670	0.00	0.0059
CO2	0.0186	0.0186	0.0030	0.00	0.0003
Methane	90.1615	90.1476	15.3210	910.63	0.4994
Ethane	5.6558	5.6549	1.5160	100.09	0.0587
Propane	2.1386	2.1383	0.5910	53.81	0.0326
Iso-Butane	0.3592	0.3591	0.1180	11.68	0.0072
N-Butane	0.5095	0.5094	0.1610	16.62	0.0102
I-Pentane	0.1756	0.1756	0.0640	7.03	0.0044
N-Pentane	0.1197	0.1197	0.0430	4.80	0.0030
Hexane Plus	0.2547	0.2547	0.1140	13.43	0.0084
Total	100.0000	99.9846	17.9980	1118.08	0.6301

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0026
BTU/CU.FT IDEAL: 1120.7
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1123.6
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1104.0
DRY BTU @ 15.025: 1146.1
REAL SPECIFIC GRAVITY: 0.6314

CYLINDER #: 4034
CYLINDER PRESSURE: 93 PSIG
ANALYSIS DATE: 06/17/2019
ANALYSIS TIME: 03:28:12 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: 06/24/2019

GC Method: C6+ Gas

NMOC

AUG 28 2019

DISTRICT III



GREAT WESTERN DRILLING
WELL ANALYSIS COMPARISON

Lease: ATLANTIC A 101 BHD
Stn. No.: 94574
Mtr. No.: API # 30-045-

BRADENHEAD
BASIN DAKOTA

06/24/2019
33050-10125

Smpl Date:	06/13/2019	11/19/2018	10/25/2017	09/04/2014
Test Date:	06/17/2019	11/27/2018	10/25/2017	09/04/2014
Run No:	GW190001	GW180007	GW170037	GW140011
Nitrogen:	0.6068	0.5847	0.5860	0.4150
CO2:	0.0186	0.0030	0.0031	0.0110
Methane:	90.1615	90.2547	90.1723	90.2839
Ethane:	5.6558	5.6714	5.7064	5.7251
Propane:	2.1386	2.1049	2.1338	2.1310
I-Butane:	0.3592	0.3537	0.3612	0.3590
N-Butane:	0.5095	0.5023	0.5109	0.5080
I-Pentane:	0.1756	0.1725	0.1755	0.1800
N-Pentane:	0.1197	0.1156	0.1156	0.1240
Hexane+:	0.2547	0.2372	0.2352	0.2630
BTU:	1123.6	1122.3	1123.4	1126.6
GPM:	17.9980	17.9890	17.9980	18.0230
SPG:	0.6314	0.6301	0.6308	0.6312



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

Analysis No: GW190002
Cust No: 33050-10365

Well/Lease Information

Customer Name: GREAT WESTERN DRILLING
Well Name: ATLANTIC A 101; CSG
County/State: SAN JUAN NM
Location:
Lease/PA/CA:
Formation: BASIN DAKOTA
Cust. Stn. No.: 94574
API # 30-045-25340

Source: CASING
Well Flowing: Y
Pressure: 10 PSIG
Flow Temp: 74 DEG. F
Ambient Temp: 66 DEG. F
Flow Rate: 1 MCF/D
Sample Method: Purge & Fill
Sample Date: 06/13/2019
Sample Time: 8.02 AM
Sampled By: CULLAN KELLER
Sampled by (CO): GREAT WESTERN

Heat Trace: N
Remarks:

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.6363	0.6261	0.0700	0.00	0.0062
CO2	3.0593	3.0102	0.5230	0.00	0.0465
Methane	93.6756	92.1712	15.9120	946.12	0.5189
Ethane	2.2636	2.2272	0.6070	40.06	0.0235
Propane	0.1511	0.1487	0.0420	3.80	0.0023
Iso-Butane	0.0454	0.0447	0.0150	1.48	0.0009
N-Butane	0.0189	0.0186	0.0060	0.62	0.0004
I-Pentane	0.0112	0.0110	0.0040	0.45	0.0003
N-Pentane	0.0038	0.0037	0.0010	0.15	0.0001
Hexane Plus	0.1348	0.1326	0.0600	7.11	0.0045
Total	100.0000	98.3940	17.2400	999.78	0.6034

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0022
BTU/CU.FT IDEAL: 1002.1
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1004.3
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 986.8
DRY BTU @ 15.025: 1024.4
REAL SPECIFIC GRAVITY: 0.6045

CYLINDER #: 6022
CYLINDER PRESSURE: 12 PSIG
ANALYSIS DATE: 06/17/2019
ANALYSIS TIME: 03:24:28 PM
ANALYSIS RUN BY: RICHARD WILSON

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

GPA Standard: GPA-2261

GC: Danalyzer Model 500

GC Method: C6+ Gas

Last Cal/Verify: 06/24/2019



GREAT WESTERN DRILLING
WELL ANALYSIS COMPARISON

Lease: ATLANTIC A 101; CSG
Str. No.: 94574
Mtr. No.: API # 30-045-

CASING
BASIN DAKOTA

06/24/2019
33050-10365

Smpl Date:	06/13/2019	11/19/2018	10/25/2017
Test Date:	06/17/2019	11/27/2018	10/25/2017
Run No:	GW190002	GW180008	GW170038
Nitrogen:	0.6363	0.3796	0.3788
CO2:	3.0593	2.9953	3.0182
Methane:	93.6756	94.0850	94.0516
Ethane:	2.2636	2.2609	2.2565
Propane:	0.1511	0.1475	0.1425
I-Butane:	0.0454	0.0412	0.0405
N-Butane:	0.0189	0.0175	0.0166
I-Pentane:	0.0112	0.0102	0.0100
N-Pentane:	0.0038	0.0033	0.0030
Hexane+:	0.1348	0.0595	0.0823
BTU:	1004.3	1004.1	1004.7
GPM:	17.2400	17.2340	17.2380
SPG:	0.6045	0.6006	0.6014



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

Analysis No: GW190003
Cust No: 33050-10360

Well/Lease Information

Customer Name: GREAT WESTERN DRILLING
Well Name: ATLANTIC A 101; TBG
County/State: SAN JUAN NM
Location:
Lease/PA/CA:
Formation: BASIN DAKOTA
Cust. Stn. No.: 94574
API # 30-045-25340

Source: TUBING
Well Flowing: Y
Pressure: 44 PSIG
Flow Temp: 74 DEG. F
Ambient Temp: 66 DEG. F
Flow Rate: 1 MCF/D
Sample Method: Purge & Fill
Sample Date: 06/13/2019
Sample Time: 8.11 AM
Sampled By: CULLAN KELLER
Sampled by (CO): GREAT WESTERN

Heat Trace: N
Remarks:

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.3775	0.3743	0.0420	0.00	0.0037
CO2	3.0236	2.9976	0.5170	0.00	0.0459
Methane	94.0513	93.2422	15.9760	949.92	0.5210
Ethane	2.2595	2.2401	0.6050	39.99	0.0235
Propane	0.1406	0.1394	0.0390	3.54	0.0021
Iso-Butane	0.0430	0.0426	0.0140	1.40	0.0009
N-Butane	0.0159	0.0158	0.0050	0.52	0.0003
I-Pentane	0.0098	0.0097	0.0040	0.39	0.0002
N-Pentane	0.0031	0.0031	0.0010	0.12	0.0001
Hexane Plus	0.0757	0.0750	0.0340	3.99	0.0025
Total	100.0000	99.1398	17.2370	999.87	0.6002

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0022
BTU/CU.FT IDEAL: 1002.2
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1004.4
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 986.9
DRY BTU @ 15.025: 1024.5
REAL SPECIFIC GRAVITY: 0.6012

CYLINDER #: 4155
CYLINDER PRESSURE: 43 PSIG
ANALYSIS DATE: 06/17/2019
ANALYSIS TIME: 03:11:20 PM
ANALYSIS RUN BY: RICHARD WILSON

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

GPA Standard: GPA-2261

GC: Danalyzer Model 500

GC Method: C6+ Gas

Last Cal/Verify: 06/24/2019



GREAT WESTERN DRILLING
WELL ANALYSIS COMPARISON

Lease: ATLANTIC A 101; TBG
Stn. No.: 94574
Mtr. No.: API # 30-045-

TUBING
BASIN DAKOTA

06/24/2019
33050-10360

Smpl Date:	06/13/2019	11/19/2018	10/25/2017
Test Date:	06/17/2019	11/27/2018	10/25/2017
Run No:	GW190003	GW180009	GW170039
Nitrogen:	0.3775	0.3852	0.3793
CO2:	3.0236	2.9920	3.0140
Methane:	94.0513	94.1353	94.0492
Ethane:	2.2595	2.2363	2.2551
Propane:	0.1406	0.1359	0.1399
I-Butane:	0.0430	0.0394	0.0402
N-Butane:	0.0159	0.0148	0.0156
I-Pentane:	0.0098	0.0094	0.0097
N-Pentane:	0.0031	0.0032	0.0028
Hexane+:	0.0757	0.0485	0.0942
BTU:	1004.4	1003.1	1005.1
GPM:	17.2370	17.2250	17.2400
SPG:	0.6012	0.6000	0.6016