



Warren LS 2B
30-045-3949
Bradenhead Sample

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

Analysis No: SO180171
Cust No: 15950-11285

Well/Lease Information

Customer Name: BP - SOUTH BHD PROJECT
Well Name: WARREN LS #2B; BHD
County/State: SAN JUAN NM
Location:
Field:
Formation: PC
Cust. Stn. No.: API # 3004531969

Source: BRADENHEAD
Well Flowing: Y
Pressure: 38 PSIA
Flow Temp: DEG. F
Ambient Temp: 63 DEG. F
Flow Rate: MCF/D
Sample Method: Purge & Fill
Sample Date: 08/07/2018
Sample Time: 8.24 AM
Sampled By: SCOTT WILLARD
Sampled by (CO): PESCO

Heat Trace: N
Remarks: PRESSURED WITH HELIUM TO 30LBS.

NMDCD

FEB 13 2019

DISTRICT III

Analysis

Component:	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	90.5866	1.4531	9.9780	0.00	0.8762
CO2	0.6670	0.0107	0.1140	0.00	0.0101
Methane	2.3440	0.0376	0.3980	23.67	0.0130
Ethane	0.2120	0.0034	0.0570	3.75	0.0022
Propane	0.2120	0.0034	0.0580	5.33	0.0032
Iso-Butane	0.0000	0.0000	0.0000	0.00	0.0000
N-Butane	0.0000	0.0000	0.0000	0.00	0.0000
I-Pentane	0.0000	0.0000	0.0000	0.00	0.0000
N-Pentane	0.0000	0.0000	0.0000	0.00	0.0000
Hexane Plus	5.9784	0.0959	2.6690	315.13	0.1979
Total	100.0000	1.6041	13.2740	347.89	1.1026

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0014
BTU/CU.FT IDEAL: 348.7
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 349.2
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 343.1
DRY BTU @ 15.025: 356.2
REAL SPECIFIC GRAVITY: 1.1037

CYLINDER #: 5122
CYLINDER PRESSURE: 6 PSIG
ANALYSIS DATE: 08/16/2018
ANALYSIS TIME: 02:10:58 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

GC Method: C6+ Gas

Last Cal/Verify: 08/23/2018



BP - SOUTH BHD PROJECT
WELL ANALYSIS COMPARISON

Lease: WARREN LS #2B; BHD
Stn. No.: API # 3004531969
Mtr. No.:

BRADENHEAD
PC

08/23/2018
15950-11285

Smpl Date: 08/07/2018
Test Date: 08/16/2018
Run No: SO180171

Nitrogen: 90.5866
CO2: 0.6670
Methane: 2.3440
Ethane: 0.2120
Propane: 0.2120
I-Butane: 0.0000
N-Butane: 0.0000
I-Pentane: 0.0000
N-Pentane: 0.0000
Hexane+: 5.9784

BTU: 349.2
GPM: 13.2740
SPG: 1.1037



WARREN LS 2B
30-045-31969
Casing Sample

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

Analysis No: SO180172
Cust No: 15950-11290

Well/Lease Information

Customer Name: BP - SOUTH BHD PROJECT
Well Name: WARREN LS #2B; CSG
County/State: SAN JUAN NM
Location:
Field:
Formation: PC
Cust. Stn. No.: API # 3004531969

Source: CASING
Well Flowing: Y
Pressure: 18 PSIA
Flow Temp: DEG. F
Ambient Temp: 69 DEG. F
Flow Rate: MCF/D
Sample Method: Purge & Fill
Sample Date: 08/07/2018
Sample Time: 1.00 PM
Sampled By: SCOTT WILLARD
Sampled by (CO): PESCO

Heat Trace: N
Remarks: PRESSURED WITH HELIUM TO 30LBS.

NMOCB

FEB 13 2013

DISTRICT III

Analysis

Component:	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.3611	0.1675	0.0400	0.00	0.0035
CO2	0.8503	0.3944	0.1460	0.00	0.0129
Methane	78.7733	36.5371	13.4030	795.61	0.4363
Ethane	10.4296	4.8375	2.7990	184.57	0.1083
Propane	5.2446	2.4326	1.4500	131.96	0.0798
Iso-Butane	0.7947	0.3686	0.2610	25.84	0.0159
N-Butane	1.5038	0.6975	0.4760	49.06	0.0302
I-Pentane	0.4745	0.2201	0.1740	18.98	0.0118
N-Pentane	0.3784	0.1755	0.1380	15.17	0.0094
Hexane Plus	1.1897	0.5518	0.5320	62.71	0.0394
Total	100.0000	46.3826	19.4190	1283.91	0.7476

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0039
BTU/CU.FT IDEAL: 1286.9
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1291.9
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1269.4
DRY BTU @ 15.025: 1317.8
REAL SPECIFIC GRAVITY: 0.7502

CYLINDER #: 7055
CYLINDER PRESSURE: 7 PSIG
ANALYSIS DATE: 08/16/2018
ANALYSIS TIME: 02:23:18 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

GC Method: C6+ Gas

Last Cal/Verify: 08/23/2018



BP - SOUTH BHD PROJECT
WELL ANALYSIS COMPARISON

Lease: WARREN LS #2B; CSG
Stn. No.: API # 3004531969
Mtr. No.:

CASING
PC

08/23/2018
15950-11290

Smpl Date: 08/07/2018
Test Date: 08/16/2018
Run No: SO180172
Nitrogen: 0.3611
CO2: 0.8503
Methane: 78.7733
Ethane: 10.4296
Propane: 5.2446
I-Butane: 0.7947
N-Butane: 1.5038
I-Pentane: 0.4745
N-Pentane: 0.3784
Hexane+: 1.1897
BTU: 1291.9
GPM: 19.4190
SPG: 0.7502



Warren LS 2B
30-045-31969
Intermediate Sample

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

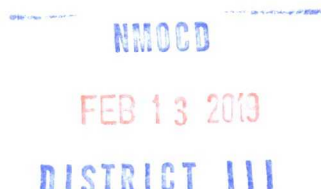
Analysis No: SO180173
Cust No: 15950-11295

Well/Lease Information

Customer Name: BP - SOUTH BHD PROJECT
Well Name: WARREN LS #2B; INT
County/State: SAN JUAN NM
Location:
Field:
Formation: PC
Cust. Stn. No.: API # 3004531969

Source: INTERMEDIATE
Well Flowing: Y
Pressure: 1 PSIA
Flow Temp: DEG. F
Ambient Temp: 69 DEG. F
Flow Rate: MCF/D
Sample Method: Purge & Fill
Sample Date: 08/07/2018
Sample Time: 8.47 AM
Sampled By: SCOTT WILLARD
Sampled by (CO): PESCO

Heat Trace: N
Remarks: PRESSURED WITH HELIUM TO 30LBS.



Analysis

Component:	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	7.1313	0.8404	0.7870	0.00	0.0690
CO2	1.0505	0.1238	0.1800	0.00	0.0160
Methane	83.4386	9.8329	14.1880	842.73	0.4622
Ethane	2.8758	0.3389	0.7710	50.89	0.0299
Propane	0.9445	0.1113	0.2610	23.76	0.0144
Iso-Butane	0.1646	0.0194	0.0540	5.35	0.0033
N-Butane	0.3971	0.0468	0.1260	12.95	0.0080
I-Pentane	0.1850	0.0218	0.0680	7.40	0.0046
N-Pentane	0.1884	0.0222	0.0690	7.55	0.0047
Hexane Plus	3.6242	0.4271	1.6210	191.03	0.1199
Total	100.0000	11.7846	18.1250	1141.68	0.7319

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0033
BTU/CU.FT IDEAL: 1144.3
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1148.1
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1128.1
DRY BTU @ 15.025: 1171.1
REAL SPECIFIC GRAVITY: 0.734

CYLINDER #: 7007
CYLINDER PRESSURE: PSIG
ANALYSIS DATE: 08/16/2018
ANALYSIS TIME: 01:50:57 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

GC Method: C6+ Gas

Last Cal/Verify: 08/23/2018



BP - SOUTH BHD PROJECT
WELL ANALYSIS COMPARISON

Lease: WARREN LS #2B; INT
Stn. No.: API # 3004531969
Mtr. No.:

INTERMEDIATE
PC

08/23/2018
15950-11295

Smpl Date: 08/07/2018
Test Date: 08/16/2018
Run No: SO180173

Nitrogen: 7.1313
CO2: 1.0505
Methane: 83.4386
Ethane: 2.8758
Propane: 0.9445
I-Butane: 0.1646
N-Butane: 0.3971
I-Pentane: 0.1850
N-Pentane: 0.1884
Hexane+: 3.6242

BTU: 1148.1
GPM: 18.1250
SPG: 0.7340



Warren LS 2B
30-045-31969
Tubing Sample

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

Analysis No: SO180174
Cust No: 15950-11300

Well/Lease Information

Customer Name: BP - SOUTH BHD PROJECT
Well Name: WARREN LS #2B; TBG
County/State: SAN JUAN NM
Location:
Field:
Formation: PC
Cust. Stn. No.: API # 3004531969

Source: TUBING
Well Flowing: Y
Pressure: 24 PSIA
Flow Temp: DEG. F
Ambient Temp: 63 DEG. F
Flow Rate: MCF/D
Sample Method: Purge & Fill
Sample Date: 08/07/2018
Sample Time: 8.32 AM
Sampled By: SCOTT WILLARD
Sampled by (CO): PESCO

Heat Trace: N
Remarks:

NMOC
FEB 13 2019
DISTRICT III

Analysis

Component:	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.2878	0.2884	0.0320	0.00	0.0028
CO2	0.8449	0.8466	0.1450	0.00	0.0128
Methane	78.4452	78.6072	13.3470	792.30	0.4345
Ethane	10.9261	10.9487	2.9330	193.36	0.1134
Propane	5.3413	5.3523	1.4770	134.39	0.0813
Iso-Butane	0.8192	0.8209	0.2690	26.64	0.0164
N-Butane	1.5108	1.5139	0.4780	49.29	0.0303
I-Pentane	0.4603	0.4613	0.1690	18.42	0.0115
N-Pentane	0.3651	0.3659	0.1330	14.64	0.0091
Hexane Plus	0.9993	1.0014	0.4470	52.67	0.0331
Total	100.0000	100.2066	19.4300	1281.70	0.7453

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0039
BTU/CU.FT IDEAL: 1284.7
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1289.7
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1267.3
DRY BTU @ 15.025: 1315.5
REAL SPECIFIC GRAVITY: 0.7479

CYLINDER #: 7094
CYLINDER PRESSURE: 25 PSIG
ANALYSIS DATE: 08/16/2018
ANALYSIS TIME: 01:09:57 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

Last Cal/Verify: 08/23/2018

GC Method: C6+ Gas



BP - SOUTH BHD PROJECT
WELL ANALYSIS COMPARISON

Lease: WARREN LS #2B; TBG
Stn. No.: API # 3004531969
Mtr. No.:

TUBING
PC

08/23/2018
15950-11300

Smpl Date: 08/07/2018
Test Date: 08/16/2018
Run No: SO180174

Nitrogen: 0.2878
CO2: 0.8449
Methane: 78.4452
Ethane: 10.9261
Propane: 5.3413
I-Butane: 0.8192
N-Butane: 1.5108
I-Pentane: 0.4603
N-Pentane: 0.3651
Hexane+: 0.9993

BTU: 1289.7
GPM: 19.4300
SPG: 0.7479