



Well Name: Case B 4 A
API# 30 - 045 - 23191
Casing Sampled: Bradenhead
Sample Type Gas
(000) 020 0000

Analysis No: SO190061
Cust No: 15950-10075

Well/Lease Information

Customer Name: BP - SOUTH BHD PROJECT
Well Name: CASE B 4A; BHD
County/State: SAN JUAN NM
Location:
Lease/PA/CA:
Formation: FT
Cust. Str. No.: API # 3004523191

Source: BRADENHEAD
Well Flowing: Y
Pressure: 14 PSIA
Flow Temp: DEG. F
Ambient Temp: 66 DEG. F
Flow Rate: MCF/D
Sample Method: Purge & Fill
Sample Date: 06/14/2019
Sample Time: 9.03 AM
Sampled By: E. HAMILTON
Sampled by (CO): SABRE BEEBE

Heat Trace: N
Remarks:

NMOCD

DISTRICT III

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	15.9691	0.8478	1.7610	0.00	0.1545
CO2	2.1793	0.1157	0.3730	0.00	0.0331
Methane	73.9160	3.9242	12.5580	746.55	0.4094
Ethane	3.7408	0.1986	1.0030	66.20	0.0388
Propane	1.9853	0.1054	0.5480	49.95	0.0302
Iso-Butane	0.4841	0.0257	0.1590	15.74	0.0097
N-Butane	0.4200	0.0223	0.1330	13.70	0.0084
I-Pentane	0.1771	0.0094	0.0650	7.09	0.0044
N-Pentane	0.0961	0.0051	0.0350	3.85	0.0024
Hexane Plus	1.0322	0.0548	0.4610	54.41	0.0342
Total	100.0000	5.3090	17.0960	957.49	0.7252

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0024
BTU/CU.FT IDEAL: 959.7
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 962.0
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 945.3
DRY BTU @ 15.025: 981.3
REAL SPECIFIC GRAVITY: 0.7266

CYLINDER #: 7058
CYLINDER PRESSURE: 22 PSIG
ANALYSIS DATE: 06/25/2019
ANALYSIS TIME: 01:26:57 AM
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: 06/28/2019

GC Method: C6+ Gas



BP - SOUTH BHD PROJECT
WELL ANALYSIS COMPARISON

Lease: CASE B 4A; BHD
Stn. No.: API # 3004523191
Mtr. No.:

BRADENHEAD
FT

06/28/2019
15950-10075

Smpl Date:	06/14/2019	06/05/2017
Test Date:	06/25/2019	06/05/2017
Run No:	SO190061	SO170016
Nitrogen:	15.9691	24.2838
CO2:	2.1793	0.0240
Methane:	73.9160	67.9383
Ethane:	3.7408	4.5550
Propane:	1.9853	2.0990
I-Butane:	0.4841	0.4490
N-Butane:	0.4200	0.3990
I-Pentane:	0.1771	0.1370
N-Pentane:	0.0961	0.0600
Hexane+:	1.0322	0.0550
BTU:	962.0	861.6
GPM:	17.0960	16.3860
SPG:	0.7266	0.7156



Well Name: Case B 4 A
 API# 30 - 045 - 23191
 Casing Sampled: Production
 Sample Type Gas

Analysis No: SO190062
 Cust No: 15950-10080

Well/Lease Information

Customer Name: BP - SOUTH BHD PROJECT
 Well Name: CASE B 4A; CSG
 County/State: SAN JUAN NM
 Location:
 Lease/PA/CA:
 Formation: FT
 Cust. Stn. No.: API # 3004523191

Source: CASING
 Well Flowing: Y
 Pressure: 60.8 PSIA
 Flow Temp: DEG. F
 Ambient Temp: 66 DEG. F
 Flow Rate: MCF/D
 Sample Method: Purge & Fill
 Sample Date: 06/14/2019
 Sample Time: 9.06 AM
 Sampled By: E. HAMILTON
 Sampled by (CO): PESCO

Heat Trace: N
 Remarks:

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.1708	0.1639	0.0190	0.00	0.0017
CO2	0.5335	0.5120	0.0910	0.00	0.0081
Methane	76.1458	73.0771	12.9610	769.07	0.4218
Ethane	11.4792	11.0166	3.0820	203.15	0.1192
Propane	6.4329	6.1736	1.7790	161.86	0.0979
Iso-Butane	1.2981	1.2458	0.4270	42.21	0.0261
N-Butane	1.6021	1.5375	0.5070	52.27	0.0322
I-Pentane	0.6010	0.5768	0.2210	24.05	0.0150
N-Pentane	0.4768	0.4576	0.1740	19.11	0.0119
Hexane Plus	1.2598	1.2090	0.5640	66.40	0.0417
Total	100.0000	95.9699	19.8250	1338.12	0.7754

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0043
 BTU/CU.FT IDEAL: 1341.2
 BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1347.0
 BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1323.6
 DRY BTU @ 15.025: 1374.0
 REAL SPECIFIC GRAVITY: 0.7784

CYLINDER #: 77064
 CYLINDER PRESSURE: 59 PSIG
 ANALYSIS DATE: 06/26/2019
 ANALYSIS TIME: 09:25:00 AM
 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: 06/28/2019

GC Method: C6+ Gas



BP - SOUTH BHD PROJECT
WELL ANALYSIS COMPARISON

Lease: CASE B 4A; CSG
Stn. No.: API # 3004523191
Mtr. No.:

CASING
FT

06/28/2019
15950-10080

Smpl Date:	06/14/2019	06/05/2017
Test Date:	06/26/2019	06/12/2017
Run No:	SO190062	SO170017
Nitrogen:	0.1708	0.2450
CO2:	0.5335	0.7550
Methane:	76.1458	82.2152
Ethane:	11.4792	9.1229
Propane:	6.4329	4.0020
I-Butane:	1.2981	0.7020
N-Butane:	1.6021	1.1780
I-Pentane:	0.6010	0.4640
N-Pentane:	0.4768	0.3540
Hexane+:	1.2598	0.9620
BTU:	1347.0	1244.5
GPM:	19.8250	19.0250
SPG:	0.7784	0.7170



Well Name: CASE B 4A
 API# 30-045-23191
 Casing Sampled: Tubing
 Sample Type Gas

Analysis No: SO190063
 Cust No: 15950-10085

Well/Lease Information

Customer Name: BP - SOUTH BHD PROJECT
 Well Name: CASE B 4A; TBG
 County/State: SAN JUAN NM
 Location:
 Lease/PA/CA:
 Formation: FT
 Cust. Str. No.: API # 3004523191

Source: TUBING
 Well Flowing: Y
 Pressure: 60.9 PSIA
 Flow Temp: DEG. F
 Ambient Temp: 66 DEG. F
 Flow Rate: MCF/D
 Sample Method: Purge & Fill
 Sample Date: 06/14/2019
 Sample Time: 9.04 AM
 Sampled By: E. HAMILTON
 Sampled by (CO): PESCO

Heat Trace: N
 Remarks:

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.2479	0.2427	0.0270	0.00	0.0024
CO2	0.9843	0.9638	0.1690	0.00	0.0150
Methane	80.5258	78.8496	13.6990	813.31	0.4460
Ethane	10.0108	9.8024	2.6860	177.16	0.1039
Propane	4.3848	4.2935	1.2120	110.33	0.0668
Iso-Butane	0.7129	0.6981	0.2340	23.18	0.0143
N-Butane	1.2778	1.2512	0.4040	41.69	0.0256
I-Pentane	0.4453	0.4360	0.1630	17.82	0.0111
N-Pentane	0.3547	0.3473	0.1290	14.22	0.0088
Hexane Plus	1.0557	1.0337	0.4720	55.65	0.0349
Total	100.0000	97.9183	19.1950	1253.35	0.7289

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0037
 BTU/CU.FT IDEAL: 1256.2
 BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1260.9
 BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1239.0
 DRY BTU @ 15.025: 1286.2
 REAL SPECIFIC GRAVITY: 0.7313

CYLINDER #: 7013
 CYLINDER PRESSURE: 66 PSIG
 ANALYSIS DATE: 06/25/2019
 ANALYSIS TIME: 03:22:13 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: 06/28/2019



BP - SOUTH BHD PROJECT
WELL ANALYSIS COMPARISON

Lease: CASE B 4A; TBG
Stn. No.: API # 3004523191
Mtr. No.:

TUBING
FT

06/28/2019
15950-10085

Smpl Date:	06/14/2019	06/05/2017
Test Date:	06/25/2019	06/05/2017
Run No:	SO190063	SO170018
Nitrogen:	0.2479	9.8311
CO2:	0.9843	0.7970
Methane:	80.5258	75.2638
Ethane:	10.0108	8.1791
Propane:	4.3848	3.3670
I-Butane:	0.7129	0.5570
N-Butane:	1.2778	0.9180
I-Pentane:	0.4453	0.3040
N-Pentane:	0.3547	0.2330
Hexane+:	1.0557	0.5500
BTU:	1260.9	1093.9
GPM:	19.1950	18.0510
SPG:	0.7313	0.7233