



NMOCD REC'D
10/12/20

Well Name: HOWELL 1; TBG
API #: API # 300450932600
Source: TUBING
Sample Type: GAS
Analysis No: SO200050
Cust No: 15950-11715

Well/Lease Information

Customer Name: BP - SOUTH BHD PROJECT
Well Name: HOWELL 1; TBG
County/State: SAN JUAN NM
Location:
Lease/PA/CA:
Formation:
Cust. Stn. No.: API # 300450932600

Source: TUBING
Well Flowing: Y
Pressure: 21 PSIG
Flow Temp: 89.4 DEG. F
Ambient Temp: 91 DEG. F
Flow Rate: MCF/D
Sample Method: Purge & Fill
Sample Date: 06/29/2020
Sample Time: 5.55 PM
Sampled By: CELIA L.
Sampled by (CO): ABC

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

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.3042	0.1937	0.0340	0.00	0.0029
CO2	1.1415	0.7269	0.1950	0.00	0.0173
Methane	82.9165	52.8023	14.1020	837.46	0.4593
Ethane	8.2348	5.2440	2.2090	145.73	0.0855
Propane	3.8339	2.4415	1.0600	96.46	0.0584
Iso-Butane	0.7355	0.4684	0.2410	23.92	0.0148
N-Butane	1.0749	0.6845	0.3400	35.07	0.0216
I-Pentane	0.4018	0.2559	0.1470	16.08	0.0100
N-Pentane	0.3004	0.1913	0.1090	12.04	0.0075
Hexane Plus	1.0565	0.6728	0.4730	55.69	0.0350
Total	100.0000	63.6813	18.9100	1222.44	0.7122

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0035
BTU/CU.FT IDEAL: 1225.3
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1229.6
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1208.2
DRY BTU @ 15.025: 1254.2
REAL SPECIFIC GRAVITY: 0.7144

CYLINDER #: 234
CYLINDER PRESSURE: 17 PSIG
ANALYSIS DATE: 07/06/2020
ANALYSIS TIME: 02:54:56 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: 07/08/2020

GC Method: C6+ Gas



BP - SOUTH BHD PROJECT
WELL ANALYSIS COMPARISON

Lease: HOWELL 1; TBG
Stn. No.: API #
Mtr. No.:

TUBING

07/08/2020
15950-11715

Smpl Date: 06/29/2020
Test Date: 07/06/2020
Run No: SO200050

Nitrogen: 0.3042
CO2: 1.1415
Methane: 82.9165
Ethane: 8.2348
Propane: 3.8339
I-Butane: 0.7355
N-Butane: 1.0749
I-Pentane: 0.4018
N-Pentane: 0.3004
Hexane+: 1.0565

BTU: 1229.6
GPM: 18.9100
SPG: 0.7144



NMOCD REC'D
10/12/20

Well Name: HOWELL 1; CSG
API #: API # 300450932600
Source: CASING
Sample Type: GAS
Analysis No: SO200049
Cust No: 15950-11710

Well/Lease Information

Customer Name: BP - SOUTH BHD PROJECT
Well Name: HOWELL 1; CSG
County/State: SAN JUAN NM
Location:
Lease/PA/CA:
Formation:
Cust. Stn. No.: API # 300450932600

Source: CASING
Well Flowing: Y
Pressure: 21 PSIG
Flow Temp: 91.1 DEG. F
Ambient Temp: 91 DEG. F
Flow Rate: MCF/D
Sample Method: Purge & Fill
Sample Date: 06/29/2020
Sample Time: 6.00 PM
Sampled By: CELIA L.
Sampled by (CO): ABC

Heat Trace: N
Remarks:

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.1726	0.1712	0.0190	0.00	0.0017
CO2	1.1958	1.1860	0.2050	0.00	0.0182
Methane	82.3950	81.7215	14.0140	832.19	0.4564
Ethane	8.5680	8.4980	2.2990	151.63	0.0890
Propane	3.9917	3.9591	1.1030	100.44	0.0608
Iso-Butane	0.7623	0.7561	0.2500	24.79	0.0153
N-Butane	1.1229	1.1137	0.3550	36.63	0.0225
I-Pentane	0.4219	0.4185	0.1550	16.88	0.0105
N-Pentane	0.3190	0.3164	0.1160	12.79	0.0079
Hexane Plus	1.0508	1.0422	0.4700	55.39	0.0348
Total	100.0000	99.1827	18.9860	1230.73	0.7170

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0035
BTU/CU.FT IDEAL: 1233.6
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1237.9
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1216.4
DRY BTU @ 15.025: 1262.7
REAL SPECIFIC GRAVITY: 0.7192

CYLINDER #: 019
CYLINDER PRESSURE: 20 PSIG
ANALYSIS DATE: 07/06/2020
ANALYSIS TIME: 02:06:47 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: 07/08/2020

GC Method: C6+ Gas



BP - SOUTH BHD PROJECT
WELL ANALYSIS COMPARISON

Lease: HOWELL 1; CSG
Stn. No.: API #
Mtr. No.:

CASING

07/08/2020
15950-11710

Smpl Date: 06/29/2020
Test Date: 07/06/2020
Run No: SO200049

Nitrogen: 0.1726
CO2: 1.1958
Methane: 82.3950
Ethane: 8.5680
Propane: 3.9917
I-Butane: 0.7623
N-Butane: 1.1229
I-Pentane: 0.4219
N-Pentane: 0.3190
Hexane+: 1.0508

BTU: 1237.9
GPM: 18.9860
SPG: 0.7192



NMOCD REC'D
10/12/20

Well Name: HOWELL 1; BHD
API #: API # 300450932600
Source: BRADENHEAD
Sample Type: GAS
Analysis No: SO200048
Cust No: 15950-11705

Well/Lease Information

Customer Name: BP - SOUTH BHD PROJECT
Well Name: HOWELL 1; BHD
County/State: SAN JUAN NM
Location:
Lease/PA/CA:
Formation:
Cust. Stn. No.: API # 300450932600

Source: BRADENHEAD
Well Flowing: Y
Pressure: 16 PSIG
Flow Temp: DEG. F
Ambient Temp: 91 DEG. F
Flow Rate: MCF/D
Sample Method: Purge & Fill
Sample Date: 06/29/2020
Sample Time: 5.50 PM
Sampled By: CELIA L.
Sampled by (CO): ABC

Heat Trace: N

Remarks: PRESSURED WITH HELIUM TO 30LBS.

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	26.8442	0.1361	2.9610	0.00	0.2596
CO2	0.7692	0.0039	0.1320	0.00	0.0117
Methane	63.6095	0.3225	10.8120	642.46	0.3523
Ethane	2.3274	0.0118	0.6240	41.19	0.0242
Propane	2.0710	0.0105	0.5720	52.11	0.0315
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	4.3787	0.0222	1.9580	230.80	0.1449
Total	100.0000	0.5070	17.0590	966.56	0.8243

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0029
BTU/CU.FT IDEAL: 968.8
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 971.6
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 954.7
DRY BTU @ 15.025: 991.1
REAL SPECIFIC GRAVITY: 0.8263

CYLINDER #: 1286
CYLINDER PRESSURE: 16 PSIG
ANALYSIS DATE: 07/06/2020
ANALYSIS TIME: 02:42:13 AM
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: 07/08/2020

GC Method: C6+ Gas



BP - SOUTH BHD PROJECT
WELL ANALYSIS COMPARISON

Lease: HOWELL 1; BHD
Stn. No.: API #
Mtr. No.:

BRADENHEAD

07/08/2020
15950-11705

Smpl Date: 06/29/2020
Test Date: 07/06/2020
Run No: SO200048

Nitrogen: 26.8442
CO2: 0.7692
Methane: 63.6095
Ethane: 2.3274
Propane: 2.0710
I-Butane: 0.0000
N-Butane: 0.0000
I-Pentane: 0.0000
N-Pentane: 0.0000
Hexane+: 4.3787

BTU: 971.6
GPM: 17.0590
SPG: 0.8263