



NMOCD REC'D
10/12/20

Well Name: HARDIE LS 4; CSG
API #: API # 300452281000
Source: CASING
Sample Type: GAS
Analysis No: SO200154
Cust No: 15950-12135

Well/Lease Information

Customer Name: BP - SOUTH BHD PROJECT
Well Name: HARDIE LS 4; CSG
County/State: SAN JUAN NM
Location:
Lease/PA/CA:
Formation:
Cust. Stn. No.: API # 300452281000
90301

Source: CASING
Well Flowing: Y
Pressure: 31.1 PSIG
Flow Temp: DEG. F
Ambient Temp: 82 DEG. F
Flow Rate: MCF/D
Sample Method: Purge & Fill
Sample Date: 09/22/2020
Sample Time: 3.00 PM
Sampled By: TONY FELIX
Sampled by (CO): ABC

Heat Trace: N
Remarks:

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.3901	0.3896	0.0430	0.00	0.0038
CO2	0.0034	0.0034	0.0010	0.00	0.0001
Methane	83.8128	83.7157	14.2550	846.51	0.4642
Ethane	6.4271	6.4197	1.7240	113.74	0.0667
Propane	5.0408	5.0350	1.3930	126.83	0.0767
Iso-Butane	1.1011	1.0998	0.3610	35.81	0.0221
N-Butane	1.5145	1.5127	0.4790	49.41	0.0304
I-Pentane	0.5499	0.5493	0.2020	22.00	0.0137
N-Pentane	0.4003	0.3998	0.1460	16.05	0.0100
Hexane Plus	0.7600	0.7591	0.3400	40.06	0.0252
Total	100.0000	99.8841	18.9440	1250.40	0.7128

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0035
BTU/CU.FT IDEAL: 1253.3
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1257.7
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1235.8
DRY BTU @ 15.025: 1282.9
REAL SPECIFIC GRAVITY: 0.7151

CYLINDER #: 1421
CYLINDER PRESSURE: 28 PSIG
ANALYSIS DATE: 09/28/2020
ANALYSIS TIME: 10:07:30 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: 09/29/2020

GC Method: C6+ Gas



BP - SOUTH BHD PROJECT
WELL ANALYSIS COMPARISON

Lease: HARDIE LS 4; CSG
Stn. No.: API #
Mtr. No.: 90301

CASING

09/29/2020
15950-12135

Smpl Date: 09/22/2020
Test Date: 09/28/2020
Run No: SO200154

Nitrogen: 0.3901
CO2: 0.0034
Methane: 83.8128
Ethane: 6.4271
Propane: 5.0408
I-Butane: 1.1011
N-Butane: 1.5145
I-Pentane: 0.5499
N-Pentane: 0.4003
Hexane+: 0.7600

BTU: 1257.7
GPM: 18.9440
SPG: 0.7151



NMOCD REC'D
10/12/20

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

Analysis No: SO200155
Cust No: 15950-12140

Well/Lease Information

Customer Name: BP - SOUTH BHD PROJECT
Well Name: HARDIE LS 4; INT
County/State: SAN JUAN NM
Location:
Lease/PA/CA:
Formation:
Cust. Stn. No.: API # 300452281000
90301

Source: INTERMEDIATE
Well Flowing: Y
Pressure: 32 PSIG
Flow Temp: DEG. F
Ambient Temp: 87 DEG. F
Flow Rate: MCF/D
Sample Method: Purge & Fill
Sample Date: 09/22/2020
Sample Time: 3.20 PM
Sampled By: TONY FELIX
Sampled by (CO): ABC

Heat Trace: N
Remarks:

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.1628	0.1628	0.0180	0.00	0.0016
CO2	1.5165	1.5164	0.2590	0.00	0.0230
Methane	91.7517	91.7451	15.5900	926.69	0.5082
Ethane	4.6910	4.6907	1.2570	83.02	0.0487
Propane	0.9367	0.9366	0.2590	23.57	0.0143
Iso-Butane	0.2858	0.2858	0.0940	9.29	0.0057
N-Butane	0.1813	0.1813	0.0570	5.91	0.0036
I-Pentane	0.1372	0.1372	0.0500	5.49	0.0034
N-Pentane	0.0580	0.0580	0.0210	2.33	0.0014
Hexane Plus	0.2790	0.2790	0.1250	14.71	0.0092
Total	100.0000	99.9929	17.7300	1071.01	0.6193

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0025
BTU/CU.FT IDEAL: 1073.5
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1076.2
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1057.5
DRY BTU @ 15.025: 1097.8
REAL SPECIFIC GRAVITY: 0.6206

CYLINDER #: 115
CYLINDER PRESSURE: 126 PSIG
ANALYSIS DATE: 09/28/2020
ANALYSIS TIME: 10:22:21 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: 09/29/2020

GC Method: C6+ Gas



BP - SOUTH BHD PROJECT
WELL ANALYSIS COMPARISON

Lease: HARDIE LS 4; INT
Stn. No.: API #
Mtr. No.: 90301

INTERMEDIATE

09/29/2020
15950-12140

Smpl Date: 09/22/2020
Test Date: 09/28/2020
Run No: SO200155

Nitrogen: 0.1628
CO2: 1.5165
Methane: 91.7517
Ethane: 4.6910
Propane: 0.9367
I-Butane: 0.2858
N-Butane: 0.1813
I-Pentane: 0.1372
N-Pentane: 0.0580
Hexane+: 0.2790

BTU: 1076.2
GPM: 17.7300
SPG: 0.6206



NMOCD REC'D
10/12/20

Well Name: HARDIE LS 4; TBG
API #: API # 300452281000
Source: TUBING
Sample Type: GAS
Analysis No: SO200156
Cust No: 15950-12145

Well/Lease Information

Customer Name: BP - SOUTH BHD PROJECT
Well Name: HARDIE LS 4; TBG
County/State: SAN JUAN NM
Location:
Lease/PA/CA:
Formation:
Cust. Stn. No.: API # 300452281000
90301

Source: TUBING
Well Flowing: Y
Pressure: 31.9 PSIG
Flow Temp: DEG. F
Ambient Temp: 82 DEG. F
Flow Rate: MCF/D
Sample Method: Purge & Fill
Sample Date: 09/22/2020
Sample Time: 3.10 PM
Sampled By: TONY FELIX
Sampled by (CO): ABC

Heat Trace: N
Remarks:

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.2056	0.2022	0.0230	0.00	0.0020
CO2	1.3494	1.3274	0.2310	0.00	0.0205
Methane	76.2294	74.9850	12.9750	769.92	0.4222
Ethane	10.8245	10.6478	2.9070	191.56	0.1124
Propane	5.6720	5.5794	1.5690	142.71	0.0864
Iso-Butane	1.1384	1.1198	0.3740	37.02	0.0228
N-Butane	1.7995	1.7701	0.5700	58.71	0.0361
I-Pentane	0.7225	0.7107	0.2650	28.91	0.0180
N-Pentane	0.5346	0.5259	0.1950	21.43	0.0133
Hexane Plus	1.5241	1.4992	0.6820	80.34	0.0504
Total	100.0000	98.3675	19.7910	1330.59	0.7842

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0043
BTU/CU.FT IDEAL: 1333.7
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1339.4
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1316.1
DRY BTU @ 15.025: 1366.2
REAL SPECIFIC GRAVITY: 0.7872

CYLINDER #: 2005
CYLINDER PRESSURE: 28 PSIG
ANALYSIS DATE: 09/28/2020
ANALYSIS TIME: 10:40:00 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: 09/29/2020

GC Method: C6+ Gas



BP - SOUTH BHD PROJECT
WELL ANALYSIS COMPARISON

Lease:	HARDIE LS 4; TBG	TUBING	09/29/2020
Stn. No.:	API #		15950-12145
Mtr. No.:	90301		

Smpl Date:	09/22/2020
Test Date:	09/28/2020
Run No:	SO200156
Nitrogen:	0.2056
CO2:	1.3494
Methane:	76.2294
Ethane:	10.8245
Propane:	5.6720
I-Butane:	1.1384
N-Butane:	1.7995
I-Pentane:	0.7225
N-Pentane:	0.5346
Hexane+:	1.5241
BTU:	1339.4
GPM:	19.7910
SPG:	0.7872