



Well Name: Mudge LS 045
 API# 30 - 045 - 23159
 Casing Sampled: Bradenhead
 Sample Type: Gas

Analysis No: SO190056
 Cust No: 15950-10120

Well/Lease Information

Customer Name: BP - SOUTH BHD PROJECT
 Well Name: MUDGE LS 45; BHD
 County/State: NM
 Location:
 Lease/PA/CA:
 Formation: PC
 Cust. Stn. No.:
 API 3004523159

Source: BRADENHEAD
 Well Flowing: Y
 Pressure: 9 PSIA
 Flow Temp: DEG. F
 Ambient Temp: 84 DEG. F
 Flow Rate: MCF/D
 Sample Method: Purge & Fill
 Sample Date: 06/13/2019
 Sample Time: 12.41 PM
 Sampled By: EUGENIA HAMILTON
 Sampled by (CO): KEVIN IRELAND

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

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	79.4835	2.6468	8.7740	0.00	0.7688
CO2	0.9670	0.0322	0.1660	0.00	0.0147
Methane	7.0390	0.2344	1.1970	71.09	0.0390
Ethane	0.0450	0.0015	0.0120	0.80	0.0005
Propane	0.0511	0.0017	0.0140	1.29	0.0008
Iso-Butane	0.0000	0.0000	0.0000	0.00	0.0000
N-Butane	0.0721	0.0024	0.0230	2.35	0.0014
I-Pentane	0.0991	0.0033	0.0360	3.96	0.0025
N-Pentane	0.1141	0.0038	0.0410	4.57	0.0028
Hexane Plus	12.1291	0.4039	5.4270	639.33	0.4014
Total	100.0000	3.3300	15.6900	723.40	1.2319

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0036
 BTU/CU.FT IDEAL: 725.1
 BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 727.7
 BTU/CU.FT (WET) CORRECTED FOR (1/Z): 715.0
 DRY BTU @ 15.025: 742.3
 REAL SPECIFIC GRAVITY: 1.2358

CYLINDER #: 7009
 CYLINDER PRESSURE: PSIG
 ANALYSIS DATE: 06/20/2019
 ANALYSIS TIME: 10:15:10 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

GC Method: C6+ Gas

Last Cal/Verify: 06/25/2019



BP - SOUTH BHD PROJECT
WELL ANALYSIS COMPARISON

Lease: MUDGE LS 45; BHD
Stn. No.:
Mtr. No.: API 3004523159

BRADENHEAD
PC

06/25/2019
15950-10120

Smpl Date:	06/13/2019	06/22/2017
Test Date:	06/20/2019	06/22/2017
Run No:	SO190056	SO170032
Nitrogen:	79.4835	82.1519
CO2:	0.9670	1.7722
Methane:	7.0390	5.5696
Ethane:	0.0450	2.1519
Propane:	0.0511	0.2532
I-Butane:	0.0000	0.0000
N-Butane:	0.0721	2.2785
I-Pentane:	0.0991	0.0000
N-Pentane:	0.1141	0.0000
Hexane+:	12.1291	5.8228
BTU:	727.7	484.0
GPM:	15.6900	14.2710
SPG:	1.2358	1.1188



Well Name: Mudge LS 045
 API# 30-045-23159
 2 Casing Sampled: Production
 F Sample Type: Gas
 (500) 525-0022

Analysis No: SO190057
 Cust No: 15950-10410

Well/Lease Information

Customer Name: BP - SOUTH BHD PROJECT	Source: CASING
Well Name: MUDGE LS 45;CSG	Well Flowing: Y
County/State: SAN JUAN NM	Pressure: 23 PSIA
Location:	Flow Temp: DEG. F
Lease/PA/CA:	Ambient Temp: 84 DEG. F
Formation:	Flow Rate: MCF/D
Cust. Stn. No.: API 3004523159	Sample Method: Purge & Fill
	Sample Date: 06/13/2019
	Sample Time: 12.38 PM
	Sampled By: EUGENIA HAMILTON
Heat Trace: N	Sampled by (CO): PESCO
Remarks:	

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.8972	0.8722	0.0990	0.00	0.0087
CO2	0.8298	0.8067	0.1420	0.00	0.0126
Methane	84.7388	82.3755	14.4080	855.86	0.4694
Ethane	7.6073	7.3951	2.0400	134.63	0.0790
Propane	3.1935	3.1044	0.8820	80.35	0.0486
Iso-Butane	0.5557	0.5402	0.1820	18.07	0.0112
N-Butane	0.8387	0.8153	0.2650	27.36	0.0168
I-Pentane	0.3018	0.2934	0.1110	12.07	0.0075
N-Pentane	0.2161	0.2101	0.0790	8.66	0.0054
Hexane Plus	0.8211	0.7982	0.3670	43.28	0.0272
Total	100.0000	97.2111	18.5750	1180.29	0.6863

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z):	1.0032	CYLINDER #:	8002
BTU/CU.FT IDEAL:	1183.0	CYLINDER PRESSURE:	24 PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	1186.8	ANALYSIS DATE:	06/20/2019
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	1166.1	ANALYSIS TIME:	01:58:26 PM
DRY BTU @ 15.025:	1210.6	ANALYSIS RUN BY:	RICHARD WILSON
REAL SPECIFIC GRAVITY:	0.6882		

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: 06/25/2019

GC Method: C6+ Gas



BP - SOUTH BHD PROJECT
WELL ANALYSIS COMPARISON

Lease: MUDGE LS 45;CSG
Stn. No.:
Mtr. No.: API 3004523159

CASING

06/25/2019
15950-10410

Smpl Date:	06/13/2019	10/20/2017
Test Date:	06/20/2019	10/20/2017
Run No:	SO190057	SO170087
Nitrogen:	0.8972	0.2109
CO2:	0.8298	0.7633
Methane:	84.7388	86.3962
Ethane:	7.6073	7.2769
Propane:	3.1935	2.9801
I-Butane:	0.5557	0.5343
N-Butane:	0.8387	0.7772
I-Pentane:	0.3018	0.2816
N-Pentane:	0.2161	0.2003
Hexane+:	0.8211	0.5792
BTU:	1186.8	1175.1
GPM:	18.5750	18.4710
SPG:	0.6882	0.6723