



OCD Received
6/12/2020

Well Name: HARPER 1A MV; BHD
API #: API # 3004522850
Source: BRADENHEAD
Sample Type: GAS
Analysis No: HS200033
Cust No: 35825-12185

Well/Lease Information

Customer Name: HILCORP (BHD PROJECT)
Well Name: HARPER 1A MV; BHD
County/State: SAN JUAN NM
Location:
Lease/PA/CA:
Formation:
Cust. Stn. No.: API # 3004522850
3457130

Source: BRADENHEAD
Well Flowing: Y
Pressure: 69 PSIG
Flow Temp: 79 DEG. F
Ambient Temp: 79 DEG. F
Flow Rate: 0 MCF/D
Sample Method: Purge & Fill
Sample Date: 06/03/2020
Sample Time: 8.26 AM
Sampled By:
Sampled by (CO):

AREA 1 / RUN 109

Heat Trace:

Remarks:

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	3.7772	3.6686	0.4170	0.00	0.0365
CO2	0.0063	0.0061	0.0010	0.00	0.0001
Methane	83.3971	81.0000	14.1760	842.31	0.4619
Ethane	7.6007	7.3822	2.0380	134.51	0.0789
Propane	3.0156	2.9289	0.8330	75.88	0.0459
Iso-Butane	0.5838	0.5670	0.1920	18.98	0.0117
N-Butane	0.7784	0.7560	0.2460	25.39	0.0156
I-Pentane	0.3027	0.2940	0.1110	12.11	0.0075
N-Pentane	0.2090	0.2030	0.0760	8.38	0.0052
Hexane Plus	0.3292	0.3197	0.1470	17.35	0.0109
Total	100.0000	97.1255	18.2370	1134.92	0.6744

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0029
BTU/CU.FT IDEAL: 1137.5
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1140.8
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1121.0
DRY BTU @ 15.025: 1163.6
REAL SPECIFIC GRAVITY: 0.6761

CYLINDER #: 6095
CYLINDER PRESSURE: 27 PSIG
ANALYSIS DATE: 06/08/2020
ANALYSIS TIME: 01:57:04 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: 06/11/2020

GC Method: C6+ Gas



HILCORP (BHD PROJECT)
WELL ANALYSIS COMPARISON

Lease: HARPER 1A MV; BHD
Stn. No.: API # 3004522850
Mtr. No.: 3457130

BRADENHEAD

06/11/2020
35825-12185

Smpl Date: 06/03/2020
Test Date: 06/08/2020
Run No: HS200033

Nitrogen: 3.7772
CO2: 0.0063
Methane: 83.3971
Ethane: 7.6007
Propane: 3.0156
I-Butane: 0.5838
N-Butane: 0.7784
I-Pentane: 0.3027
N-Pentane: 0.2090
Hexane+: 0.3292

BTU: 1140.8
GPM: 18.2370
SPG: 0.6761



Well Name: HARPER 1A MV; CSG
 API #: API # 3004522850
 Source: CASING
 Sample Type: GAS
 Analysis No: HS200034
 Cust No: 35825-12190

Well/Lease Information

Customer Name:	HILCORP (BHD PROJECT)	Source:	CASING
Well Name:	HARPER 1A MV; CSG	Well Flowing:	Y
County/State:	SAN JUAN NM	Pressure:	69 PSIG
Location:		Flow Temp:	79 DEG. F
Lease/PA/CA:		Ambient Temp:	79 DEG. F
Formation:		Flow Rate:	0 MCF/D
Cust. Stn. No.:	API # 3004522850	Sample Method:	Purge & Fill
	3457130	Sample Date:	06/03/2020
	AREA 1 / RUN 109	Sample Time:	8.24 AM
Heat Trace:	N	Sampled By:	
Remarks:		Sampled by (CO):	

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.4167	0.4058	0.0460	0.00	0.0040
CO2	0.8435	0.8215	0.1440	0.00	0.0128
Methane	80.6278	78.5254	13.7170	814.34	0.4466
Ethane	9.4030	9.1578	2.5240	166.40	0.0976
Propane	4.3603	4.2466	1.2060	109.71	0.0664
Iso-Butane	0.7854	0.7649	0.2580	25.54	0.0158
N-Butane	1.3710	1.3352	0.4340	44.73	0.0275
I-Pentane	0.5556	0.5411	0.2040	22.23	0.0138
N-Pentane	0.4688	0.4566	0.1710	18.79	0.0117
Hexane Plus	1.1679	1.1374	0.5230	61.56	0.0387
Total	100.0000	97.3923	19.2270	1263.30	0.7349

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z):	1.0038	CYLINDER #:	4146
BTU/CU.FT IDEAL:	1266.2	CYLINDER PRESSURE:	85 PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	1270.9	ANALYSIS DATE:	06/08/2020
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	1248.8	ANALYSIS TIME:	02:12:47 AM
DRY BTU @ 15.025:	1296.4	ANALYSIS RUN BY:	RICHARD WILSON
REAL SPECIFIC GRAVITY:	0.7373		

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: 06/11/2020

GC Method: C6+ Gas



HILCORP (BHD PROJECT)
WELL ANALYSIS COMPARISON

Lease: HARPER 1A MV; CSG
Stn. No.: API # 3004522850
Mtr. No.: 3457130

CASING

06/11/2020
35825-12190

Smpl Date: 06/03/2020
Test Date: 06/08/2020
Run No: HS200034

Nitrogen: 0.4167
CO2: 0.8435
Methane: 80.6278
Ethane: 9.4030
Propane: 4.3603
I-Butane: 0.7854
N-Butane: 1.3710
I-Pentane: 0.5556
N-Pentane: 0.4688
Hexane+: 1.1679

BTU: 1270.9
GPM: 19.2270
SPG: 0.7373



Well Name: HARPER 1A MV; TBG
 API #: API # 3004522850
 Source: TUBING
 Sample Type: GAS
 Analysis No: HS200035
 Cust No: 35825-12195

Well/Lease Information

Customer Name:	HILCORP (BHD PROJECT)	Source:	TUBING
Well Name:	HARPER 1A MV; TBG	Well Flowing:	Y
County/State:	SAN JUAN NM	Pressure:	67 PSIG
Location:		Flow Temp:	79 DEG. F
Lease/PA/CA:		Ambient Temp:	79 DEG. F
Formation:		Flow Rate:	0 MCF/D
Cust. Stn. No.:	API # 3004522850	Sample Method:	Purge & Fill
	3457130	Sample Date:	06/03/2020
	AREA 1 / RUN 109	Sample Time:	8.22 AM
Heat Trace:	N	Sampled By:	
Remarks:		Sampled by (CO):	HILCORP

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.2925	0.2857	0.0320	0.00	0.0028
CO2	1.1443	1.1179	0.1960	0.00	0.0174
Methane	78.6964	76.8779	13.3900	794.83	0.4359
Ethane	10.6072	10.3621	2.8470	187.72	0.1101
Propane	4.8228	4.7114	1.3340	121.35	0.0734
Iso-Butane	0.8716	0.8515	0.2860	28.34	0.0175
N-Butane	1.5399	1.5043	0.4870	50.24	0.0309
I-Pentane	0.5751	0.5618	0.2110	23.01	0.0143
N-Pentane	0.4529	0.4424	0.1650	18.16	0.0113
Hexane Plus	0.9973	0.9743	0.4460	52.57	0.0330
Total	100.0000	97.6893	19.3940	1276.21	0.7467

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z):	1.0039	CYLINDER #:	4184
BTU/CU.FT IDEAL:	1279.2	CYLINDER PRESSURE:	86 PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	1284.2	ANALYSIS DATE:	06/08/2020
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	1261.9	ANALYSIS TIME:	02:42:19 PM
DRY BTU @ 15.025:	1309.9	ANALYSIS RUN BY:	RICHARD WILSON
REAL SPECIFIC GRAVITY:	0.7493		

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: 06/11/2020

GC Method: C6+ Gas



HILCORP (BHD PROJECT)
WELL ANALYSIS COMPARISON

Lease: HARPER 1A MV; TBG
Stn. No.: API # 3004522850
Mtr. No.: 3457130

TUBING

06/11/2020
35825-12195

Smpl Date: 06/03/2020
Test Date: 06/08/2020
Run No: HS200035

Nitrogen: 0.2925
CO2: 1.1443
Methane: 78.6964
Ethane: 10.6072
Propane: 4.8228
I-Butane: 0.8716
N-Butane: 1.5399
I-Pentane: 0.5751
N-Pentane: 0.4529
Hexane+: 0.9973

BTU: 1284.2
GPM: 19.3940
SPG: 0.7493