



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

Analysis No: HS190140
Cust No: 35825-11115

Well/Lease Information

Customer Name: HILCORP (BHD PROJECT)
Well Name: HELMS FED #1B; CSG
County/State: SAN JUAN NM
Location:
Lease/PA/CA:
Formation: MV
Cust. Str. No.: 98012
API # 3004529998

Source: CASING
Well Flowing: N
Pressure: 82 PSIG
Flow Temp: 72 DEG. F
Ambient Temp: 59 DEG. F
Flow Rate: 0 MCF/D
Sample Method: Purge & Fill
Sample Date: 06/19/2019
Sample Time: 9:57 AM
Sampled By: MICHAEL GURULE
Sampled by (CO): HILCORP

Heat Trace: AREA 3 / RUN 305
Remarks: N

NMOC
JUL 02 2019
DISTRICT III

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.2683	0.2649	0.0300	0.00	0.0026
CO2	0.2110	0.2083	0.0360	0.00	0.0032
Methane	91.9858	90.8061	15.6310	929.06	0.5095
Ethane	4.5980	4.5390	1.2330	81.37	0.0477
Propane	1.5507	1.5308	0.4280	39.02	0.0236
Iso-Butane	0.2904	0.2867	0.0950	9.44	0.0058
N-Butane	0.4460	0.4403	0.1410	14.55	0.0090
I-Pentane	0.1791	0.1768	0.0660	7.17	0.0045
N-Pentane	0.1343	0.1326	0.0490	5.38	0.0033
Hexane Plus	0.3364	0.3321	0.1500	17.73	0.0111
Total	100.0000	98.7176	17.8590	1103.72	0.6204

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0026
BTU/CU.FT IDEAL: 1106.3
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1109.2
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1089.9
DRY BTU @ 15.025: 1131.4
REAL SPECIFIC GRAVITY: 0.6217

CYLINDER #: 4098
CYLINDER PRESSURE: 84 PSIG
ANALYSIS DATE: 06/21/2019
ANALYSIS TIME: 02:41:25 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: 06/26/2019

GC Method: C6+ Gas



HILCORP (BHD PROJECT)
WELL ANALYSIS COMPARISON

Lease: HELMS FED #1B; CSG
Stn. No.: 98012
Mtr. No.: API # 3004529998

CASING
MV

06/26/2019
35825-11115

Smpl Date:	06/19/2019	05/09/2019	08/28/2018
Test Date:	06/21/2019	05/15/2019	09/05/2018
Run No:	HS190140	HS190049	HS180167
Nitrogen:	0.2683	0.2500	0.3559
CO2:	0.2110	0.2820	0.2869
Methane:	91.9858	91.2792	92.3410
Ethane:	4.5980	4.8754	4.9136
Propane:	1.5507	1.7325	1.2803
I-Butane:	0.2904	0.3174	0.1488
N-Butane:	0.4460	0.5222	0.1753
I-Pentane:	0.1791	0.2173	0.0362
N-Pentane:	0.1343	0.1641	0.0302
Hexane+:	0.3364	0.3599	0.4318
BTU:	1109.2	1118.9	1093.0
GPM:	17.8590	17.9420	17.7700
SPG:	0.6217	0.6289	0.6135



2030 Afton Place
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Analysis No: HS190141
Cust No: 35825-11120

Well/Lease Information

Customer Name: HILCORP (BHD PROJECT)
Well Name: HELMS FED #1B; INT CSG
County/State: SAN JUAN NM
Location:
Lease/PA/CA:
Formation: MV
Cust. Stn. No.: 98012
API # 3004529998

Source: INTERMEDIATE CASING
Well Flowing: N
Pressure: 527 PSIG
Flow Temp: 62 DEG. F
Ambient Temp: 59 DEG. F
Flow Rate: 0 MCF/D
Sample Method: Purge & Fill
Sample Date: 06/14/2019
Sample Time: 6.30 AM
Sampled By: MICHAEL GURULE
Sampled by (CO): HILCORP

Heat Trace: N
Remarks:

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.2583	0.2549	0.0280	0.00	0.0025
CO2	0.3309	0.3266	0.0570	0.00	0.0050
Methane	92.2228	91.0131	15.6700	931.45	0.5108
Ethane	4.5380	4.4785	1.2160	80.31	0.0471
Propane	1.4887	1.4692	0.4110	37.46	0.0227
Iso-Butane	0.2696	0.2661	0.0880	8.77	0.0054
N-Butane	0.4056	0.4003	0.1280	13.23	0.0081
I-Pentane	0.1567	0.1546	0.0570	6.27	0.0039
N-Pentane	0.1171	0.1156	0.0430	4.69	0.0029
Hexane Plus	0.2123	0.2095	0.0950	11.19	0.0070
Total	100.0000	98.6884	17.7930	1093.37	0.6155

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0025
BTU/CU.FT IDEAL: 1095.9
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1098.6
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1079.5
DRY BTU @ 15.025: 1120.6
REAL SPECIFIC GRAVITY: 0.6168

CYLINDER #: 6094
CYLINDER PRESSURE: 527 PSIG
ANALYSIS DATE: 06/21/2019
ANALYSIS TIME: 02:20:03 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: 06/26/2019

GC Method: C6+ Gas



HILCORP (BHD PROJECT)
WELL ANALYSIS COMPARISON

Lease: HELMS FED #1B; INT CSG
Stn. No.: 98012
Mtr. No.: API # 3004529998

INTERMEDIATE CASING
MV

06/26/2019
35825-11120

Smpl Date:	06/14/2019	05/09/2019	08/28/2018
Test Date:	06/21/2019	05/15/2019	09/05/2018
Run No:	HS190141	HS190050	HS180168
Nitrogen:	0.2583	0.2219	0.2219
CO2:	0.3309	0.3639	0.3671
Methane:	92.2228	89.1104	87.5496
Ethane:	4.5380	6.3672	6.9174
Propane:	1.4887	2.3702	2.8329
I-Butane:	0.2696	0.4169	0.5002
N-Butane:	0.4056	0.5810	0.7944
I-Pentane:	0.1567	0.1804	0.2603
N-Pentane:	0.1171	0.1280	0.1825
Hexane+:	0.2123	0.2601	0.3737
BTU:	1098.6	1136.6	1163.6
GPM:	17.7930	18.1420	18.3500
SPG:	0.6168	0.6412	0.6586



2030 Afton Place
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Analysis No: HS190142
Cust No: 35825-11125

Well/Lease Information

Customer Name: HILCORP (BHD PROJECT)
Well Name: **HELMS FED #1B**; TBG
County/State: SAN JUAN NM
Location:
Lease/PA/CA:
Formation: MV
Cust. Stn. No.: 98012
API # **3004529998**
AREA 3 / RUN 305
Heat Trace: N
Remarks:

Source: TUBING
Well Flowing: N
Pressure: 81 PSIG
Flow Temp: 72 DEG. F
Ambient Temp: 59 DEG. F
Flow Rate: 0 MCF/D
Sample Method: Purge & Fill
Sample Date: 06/14/2019
Sample Time: 6.30 AM
Sampled By: MICHAEL GURULE
Sampled by (CO): HILCORP

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.2753	0.2700	0.0300	0.00	0.0027
CO2	0.8545	0.8382	0.1460	0.00	0.0130
Methane	78.6841	77.1792	13.3870	794.71	0.4358
Ethane	10.4678	10.2676	2.8090	185.25	0.1087
Propane	5.6110	5.5037	1.5510	141.18	0.0854
Iso-Butane	0.9347	0.9168	0.3070	30.40	0.0188
N-Butane	1.6096	1.5788	0.5090	52.51	0.0323
I-Pentane	0.4885	0.4792	0.1790	19.54	0.0122
N-Pentane	0.4134	0.4055	0.1500	16.57	0.0103
Hexane Plus	0.6611	0.6485	0.2960	34.85	0.0219
Total	100.0000	98.0875	19.3640	1275.01	0.7410

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0038
BTU/CU.FT IDEAL: 1278.0
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1282.8
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1260.5
DRY BTU @ 15.025: 1308.5
REAL SPECIFIC GRAVITY: 0.7435

CYLINDER #: 6097
CYLINDER PRESSURE: 86 PSIG
ANALYSIS DATE: 06/21/2019
ANALYSIS TIME: 02:58:50 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

Last Cal/Verify: 06/26/2019

GC Method: C6+ Gas



HILCORP (BHD PROJECT)
WELL ANALYSIS COMPARISON

Lease: HELMS FED #1B; TBG
Stn. No.: 98012
Mtr. No.: API # 3004529998

TUBING
MV

06/26/2019
35825-11125

Smpl Date:	06/14/2019	05/09/2019
Test Date:	06/21/2019	05/15/2019
Run No:	HS190142	HS190051
Nitrogen:	0.2753	0.2897
CO2:	0.8545	0.8843
Methane:	78.6841	78.4920
Ethane:	10.4678	10.4689
Propane:	5.6110	5.5775
I-Butane:	0.9347	0.9392
N-Butane:	1.6096	1.6158
I-Pentane:	0.4885	0.4987
N-Pentane:	0.4134	0.4237
Hexane+:	0.6611	0.8102
BTU:	1282.8	1289.1
GPM:	19.3640	19.4090
SPG:	0.7435	0.7482