



Well Name: FREEMAN 1B; BHD

API #: 3004532254

Source: BRADENHEAD

Sample Type: GAS

Analysis No: HS20240075

Cust No: 35825-13885

Well/Lease Information

Customer Name: HILCORP (BHD PROJECT)

Well Name: FREEMAN 1B; BHD

County/State: SAN JUAN NM

Location:

Lease/PA/CA:

Formation:

Cust. Stn. No.: 3004532254
85790-01

AREA 2 / RUN 0211

Heat Trace:

Remarks:

Source: BRADENHEAD

Well Flowing: Y

Pressure: 70 PSIG

Flow Temp: DEG. F

Ambient Temp: DEG. F

Flow Rate: MCF/D

Sample Method:

Sample Date: 05/07/2024

Sample Time: 2.00 PM

Sampled By: PETER JIM

Sampled by (CO): HILCORP

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.7451	0.7544	0.0820	0.00	0.0072
CO2	0.0035	0.0035	0.0010	0.00	0.0001
Methane	91.8672	93.0180	15.6090	927.86	0.5089
Ethane	4.1581	4.2102	1.1150	73.59	0.0432
Propane	1.8917	1.9154	0.5220	47.60	0.0288
Iso-Butane	0.4935	0.4997	0.1620	16.05	0.0099
N-Butane	0.5045	0.5108	0.1590	16.46	0.0101
I-Pentane	0.1482	0.1501	0.0540	5.93	0.0037
N-Pentane	0.0911	0.0922	0.0330	3.65	0.0023
Hexane Plus	0.0971	0.0983	0.0430	5.12	0.0032
Total	100.0000	101.2526	17.7800	1096.25	0.6173

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0025
 BTU/CU.FT IDEAL: 1098.8
 BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1101.5
 BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1082.3
 DRY BTU @ 15.025: 1123.6
 REAL SPECIFIC GRAVITY: 0.6186

CYLINDER #: 7016
 CYLINDER PRESSURE: 66 PSIG
 ANALYSIS DATE: 05/14/2024
 ANALYSIS TIME: 10:18:44 AM
 ANALYSIS RUN BY: ALEXIS MITCHELL

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: 05/17/2024

GC Method: C6+ Gas



HILCORP (BHD PROJECT)
WELL ANALYSIS COMPARISON

Lease:	FREEMAN 1B; BHD	BRADENHEAD	05/17/2024
Stn. No.:	3004532254		35825-13885
Mtr. No.:	85790-01		

Smpl Date:	05/07/2024	07/28/2021
Test Date:	05/14/2024	08/04/2021
Run No:	HS20240075	HS2021159
Nitrogen:	0.7451	0.7944
CO2:	0.0035	0.0000
Methane:	91.8672	93.1476
Ethane:	4.1581	4.0300
Propane:	1.8917	1.2368
I-Butane:	0.4935	0.2670
N-Butane:	0.5045	0.2789
I-Pentane:	0.1482	0.0935
N-Pentane:	0.0911	0.0597
Hexane+:	0.0971	0.0921
BTU:	1101.5	1077.1
GPM:	17.7800	17.6070
SPG:	0.6186	0.6033



Well Name: FREEMAN 1B; CSG

API #: 3004532254

Source: CASING

Sample Type: GAS

Analysis No: HS20240076

Cust No: 35825-13890

Well/Lease Information

Customer Name: HILCORP (BHD PROJECT)

Well Name: FREEMAN 1B; CSG

County/State: SAN JUAN NM

Location:

Lease/PA/CA:

Formation:

Cust. Stn. No.: 3004532254
85790-01

AREA 2 / RUN 0211

Heat Trace:

Remarks:

Source: CASING

Well Flowing:

Pressure: 16 PSIG

Flow Temp: DEG. F

Ambient Temp: DEG. F

Flow Rate: MCF/D

Sample Method:

Sample Date: 05/07/2024

Sample Time: 2.00 PM

Sampled By: PETE JIM

Sampled by (CO): HILCORP

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.2758	0.2686	0.0300	0.00	0.0027
CO2	1.1475	1.1177	0.1960	0.00	0.0174
Methane	83.8764	81.7007	14.2630	847.15	0.4646
Ethane	8.2164	8.0033	2.2040	145.41	0.0853
Propane	3.2987	3.2131	0.9120	83.00	0.0502
Iso-Butane	0.6546	0.6376	0.2150	21.29	0.0131
N-Butane	0.8959	0.8727	0.2830	29.23	0.0180
I-Pentane	0.4058	0.3953	0.1490	16.24	0.0101
N-Pentane	0.2651	0.2582	0.0960	10.63	0.0066
Hexane Plus	0.9638	0.9388	0.4310	50.80	0.0319
Total	100.0000	97.4060	18.7790	1203.74	0.6999

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0033
 BTU/CU.FT IDEAL: 1206.5
 BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1210.5
 BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1189.4
 DRY BTU @ 15.025: 1234.7
 REAL SPECIFIC GRAVITY: 0.702

CYLINDER #: 6073
 CYLINDER PRESSURE: 25 PSIG
 ANALYSIS DATE: 05/14/2024
 ANALYSIS TIME: 10:14:36 AM
 ANALYSIS RUN BY: SARAH BALLARD

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: 05/17/2024

GC Method: C6+ Gas



HILCORP (BHD PROJECT)
WELL ANALYSIS COMPARISON

Lease:	FREEMAN 1B; CSG	CASING	05/17/2024
Stn. No.:	3004532254		35825-13890
Mtr. No.:	85790-01		

Smpl Date:	05/07/2024	07/28/2021
Test Date:	05/14/2024	08/04/2021
Run No:	HS20240076	HS2021160
Nitrogen:	0.2758	0.2232
CO2:	1.1475	1.0421
Methane:	83.8764	82.7995
Ethane:	8.2164	9.0666
Propane:	3.2987	3.6735
I-Butane:	0.6546	0.7100
N-Butane:	0.8959	0.9455
I-Pentane:	0.4058	0.3803
N-Pentane:	0.2651	0.2549
Hexane+:	0.9638	0.9044
BTU:	1210.5	1223.2
GPM:	18.7790	18.9010
SPG:	0.7020	0.7078



Well Name: FREEMAN 1B; TBG

API #: 3004532254

Source: TUBING

Sample Type: GAS

Analysis No: HS20240077

Cust No: 35825-13895

Well/Lease Information

Customer Name: HILCORP (BHD PROJECT)

Well Name: FREEMAN 1B; TBG

County/State: SAN JUAN NM

Location:

Lease/PA/CA:

Formation:

Cust. Stn. No.: 3004532254
85790-01

AREA 2 / RUN 0211

Heat Trace:

Remarks:

Source: TUBING

Well Flowing:

Pressure: 16 PSIG

Flow Temp: DEG. F

Ambient Temp: DEG. F

Flow Rate: MCF/D

Sample Method:

Sample Date: 05/07/2024

Sample Time: 2.00 PM

Sampled By: PETE JIM

Sampled by (CO): HILCORP

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.2740	0.2670	0.0300	0.00	0.0027
CO2	1.1458	1.1164	0.1960	0.00	0.0174
Methane	83.8879	81.7377	14.2650	847.27	0.4647
Ethane	8.2332	8.0222	2.2090	145.70	0.0855
Propane	3.3047	3.2200	0.9130	83.15	0.0503
Iso-Butane	0.6563	0.6395	0.2150	21.34	0.0132
N-Butane	0.8977	0.8747	0.2840	29.29	0.0180
I-Pentane	0.4048	0.3944	0.1480	16.20	0.0101
N-Pentane	0.2631	0.2564	0.0960	10.55	0.0066
Hexane Plus	0.9325	0.9086	0.4170	49.15	0.0309
Total	100.0000	97.4369	18.7730	1202.64	0.6992

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0033
 BTU/CU.FT IDEAL: 1205.4
 BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1209.4
 BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1188.4
 DRY BTU @ 15.025: 1233.6
 REAL SPECIFIC GRAVITY: 0.7012

CYLINDER #: 7015
 CYLINDER PRESSURE: 25 PSIG
 ANALYSIS DATE: 05/14/2024
 ANALYSIS TIME: 10:22:54 AM
 ANALYSIS RUN BY: SARAH BALLARD

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: 05/17/2024

GC Method: C6+ Gas



HILCORP (BHD PROJECT)
WELL ANALYSIS COMPARISON

Lease:	FREEMAN 1B; TBG	TUBING	05/17/2024
Stn. No.:	3004532254		35825-13895
Mtr. No.:	85790-01		

Smpl Date:	05/07/2024	07/28/2021
Test Date:	05/14/2024	08/04/2021
Run No:	HS20240077	HS2021161
Nitrogen:	0.2740	0.2242
CO2:	1.1458	1.0458
Methane:	83.8879	82.7722
Ethane:	8.2332	9.0327
Propane:	3.3047	3.6725
I-Butane:	0.6563	0.7203
N-Butane:	0.8977	0.9557
I-Pentane:	0.4048	0.3818
N-Pentane:	0.2631	0.2565
Hexane+:	0.9325	0.9383
BTU:	1209.4	1224.9
GPM:	18.7730	18.9100
SPG:	0.7012	0.7089

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District II
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Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 346168

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 346168
	Action Type: [UF-GA] Gas Analysis (GAS ANALYSIS)

CONDITIONS

Created By	Condition	Condition Date
mkuehling	bh=70 at sampling -not the same gas	8/27/2024