



Well Name: LANDAUER 1E; BHD
 API #: API #3004523791
 Source: BRADENHEAD
 Sample Type: GAS
 Analysis No: HS2021044
 Cust No: 35825-11775

Well/Lease Information

Customer Name:	HILCORP (BHD PROJECT)	Source:	BRADENHEAD
Well Name:	LANDAUER 1E; BHD	Well Flowing:	Y
County/State:	SAN JUAN NM	Pressure:	145 PSIG
Location:		Flow Temp:	DEG. F
Lease/PA/CA:		Ambient Temp:	DEG. F
Formation:		Flow Rate:	MCF/D
Cust. Stn. No.:	API #3004523791	Sample Method:	
		Sample Date:	04/22/2021
		Sample Time:	12.40 PM
		Sampled By:	
		Sampled by (CO):	

Heat Trace: N

Remarks:

AREA 2 / RUN 0211

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.2836	0.2794	0.0310	0.00	0.0027
CO2	0.0087	0.0086	0.0010	0.00	0.0001
Methane	93.8468	92.4413	15.9460	947.85	0.5198
Ethane	2.6376	2.5981	0.7070	46.68	0.0274
Propane	1.4909	1.4686	0.4120	37.51	0.0227
Iso-Butane	0.7324	0.7214	0.2400	23.82	0.0147
N-Butane	0.3726	0.3670	0.1180	12.16	0.0075
I-Pentane	0.3696	0.3641	0.1350	14.79	0.0092
N-Pentane	0.0325	0.0320	0.0120	1.30	0.0008
Hexane Plus	0.2253	0.2219	0.1010	11.88	0.0075
Total	100.0000	98.5024	17.7030	1095.98	0.6124

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z):	1.0025	CYLINDER #:	6088
BTU/CU.FT IDEAL:	1098.5	CYLINDER PRESSURE:	140 PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	1101.3	ANALYSIS DATE:	04/28/2021
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	1082.1	ANALYSIS TIME:	10:16:50 AM
DRY BTU @ 15.025:	1123.4	ANALYSIS RUN BY:	SHYANN GALLEGOS
REAL SPECIFIC GRAVITY:	0.6137		

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: 05/05/2021

GC Method: C6+ Gas



HILCORP (BHD PROJECT)
WELL ANALYSIS COMPARISON

Lease:	LANDAUER 1E; BHD	BRADENHEAD	05/05/2021
Stn. No.:	API #3004523791		35825-11775
Mtr. No.:			

Smpl Date:	04/22/2021	07/26/2019
Test Date:	04/28/2021	08/08/2019
Run No:	HS2021044	HS190205
Nitrogen:	0.2836	0.1574
CO2:	0.0087	0.0150
Methane:	93.8468	93.9490
Ethane:	2.6376	2.6413
Propane:	1.4909	1.4896
I-Butane:	0.7324	0.7617
N-Butane:	0.3726	0.3708
I-Pentane:	0.3696	0.3611
N-Pentane:	0.0325	0.0319
Hexane+:	0.2253	0.2222
BTU:	1101.3	1102.7
GPM:	17.7030	17.7120
SPG:	0.6137	0.6134



Well Name: LANDAUER 1E; CSG
 API #: API #3004523791
 Source: CASING
 Sample Type: GAS
 Analysis No: HS2021045
 Cust No: 35825-11780

Well/Lease Information

Customer Name: HILCORP (BHD PROJECT)
 Well Name: LANDAUER 1E; CSG
 County/State: SAN JUAN NM
 Location:
 Lease/PA/CA:
 Formation:
 Cust. Stn. No.: API #3004523791

Source: CASING
 Well Flowing: Y
 Pressure: PSIG
 Flow Temp: DEG. F
 Ambient Temp: DEG. F
 Flow Rate: MCF/D
 Sample Method:
 Sample Date: 04/22/2021
 Sample Time: 12.47 PM
 Sampled By:
 Sampled by (CO):

Heat Trace: N
 Remarks:

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.4242	0.4196	0.0470	0.00	0.0041
CO2	1.4244	1.4090	0.2440	0.00	0.0216
Methane	88.9987	88.0371	15.1250	898.89	0.4930
Ethane	5.6284	5.5676	1.5090	99.61	0.0584
Propane	1.8174	1.7978	0.5020	45.73	0.0277
Iso-Butane	0.3419	0.3382	0.1120	11.12	0.0069
N-Butane	0.5385	0.5327	0.1700	17.57	0.0108
I-Pentane	0.1831	0.1811	0.0670	7.33	0.0046
N-Pentane	0.1443	0.1427	0.0520	5.78	0.0036
Hexane Plus	0.4991	0.4937	0.2230	26.31	0.0165
Total	100.0000	98.9195	18.0510	1112.32	0.6472

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0027
 BTU/CU.FT IDEAL: 1114.9
 BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1117.9
 BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1098.4
 DRY BTU @ 15.025: 1140.3
 REAL SPECIFIC GRAVITY: 0.6486

CYLINDER #: 6157
 CYLINDER PRESSURE: 69 PSIG
 ANALYSIS DATE: 04/28/2021
 ANALYSIS TIME: 10:32:51 AM
 ANALYSIS RUN BY: SHYANN GALLEGOS

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: 05/05/2021

GC Method: C6+ Gas



HILCORP (BHD PROJECT)
WELL ANALYSIS COMPARISON

Lease: LANDAUER 1E; CSG
Stn. No.: API #3004523791
Mtr. No.:

CASING

05/05/2021
35825-11780

Smpl Date:	04/22/2021	07/26/2019
Test Date:	04/28/2021	08/07/2019
Run No:	HS2021045	HS190206
Nitrogen:	0.4242	0.4659
CO2:	1.4244	1.3141
Methane:	88.9987	89.9518
Ethane:	5.6284	5.1902
Propane:	1.8174	1.6271
I-Butane:	0.3419	0.2969
N-Butane:	0.5385	0.4135
I-Pentane:	0.1831	0.1113
N-Pentane:	0.1443	0.0846
Hexane+:	0.4991	0.5446
BTU:	1117.9	1106.5
GPM:	18.0510	17.9460
SPG:	0.6486	0.6400



Well Name: LANDAUER 1E; TBG
 API #: API #3004523791
 Source: TUBING
 Sample Type: GAS
 Analysis No: HS2021046
 Cust No: 35825-11785

Well/Lease Information

Customer Name: HILCORP (BHD PROJECT)
 Well Name: LANDAUER 1E; TBG
 County/State: SAN JUAN NM
 Location:
 Lease/PA/CA:
 Formation:
 Cust. Stn. No.: API #3004523791
 AREA 2 / RUN 0211
 Heat Trace: N
 Remarks: PRESSURED WITH HELIUM TO 30LBS.

Source: TUBING
 Well Flowing: Y
 Pressure: 80 PSIG
 Flow Temp: DEG. F
 Ambient Temp: DEG. F
 Flow Rate: MCF/D
 Sample Method:
 Sample Date: 04/22/2021
 Sample Time: 12.43 PM
 Sampled By:
 Sampled by (CO):

Analysis

Component::	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	10.1747	2.7493	1.1220	0.00	0.0984
CO2	1.2302	0.3324	0.2100	0.00	0.0187
Methane	81.4013	21.9954	13.8280	822.15	0.4509
Ethane	4.5739	1.2359	1.2260	80.94	0.0475
Propane	1.3593	0.3673	0.3750	34.20	0.0207
Iso-Butane	0.2295	0.0620	0.0750	7.46	0.0046
N-Butane	0.3220	0.0870	0.1020	10.50	0.0065
I-Pentane	0.1214	0.0328	0.0440	4.86	0.0030
N-Pentane	0.0936	0.0253	0.0340	3.75	0.0023
Hexane Plus	0.4941	0.1335	0.2210	26.04	0.0164
Total	100.0000	27.0209	17.2370	989.92	0.6689

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z):	1.0023	CYLINDER #:	7044
BTU/CU.FT IDEAL:	992.2	CYLINDER PRESSURE:	0 PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	994.5	ANALYSIS DATE:	04/28/2021
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	977.2	ANALYSIS TIME:	10:50:03 AM
DRY BTU @ 15.025:	1014.4	ANALYSIS RUN BY:	SHYANN GALLEGOS
REAL SPECIFIC GRAVITY:	0.6702		

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: 05/05/2021

GC Method: C6+ Gas



HILCORP (BHD PROJECT)
WELL ANALYSIS COMPARISON

Lease:	LANDAUER 1E; TBG	TUBING	05/05/2021
Stn. No.:	API #3004523791		35825-11785
Mtr. No.:			

Smpl Date:	04/22/2021	07/26/2019
Test Date:	04/28/2021	08/08/2019
Run No:	HS2021046	HS190207
Nitrogen:	10.1747	0.5998
CO2:	1.2302	1.5008
Methane:	81.4013	88.5102
Ethane:	4.5739	5.8740
Propane:	1.3593	1.8226
I-Butane:	0.2295	0.3237
N-Butane:	0.3220	0.4418
I-Pentane:	0.1214	0.1710
N-Pentane:	0.0936	0.1329
Hexane+:	0.4941	0.6232
BTU:	994.5	1119.4
GPM:	17.2370	18.0800
SPG:	0.6702	0.6527

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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 27520

CONDITIONS OF APPROVAL

Operator:	HILCORP ENERGY COMPANY	1111 Travis Street	Houston, TX77002	OGRID:	372171	Action Number:	27520	Action Type:	GAS ANALYSIS
OCD Reviewer	Condition								
mkuehling	None								