



Hilcorp 382 CR 3100 Aztec NM, 87410	Project: Braden Head Project Name / Number: Area 9 Bradenhead samples Project Manager: Bill Eaves	<b>Reported:</b> 07/09/25 12:32
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Lively 21N API # 3003930380

2507026-02 (Bradenhead Water)

Sampled Date: 06/25/25 00:00

Sampled By:

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Chloride*	<9.94	20.0	9.94	mg/L	20	07/08/25 23:08	EPA 300.0		AWG
pH*	11.8			pH Units	1	07/03/25 12:50	EPA 150.1/9040C	H	HIC
pH Temperature, degrees C	17.6			pH Units	1	07/03/25 12:50	EPA 150.1/9040C	H	HIC
Sulfate*	197	20.0	11.3	mg/L	20	07/08/25 23:08	EPA 300.0		AWG
Total Dissolved Solids*	810	10.0		mg/L	1	07/03/25 15:16	EPA 160.1/SM 2540C	H2	AES

Green Analytical Laboratories

Report Station For Jeremy D Allen, Laboratory Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. In no event shall Green Analytical Laboratories be liable for incidental or consequential damages. GALs liability, and clients exclusive remedy for any claim arising, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever, shall be deemed waived unless made in writing and received within thirty days after completion of the applicable service.



Hilcorp 382 CR 3100 Aztec NM, 87410	Project: Formation Comparison Project Name / Number: [none] Project Manager: Bill Eaves	Reported: 08/20/25 14:58
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Lively 21N API # 3003930380

2508211-01 (Produced Water)

Sampled Date: 08/07/25 08:00

Sampled By:

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Total as CaCO3*	1250	10.0	5.55	mg/L	5	08/18/25 08:33	2320 B		SCE
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0	5.55	mg/L	5	08/18/25 08:33	2320 B		SCE
Alkalinity, Carbonate as CaCO3*	360	10.0	5.55	mg/L	5	08/18/25 08:33	2320 B		SCE
Alkalinity, Bicarbonate as CaCO3*	885	10.0	5.55	mg/L	5	08/18/25 08:33	2320 B		SCE
Chloride*	9090	100	49.7	mg/L	100	08/16/25 12:07	EPA 300.0		AWG
Sulfate*	661	100	56.3	mg/L	100	08/16/25 12:07	EPA 300.0		AWG
Total Dissolved Solids*	16700	80.0		mg/L	8	08/13/25 15:50	EPA 160.1/SM 2540C		SCE

**Potentially Dissolved Metals by ICP**

Calcium*	54.3	2.00	1.45	mg/L	20	08/18/25 16:41	EPA 200.7		AWG
Iron*	1.96	1.00	0.692	mg/L	20	08/18/25 16:41	EPA 200.7		AWG
Magnesium*	12.1	2.00	1.59	mg/L	20	08/18/25 16:41	EPA 200.7		AWG
Sodium*	5510	20.0	15.1	mg/L	20	08/18/25 16:41	EPA 200.7		AWG

Green Analytical Laboratories

Reporting Station For Jeremy D Allen, Laboratory Director

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Well Name: LIVELY 21N; CSG  
 API #: API # 3003930380  
 Source: CASING  
 Sample Type: GAS  
 Analysis No: HS20250063  
 Cust No: 35825-11745

**Well/Lease Information**

Customer Name: HILCORP (BHD PROJECT)  
 Well Name: LIVELY 21N; CSG  
 County/State: SAN JUAN NM  
 Location:  
 Lease/PA/CA:  
 Formation:  
 Cust. Stn. No.: API # 3003930380  
 88-396  
 AREA 9 / RUN 905  
 Heat Trace:  
 Remarks:

Source: CASING  
 Well Flowing: N  
 Pressure: 135 PSIG  
 Flow Temp: DEG. F  
 Ambient Temp: 85 DEG. F  
 Flow Rate: MCF/D  
 Sample Method: Purge & Fill  
 Sample Date: 06/27/2025  
 Sample Time: 11.00 AM  
 Sampled By: SHAWN ERRETT  
 Sampled by (CO): HEC

**Analysis**

Component:	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	1.1217	1.1193	0.1240	0.00	0.0108
CO2	0.5841	0.5828	0.1000	0.00	0.0089
Methane	72.5036	72.3471	12.3460	732.29	0.4016
Ethane	10.6018	10.5789	2.8480	187.62	0.1101
Propane	7.5864	7.5700	2.0990	190.88	0.1155
Iso-Butane	1.5701	1.5667	0.5160	51.06	0.0315
N-Butane	3.0085	3.0020	0.9530	98.15	0.0604
I-Pentane	1.3617	1.3588	0.5000	54.48	0.0339
N-Pentane	1.0304	1.0282	0.3750	41.31	0.0257
Hexane Plus	0.6317	0.6303	0.2830	33.30	0.0209
<b>Total</b>	<b>100.0000</b>	<b>99.7841</b>	<b>20.1440</b>	<b>1389.08</b>	<b>0.8193</b>

\* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

\*\*@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0047  
 BTU/CU.FT IDEAL: 1392.3  
 BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1398.9  
 BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1374.6  
 DRY BTU @ 15.025: 1426.9  
 REAL SPECIFIC GRAVITY: 0.8228

CYLINDER #: 4022  
 CYLINDER PRESSURE: 117 PSIG  
 ANALYSIS DATE: 07/07/2025  
 ANALYSIS TIME: 08:15:47 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: 07/14/2025

GC Method: C6+ Gas



HILCORP (BHD PROJECT)  
WELL ANALYSIS COMPARISON

<b>Lease:</b>	LIVELY 21N; CSG	CASING	07/14/2025
<b>Stn. No.:</b>	API # 3003930380		35825-11745
<b>Mtr. No.:</b>	88-396		

<b>Smpl Date:</b>	06/27/2025	08/30/2019	07/24/2019
<b>Test Date:</b>	07/07/2025	09/05/2019	08/05/2019
<b>Run No:</b>	HS20250063	HS190259	HS190196
<b>Nitrogen:</b>	1.1217	2.1416	2.2110
<b>CO2:</b>	0.5841	1.1589	0.8354
<b>Methane:</b>	72.5036	70.3736	71.1795
<b>Ethane:</b>	10.6018	11.1922	11.2505
<b>Propane:</b>	7.5864	7.7355	7.6947
<b>I-Butane:</b>	1.5701	1.5650	1.5253
<b>N-Butane:</b>	3.0085	3.0123	2.8787
<b>I-Pentane:</b>	1.3617	1.2731	1.1345
<b>N-Pentane:</b>	1.0304	0.9837	0.8466
<b>Hexane+:</b>	0.6317	0.5641	0.4438
<b>BTU:</b>	1398.9	1382.4	1367.1
<b>GPM:</b>	20.1440	20.1140	19.9920
<b>SPG:</b>	0.8228	0.8324	0.8181



Well Name: LIVELY 21N; TBG  
 API #: API # 3003930380  
 Source: TUBING  
 Sample Type: GAS  
 Analysis No: HS20250064  
 Cust No: 35825-11750

**Well/Lease Information**

Customer Name: HILCORP (BHD PROJECT)  
 Well Name: LIVELY 21N; TBG  
 County/State: SAN JUAN NM  
 Location:  
 Lease/PA/CA:  
 Formation:  
 Cust. Stn. No.: API # 3003930380  
 88-396

Source: TUBING  
 Well Flowing: N  
 Pressure: PSIG  
 Flow Temp: DEG. F  
 Ambient Temp: DEG. F  
 Flow Rate: MCF/D  
 Sample Method: Purge & Fill  
 Sample Date: 06/27/2025  
 Sample Time: 11.02 AM  
 Sampled By: SHAWN ERRETT  
 Sampled by (CO): HEC

AREA 9 / RUN 905

Heat Trace:  
 Remarks:

**Analysis**

Component:	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.5936	0.5944	0.0660	0.00	0.0057
CO2	0.6822	0.6831	0.1170	0.00	0.0104
Methane	77.9861	78.0877	13.2690	787.66	0.4320
Ethane	10.8494	10.8635	2.9120	192.00	0.1126
Propane	5.5592	5.5664	1.5370	139.88	0.0846
Iso-Butane	0.7141	0.7150	0.2350	23.22	0.0143
N-Butane	1.6357	1.6378	0.5180	53.36	0.0328
I-Pentane	0.5246	0.5253	0.1930	20.99	0.0131
N-Pentane	0.4858	0.4864	0.1770	19.47	0.0121
Hexane Plus	0.9693	0.9706	0.4340	51.09	0.0321
<b>Total</b>	<b>100.0000</b>	<b>100.1302</b>	<b>19.4580</b>	<b>1287.68</b>	<b>0.7498</b>

\* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

\*\*@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0039  
 BTU/CU.FT IDEAL: 1290.7  
 BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1295.7  
 BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1273.2  
 DRY BTU @ 15.025: 1321.6  
 REAL SPECIFIC GRAVITY: 0.7524

CYLINDER #: 6008  
 CYLINDER PRESSURE: 83 PSIG  
 ANALYSIS DATE: 07/07/2025  
 ANALYSIS TIME: 08:05:41 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: 07/14/2025

GC Method: C6+ Gas



HILCORP (BHD PROJECT)  
WELL ANALYSIS COMPARISON

<b>Lease:</b>	LIVELY 21N; TBG	TUBING	07/14/2025
<b>Stn. No.:</b>	API # 3003930380		35825-11750
<b>Mtr. No.:</b>	88-396		

<b>Smpl Date:</b>	06/27/2025	08/30/2019	07/24/2019
<b>Test Date:</b>	07/07/2025	09/05/2019	08/05/2019
<b>Run No:</b>	HS20250064	HS190260	HS190197
<b>Nitrogen:</b>	0.5936	0.6251	0.6855
<b>CO2:</b>	0.6822	0.6381	0.5881
<b>Methane:</b>	77.9861	75.4698	74.3558
<b>Ethane:</b>	10.8494	12.1346	12.0848
<b>Propane:</b>	5.5592	6.8875	7.0575
<b>I-Butane:</b>	0.7141	1.1121	1.1344
<b>N-Butane:</b>	1.6357	1.9843	2.0111
<b>I-Pentane:</b>	0.5246	0.3177	0.6534
<b>N-Pentane:</b>	0.4858	0.2222	0.5220
<b>Hexane+:</b>	0.9693	0.6086	0.9074
<b>BTU:</b>	1295.7	1313.2	1348.7
<b>GPM:</b>	19.4580	19.6450	19.8770
<b>SPG:</b>	0.7524	0.7631	0.7858

Sante Fe Main Office  
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General Information  
Phone: (505) 629-6116

Online Phone Directory  
<https://www.emnrd.nm.gov/ocd/contact-us>

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

CONDITIONS

Action 498471

**CONDITIONS**

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 498471
	Action Type: [UF-GA] Gas Analysis (GAS ANALYSIS)

**CONDITIONS**

Created By	Condition	Condition Date
jagarcia	Accepted for record	4/9/2026