



75 Suttle Street
Durango, CO 81303
970.247.4220 Phone
970.247.4227 Fax
www.greenanalytical.com

25 July 2023

Kevin Fredrickson
Hilcorp
382 CR 3100
Aztec, NM 87410
RE: North

Enclosed are the results of analyses for samples received by the laboratory on 07/20/23 12:15. The data to follow was performed, in whole or in part, by Green Analytical Laboratories. Any data that was performed by a subcontract laboratory is included within the GAL report, or with an additional report attached.

If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink that reads "Veronica J. Wells".

Veronica Wells
Project Manager

All accredited analytes contained in this report are denoted by an asterisk (*). For a complete list of accredited analytes please do not hesitate to contact us via any of the contact information contained in this report. All of our certifications can be viewed at <http://greenanalytical.com/certifications/>

Green Analytical Laboratories is NELAP accredited through the Texas Commission on Environmental Quality. Accreditation applies to drinking water and non-potable water matrices for trace metals and a variety of inorganic parameters. Green Analytical Laboratories is also accredited through the Colorado Department of Public Health and Environment and EPA region 8 for trace metals, Cyanide, Fluoride, Nitrate, and Nitrite in drinking water. TNI Certificate Number: T104704514-23-17

Our affiliate laboratory, Cardinal Laboratories, is also NELAP accredited through the Texas Commission on Environmental Quality for a variety of organic constituents in drinking water, non-potable water and solid matrices. Cardinal is also accredited for regulated VOCs, TTHM, and HAA-5 in drinking water through the Colorado Department of Public Health and Environment and EPA region 8. TNI Certificate Number: T104704398-23-16



jeremy.allen@greenanalytical.com p: 970.247.4220 f: 970.247.4227 75 Suttle Street Durango, CO 81303

www.GreenAnalytical.com

Hilcorp	Project: Braden Head	
382 CR 3100	Project Name / Number: North	Reported:
Aztec NM, 87410	Project Manager: Kevin Fredrickson	07/25/23 16:10

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
Sam Cooley 1	2307190-04	Water	07/19/23 15:00	07/20/23 12:15	

Green Analytical Laboratories

Veronica Wells, Project Manager

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.



jeremy.allen@greenanalytical.com p: 970.247.4220 f: 970.247.4227 75 Suttle Street Durango, CO 81303

www.GreenAnalytical.com

Hilcorp
382 CR 3100
Aztec NM, 87410

Project: Braden Head
Project Name / Number: North
Project Manager: Kevin Fredrickson

Reported:
07/25/23 16:10

Sam Cooley 1

2307190-04 (Produced Water)

Sampled Date: 07/19/23 15:00

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
---------	--------	----	-----	-------	----------	----------	--------	-------	---------

General Chemistry

Alkalinity, Total as CaCO3*	495	10.0	6.06	mg/L	5	07/25/23 00:00	2320 B		AES
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0	6.06	mg/L	5	07/25/23 00:00	2320 B		AES
Alkalinity, Carbonate as CaCO3*	80.0	10.0	6.06	mg/L	5	07/25/23 00:00	2320 B		AES
Alkalinity, Bicarbonate as CaCO3*	415	10.0	6.06	mg/L	5	07/25/23 00:00	2320 B		AES
Chloride*	2180	100	5.55	mg/L	100	07/21/23 01:39	EPA300.0		AWG
Sulfate*	10400	100	12.4	mg/L	100	07/21/23 01:39	EPA300.0		AWG
Total Dissolved Solids*	19500	40.0		mg/L	4	07/21/23 14:16	EPA160.1		CAI

Potentially Dissolved Metals by ICP

Calcium*	155	2.00	1.24	mg/L	20	07/25/23 11:54	EPA200.7		AES
Iron*	4.24	1.00	0.302	mg/L	20	07/25/23 11:54	EPA200.7		AES
Magnesium*	25.7	2.00	0.702	mg/L	20	07/25/23 11:54	EPA200.7		AES
Sodium*	5530	20.0	8.18	mg/L	20	07/25/23 11:54	EPA200.7		AES

Green Analytical Laboratories

Veronica Wells, Project Manager

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.



jeremy.allen@greenanalytical.com p: 970.247.4220 f: 970.247.4227 75 Suttle Street Durango, CO 81303

www.GreenAnalytical.com

Hilcorp 382 CR 3100 Aztec NM, 87410	Project: Braden Head Project Name / Number: North Project Manager: Kevin Fredrickson	Reported: 07/25/23 16:10
---	--	-----------------------------

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B232090 - IC- Ion Chromatograph

Blank (B232090-BLK1)		Prepared & Analyzed: 07/20/23								
Chloride	ND	1.00	mg/L							
Sulfate	ND	1.00	mg/L							

LCS (B232090-BS1)		Prepared & Analyzed: 07/20/23								
Chloride	25.8	1.00	mg/L	25.0		103	90-110			
Sulfate	24.8	1.00	mg/L	25.0		99.1	90-110			

LCS Dup (B232090-BSD1)		Prepared & Analyzed: 07/20/23								
Chloride	25.9	1.00	mg/L	25.0		103	90-110	0.0813	20	
Sulfate	24.8	1.00	mg/L	25.0		99.4	90-110	0.282	20	

Batch B232097 - General Prep - Wet Chem

Blank (B232097-BLK1)		Prepared & Analyzed: 07/21/23								
Total Dissolved Solids	ND	10.0	mg/L							

Reference (B232097-SRM1)		Prepared & Analyzed: 07/21/23								
Total Dissolved Solids	375	10.0	mg/L	400		93.7	85-115			

Batch B232121 - General Prep - Wet Chem

Blank (B232121-BLK1)		Prepared: 07/24/23 Analyzed: 07/25/23								
Alkalinity, Bicarbonate as CaCO3	ND	10.0	mg/L							
Alkalinity, Carbonate as CaCO3	ND	10.0	mg/L							
Alkalinity, Hydroxide as CaCO3	ND	10.0	mg/L							
Alkalinity, Total as CaCO3	ND	10.0	mg/L							

LCS (B232121-BS1)		Prepared: 07/24/23 Analyzed: 07/25/23								
Alkalinity, Total as CaCO3	92.0	10.0	mg/L	100		92.0	85-115			

LCS Dup (B232121-BSD1)		Prepared: 07/24/23 Analyzed: 07/25/23								
Alkalinity, Total as CaCO3	99.0	10.0	mg/L	100		99.0	85-115	7.33	20	

Reference (B232121-SRM1)		Prepared: 07/24/23 Analyzed: 07/25/23								
Alkalinity, Total as CaCO3	79.0	10.0	mg/L	72.7		109	85-115			

Green Analytical Laboratories

Veronica Wells, Project Manager

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.



jeremy.allen@greenanalytical.com p: 970.247.4220 f: 970.247.4227 75 Suttle Street Durango, CO 81303

www.GreenAnalytical.com

Hilcorp
382 CR 3100
Aztec NM, 87410

Project: Braden Head
Project Name / Number: North
Project Manager: Kevin Fredrickson

Reported:
07/25/23 16:10

Potentially Dissolved Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B232127 - Potentially Dissolved ICP

Blank (B232127-BLK1)

Prepared & Analyzed: 07/25/23

Calcium	ND	0.100	mg/L							
Iron	ND	0.050	mg/L							
Magnesium	ND	0.100	mg/L							
Sodium	ND	1.00	mg/L							

LCS (B232127-BS1)

Prepared & Analyzed: 07/25/23

Calcium	3.84	0.100	mg/L	4.00		96.0	85-115			
Iron	3.88	0.050	mg/L	4.00		97.1	85-115			
Magnesium	19.7	0.100	mg/L	20.0		98.5	85-115			
Sodium	3.34	1.00	mg/L	3.24		103	85-115			

LCS Dup (B232127-BSD1)

Prepared & Analyzed: 07/25/23

Calcium	3.86	0.100	mg/L	4.00		96.4	85-115	0.355	20	
Iron	3.91	0.050	mg/L	4.00		97.6	85-115	0.591	20	
Magnesium	19.7	0.100	mg/L	20.0		98.6	85-115	0.121	20	
Sodium	3.34	1.00	mg/L	3.24		103	85-115	0.0127	20	

Notes and Definitions

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
*Results reported on as received basis unless designated as dry.
- RPD Relative Percent Difference
- LCS Laboratory Control Sample (Blank Spike)
- RL Report Limit
- MDL Method Detection Limit

Green Analytical Laboratories

Veronica Wells, Project Manager

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.

Project Information

Printed: 07/20/2023 1:29 pm

Hilcorp

382 CR 3100

Aztec, NM 87410

Laboratory PM: Veronica Wells

Hilcorp

Phone: (505) 599-4005

Fax: (505) 599-4005

Project Name: Braden Head
Project Number:
Client PM: Kevin Fredrickson
Comments:

Analysis	Comment
----------	---------

Chloride [IC]

pH

Sulfate [IC]

Total Dissolved Solids [TDS]

Project Information

Printed: 07/20/2023 1:29 pm

Hilcorp

382 CR 3100

Aztec, NM 87410

Laboratory PM: Veronica Wells

Hilcorp

Phone: (505) 599-4005

Fax: (505) 599-4005

Project Name: Formation Comparison

Project Number:

Client PM: Kevin Fredrickson

Comments:

Analysis	Comment
Alkalinity, Total	
Calcium Potentially Dissolved by ICP	
Chloride [IC]	
Iron Potentially Dissolved by ICP	
Magnesium Potentially Dissolved by ICP	
Sodium Potentially Dissolved by ICP	
Sulfate [IC]	
Total Dissolved Solids [TDS]	
Potentially Dissolved Metals are not filtered.	



SAMPLE CONDITION RECEIPT FORM

Client Name: HILCORP

Work Order # 2307-190

Courier: Fed Ex UPS USPS Client Kangaroo

Custody Seals on Box/Cooler Present: Yes No Seals Intact: Yes No

Thermometer Used: #2 Samples on ice, cooling process has begun: Yes No

Type of Ice: Wet Blue None

Cooler Temp: Observed Temp: 26.5 °C Correction Factor: 0 °C Final Temp: 25.5 °C

* Temp should be above freezing to 6°C

Date/Initials of person examining contents:	<u>7/20/23</u> <u>[Signature]</u>
Labeled by initials: (if different than above)	_____

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3.
Sampler Name and Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Samples arrived within hold time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input type="checkbox"/> No	6. <u>pH /</u>
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. <u>3 Day T.A.T.</u>
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Dissolved Testing Needed:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	11. <u>POURED OFF / ACIDIFIED 7/20 @ 13:40</u>
Field Filtered: <input type="checkbox"/> Yes <input type="checkbox"/> No		
Sample Labels match COC: -Includes Date/Time/ID	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12.
Matrix:	<input checked="" type="checkbox"/> WY <input type="checkbox"/> SL <input type="checkbox"/> OT	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

Client Notification/Resolution:

Person Contacted: _____

Date/Time: _____

Comments/Resolution: _____

District I
 1625 N. French Dr., Hobbs, NM 88240
 Phone:(575) 393-6161 Fax:(575) 393-0720

District II
 811 S. First St., Artesia, NM 88210
 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 244511

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 244511
	Action Type: [UF-GA] Gas Analysis (GAS ANALYSIS)

CONDITIONS

Created By	Condition	Condition Date
mkuehling	TDS ND	9/20/2023