



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

26 June 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 06/13/23 12:20. 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

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Hilcorp
382 CR 3100
Aztec NM, 87410

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

Reported:
06/26/23 11:46

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
Aztec Com 4 # 2 H	2306147-01	Water	06/13/23 07:00	06/13/23 12:20	
Fee 3B	2306147-02	Water	06/13/23 08:00	06/13/23 12:20	

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Veronica Wells, Project Manager

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

Reported:
06/26/23 11:46

Aztec Com 4 # 2 H**2306147-01 (Produced Water)****Sampled Date: 06/13/23 07:00**

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

Chloride*	56.9	25.0	1.39	mg/L	25	06/23/23 13:36	EPA300.0		AWG
pH*	12.7			pH Units	1	06/15/23 16:35	EPA150.1	H4	KRW
pH Temperature, degrees C	20.8			pH Units	1	06/15/23 16:35	EPA150.1	H4	KRW
Sulfate*	26.8	25.0	3.10	mg/L	25	06/23/23 13:36	EPA300.0		AWG
Total Dissolved Solids*	5380	40.0		mg/L	4	06/15/23 12:30	EPA160.1		CAI

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Hilcorp
382 CR 3100
Aztec NM, 87410

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

Reported:
06/26/23 11:46

Fee 3B**2306147-02 (Produced Water)****Sampled Date: 06/13/23 08:00**

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

Chloride*	526	25.0	1.39	mg/L	25	06/21/23 21:44	EPA300.0		AES
pH*	11.0			pH Units	1	06/15/23 16:35	EPA150.1	H4	KRW
pH Temperature, degrees C	20.1			pH Units	1	06/15/23 16:35	EPA150.1	H4	KRW
Sulfate*	398	25.0	3.10	mg/L	25	06/21/23 21:44	EPA300.0		AES
Total Dissolved Solids*	3900	20.0		mg/L	2	06/15/23 12:32	EPA160.1		CAI

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382 CR 3100
Aztec NM, 87410

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

Reported:
06/26/23 11:46

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B231679 - General Prep - Wet Chem										
Reference (B231679-SRM1)				Prepared & Analyzed: 06/15/23						
pH	7.07		pH Units	7.00		101	98.57-101.42			
Batch B231680 - General Prep - Wet Chem										
Blank (B231680-BLK1)				Prepared & Analyzed: 06/15/23						
Total Dissolved Solids	ND	10.0	mg/L							
Reference (B231680-SRM1)				Prepared & Analyzed: 06/15/23						
Total Dissolved Solids	400	10.0	mg/L	400		100	85-115			
Batch B231755 - IC- Ion Chromatograph										
Blank (B231755-BLK1)				Prepared & Analyzed: 06/21/23						
Chloride	ND	1.00	mg/L							
Sulfate	ND	1.00	mg/L							
LCS (B231755-BS1)				Prepared & Analyzed: 06/21/23						
Chloride	24.8	1.00	mg/L	25.0		99.3	90-110			
Sulfate	24.1	1.00	mg/L	25.0		96.3	90-110			
LCS Dup (B231755-BSD1)				Prepared & Analyzed: 06/21/23						
Chloride	25.1	1.00	mg/L	25.0		100	90-110	1.21	20	
Sulfate	24.4	1.00	mg/L	25.0		97.5	90-110	1.31	20	
Batch B231784 - IC- Ion Chromatograph										
Blank (B231784-BLK1)				Prepared & Analyzed: 06/23/23						
Chloride	ND	1.00	mg/L							
Sulfate	ND	1.00	mg/L							
LCS (B231784-BS1)				Prepared & Analyzed: 06/23/23						
Chloride	25.0	1.00	mg/L	25.0		99.9	90-110			
Sulfate	24.1	1.00	mg/L	25.0		96.6	90-110			
LCS Dup (B231784-BSD1)				Prepared & Analyzed: 06/23/23						
Chloride	25.0	1.00	mg/L	25.0		100	90-110	0.0881	20	
Sulfate	24.1	1.00	mg/L	25.0		96.6	90-110	0.0207	20	

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Veronica Wells, Project Manager

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Hilcorp 382 CR 3100 Aztec NM, 87410	Project: Braden Head Project Name / Number: North Project Manager: Kevin Fredrickson	Reported: 06/26/23 11:46
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Notes and Definitions

H4 pH analysis performed more than 48 hours after sampling.

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

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CHAIN OF CUSTODY RECORD	
GAL Work Order #	2306-147
PO#	
Project Name:	

(1)Casing, (2)CO₂GasTube, (3)Coupon, (4)Water, (5)H₂SGasTube, (6)Metals
(7)O₂GasTube, (8)PipeSection, (9)Residual, (10)Sludge, (11)Solid, (12)Tubing, (13)Other

Relinquished by:	Date:	Time:	Received By:	Date:	Time:
<i>Christie Gail</i>	<i>6-13-23</i>	<i>12:20</i>	<i>Christie Gail</i>	<i>6/13/23</i>	<i>1220</i>
	<i>6/13/23</i>	<i>1655</i>	<i>Kimproo Express</i>	<i>6/13/23</i>	<i>16</i>

6/14/23 08:40
4.2°C ON Ice LASER # 2

Project Information

Printed: 06/14/2023 8:54 am

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]	



SAMPLE CONDITION RECEIPT FORM

Client Name: HIL CORPWork Order # 2306-147Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☒ KangarooCustody Seals on Box/Cooler Present: ☐ Yes ☒ NoSeals Intact: ☐ Yes ☐ NoThermometer Used: #2 Samples on ice, cooling process has begun: ☒ Yes ☐ NoType of Ice: ☒ Wet ☐ Blue ☐ NoneCooler Temp: Observed Temp 4.2 °C Correction Factor: 0 °C Final Temp 4.2 °C
*Temp should be above freezing to 6°CDate/Initials of person
examining contents: 6/14/23
EELabeled 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 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. <u>PH</u>
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
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.
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:	<u>WT</u> SL 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 232881

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 232881
	Action Type: [UF-GA] Gas Analysis (GAS ANALYSIS)

CONDITIONS

Created By	Condition	Condition Date
mkuehling	TDS 5380 bradenhead has production water	9/22/2023