



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 16:01

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
Calloway 2	2307190-02	Water	07/19/23 08:00	07/20/23 12:15	

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

Veronica Wells, Project Manager

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

Reported:
07/25/23 16:01

Calloway 2**2307190-02 (Produced Water)****Sampled Date: 07/19/23 08:00**

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

Chloride*	3470	100	5.55	mg/L	100	07/21/23 00:16	EPA300.0		AWG
pH*	11.7			pH Units	1	07/20/23 14:00	EPA150.1		KRW
pH Temperature, degrees C	19.3			pH Units	1	07/20/23 14:00	EPA150.1		KRW
Sulfate*	4290	100	12.4	mg/L	100	07/21/23 00:16	EPA300.0		AWG
Total Dissolved Solids*	12200	20.0		mg/L	2	07/21/23 14:12	EPA160.1		CAI

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

Reported:
07/25/23 16:01

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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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 B232092 - General Prep - Wet Chem

Reference (B232092-SRM1)

Prepared & Analyzed: 07/20/23

pH	10.1		pH Units	10.0		101	98.57-101.42			
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Batch B232097 - General Prep - Wet Chem

Blank (B232097-BLK1)

Prepared & Analyzed: 07/21/23

Total Dissolved Solids	ND	10.0	mg/L							
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Reference (B232097-SRM1)

Prepared & Analyzed: 07/21/23

Total Dissolved Solids	375	10.0	mg/L	400		93.7	85-115			
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Hilcorp 382 CR 3100 Aztec NM, 87410	Project: Braden Head Project Name / Number: North Project Manager: Kevin Fredrickson	Reported: 07/25/23 16:01
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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

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Hilcorp	Project: Formation Comparison	
382 CR 3100	Project Name / Number: North	Reported:
Aztec NM, 87410	Project Manager: Kevin Fredrickson	07/26/23 11:10

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
Calloway 2	2307200-01	Water	07/19/23 08:00	07/21/23 08:30	

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Hilcorp
382 CR 3100
Aztec NM, 87410

Project: Formation Comparison
Project Name / Number: North
Project Manager: Kevin Fredrickson

Reported:
07/26/23 11:10

Calloway 2**2307200-01 (Produced Water)****Sampled Date: 07/19/23 08:00**

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

Alkalinity, Total as CaCO ₃ *	1020	10.0	6.06	mg/L	2	07/25/23 00:00	2320 B		AES
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0	6.06	mg/L	2	07/25/23 00:00	2320 B		AES
Alkalinity, Carbonate as CaCO ₃ *	164	10.0	6.06	mg/L	2	07/25/23 00:00	2320 B		AES
Alkalinity, Bicarbonate as CaCO ₃ *	852	10.0	6.06	mg/L	2	07/25/23 00:00	2320 B		AES
Chloride*	5050	100	5.55	mg/L	100	07/24/23 22:17	EPA300.0		AWG
Sulfate*	<12.4	100	12.4	mg/L	100	07/24/23 22:17	EPA300.0		AWG
Total Dissolved Solids*	8970	20.0		mg/L	2	07/21/23 14:22	EPA160.1		CAI

Potentially Dissolved Metals by ICP

Calcium*	31.2	2.00	1.24	mg/L	20	07/25/23 11:58	EPA200.7		AES
Iron*	10.2	1.00	0.302	mg/L	20	07/25/23 11:58	EPA200.7		AES
Magnesium*	6.45	2.00	0.702	mg/L	20	07/25/23 11:58	EPA200.7		AES
Sodium*	3120	20.0	8.18	mg/L	20	07/25/23 11:58	EPA200.7		AES

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Aztec NM, 87410

Project: Formation Comparison
Project Name / Number: North
Project Manager: Kevin Fredrickson

Reported:
07/26/23 11:10

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B232097 - General Prep - Wet Chem

Blank (B232097-BLK1)

Prepared & Analyzed: 07/21/23

Total Dissolved Solids	ND	10.0	mg/L
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Reference (B232097-SRM1)

Prepared & Analyzed: 07/21/23

Total Dissolved Solids	375	10.0	mg/L	400	93.7	85-115
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Batch B232107 - IC- Ion Chromatograph

Blank (B232107-BLK1)

Prepared & Analyzed: 07/24/23

Chloride	ND	1.00	mg/L
Sulfate	ND	1.00	mg/L

LCS (B232107-BS1)

Prepared & Analyzed: 07/24/23

Chloride	24.7	1.00	mg/L	25.0	98.7	90-110
Sulfate	23.9	1.00	mg/L	25.0	95.5	90-110

LCS Dup (B232107-BSD1)

Prepared & Analyzed: 07/24/23

Chloride	24.7	1.00	mg/L	25.0	98.8	90-110	0.00810	20
Sulfate	23.9	1.00	mg/L	25.0	95.8	90-110	0.322	20

Batch B232121 - General Prep - Wet Chem

Blank (B232121-BLK1)

Prepared: 07/24/23 Analyzed: 07/25/23

Alkalinity, Bicarbonate as CaCO ₃	ND	10.0	mg/L
Alkalinity, Carbonate as CaCO ₃	ND	10.0	mg/L
Alkalinity, Hydroxide as CaCO ₃	ND	10.0	mg/L
Alkalinity, Total as CaCO ₃	ND	10.0	mg/L

LCS (B232121-BS1)

Prepared: 07/24/23 Analyzed: 07/25/23

Alkalinity, Total as CaCO ₃	92.0	10.0	mg/L	100	92.0	85-115
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LCS Dup (B232121-BSD1)

Prepared: 07/24/23 Analyzed: 07/25/23

Alkalinity, Total as CaCO ₃	99.0	10.0	mg/L	100	99.0	85-115	7.33	20
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Reference (B232121-SRM1)

Prepared: 07/24/23 Analyzed: 07/25/23

Alkalinity, Total as CaCO ₃	79.0	10.0	mg/L	72.7	109	85-115
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382 CR 3100
Aztec NM, 87410

Project: Formation Comparison
Project Name / Number: North
Project Manager: Kevin Fredrickson

Reported:
07/26/23 11:10

Potentially Dissolved Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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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-BS1)

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

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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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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 244728

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 244728
	Action Type: [UF-GA] Gas Analysis (GAS ANALYSIS)

CONDITIONS

Created By	Condition	Condition Date
mkuehling	tds 325	9/20/2023