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www.GreenAnalytical.com

Hilcorp  
382 Road 3100  
Aztec NM, 87410

Project: Formation Comparison  
Project Name / Number: [none]  
Project Manager: Bill Eaves

Reported:  
12/15/20 16:26

**30-6 44A Braiden Head 3003925637**  
**Area 12**

**2012107-02 (Produced Water)**

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

Alkalinity, Bicarbonate as CaCO <sub>3</sub> *	2040	10.0	7.16	mg/L	20	12/11/20 12:50	2320 B		VJW
Alkalinity, Carbonate as CaCO <sub>3</sub> *	1400	10.0		mg/L	20	12/11/20 12:50	2320 B		VJW
Chloride*	330	100	33.6	mg/L	10	12/15/20 14:30	4500-Cl- C		AES
pH*	7.70			pH Units	1	12/11/20 11:35	EPA150.1	H4	VJW
Total Dissolved Solids*	3700	200		mg/L	20	12/11/20 15:35	EPA160.1		VJW
Sulfate	2820	500	84.0	mg/L	50	12/14/20 16:00	4500-SO42- E		AES

**Potentially Dissolved Metals by ICP**

Calcium*	306	2.00	0.332	mg/L	20	12/15/20 11:05	EPA200.7		AES
Iron*	963	1.00	0.368	mg/L	20	12/15/20 11:05	EPA200.7		AES
Magnesium*	7.86	2.00	0.470	mg/L	20	12/15/20 11:05	EPA200.7		AES
Manganese*	5.85	0.400	0.031	mg/L	20	12/15/20 11:05	EPA200.7		AES
Sodium*	784	20.0	2.01	mg/L	20	12/15/20 11:05	EPA200.7		AES

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Debbie Zufelt, Reports Manager

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Project: Formation Comparison  
Project Name / Number: [none]  
Project Manager: Bill Eaves

Reported:  
12/15/20 16:26

**30-6 44A wellhead 3003925637**  
**Area 12**

**2012107-03 (Produced Water)**

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

Alkalinity, Bicarbonate as CaCO <sub>3</sub> *	580	10.0	7.16	mg/L	20	12/11/20 12:50	2320 B		VJW
Alkalinity, Carbonate as CaCO <sub>3</sub> *	<10.0	10.0		mg/L	20	12/11/20 12:50	2320 B		VJW
Chloride*	200	100	33.6	mg/L	10	12/15/20 14:30	4500-Cl- C		AES
pH*	6.64			pH Units	1	12/11/20 11:35	EPA150.1	H4	VJW
Total Dissolved Solids*	3900	200		mg/L	20	12/11/20 15:35	EPA160.1		VJW
Sulfate	3230	500	84.0	mg/L	50	12/14/20 16:00	4500-SO42- E		AES

**Potentially Dissolved Metals by ICP**

Calcium*	140	2.00	0.332	mg/L	20	12/15/20 11:09	EPA200.7		AES
Iron*	198	1.00	0.368	mg/L	20	12/15/20 11:09	EPA200.7		AES
Magnesium*	6.49	2.00	0.470	mg/L	20	12/15/20 11:09	EPA200.7		AES
Manganese*	2.96	0.400	0.031	mg/L	20	12/15/20 11:09	EPA200.7		AES
Sodium*	1130	20.0	2.01	mg/L	20	12/15/20 11:09	EPA200.7		AES

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382 Road 3100	Project Name / Number: [none]	<b>Reported:</b>
Aztec NM, 87410	Project Manager: Bill Eaves	12/15/20 16:26

Notes and Definitions

- J Estimated concentration. Analyte concentration between MDL and RL.
- 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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**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

CONDITIONS

Action 12775

**CONDITIONS OF APPROVAL**

Operator:	HILCORP ENERGY COMPANY	1111 Travis Street	Houston, TX77002	OGRID:	372171	Action Number:	12775	Action Type:	GAS ANALYSIS
OCD Reviewer	mkuehling			Condition	None				