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22 February 2019

Jennifer Deal

Hilcorp

382 Road 3100

Aztec, NM 87410

RE: API - Oil Field "Complete Water"

Enclosed are the results of analyses for samples received by the laboratory on 02/12/19 15:34.
If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Debbie Zufelt". The signature is written in a cursive, flowing style.

Debbie Zufelt

Reports 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.

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.



Hilcorp 382 Road 3100 Aztec NM, 87410	Project: API - Oil Field "Complete Water" Project Name / Number: [none] Project Manager: Jennifer Deal	Reported: 02/22/19 13:25
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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
Maddox Com #1A (Cathodic Well)	1902085-01	Water	02/12/19 14:15	02/12/19 15:34	

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Debbie Zufelt, Reports Manager

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Maddox Com #1A (Cathodic Well)

1902085-01 (Water)

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

Alkalinity, Bicarbonate as CaCO3*	135	10.0		mg/L	5	02/21/19	2320 B		JDA
Alkalinity, Carbonate as CaCO3*	70.0	10.0		mg/L	5	02/21/19	2320 B		JDA
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	5	02/21/19	2320 B		JDA
Alkalinity, Total as CaCO3*	205	10.0		mg/L	5	02/21/19	2320 B		JDA
Chloride*	312	100	10.3	mg/L	100	02/18/19	EPA300.0		AES
Conductivity*	12000	10.0		uS/cm	1	02/15/19	2510 B		JDA
pH*	9.15			pH Units	1	02/15/19	EPA150.1	H2	JDA
Resistivity	83.3			ohm/cm	1	02/21/19	2510 B		JDA
Total Dissolved Solids*	8520	20.0		mg/L	2	02/19/19	EPA160.1		jda
Specific Gravity	1.009	0.8000		No Unit	1	02/21/19	ASTM D1429-03		JDA
Sulfate*	5170	200	42.6	mg/L	200	02/19/19	EPA300.0		AES

Potentially Dissolved Metals by ICP

Barium*	<0.400	0.400	0.042	mg/L	20	02/18/19	EPA200.7		AES
Calcium*	48.6	2.00	0.257	mg/L	20	02/18/19	EPA200.7		AES
Hardness, as CaCO3	160	13.2	2.19	mg/L	20	02/18/19	2340 B		AES
Iron*	11.5	1.00	0.553	mg/L	20	02/18/19	EPA200.7		AES
Lead*	<2.00	2.00	0.142	mg/L	20	02/18/19	EPA200.7		AES
Magnesium*	9.51	2.00	0.375	mg/L	20	02/18/19	EPA200.7		AES
Manganese*	0.151	0.400	0.054	mg/L	20	02/18/19	EPA200.7	J	AES
Potassium*	<20.0	20.0	1.91	mg/L	20	02/18/19	EPA200.7		AES
Silica (SiO2)	<21.4	21.4	1.14	mg/L	20	02/18/19	Calculation		AES
Silicon	<10.0	10.0	0.534	mg/L	20	02/18/19	EPA200.7		AES
Sodium*	2600	20.0	7.34	mg/L	20	02/18/19	EPA200.7		AES
Strontium*	4.64	2.00	0.057	mg/L	20	02/18/19	EPA200.7		AES
Zinc*	<2.00	2.00	0.043	mg/L	20	02/18/19	EPA200.7		AES

Cation/Anion Balance -1.58

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Notes and Definitions

- J Estimated concentration. Analyte concentration between MDL and RL.
- H2 Sample analysis performed past hold time specified by the method.
- 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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