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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 script is cursive and fluid, with the first name 'Debbie' and last name 'Zufelt' clearly legible.

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.



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Project: API - Oil Field "Complete Water"  
Project Name / Number: [none]  
Project Manager: Jennifer Deal

**Reported:**  
02/22/19 13:25

#### 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	

Green Analytical Laboratories

A handwritten signature in black ink that reads 'Debbie Zufelt'.

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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## CHAIN-OF-CISTORY AND ANALYSIS REQUEST

[illegible]