

Balance 33#2
30 - 045 - 32689



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11 November 2019

Kevin Fredrickson
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 11/06/19 08:30.
If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Debbie Zufelt".

Debbie Zufelt
Reports Manager

NMOC
NOV 13 2019
DISTRICT 111

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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Hilcorp 382 Road 3100 Aztec NM, 87410	Project: API - Oil Field "Complete Water" Project Name / Number: Asset: North Project Manager: Kevin Fredrickson	Reported: 11/11/19 17:00
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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
Valance 33 #2 / Tubing	1911055-01	Water	11/06/19 08:00	11/06/19 08:30	
Valance 33 #2 / Bradenhead	1911055-02	Water	11/06/19 08:00	11/06/19 08:30	

NMOC
NOV 13 2019
DISTRICT III

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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Hilcorp 382 Road 3100 Aztec NM, 87410	Project: API - Oil Field "Complete Water" Project Name / Number: Asset: North Project Manager: Kevin Fredrickson	Reported: 11/11/19 17:00
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**Valance 33 #2 / Tubing
Area 2**

1911055-01 (Produced Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
General Chemistry									
Alkalinity, Bicarbonate as CaCO3*	320	10.0		mg/L	5	11/07/19 15:30	2320 B		VJL
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	5	11/07/19 15:30	2320 B		VJL
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	5	11/07/19 15:30	2320 B		VJL
Alkalinity, Total as CaCO3*	320	10.0	3.06	mg/L	5	11/07/19 15:30	2320 B		VJL
Chloride*	1260	100	19.3	mg/L	100	11/06/19 17:02	EPA300.0		AES
Conductivity*	5230	10.0		umho/cm @ 25.0°C	1	11/06/19 08:15	2510 B		FGH
pH*	8.02			pH Units	1	11/06/19 08:10	EPA150.1		FGH
Resistivity	191			ohm/cm	1	11/06/19 08:10	2510 B		FGH
Total Dissolved Solids*	2660	10.0		mg/L	1	11/07/19 14:22	EPA160.1		VJL
Specific Gravity	1.001	0.8000		No Unit	1	11/06/19 13:50	ASTM D1429-03		VJL
Sulfate*	<29.5	100	29.5	mg/L	100	11/06/19 17:02	EPA300.0		AES
Potentially Dissolved Metals by ICP									
Barium*	2.04	0.400	0.042	mg/L	20	11/06/19 17:03	EPA200.7		AES
Calcium*	8.18	2.00	0.257	mg/L	20	11/06/19 17:03	EPA200.7		AES
Hardness, as CaCO3	20.4	13.2	2.19	mg/L	20	11/06/19 17:03	2340 B		AES
Iron*	2.58	1.00	0.553	mg/L	20	11/06/19 17:03	EPA200.7		AES
Lead*	<2.00	2.00	0.142	mg/L	20	11/06/19 17:03	EPA200.7		AES
Magnesium*	<2.00	2.00	0.375	mg/L	20	11/06/19 17:03	EPA200.7		AES
Manganese*	0.058	0.400	0.054	mg/L	20	11/06/19 17:03	EPA200.7	J	AES
Potassium*	<20.0	20.0	1.91	mg/L	20	11/06/19 17:03	EPA200.7		AES
Silica (SiO2)	0.00			mg/L	20	11/06/19 17:03	Calculation		AES
Silicon	<10.0	10.0	0.534	mg/L	20	11/06/19 17:03	EPA200.7		AES
Sodium*	998	20.0	7.34	mg/L	20	11/06/19 17:03	EPA200.7		AES
Strontium*	<2.00	2.00	0.057	mg/L	20	11/06/19 17:03	EPA200.7		AES
Zinc*	<2.00	2.00	0.043	mg/L	20	11/06/19 17:03	EPA200.7		AES
Cation/Anion Balance	2.45								

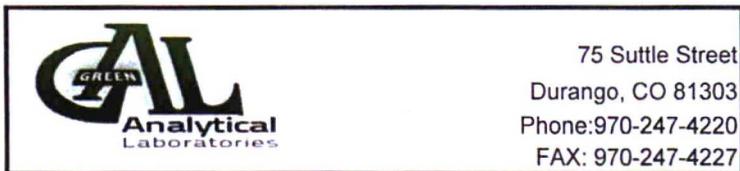
Green Analytical Laboratories

Debbie Zufelt

Debbie Zufelt, Reports Manager

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Client: **Hilcorp** Asset: **North** Phone# **505-634-6059** Contact **Kevin Fredrickson**
 Address: 382 Road 3100, Aztec, NM. 87410 E-Mail Address kfredrickson@hilcorp.com



CHAIN OF CUSTODY RECORD
 GAL Work Order # **1911-055**
 PO#
 Project Name:

Sample Location:

(1)BumperSpring, (2)CompressorDischarge, (3)Flowline, (4)Meter, (5)Oil Tank
 (6)PigLauncher, (7)PigReceiver, (8)Pipeline, (9)Pit Tank, (10)PostFilter, (11)PreFilter
 (12)SeparatorInlet, (13)SeparatorOutlet, (14)SeparatorDump, (15)SWDInlet
 (16)SWDOutlet, (17)TransferPump, (18)ValveCan, (19)WaterTank, (20)Wellhead
 (21)Other

Sample Type:

(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

Collection				Preservative				Analyses Required							
Post Rig water	Area	Date	Time	Collected By: (Init.)	Sample Location	Sample Type	No. of Containers	Filtered: Y / N	Unpreserved	H2SO4	Other:	Iron and Manganese	Phosphate	Full Water API	Bradenhead
1 Valance 33 # 2 / Tubing	2	11/6/2019	8am	NH	20	4	1	N	X					X	
2 Valance 33 # 2 / Bradenhead	2	11/6/2019	8am	NH	20	4	1	N	X						X
5.															
6.															
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20.															

Relinquished by:	Date:	Time:	Received By:	Date:	Time:
<i>[Signature]</i>	11-6-19	8:30am	<i>[Signature]</i>	11-6-19	0830

16.3 / 16.1°C
 No Ice

5 day TAT