

Midland Texas Test Report

4.05.18

Abstract:

ECO TECH secured a salt water injection well test site located outside of Midland Texas which was used to test an Electronic Sterilization System, (ESS). The injection well site was used to quantify a ESS mobile platform, (trailer) ability to produced Chlorine Dioxide, (ClO_2) and Chlorine, (Cl) which are common chemicals used in the production of petroleum biocides. The Trailer was built as a treatment and test platform used primarily for onsite testing and to demonstrate the advantages of the ESS Disinfection and Advanced Oxidation System.



ESS Disinfection Trailer in Midland

A series of individual tests were conducted to quantify ClO_2 and Cl production and their effectiveness to remediate bacteria from the test site wastewater. The instruments used to conduct testing included a Hach model #58700 ClO_2 Colorimeter, a Hach model # DR/850 Ultra-High Range Cl Colorimeter, a Hygiena model # Sure System Plus Total Bacteria ATP Meter, with a Myron L Company Ultrameter Multimeter used to check pH and Total Dissolved Solids, (TDS). The Hygiena Sure Plus meter measures both free Adenosine Triphosphate, (ATP) generated by living microbial in the water. Relative Light Units, (RLU) is used as a measurement to detect adenosine triphosphate in solution or on surfaces.



ESS Trailer Lab Equipment

The Trailer contains a single ESS 6' Housing, an adjustable Power Supply and a 30 gallon per minute adjustable fluid Pump with the maximum wattage required for trailer operation approximately 1010 watts, (1 kWh). The national average cost of a kWh is approximately \$.14 however, for trailer testing at the injection well site a diesel generator was rented by ECO Tech and used to power the trailer.

The company that owns the saltwater injection site also operates a number of frack sites with produced water generated from their various petroleum sites transferred to the injection site for disposal. The flowback water transferred to the injection site was previously treated with biocides prior to downhole injection, so it was assumed that the incoming wastewater tested at the site would have a low bacterium.

Four individual samples were drawn with each including a beginning or control sample used to compare trailer before and after treatment results, plus two samples were tested for bacteria, ClO_2 , Cl, pH and TDS prior to treating or testing the wastewater at the injection well site.

The two-individual samples were generated from a refinery in Port Arthur Texas with these ECO Tech samples were marked as "Plant Process" and "V-Box". Each was tested with the following results recorded:

Port Arthur Samples

	ClO ²	Cl	Bacteria	pH	TDS
Plant Process:	.97 mg/l	0	5742 RLU	6.86	1983
V/Box:	1.57 mg/l	0	408 RLU	7.06	3480

Midland Saltwater Injection Well

	ClO ²	Cl	Bacteria	pH	TDS
Control Sample:	0	0	47 RLU	6.8	O/Scale
1 st Treated Sample:	4.55 mg/l	2.2 mg/l	2 RLU	6.3	O/Scale
(Treatment Settings:	4 Volts	52 Amps	15 GPM Flow Rate)		
2 nd Treated Sample:	3.7 mg/l	.6 mg/l	8 RLU	6.8	O/Scale
(Treatment Settings:	4 Volts	62 Amps	10 GPM Flow Rate)		
3rd Treated Sample:	3.57 mg/l	1.7 mg/l	3 RLU	6.8	O/Scale
(Treatment Settings:	4 Volts	62 Amps	10 GPM Flow Rate)		
4th Treated Sample:	5.5 mg/l	2.9 mg/l	3 RLU	6.8	O/Scale
(Treatment Settings:	4 Volts	62 Amps	30 GPM Flow Rate / (Full Wattage and Flow Rate)		

Comments:

The above testing started at approximately 9 AM with samples drawn at 30-minute intervals. Between each sample draw adjustments were made to the trailer's PLC which controls wattage input and the flow rate to the ESS Housing. Four different adjustment parameters were tested with wattage input and flow rate adjusted to achieve a greater potential for system efficiency. While the adjustment results varied overall very little change was encountered, as an example, the ClO² range varied from a low of 3.5 mg/l to a high of 5.5 mg/l. The 3.5 mg/l low would result in approximately 13.2 mg per gallon with 23.8 grams of ClO² per produced per hour, (over 300 mg is considered overkill for disinfection purposes in most application), (3.5 mg/l x 3.78 liters = 13.23 mg per 1 gallon x 30 gpm x 60 minutes = 23,814 mg, (23.8 grams) of ClO² produced per hour).



Trailer PLC Screen



Inside The Disinfection Trailer



Oilfield Labs of America
 3302 Pilot Ave.
 Midland, Texas 79706
 432-789-1860

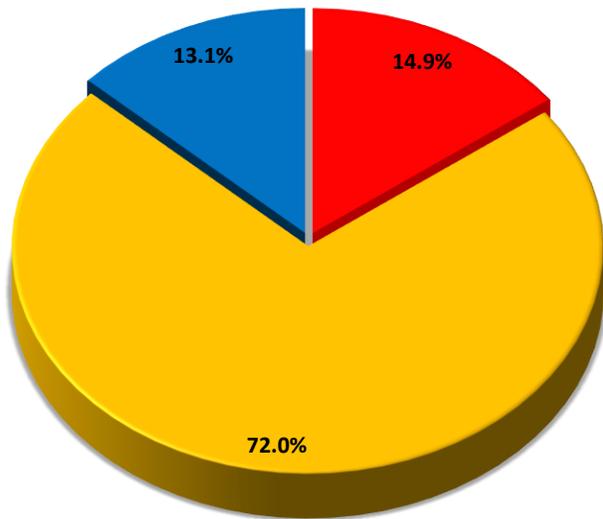
Report Date: 2/5/2019

Membrane Filter Analysis

OLA Client:		Test Requested:	Millipore
Operator:	Crown Quest	Sample ID:	01190131414
Requested By:		Sample Date:	1/31/2019
Lease:	Treated	Received Date:	1/31/2019
Location:	180	Logout Date:	2/5/2019
Region:	Permian	Analyst:	RWS

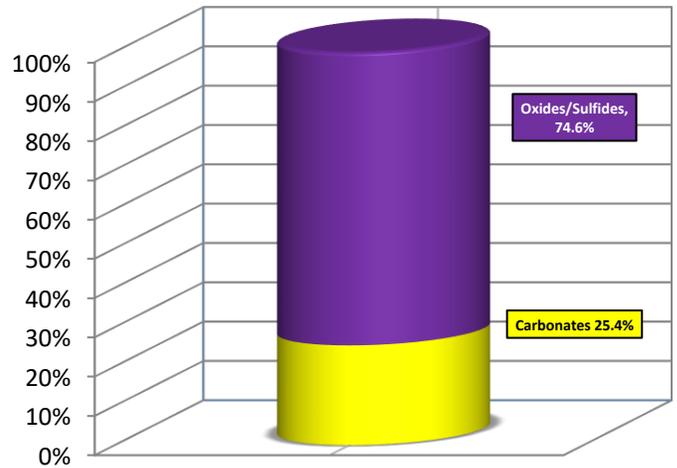
Crown Quest, Treated, 180

Total Suspended Solids



■ Hydrocarbon Soluble ■ Acid Soluble ■ Acid Insoluble

Acid Soluble



■ Carbonates ■ Oxides/Sulfides

Results

Pore Size (microns): 0.45 Time (mins): 2:45 Dissolved O2: _____
 Volume Used (mls): 150 Pressure (psi): 20

Total Suspended Solids (mg/L):	117
Hydrocarbon Soluble (mg/L):	17 14.9%
Acid Soluble (mg/L):	84 72.0%
Acid Insoluble (mg/L):	15 13.1%
Total:	100%

Acid Soluble (mg/L):	84
Oxides/Sulfides (mg/L):	63 74.6%
Carbonates (mg/L):	21 25.4%
Total:	100%

Comments: _____



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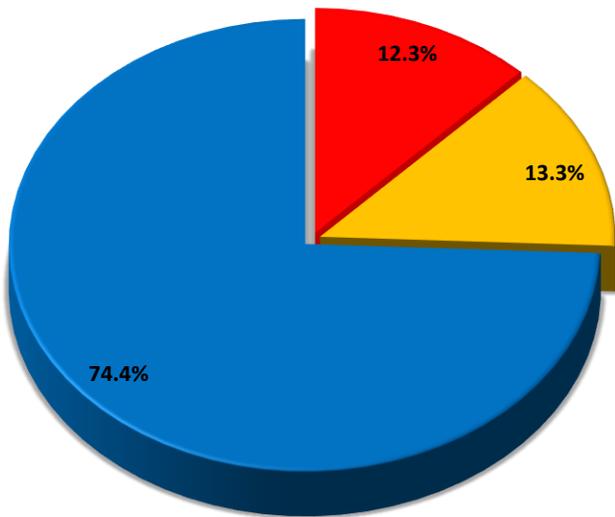
Report Date: 2/7/2019

Membrane Filter Analysis

OLA Client:		Test Requested:	Millipore
Operator:	Crown Quest	Sample ID:	01190131413
Requested By:		Sample Date:	1/31/2019
Lease:	Raw	Received Date:	1/31/2019
Location:	200	Logout Date:	2/7/2019
Region:	Permian	Analyst:	RWS

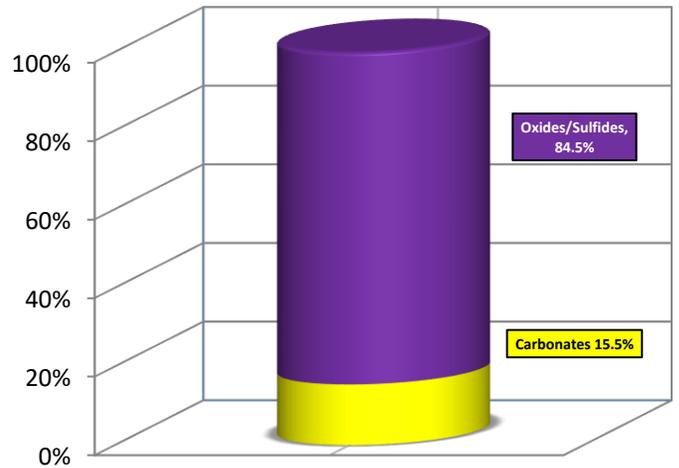
Crown Quest, Raw, 200

Total Suspended Solids



■ Hydrocarbon Soluble ■ Acid Soluble ■ Acid Insoluble

Acid Soluble



■ Carbonates ■ Oxides/Sulfides

Results

Pore Size (microns): 0.45 Time (mins): 4 Dissolved O2: _____
 Volume Used (mls): 150 Pressure (psi): 20

Total Suspended Solids (mg/L): 3979
 Hydrocarbon Soluble (mg/L): 489 12.3%
 Acid Soluble (mg/L): 531 13.3%
 Acid Insoluble (mg/L): 2959 74.4%
 Total: 100%

Acid Soluble (mg/L): 531
 Oxides/Sulfides (mg/L): 449 84.5%
 Carbonates (mg/L): 82 15.5%
 Total: 100%

Comments: _____



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Report Date: 2/6/2019

Adenosine Triphosphate (ATP) Report

OLA Client:	True Clear Water Solutions	Log Out Date:	2/6/19
Sales Rep:	John Ayres	Analyst:	RWS

Sample ID	Sample Date	Operator	Region	Lease	Location	cATP (pg/ml)
01190131417	1/31/19	Crown Quest	Permian	Raw	200	710
01190131418	1/31/19	Crown Quest	Permian	Treated	180	< 10.0

QGO-M cATP Interpretation Guidelines

Application	Good Control	Preventative Action	Corrective Action
	(pg cATP/mg)		
Finished Fuels Conventional Lubricants *	< 10	10 to 100	> 100
Polymers, Admixes, Personal Care, Home Care	< 100	100 to 1,000	> 1,000
Crude Oil, Fuel Associated Water, Oily Brines, Chemical Products, Oilfield Waters	< 100	100 to 1,000	>1,000
Metal Working Fluids, Fire Retardant Lubricants	< 1,000	1,000 to 10,000	> 10,000

* The interpretation guidelines provided above are based on samples that meet defined standards (from ASTM, ISO or otherwise) for water content. For example, diesel fuels should contain ≤ 500 ppm water and sediment (per ASTM D 975 and D 7467), while jet fuels should contain ≤ 30 ppm, (per ASTM D 1655). If the sample has greater water content than defined as acceptable by the standard, interpretation guidelines may vary. Contact LuminUltra for interpretation advice.

Note: These interpretation guidelines are designed for generic risk management guidance only. Users are encouraged to establish their own control ranges on which to base process decisions. LuminUltra and its affiliates do not accept any liability for any decision or assessment taken or made as a consequence of using this test kit.



Oilfield Labs of America
 3302 Pilot Ave.
 Midland, Texas 79706
 432-789-1860

Report Date: 2/6/2019

Complete Water Analysis

Customer:	True Clear Water Solutions	Account Rep:	John Ayres
Operator:	Crown Quest	Sample ID:	01190131411
Lease:	Raw	Sample Date:	1/31/2019
Sample Point:	200	Received Date:	1/31/2019
Region:	Permian	Log Out Date:	2/6/2019

True Clear Water Solutions, Crown Quest, Raw,200

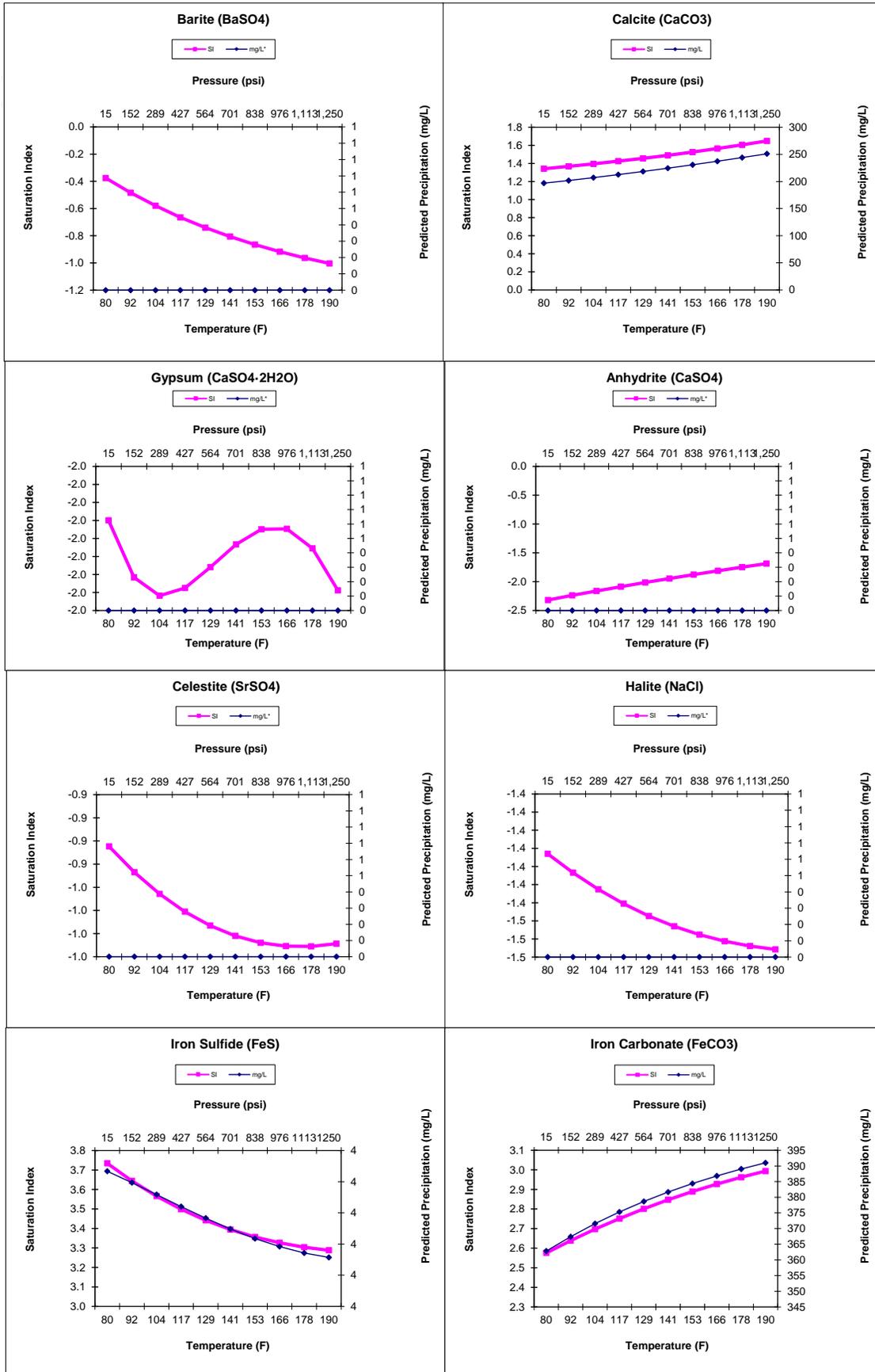
Field Data		Analysis of Sample											
		Anions:		mg/L		meq/L		Cations:		mg/L		meq/L	
Initial Temperature (°F):	190	Chloride (Cl ⁻):	73300	2067.7	Sodium (Na ⁺):	33430	1454.8						
Final Temperature (°F):	80	Sulfate (SO ₄ ²⁻):	30.0	0.6	Potassium (K ⁺):	400	10.2						
Initial Pressure (psi):	1250	Bicarbonate (HCO ₃ ⁻):	449	7.4	Magnesium (Mg ²⁺):	502	41.3						
Final Pressure (psi):	15	Carbonate (CO ₃ ²⁻):	ND		Calcium (Ca ²⁺):	2891	144.3						
Dissolved Gases		Hydroxide (OH ⁻):	ND		Strontium (Sr ²⁺):	620	14.1						
Dissolved CO ₂ (ppm):	243	Phosphate (PO ₄ ³⁻):	15.6	0.5	Barium (Ba ²⁺):	3.7	0.1						
Dissolved H ₂ S (ppm):	1.5	Borate (H ₃ BO ₃):	232	3.7	Iron (Fe, Total):	1083	38.8						
Sample Parameters		Silica (SiO ₂):	39.7	0.7	Manganese (Mn ²⁺):	1.8	0.1						
pH:	7.0				Lead (Pb ²⁺):	0.1	0.0						
Calculated TDS (mg/L):	113159				Zinc (Zn ²⁺):	2.7	0.1						
Calculated Density (g/cm ³):	1.0702				Lithium (Li ⁺):	18.2	2.6						
Total Hardness (mg/L CaCO ₃):	9999				Aluminum (Al ³⁺):	2.8	0.3						
Total Alkalinity (mg/L CaCO ₃):	368												
		Anion EPM Total:	2081		Cation EPM Total:	1707							
N/A - Not Analyzed		% RPD of Cations/Anions:		19.7%		ND = Not Detected							

Conditions		Barite (BaSO ₄)		Calcite (CaCO ₃)		Gypsum (CaSO ₄ ·2H ₂ O)		Anhydrite (CaSO ₄)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	-0.38	0.000	1.34	68.930	-2.01	0.000	-2.32	0.000
92°F	152 psi	-0.48	0.000	1.37	70.659	-2.02	0.000	-2.24	0.000
104°F	289 psi	-0.58	0.000	1.40	72.498	-2.02	0.000	-2.16	0.000
117°F	427 psi	-0.66	0.000	1.42	74.422	-2.02	0.000	-2.09	0.000
129°F	564 psi	-0.74	0.000	1.46	76.445	-2.02	0.000	-2.01	0.000
141°F	701 psi	-0.81	0.000	1.49	78.568	-2.01	0.000	-1.95	0.000
153°F	838 psi	-0.87	0.000	1.53	80.787	-2.01	0.000	-1.88	0.000
166°F	976 psi	-0.92	0.000	1.56	83.088	-2.01	0.000	-1.81	0.000
178°F	1113 psi	-0.96	0.000	1.61	85.455	-2.02	0.000	-1.75	0.000
190°F	1250 psi	-1.00	0.000	1.65	87.869	-2.02	0.000	-1.69	0.000

Conditions		Celestite (SrSO ₄)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate (FeCO ₃)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	-0.92	0.000	-1.41	0.000	3.73	1.397	2.58	126.991
92°F	152 psi	-0.95	0.000	-1.42	0.000	3.64	1.396	2.64	128.591
104°F	289 psi	-0.97	0.000	-1.43	0.000	3.57	1.396	2.70	130.055
117°F	427 psi	-0.98	0.000	-1.44	0.000	3.50	1.396	2.75	131.361
129°F	564 psi	-0.99	0.000	-1.45	0.000	3.44	1.396	2.80	132.529
141°F	701 psi	-1.00	0.000	-1.45	0.000	3.39	1.396	2.85	133.579
153°F	838 psi	-1.01	0.000	-1.46	0.000	3.36	1.396	2.89	134.524
166°F	976 psi	-1.01	0.000	-1.46	0.000	3.33	1.396	2.93	135.378
178°F	1113 psi	-1.01	0.000	-1.46	0.000	3.30	1.396	2.96	136.150
190°F	1250 psi	-1.01	0.000	-1.47	0.000	3.29	1.396	2.99	136.848

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered
 Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.
 Note 3: Saturation Index predictions on this sheet use pH and alkalinity; %CO₂ is not included in the calculations.

Comments: _____





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 432-789-1860

Report Date: 2/6/2019

Complete Water Analysis

Customer:	True Clear Water Solutions	Account Rep:	John Ayres
Operator:	Crown Quest	Sample ID:	01190131412
Lease:	Treated	Sample Date:	1/31/2019
Sample Point:	180	Received Date:	1/31/2019
Region:	Permian	Log Out Date:	2/6/2019

True Clear Water Solutions, Crown Quest, Treated,180

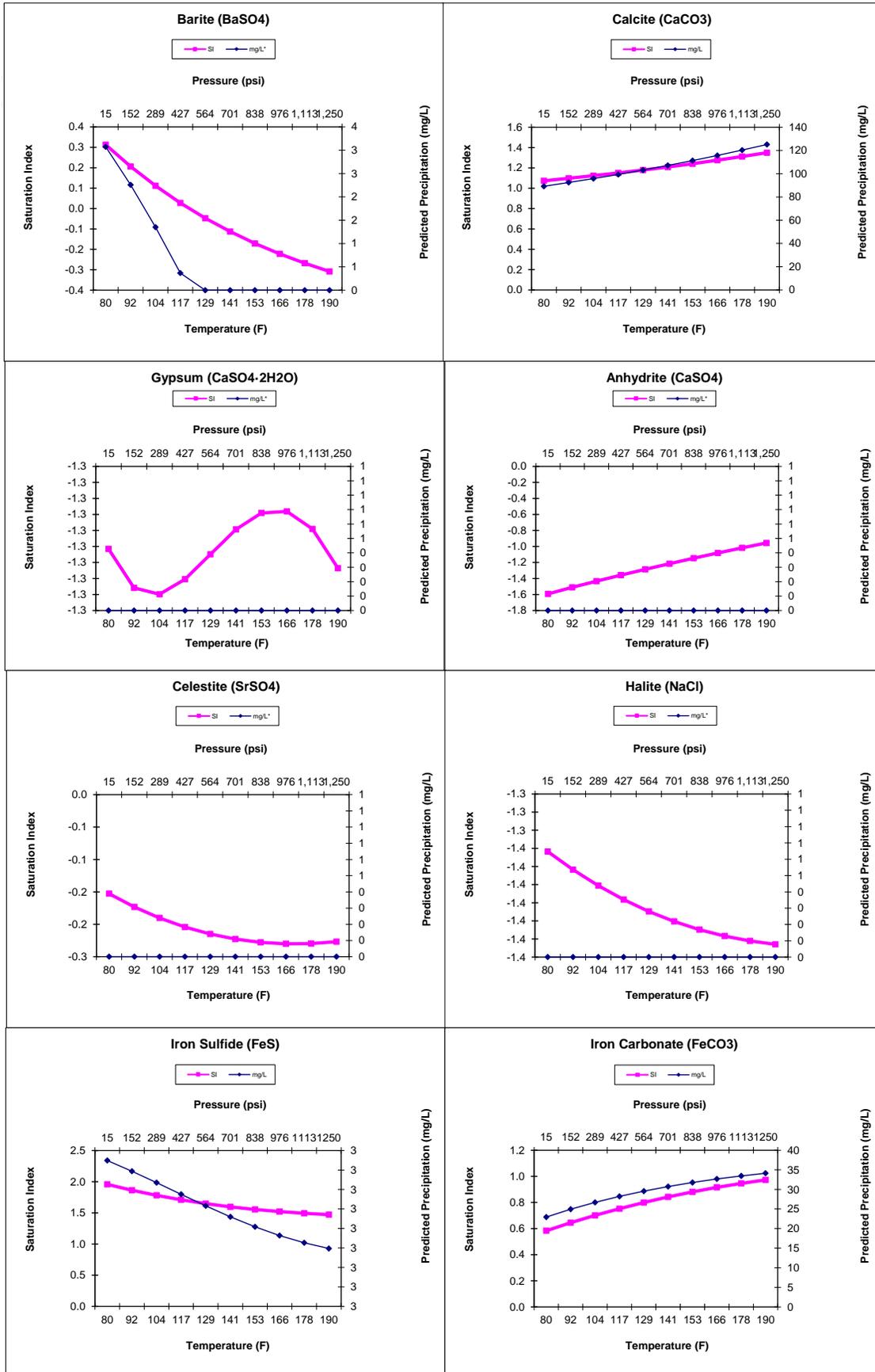
Field Data		Analysis of Sample											
		Anions:		mg/L		meq/L		Cations:		mg/L		meq/L	
Initial Temperature (°F):	190	Chloride (Cl ⁻):	72000	2031.0	Sodium (Na ⁺):	38791	1688.1						
Final Temperature (°F):	80	Sulfate (SO ₄ ²⁻):	170	3.5	Potassium (K ⁺):	439	11.2						
Initial Pressure (psi):	1250	Bicarbonate (HCO ₃ ⁻):	270	4.4	Magnesium (Mg ²⁺):	505	41.6						
Final Pressure (psi):	15	Carbonate (CO ₃ ²⁻):	ND		Calcium (Ca ²⁺):	2891	144.3						
Dissolved Gases		Hydroxide (OH ⁻):	ND		Strontium (Sr ²⁺):	706	16.1						
Dissolved CO ₂ (ppm):	217	Phosphate (PO ₄ ³⁻):	4.1	0.1	Barium (Ba ²⁺):	3.5	0.1						
Dissolved H ₂ S (ppm):	1.3	Borate (H ₃ BO ₃):	232	3.8	Iron (Fe, Total):	21.0	0.8						
Sample Parameters		Silica (SiO ₂):	16.0	0.3	Manganese (Mn ²⁺):	1.2	0.0						
pH:	7.1				Lead (Pb ²⁺):	ND							
Calculated TDS (mg/L):	116069				Zinc (Zn ²⁺):	ND							
Calculated Density (g/cm ³):	1.0731				Lithium (Li ⁺):	21.8	3.1						
Total Hardness (mg/L CaCO ₃):	10110				Aluminum (Al ³⁺):	0.1	0.0						
Total Alkalinity (mg/L CaCO ₃):	222												
		Anion EPM Total:	2043		Cation EPM Total:	1905							
N/A - Not Analyzed		% RPD of Cations/Anions:		7.0%		ND = Not Detected							

Conditions		Barite (BaSO ₄)		Calcite (CaCO ₃)		Gypsum (CaSO ₄ ·2H ₂ O)		Anhydrite (CaSO ₄)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	0.31	1.076	1.07	31.224	-1.29	0.000	-1.59	0.000
92°F	152 psi	0.21	0.791	1.10	32.365	-1.30	0.000	-1.51	0.000
104°F	289 psi	0.11	0.473	1.12	33.551	-1.30	0.000	-1.43	0.000
117°F	427 psi	0.03	0.129	1.15	34.795	-1.29	0.000	-1.36	0.000
129°F	564 psi	-0.05	0.000	1.18	36.110	-1.29	0.000	-1.29	0.000
141°F	701 psi	-0.11	0.000	1.21	37.503	-1.29	0.000	-1.22	0.000
153°F	838 psi	-0.17	0.000	1.24	38.974	-1.29	0.000	-1.15	0.000
166°F	976 psi	-0.22	0.000	1.28	40.520	-1.29	0.000	-1.08	0.000
178°F	1113 psi	-0.27	0.000	1.31	42.134	-1.29	0.000	-1.02	0.000
190°F	1250 psi	-0.31	0.000	1.35	43.805	-1.29	0.000	-0.96	0.000

Conditions		Celestite (SrSO ₄)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate (FeCO ₃)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	-0.15	0.000	-1.35	0.000	1.96	1.165	0.58	8.029
92°F	152 psi	-0.17	0.000	-1.36	0.000	1.86	1.162	0.64	8.727
104°F	289 psi	-0.19	0.000	-1.37	0.000	1.78	1.157	0.70	9.340
117°F	427 psi	-0.20	0.000	-1.38	0.000	1.71	1.153	0.75	9.878
129°F	564 psi	-0.22	0.000	-1.38	0.000	1.65	1.149	0.80	10.348
141°F	701 psi	-0.22	0.000	-1.39	0.000	1.60	1.145	0.84	10.760
153°F	838 psi	-0.23	0.000	-1.39	0.000	1.55	1.142	0.88	11.120
166°F	976 psi	-0.23	0.000	-1.40	0.000	1.52	1.138	0.92	11.434
178°F	1113 psi	-0.23	0.000	-1.40	0.000	1.49	1.136	0.95	11.708
190°F	1250 psi	-0.23	0.000	-1.40	0.000	1.47	1.134	0.97	11.945

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered
 Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.
 Note 3: Saturation Index predictions on this sheet use pH and alkalinity; %CO₂ is not included in the calculations.

Comments: _____





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Report Date: 2/6/2019

Complete Water Analysis

Customer:	True Clear Water Solutions	Account Rep:	John Ayres
Operator:	Crown Quest	Sample ID:	01190131411
Lease:	Raw	Sample Date:	1/31/2019
Sample Point:	200	Received Date:	1/31/2019
Region:	Permian	Log Out Date:	2/6/2019

True Clear Water Solutions, Crown Quest, Raw,200

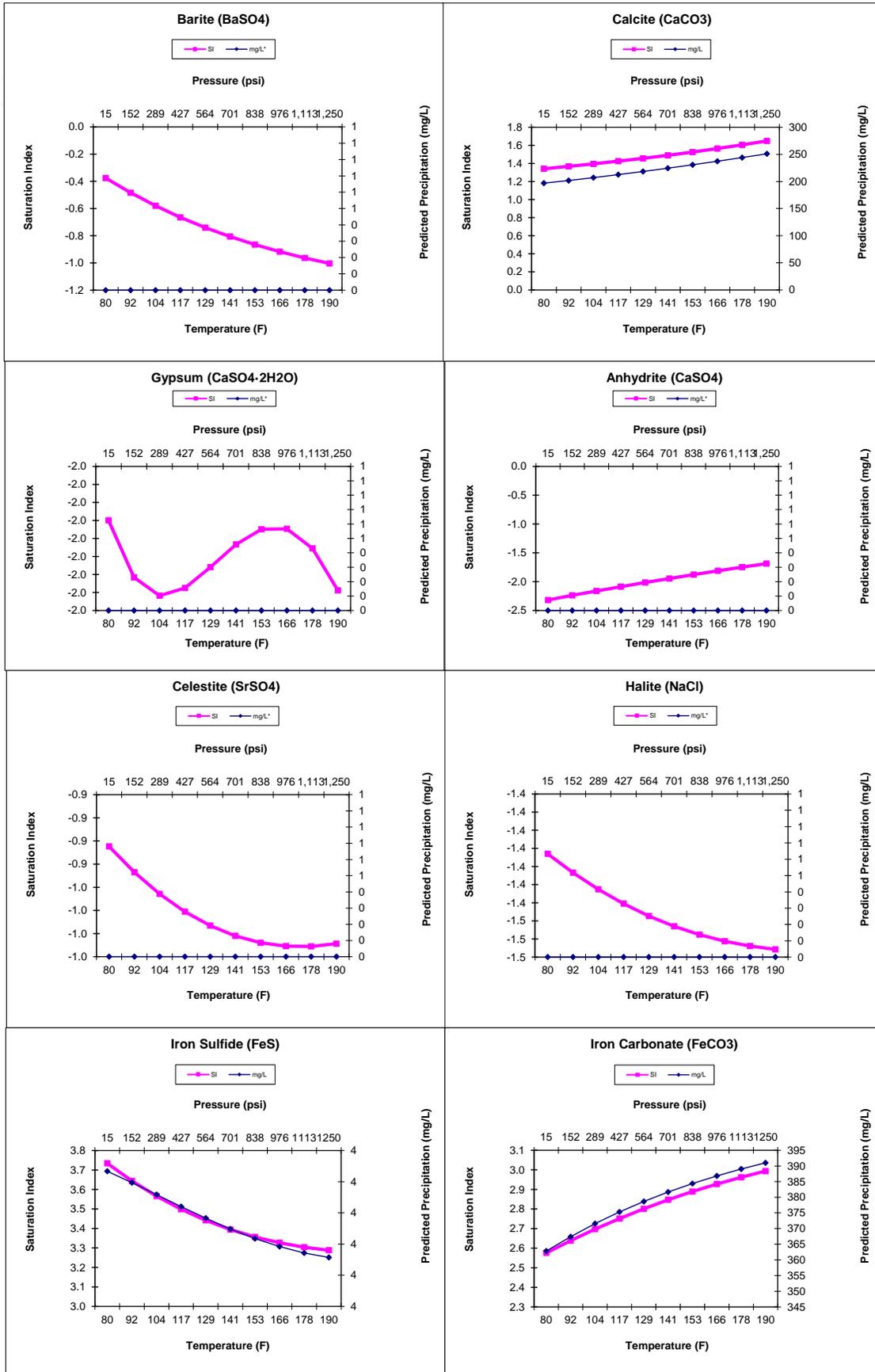
Field Data		Analysis of Sample											
		Anions:		mg/L		meq/L		Cations:		mg/L		meq/L	
Initial Temperature (°F):	190	Chloride (Cl ⁻):	73300	2067.7	Sodium (Na ⁺):	33430	1454.8						
Final Temperature (°F):	80	Sulfate (SO ₄ ²⁻):	30.0	0.6	Potassium (K ⁺):	400	10.2						
Initial Pressure (psi):	1250	Bicarbonate (HCO ₃ ⁻):	449	7.4	Magnesium (Mg ²⁺):	502	41.3						
Final Pressure (psi):	15	Carbonate (CO ₃ ²⁻):	ND		Calcium (Ca ²⁺):	2891	144.3						
Dissolved Gases		Hydroxide (OH ⁻):	ND		Strontium (Sr ²⁺):	620	14.1						
Dissolved CO ₂ (ppm):	243	Phosphate (PO ₄ ³⁻):	15.6	0.5	Barium (Ba ²⁺):	3.7	0.1						
Dissolved H ₂ S (ppm):	1.5	Borate (H ₃ BO ₃):	232	3.7	Iron (Fe, Total):	1083	38.8						
Sample Parameters		Silica (SiO ₂):	39.7	0.7	Manganese (Mn ²⁺):	1.8	0.1						
pH:	7.0				Lead (Pb ²⁺):	0.1	0.0						
Calculated TDS (mg/L):	113159				Zinc (Zn ²⁺):	2.7	0.1						
Calculated Density (g/cm ³):	1.0702				Lithium (Li ⁺):	18.2	2.6						
Total Hardness (mg/L CaCO ₃):	9999				Aluminum (Al ³⁺):	2.8	0.3						
Total Alkalinity (mg/L CaCO ₃):	368												
		Anion EPM Total:	2081		Cation EPM Total:	1707							
N/A - Not Analyzed		% RPD of Cations/Anions:		19.7%		ND = Not Detected							

Conditions		Barite (BaSO ₄)		Calcite (CaCO ₃)		Gypsum (CaSO ₄ ·2H ₂ O)		Anhydrite (CaSO ₄)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	-0.38	0.000	1.34	68.930	-2.01	0.000	-2.32	0.000
92°F	152 psi	-0.48	0.000	1.37	70.659	-2.02	0.000	-2.24	0.000
104°F	289 psi	-0.58	0.000	1.40	72.498	-2.02	0.000	-2.16	0.000
117°F	427 psi	-0.66	0.000	1.42	74.422	-2.02	0.000	-2.09	0.000
129°F	564 psi	-0.74	0.000	1.46	76.445	-2.02	0.000	-2.01	0.000
141°F	701 psi	-0.81	0.000	1.49	78.568	-2.01	0.000	-1.95	0.000
153°F	838 psi	-0.87	0.000	1.53	80.787	-2.01	0.000	-1.88	0.000
166°F	976 psi	-0.92	0.000	1.56	83.088	-2.01	0.000	-1.81	0.000
178°F	1113 psi	-0.96	0.000	1.61	85.455	-2.02	0.000	-1.75	0.000
190°F	1250 psi	-1.00	0.000	1.65	87.869	-2.02	0.000	-1.69	0.000

Conditions		Celestite (SrSO ₄)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate (FeCO ₃)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	-0.92	0.000	-1.41	0.000	3.73	1.397	2.58	126.991
92°F	152 psi	-0.95	0.000	-1.42	0.000	3.64	1.396	2.64	128.591
104°F	289 psi	-0.97	0.000	-1.43	0.000	3.57	1.396	2.70	130.055
117°F	427 psi	-0.98	0.000	-1.44	0.000	3.50	1.396	2.75	131.361
129°F	564 psi	-0.99	0.000	-1.45	0.000	3.44	1.396	2.80	132.529
141°F	701 psi	-1.00	0.000	-1.45	0.000	3.39	1.396	2.85	133.579
153°F	838 psi	-1.01	0.000	-1.46	0.000	3.36	1.396	2.89	134.524
166°F	976 psi	-1.01	0.000	-1.46	0.000	3.33	1.396	2.93	135.378
178°F	1113 psi	-1.01	0.000	-1.46	0.000	3.30	1.396	2.96	136.150
190°F	1250 psi	-1.01	0.000	-1.47	0.000	3.29	1.396	2.99	136.848

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered
 Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.
 Note 3: Saturation Index predictions on this sheet use pH and alkalinity; %CO₂ is not included in the calculations.

Comments: _____





Oilfield Labs of America
 3302 Pilot Ave.
 Midland, Texas 79706
 432-789-1860

Report Date: 2/6/2019

Complete Water Analysis

Customer:	True Clear Water Solutions	Account Rep:	John Ayres
Operator:	Crown Quest	Sample ID:	01190131412
Lease:	Treated	Sample Date:	1/31/2019
Sample Point:	180	Received Date:	1/31/2019
Region:	Permian	Log Out Date:	2/6/2019

True Clear Water Solutions, Crown Quest, Treated,180

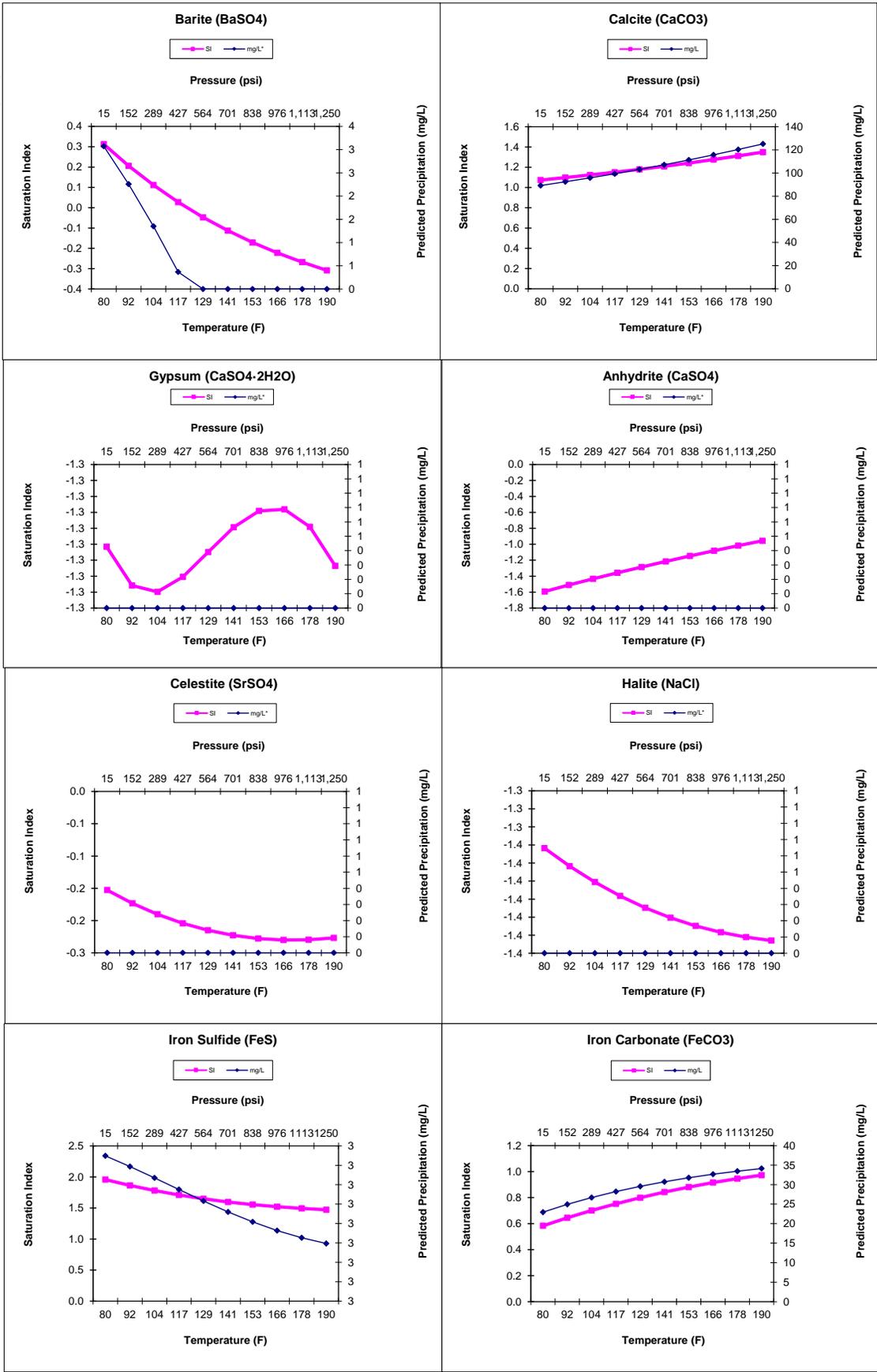
Field Data		Analysis of Sample					
		Anions:		Cations:			
		mg/L	meq/L	mg/L	meq/L		
Initial Temperature (°F):	190	Chloride (Cl ⁻):	72000	2031.0	Sodium (Na ⁺):	38791	1688.1
Final Temperature (°F):	80	Sulfate (SO ₄ ²⁻):	170	3.5	Potassium (K ⁺):	439	11.2
Initial Pressure (psi):	1250	Bicarbonate (HCO ₃ ⁻):	270	4.4	Magnesium (Mg ²⁺):	505	41.6
Final Pressure (psi):	15	Carbonate (CO ₃ ²⁻):	ND		Calcium (Ca ²⁺):	2891	144.3
Dissolved Gases		Hydroxide (OH ⁻):	ND		Strontium (Sr ²⁺):	706	16.1
Dissolved CO ₂ (ppm):	217	Phosphate (PO ₄ ³⁻):	4.1	0.1	Barium (Ba ²⁺):	3.5	0.1
Dissolved H ₂ S (ppm):	1.3	Borate (H ₃ BO ₃):	232	3.8	Iron (Fe, Total):	21.0	0.8
Sample Parameters		Silica (SiO ₂):	16.0	0.3	Manganese (Mn ²⁺):	1.2	0.0
pH:	7.1				Lead (Pb ²⁺):	ND	
Calculated TDS (mg/L):	116069				Zinc (Zn ²⁺):	ND	
Calculated Density (g/cm ³):	1.0731				Lithium (Li ⁺):	21.8	3.1
Total Hardness (mg/L CaCO ₃):	10110				Aluminum (Al ³⁺):	0.1	0.0
Total Alkalinity (mg/L CaCO ₃):	222						
		Anion EPM Total:	2043		Cation EPM Total:	1905	
N/A - Not Analyzed		% RPD of Cations/Anions:		7.0%		ND = Not Detected	

Conditions		Barite (BaSO ₄)		Calcite (CaCO ₃)		Gypsum (CaSO ₄ ·2H ₂ O)		Anhydrite (CaSO ₄)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	0.31	1.076	1.07	31.224	-1.29	0.000	-1.59	0.000
92°F	152 psi	0.21	0.791	1.10	32.365	-1.30	0.000	-1.51	0.000
104°F	289 psi	0.11	0.473	1.12	33.551	-1.30	0.000	-1.43	0.000
117°F	427 psi	0.03	0.129	1.15	34.795	-1.29	0.000	-1.36	0.000
129°F	564 psi	-0.05	0.000	1.18	36.110	-1.29	0.000	-1.29	0.000
141°F	701 psi	-0.11	0.000	1.21	37.503	-1.29	0.000	-1.22	0.000
153°F	838 psi	-0.17	0.000	1.24	38.974	-1.29	0.000	-1.15	0.000
166°F	976 psi	-0.22	0.000	1.28	40.520	-1.29	0.000	-1.08	0.000
178°F	1113 psi	-0.27	0.000	1.31	42.134	-1.29	0.000	-1.02	0.000
190°F	1250 psi	-0.31	0.000	1.35	43.805	-1.29	0.000	-0.96	0.000

Conditions		Celestite (SrSO ₄)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate (FeCO ₃)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	-0.15	0.000	-1.35	0.000	1.96	1.165	0.58	8.029
92°F	152 psi	-0.17	0.000	-1.36	0.000	1.86	1.162	0.64	8.727
104°F	289 psi	-0.19	0.000	-1.37	0.000	1.78	1.157	0.70	9.340
117°F	427 psi	-0.20	0.000	-1.38	0.000	1.71	1.153	0.75	9.878
129°F	564 psi	-0.22	0.000	-1.38	0.000	1.65	1.149	0.80	10.348
141°F	701 psi	-0.22	0.000	-1.39	0.000	1.60	1.145	0.84	10.760
153°F	838 psi	-0.23	0.000	-1.39	0.000	1.55	1.142	0.88	11.120
166°F	976 psi	-0.23	0.000	-1.40	0.000	1.52	1.138	0.92	11.434
178°F	1113 psi	-0.23	0.000	-1.40	0.000	1.49	1.136	0.95	11.708
190°F	1250 psi	-0.23	0.000	-1.40	0.000	1.47	1.134	0.97	11.945

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered
 Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.
 Note 3: Saturation Index predictions on this sheet use pH and alkalinity; %CO₂ is not included in the calculations.

Comments: _____



Oilfield Labs of America

3302 Pilot Avenue

Midland, Texas 79706

Toll Free - 855-OIL-LAB1

Report Date: 10/18/2017

Adenosine Triphosphate (ATP) Report

OLA Client:	Ecotechnology	Log Out Date:	10/18/17
Sales Rep:	<i>Army Disregard</i>	Analyst:	RWS



Sample ID	Sample Date	Operator	Region	Lease	Location	cATP (pg/ml)
1171018007	1/0/00	Eco Tech Field	Not Provided	Ecotech Field Test	Before	28421
1171018008	1/0/00	Eco Tech Field	Not Provided	Ecotech Field Test	After	3037

QMG-M cATP Interpretation Guidelines

Application	Good Control	Preventative Action	Corrective Action
	(pg cATP/mg)		
Finished Fuels Conventional Lubricants *	< 10	10 to 100	> 100
Polymers, Admixes, Personal Care, Home Care	< 100	100 to 1,000	> 1,000
Crude Oil, Fuel Associated Water, Oily Brines, Chemical Products, Oilfield Waters	< 100	100 to 1,000	>1,000
Metal Working Fluids, Fire Retardant Lubricants	< 1,000	1,000 to 10,000	> 10,000
<p>* The interpretation guidelines provided above are based on samples that meet defined standards (from ASTM, ISO or otherwise) for water content. For example, diesel fuels should contain ≤ 500 ppm water and sediment (per ASTM D 975 and D 7467) while jet fuels should contain ≤ 30 ppm, (per ASTM D 1655). If the sample has greater water content than defined as acceptable by the standard, interpretation guidelines may vary. Contact LuminUltra for interpretation advice.</p> <p>Note: These interpretation guidelines are designed for generic risk management guidance only. Users are encouraged to establish their own control ranges on which to base process decisions. LuminUltra and its affiliates do not accept any liability for any decision or assessment taken or made as a consequence of using this test kit.</p>			

Control



Oilfield Labs of America
 3302 Pkwt Ave
 Midland, Texas 79706
 1-855-OLA-LABS

Report Date: 10/19/2017

Complete Water Analysis

Customer:	Ecotechnology	Account Rep:	100-500000
Operator:	Eco Tech Field	Sample ID:	100-500000
Lease:	Ecotech Field Test	Sample Date:	
Sample Point:	Before	Received Date:	10/18/2017
Region:	Not Provided	Log Out Date:	10/19/2017

Ecotechnology, Eco Tech Field, Ecotech Field Test, Before

Field Data		Analysis of Sample					
		Anions:		Cations:			
		mg/L	meq/L	mg/L	meq/L		
Initial Temperature (°F):	190	Chloride (Cl ⁻)	5000	1685.9	Sodium (Na ⁺)	3441.0	1497.4
Final Temperature (°F):	80	Sulfate (SO ₄ ²⁻)	1000	20.8	Potassium (K ⁺)	396	10.1
Initial Pressure (psi):	1250	Borate (H ₂ BO ₃)	232	3.8	Magnesium (Mg ²⁺)	354	29.1
Final Pressure (psi):	15				Calcium (Ca ²⁺)	2184	109.0
					Strontium (Sr ²⁺)	250	5.7
pH:					Barium (Ba ²⁺)	0.9	0.0
					Iron (Fe ²⁺)	8.4	0.3
pH:	6.9	Phosphate (PO ₄ ³⁻)	1.3	0.0	Manganese (Mn ²⁺)	0.4	0.0
					Total Hardness:	7200	
Alkalinity by Titration:	mg/L						
Bicarbonate (HCO ₃ ⁻)	614						
aqueous CO ₂ (ppm)	187						
aqueous H ₂ S (ppm)							
Calculated TDS (mg/L):	30						
Density/Specific Gravity (g/cc)							
Measured Density/Specific Gravity							
		Anion EPM Total:		1722		Cation EPM Total:	1652
		% RPD of Cations/Anions:		4.1%		ND = Not Determined	

Conditions		Barite (BaSO ₄)		Calcite (CaCO ₃)		Gypsum (CaSO ₄ ·2H ₂ O)		Anhydrite (CaSO ₄)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
50°F	15 psi	0.55	0.369	1.07	105.546	0.64	0.000	-0.84	0.000
92°F	152 psi	0.45	0.332	0.98	98.236	-0.64	0.000	-0.79	0.000
104°F	289 psi	0.35	0.288	1.05	104.094	-0.64	0.000	-0.74	0.000
117°F	427 psi	0.27	0.238	1.13	109.431	-0.64	0.000	-0.69	0.000
129°F	564 psi	0.19	0.183	1.20	114.308	-0.65	0.000	-0.63	0.000
141°F	701 psi	-0.12	0.122	1.27	118.779	-0.65	0.000	-0.58	0.000
153°F	838 psi	0.05	0.056	1.33	122.887	-0.65	0.000	-0.52	0.000
166°F	976 psi	-0.01	0.000	1.40	126.674	-0.65	0.000	-0.46	0.000
178°F	1113 psi	-0.07	0.000	1.46	130.174	-0.65	0.000	-0.39	0.000
190°F	1250 psi	-0.12	0.000	1.53	133.418	-0.64	0.000	-0.33	0.000

Conditions		Celestite (SrSO ₄)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate (FeCO ₃)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	0.13	37.742	-1.59	0.000	1.67	3.936	0.32	3.024
92°F	152 psi	0.12	36.458	-1.54	0.000	1.45	3.728	0.27	2.651
104°F	289 psi	0.12	35.235	-1.55	0.000	1.45	3.738	0.26	3.382
117°F	427 psi	0.11	34.235	-1.56	0.000	1.46	3.750	0.48	3.925
129°F	564 psi	0.11	33.592	-1.57	0.000	1.47	3.765	0.57	4.332

3

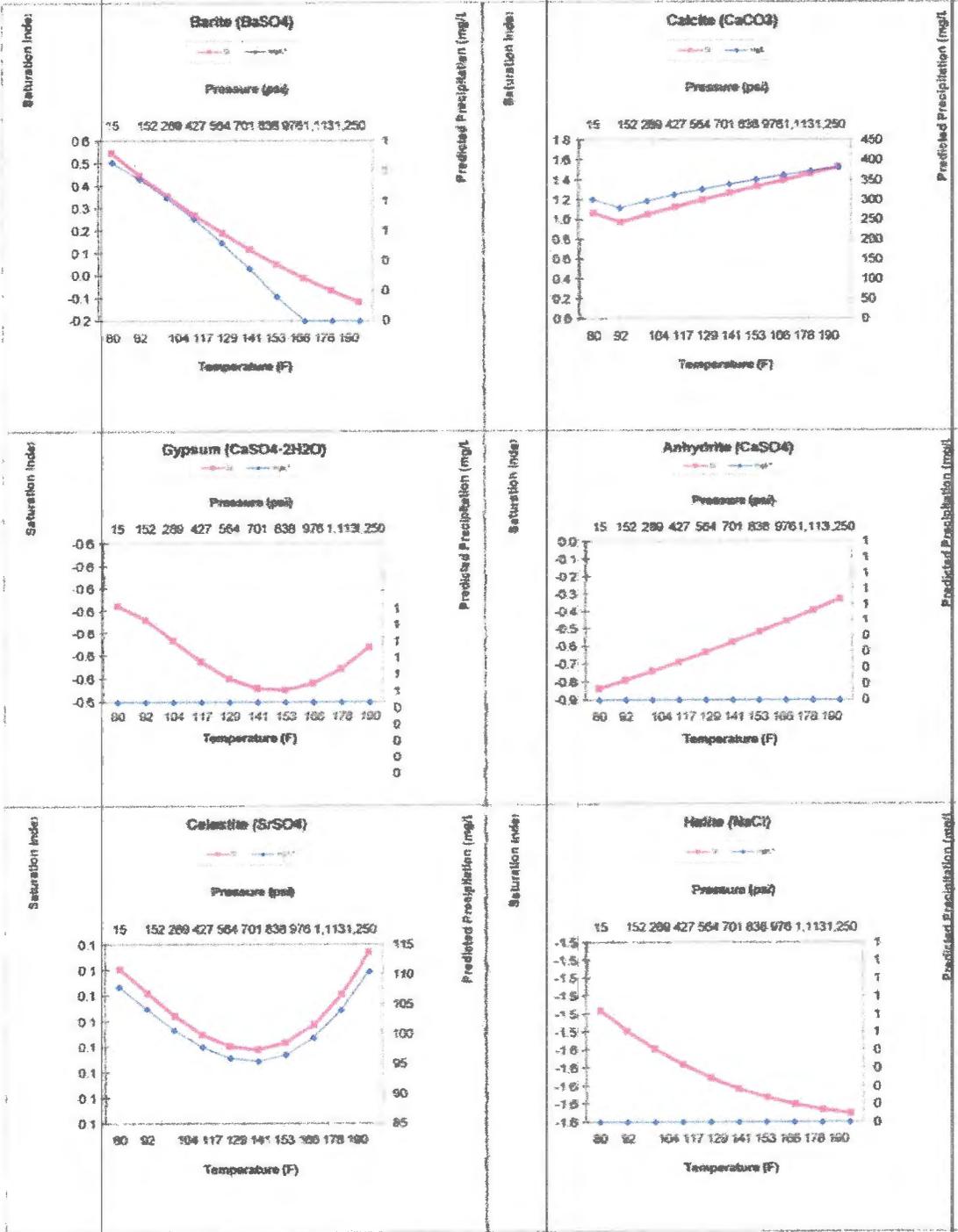
141°F	701 psi	0.11	33.417	-1.57	0.000	1.49	3.782	0.66	4.639
153°F	838 psi	0.11	33.793	-1.58	0.000	1.51	3.801	0.73	4.875
166°F	976 psi	0.11	34.775	-1.58	0.000	1.53	3.822	0.80	5.056
178°F	1113 psi	0.12	36.392	-1.58	0.000	1.55	3.845	0.87	5.197
190°F	1250 psi	0.13	38.647	-1.59	0.000	1.57	3.870	0.93	5.388

Note 1: When separating the severity of the scale problem, both the saturation index (SI) and amount of scale need to be considered.
 Note 2: Precipitation of each scale is considered separately. Total scales will be less than the sum of the amounts of the right (SI) scales.
 Note 3: Saturation index predictions on the sheet use pH and alkalinity. HCO_3^- is NOT included in the calculations.



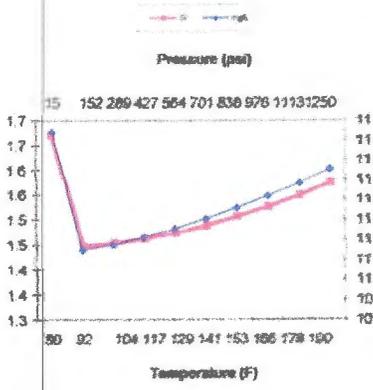
Comments:

Sample ID: Ecotechnology, Eco Tech Field, Ecotech Field
 Test Before



Saturation Index

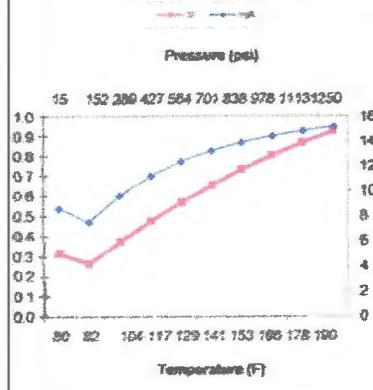
Iron Sulfide (FeS)



Predicted Precipitation (mg/L)

Saturation Index

Iron Carbonate (FeCO₃)



Predicted Precipitation (mg/L)

178°F	1113 psi	0.08	25.003	1.66	0.000	0.15	0.103	0.16	0.275
190°F	1250 psi	0.09	28.828	-1.57	0.000	0.16	0.105	0.20	0.340

Note 1: When assessing the accuracy of the above analysis, both the saturation index (SI) and amount of scale must be considered.

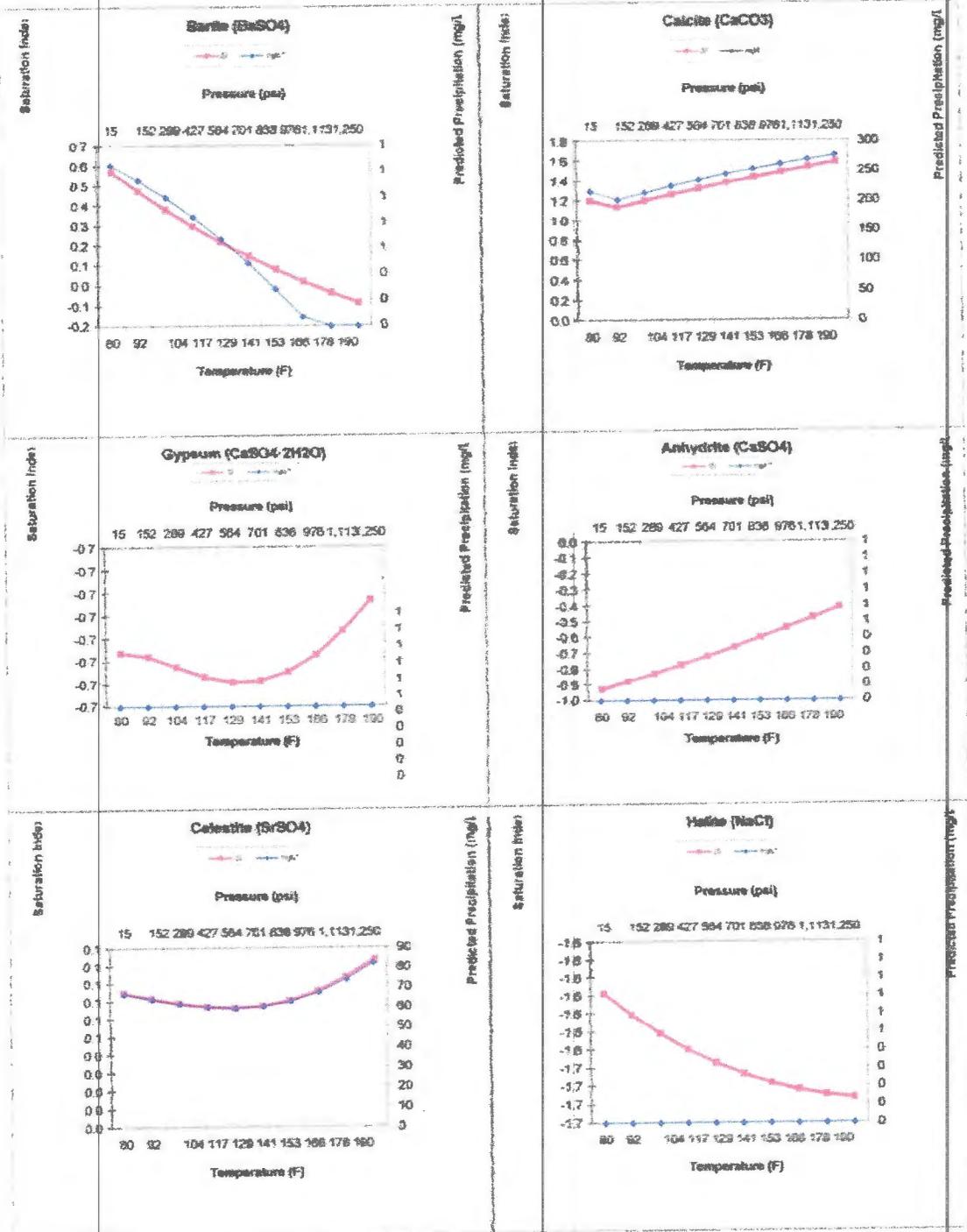
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the separate scales.

Note 3: Saturation index predictions are based on pH and alkalinity. HCO_3^- & HSiO_4^- are excluded in SI calculations.



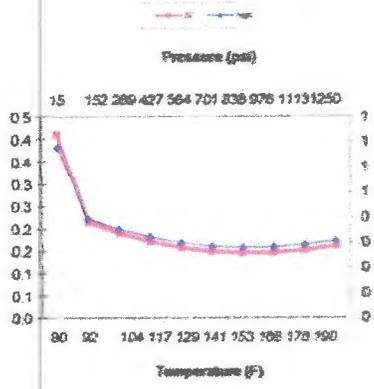
Comments:

Sample ID: 43027 Ecotechology, Eco Tech Field, Eco_Tech_Field_Test,Treated Filtered Water



Saturation Index

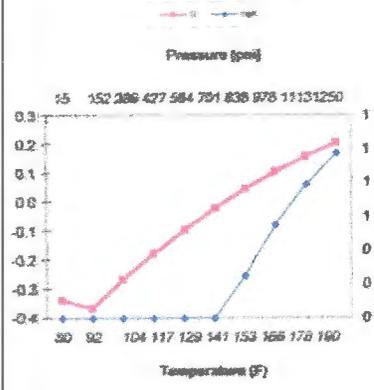
Iron Sulfide (FeS)



Predicted Precipitation (mg/L)

Saturation Index

Iron Carbonate (FeCO₃)



Predicted Precipitation (mg/L)

Contract

Dry Weight

Oilfield Labs of America
3302 Pilot Avenue

Toll Free - 855-OIL-LAB1

Report Date: 10/20/2017

Membrane Filter Analysis

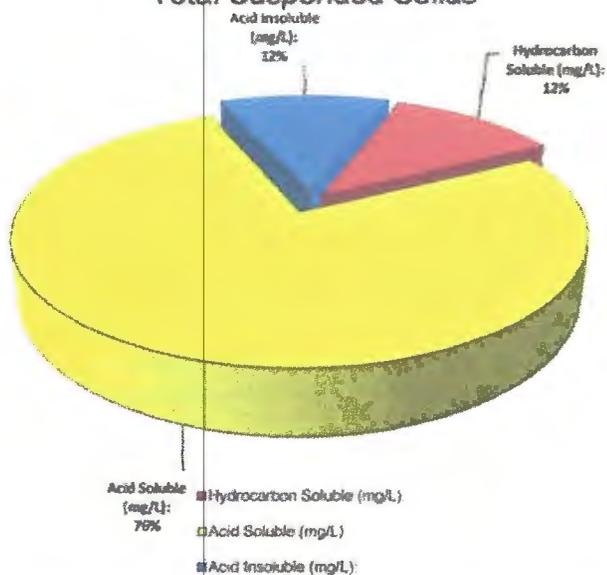
Midland, Texas 79706



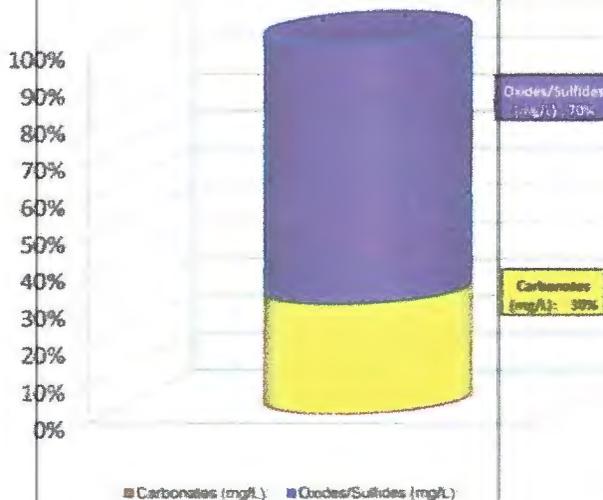
OLA Client:	Ecotechnology	Test Requested:	Membrane
Operator:	Eco Tech Field	Sample ID:	107701000
Requested By:	Scott Johnson	Sample Date:	1/0/1900
Lease:	Ecotech Field Test	Received Date:	10/18/2017
Location:	Before	Logout Date:	10/20/2017
Region:	Not Provided	Analyst:	RWS

Eco Tech Field, Ecotech Field Test, Before

Total Suspended Solids



Acid Soluble



Results

Pore Size (microns):	0.45	Time (mins):	5
Volume Used (mls):	39	Pressure (psi):	20
Total Suspended Solids (mg/L):	238		

9

PROCESS

Oilfield Labs of America
3302 Pilot Avenue

Toll Free - 855-OIL-LAB1

Report Date: 10/20/2017

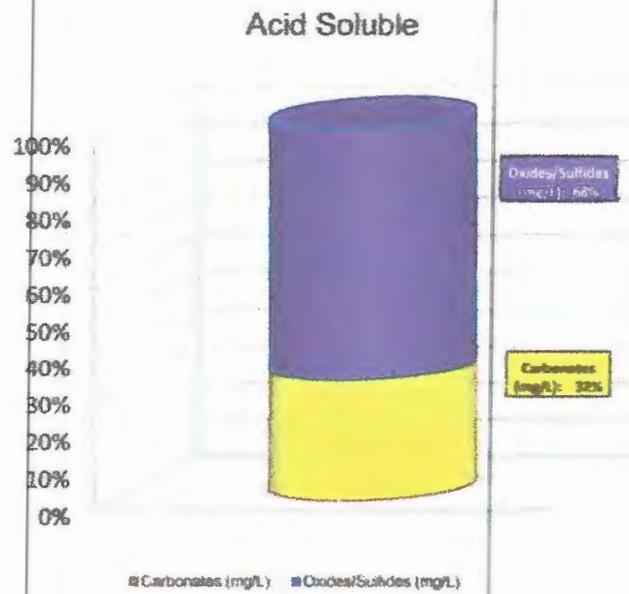
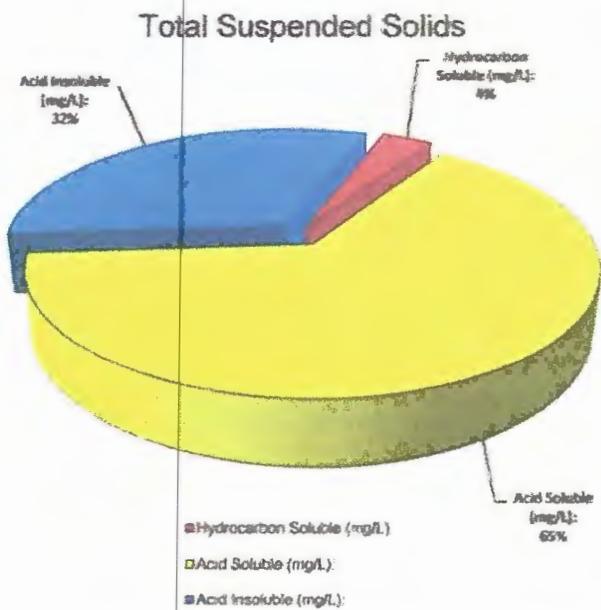
Membrane Filter Analysis

Midland, Texas 79706



OLA Client:	Ecotechnology	Test Requested:	10/18/2017
Operator:	Eco Tech Field	Sample ID:	10/18/2017
Requested By:	John Ward	Sample Date:	1/0/1900
Lease:	Ecotech Field Test	Received Date:	10/18/2017
Location:	Filtered After	Logout Date:	10/20/2017
Region:	Not Provided	Analyst:	RWS

Eco Tech Field, Ecotech Field Test, Filtered After



Results

Pore Size (microns): 0.45 Time (mins): 5
 Volume Used (mls): 42 Pressure (psi): 20
 Total Suspended Solids (mg/L): 136

10

Hydrocarbon Soluble	5	4%
(mg/L): Acid Soluble	88	65%
(mg/L): Acid Insoluble	43	32%
Total:		100%

Comments:

Acid Soluble (mg/L):	88	
Oxides/Sulfides (mg/L):	60	68%
Carbonates (mg/L):	29	32%
Total:		100%



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 2003941 **Amended:** 04/01/2020

Revision: 1

Report Created for: SRL Labs

5236 Pacheco Blvd
Pacheco, CA 94553

Project Contact: Michael Green

Project P.O.:

Project: Metals

Project Received: 03/20/2020

Analytical Report reviewed & approved for release on 03/27/2020 by:

Jennifer Lagerbom
Project Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: SRL Labs
Project: Metals
WorkOrder: 2003941

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
CPT	Consumer Product Testing not NELAP Accredited
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
LQL	Lowest Quantitation Level
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
TZA	TimeZone Net Adjustment for sample collected outside of MAI's UTC.
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Glossary of Terms & Qualifier Definitions

Client: SRL Labs
Project: Metals
WorkOrder: 2003941

Analytical Qualifiers

J Result is less than the RL/ML but greater than the MDL. The reported concentration is an estimated value.
a1 Sample diluted due to matrix interference

Quality Control Qualifiers

F10 MS/MSD outside control limits. Physical or chemical interferences exist due to sample matrix.
F13 Indigenous sample results too high for a representative matrix spike analysis.



Analytical Report

Client: SRL Labs
Date Received: 03/20/2020 9:22
Date Prepared: 03/23/2020
Project: Metals

WorkOrder: 2003941
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Metals (>1% Sediment Content)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Control	2003941-001A	Water	03/19/2020 12:28	ICP-MS2 057SMPL.D	196009

Analytes	Result	MDL	RL	DF	Date Analyzed
Barium	113,900	190.0	2500	100	03/24/2020 15:00
Iron	ND	17,000	25,000	100	03/24/2020 15:00
Mercury	ND	10.00	25.00	100	03/24/2020 15:00
Strontium	1,125,000	210.0	2500	100	03/24/2020 15:00

Surrogates	REC (%)	Limits	
Terbium	101	70-130	03/24/2020 15:00

Analyst(s): MIG

Analytical Comments: a1



Analytical Report

Client: SRL Labs
Date Received: 03/20/2020 9:22
Date Prepared: 03/23/2020
Project: Metals

WorkOrder: 2003941
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Process	2003941-002A	Water	03/19/2020 12:43	ICP-MS4 305SMPL.d	196021

Analytes	Result	MDL	RL	DF	Date Analyzed
Barium	24,190	7.200	100.0	20	03/25/2020 21:46
Iron	9787	1200	2000	20	03/25/2020 21:46
Mercury	ND	0.6600	1.000	20	03/25/2020 21:46
Strontium	1,113,000	390.0	5000	1,000	03/26/2020 21:20

Surrogates	REC (%)	Limits	
Terbium	100	70-130	03/25/2020 21:46

Analyst(s): DB

Analytical Comments: a1



Quality Control Report

Client: SRL Labs	WorkOrder: 2003941
Date Prepared: 03/23/2020	BatchID: 196009
Date Analyzed: 03/23/2020 - 03/24/2020	Extraction Method: E200.8
Instrument: ICP-MS2, ICP-MS4	Analytical Method: E200.8
Matrix: Water	Unit: µg/L
Project: Metals	Sample ID: MB/LCS/LCSD-196009 2003941-001AMS/MSD

QC Report for Metals (>1% Sediment Content)

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Barium	ND	1.90	25.0	-	-	-
Iron	ND	170	250	-	-	-
Mercury	0.165,J	0.100	0.250	-	-	-
Strontium	ND	2.10	25.0	-	-	-
Surrogate Recovery						
Terbium	2420			2500	97	70-130



Quality Control Report

Client: SRL Labs
Date Prepared: 03/23/2020
Date Analyzed: 03/23/2020 - 03/24/2020
Instrument: ICP-MS2, ICP-MS4
Matrix: Water
Project: Metals

WorkOrder: 2003941
BatchID: 196009
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS/LCSD-196009
 2003941-001AMS/MSD

QC Report for Metals (>1% Sediment Content)

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Barium	2450	2430	2500	98	97	85-115	0.924	20
Iron	24,400	24,400	25000	98	97	85-115	0.132	20
Mercury	5.71	6.20	6.25	91	99	85-115	8.31	20
Strontium	2410	2410	2500	96	96	85-115	0.265	20

Surrogate Recovery

Terbium	2490	2470	2500	99	99	70-130	0.696	20
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Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Barium	100	111,000	133,000	2500	113,900	0,F13	756,F13	85-115	NA	20
Iron	100	35,000	37,900	25000	ND<25,000	140,F10	152,F10	85-115	7.91	20
Mercury	100	6.85	7.55	6.25	ND<25	110	121,F10	85-115	9.72	20
Strontium	100	1,090,000	1,280,000	2500	1,125,000	0,F13	6220,F1	85-115	NA	20

Surrogate Recovery

Terbium	100	2510	2910	2500		100	116	70-130	14.9	20
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Analyte	DLT Result	DLTRef Val	%D	%D Limit
Barium	130,000	113,900	14.1	20
Iron	ND<120,000	ND<25,000	-	-
Mercury	ND<120	ND<25	-	-
Strontium	1,320,000	1,125,000	17.3	20

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



Quality Control Report

Client: SRL Labs
Date Prepared: 03/23/2020
Date Analyzed: 03/23/2020 - 03/24/2020
Instrument: ICP-MS2, ICP-MS4
Matrix: Water
Project: Metals

WorkOrder: 2003941
BatchID: 196021
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS/LCSD-196021

QC Summary Report for Metals

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Barium	ND	0.360	5.00	-	-	-
Iron	ND	58.0	100	-	-	-
Mercury	ND	0.0330	0.0500	-	-	-
Strontium	ND	0.390	5.00	-	-	-

Surrogate Recovery

Terbium	506			500	101	70-130
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Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Barium	506	504	500	101	101	85-115	0.218	20
Iron	5070	4960	5000	101	99	85-115	2.17	20
Mercury	1.22	1.22	1.25	98	98	85-115	0.327	20
Strontium	507	508	500	101	102	85-115	0.253	20

Surrogate Recovery

Terbium	518	508	500	104	102	70-130	2.01	20
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1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

WaterTrax WriteOn EDF

CHAIN-OF-CUSTODY RECORD

WorkOrder: 2003941

ClientCode: SRLP

Excel EQulS Email HardCopy ThirdParty J-flag
 Detection Summary Dry-Weight

Report to:

Michael Green
SRL Labs
5236 Pacheco Blvd
Pacheco, CA 94553
925-689-6080 FAX: 925-689-0145

Email: mgreen@srlabs.com
cc/3rd Party:
PO:
Project: Metals

Bill to:

Michael Green
SRL Labs
5236 Pacheco Blvd
Pacheco, CA 94553
mgreen@srlabs.com

Requested TAT: 5 days;

Date Received: 03/20/2020

Date Logged: 03/20/2020

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
2003941-001	Control	Water	3/19/2020 12:28	<input type="checkbox"/>	A		A										
2003941-002	Process	Water	3/19/2020 12:43	<input type="checkbox"/>		A	A										

Test Legend:

1	METALSMS_TTLC_Sed	2	METALSMS_TTLC_W	3	PRDisposal Fee	4	
5		6		7		8	
9		10		11		12	

Project Manager: Angela Rydelius

Prepared by: Tina Perez

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days). Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: SRL LABS
Client Contact: Michael Green
Contact's Email: mgreen@srllabs.com

Project: Metals

Comments:

Work Order: 2003941
QC Level: LEVEL 2
Date Logged: 3/20/2020

WaterTrax WriteOn EDF Excel EQUIS Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
2003941-001A	Control	Water	E200.8 (Metals) <Barium, Iron, Mercury, Strontium>	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	3/19/2020 12:28	5 days	Present	<input type="checkbox"/>	
2003941-002A	Process	Water	E200.8 (Metals) <Barium, Iron, Mercury, Strontium>	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	3/19/2020 12:43	5 days	Trace	<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).
- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

 <p>McCAMPBELL ANALYTICAL, INC. 1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701 Telephone: (877) 252-9262 / Fax: (925) 252-9269 www.mccampbell.com main@mccampbell.com</p>	CHAIN OF CUSTODY RECORD			
	1 Day	2 Day	3 Day	STD <input checked="" type="checkbox"/>
	Quote #		Bottle Order #	
Delivery Format: PDF		Other		

Report To: Michael Green Bill To: SRL Labs
 Company: SRL Labs
 Email: mgreen@srlabs.com
 Alt Email: _____ Tele: _____
 Project Name: Metals Project #: _____
 Project Location: Frederick CA PO #: _____
 Sampler Signature: [Signature]

Analysis Requested

SAMPLE ID Location / Field Point	Sampling		#Containers	Matrix	Preservative																	
	Date	Time																				
+ "Control" BARIUM STRONTIUM IRON MERCURY RADIUM	3/19	12:28																				
	(F) "Process" BARIUM STRONTIUM IRON MERCURY RADIUM	3/19	12:43																			

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
<u>[Signature]</u>	3/20	0922	<u>[Signature]</u>	3/20/2020	0922

** DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe
 Preservative Code: 1=4°C 2=HCl 3=H₂SO₄ 4=HNO₃ 5=NaOH 6=ZnOAc/NaOH 7=None
 Clients MUST disclose any dangerous chemicals known to be present in their submitted samples that may cause immediate harm handling by MAI staff. Non-disclosure incurs an immediate \$250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.
 Please provide an adequate volume of sample. If insufficient for a MS/MSD a LCS/LCSD will be prepared in its place.
 If water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Temp 3.1 °C Initials WET
 Page ___ of ___



Sample Receipt Checklist

Client Name: **SRL Labs**
 Project: **Metals**

Date and Time Received: **3/20/2020 09:22**

Date Logged: **3/20/2020**

Received by: **Tina Perez**

Logged by: **Tina Perez**

WorkOrder No: **2003941** Matrix: Water
 Carrier: Client Drop-In

Chain of Custody (COC) Information

Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample IDs noted by Client on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Date and Time of collection noted by Client on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sampler's name noted on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
COC agrees with Quote?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper containers/bottles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
Samples Received on Ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

(Ice Type: WET ICE)

Sample/Temp Blank temperature	Temp: 3.1°C		NA <input type="checkbox"/>
Water - VOA vials have zero headspace / no bubbles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
Sample labels checked for correct preservation?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
pH acceptable upon receipt (Metal: <2; Nitrate 353.2/4500NO3: <2; 522: <4; 218.7: >8)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>

UCMR Samples:

pH tested and acceptable upon receipt (200.8: ≤2; 525.3: ≤4; 530: ≤7; 541: <3; 544: <6.5 & 7.5)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Free Chlorine tested and acceptable upon receipt (<0.1mg/L)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

 Comments:



November 9, 2018

Lab ID : SP 1813440-001

Customer ID : 2-19889

McCampbell Analytical, Inc.

1534 Willow Pass Road

Pittsburgh, CA 94565

Sampled On : October 4, 2018-10:00

Sampled By : Not Available

Received On : October 9, 2018-09:44

Matrix : Water

Description : C-1

Project : 1810247-001C&D

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Total Alpha Radium (226)	0.264 ± 0.172	0.391	pCi/L	3	903.0	10/22/18-19:00 2P1812596	903.0	11/02/18-17:06 2A1816161
Ra 228	0.075 ± 0.672	0.384	pCi/L	2	Ra - 05	10/29/18-18:30 2P1812374	Ra - 05	11/04/18-11:40 2A1816245

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.

MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).

AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following

If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L

Uranium is less than or equal to 20 pCi/L

Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



November 9, 2018

Lab ID : SP 1813440-002

Customer ID : 2-19889

McCampbell Analytical, Inc.

1534 Willow Pass Road

Pittsburgh, CA 94565

Sampled On : October 4, 2018-10:00

Sampled By : Not Available

Received On : October 9, 2018-09:44

Matrix : Water

Description : P-1

Project : 1810247-002C&D

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Total Alpha Radium (226)	0.659 ± 0.251	0.391	pCi/L	3	903.0	10/22/18-19:00 2P1812596	903.0	11/02/18-17:06 2A1816161
Ra 228	0.017 ± 0.671	0.400	pCi/L	2	Ra - 05	10/29/18-18:30 2P1812374	Ra - 05	11/04/18-12:20 2A1816246

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.

MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).

AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following

If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L

Uranium is less than or equal to 20 pCi/L

Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



November 9, 2018

Lab ID : SP 1813440-003

Customer ID : 2-19889

McCampbell Analytical, Inc.

1534 Willow Pass Road

Pittsburgh, CA 94565

Sampled On : October 4, 2018-10:00

Sampled By : Not Available

Received On : October 9, 2018-09:44

Matrix : Water

Description : P-2

Project : 1810247-003C&D

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Total Alpha Radium (226)	0.044 ± 0.105	0.391	pCi/L	3	903.0	10/22/18-19:00 2P1812596	903.0	11/02/18-17:06 2A1816161
Ra 228	0.000 ± 0.674	0.506	pCi/L	2	Ra - 05	10/29/18-18:30 2P1812374	Ra - 05	11/04/18-12:20 2A1816244

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.

MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).

AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following

If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L

Uranium is less than or equal to 20 pCi/L

Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



November 9, 2018

Lab ID : SP 1813440-004

Customer ID : 2-19889

McCampbell Analytical, Inc.

1534 Willow Pass Road

Pittsburgh, CA 94565

Sampled On : October 4, 2018-11:55

Sampled By : Not Available

Received On : October 9, 2018-09:44

Matrix : Water

Description : P-3

Project : 1810247-004C&D

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Total Alpha Radium (226)	0.066 ± 0.114	0.391	pCi/L	3	903.0	10/22/18-19:00 2P1812596	903.0	11/02/18-17:06 2A1816161
Ra 228	0.075 ± 0.734	0.383	pCi/L	2	Ra - 05	10/29/18-18:30 2P1812374	Ra - 05	11/04/18-12:00 2A1816245

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.

MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).

AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following

If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L

Uranium is less than or equal to 20 pCi/L

Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



November 9, 2018

Lab ID : SP 1813440-001
Customer ID : 2-19889

McC Campbell Analytical, Inc.

1534 Willow Pass Road
Pittsburgh, CA 94565

Sampled On : October 4, 2018-10:00
Sampled By : Not Available
Received On : October 9, 2018-09:44
Matrix : Water

Description : C-1
Project : 1810247-001C&D

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Total Alpha Radium (226)	0.264 ± 0.172	0.391	pCi/L	3	903.0	10/22/18-19:00 2P1812596	903.0	11/02/18-17:06 2A1816161
Ra 228	0.075 ± 0.672	0.384	pCi/L	2	Ra - 05	10/29/18-18:30 2P1812374	Ra - 05	11/04/18-11:40 2A1816245

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



November 9, 2018

Lab ID : SP 1813440-003

Customer ID : 2-19889

McCampbell Analytical, Inc.

1534 Willow Pass Road

Pittsburgh, CA 94565

Sampled On : October 4, 2018-10:00

Sampled By : Not Available

Received On : October 9, 2018-09:44

Matrix : Water

Description : P-2

Project : 1810247-003C&D

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Total Alpha Radium (226)	0.044 ± 0.105	0.391	pCi/L	3	903.0	10/22/18-19:00 2P1812596	903.0	11/02/18-17:06 2A1816161
Ra 228	0.000 ± 0.674	0.506	pCi/L	2	Ra - 05	10/29/18-18:30 2P1812374	Ra - 05	11/04/18-12:20 2A1816244

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.

MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).

AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following

If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L

Uranium is less than or equal to 20 pCi/L

Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

November 9, 2018

McCampbell Analytical, Inc.
 1534 Willow Pass Road
 Pittsburgh, CA 94565

Lab ID : SP 1813440
 Customer : 2-19889

Laboratory Report

Introduction: This report package contains total of 7 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (4 pages) : Results for each sample submitted.
 Quality Control (1 page) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
C-1	10/04/2018	10/09/2018	SP 1813440-001	W
P-1	10/04/2018	10/09/2018	SP 1813440-002	W
P-2	10/04/2018	10/09/2018	SP 1813440-003	W
P-3	10/04/2018	10/09/2018	SP 1813440-004	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at room temperature. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

903.0	11/02/2018:216161 All analysis quality controls are within established criteria
	10/22/2018:212596 All preparation quality controls are within established criteria
Ra - 05	11/04/2018:216244 All analysis quality controls are within established criteria
	11/04/2018:216245 All analysis quality controls are within established criteria
	11/04/2018:216246 All analysis quality controls are within established criteria
	10/29/2018:212374 All preparation quality controls are within established criteria

November 9, 2018
McCampbell Analytical, Inc.

Lab ID : SP 1813440
Customer : 2-19889

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2018-11-10



November 9, 2018

Lab ID : SP 1813440-001
Customer ID : 2-19889

McC Campbell Analytical, Inc.

1534 Willow Pass Road
Pittsburgh, CA 94565

Sampled On : October 4, 2018-10:00
Sampled By : Not Available
Received On : October 9, 2018-09:44
Matrix : Water

Description : C-1
Project : 1810247-001C&D

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Total Alpha Radium (226)	0.264 ± 0.172	0.391	pCi/L	3	903.0	10/22/18-19:00 2P1812596	903.0	11/02/18-17:06 2A1816161
Ra 228	0.075 ± 0.672	0.384	pCi/L	2	Ra - 05	10/29/18-18:30 2P1812374	Ra - 05	11/04/18-11:40 2A1816245

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



November 9, 2018

Lab ID : SP 1813440-002

Customer ID : 2-19889

McCampbell Analytical, Inc.

1534 Willow Pass Road

Pittsburgh, CA 94565

Sampled On : October 4, 2018-10:00

Sampled By : Not Available

Received On : October 9, 2018-09:44

Matrix : Water

Description : P-1

Project : 1810247-002C&D

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Total Alpha Radium (226)	0.659 ± 0.251	0.391	pCi/L	3	903.0	10/22/18-19:00 2P1812596	903.0	11/02/18-17:06 2A1816161
Ra 228	0.017 ± 0.671	0.400	pCi/L	2	Ra - 05	10/29/18-18:30 2P1812374	Ra - 05	11/04/18-12:20 2A1816246

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.

MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).

AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following

If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L

Uranium is less than or equal to 20 pCi/L

Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



November 9, 2018

Lab ID : SP 1813440-003

Customer ID : 2-19889

McCampbell Analytical, Inc.

1534 Willow Pass Road

Pittsburgh, CA 94565

Sampled On : October 4, 2018-10:00

Sampled By : Not Available

Received On : October 9, 2018-09:44

Matrix : Water

Description : P-2

Project : 1810247-003C&D

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Total Alpha Radium (226)	0.044 ± 0.105	0.391	pCi/L	3	903.0	10/22/18-19:00 2P1812596	903.0	11/02/18-17:06 2A1816161
Ra 228	0.000 ± 0.674	0.506	pCi/L	2	Ra - 05	10/29/18-18:30 2P1812374	Ra - 05	11/04/18-12:20 2A1816244

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.

MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).

AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following

If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L

Uranium is less than or equal to 20 pCi/L

Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



November 9, 2018

Lab ID : SP 1813440-004

Customer ID : 2-19889

McCampbell Analytical, Inc.

1534 Willow Pass Road

Pittsburgh, CA 94565

Sampled On : October 4, 2018-11:55

Sampled By : Not Available

Received On : October 9, 2018-09:44

Matrix : Water

Description : P-3

Project : 1810247-004C&D

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Total Alpha Radium (226)	0.066 ± 0.114	0.391	pCi/L	3	903.0	10/22/18-19:00 2P1812596	903.0	11/02/18-17:06 2A1816161
Ra 228	0.075 ± 0.734	0.383	pCi/L	2	Ra - 05	10/29/18-18:30 2P1812374	Ra - 05	11/04/18-12:00 2A1816245

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.

MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).

AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following

If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L

Uranium is less than or equal to 20 pCi/L

Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



November 9, 2018
McCampbell Analytical, Inc.

Lab ID : SP 1813440
Customer : 2-19889

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	903.0	11/02/18:216161AAT	CCV CCB	cpm cpm	8393	40.8 % 0.0800	37-46 0.12	
Total Alpha Radium (226)	903.0	10/22/18:212596aat	RgBlk LCS BS BSD BSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	24.20 24.20 24.20 24.20	0.02 81.5 % 72.0 % 90.0 % 22.2%	2 52-107 43-111 43-111 ≤35.5	
Beta	Ra - 05	11/04/18:216244emv	CCV CCB	cpm cpm	8392	89.3 % 0.4000	84-94 0.58	
	Ra - 05	11/04/18:216245emv	CCV CCB	cpm cpm	8392	88.8 % 0.4200	84-94 0.51	
	Ra - 05	11/04/18:216246emv	CCV CCB	cpm cpm	8392	88.6 % 0.4000	84-94 0.48	
Ra 228	Ra - 05	10/29/18:212374emv	RgBlk	pCi/L		0.003	3	
			LRS	pCi/L	31.07	74.0 %	65-108	
			BS	pCi/L	31.07	98.0 %	75-125	
			BSD	pCi/L	31.07	94.8 %	75-125	
			BSRPD	pCi/L	31.07	3.3%	≤25	

Definition	
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
LRS	: Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

Midland Flow Core Inc., Lab Analysis

8.06.18

Ferrous Iron

	McC Campbell Analytical, Inc. <i>"When Quality Counts"</i>	1534 Willow Park Road, Elmhurst, CA 94545-1701 Toll Free Telephone: (877) 252-9242 / Fax: (925) 252-9249 http://www.mccampbell.com / E-mail: main@mccampbell.com
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Analytical Report

Client:	SRL Labs	WorkOrder:	1808194
Date Received:	8/6/18 12:50	Extraction Method:	SMB500-Fe B4c
Date Prepared:	8/10/18	Analytical Method:	SMB500-Fe B4c
Project:	FlowCore: Midland	Unit:	µg/L

Ferrous Iron

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Control	1808194-0011	Water	08/06/2018 09:42	SPECTROPHOTOMETER	163052
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Ferrous Iron	33,000		1000	20	08/10/2018 12:02

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Process 1	1808194-0021	Water	08/06/2018 10:24	SPECTROPHOTOMETER	163052
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Ferrous Iron	200		50	1	08/10/2018 12:04

Analyst(s): RB

Midland Flow Core Inc., Lab Analysis

8.06.18

Gasoline Range (C6 – C12) Volatile Hydrocarbons, (BTEX & MTBE)

	McC Campbell Analytical, Inc. "When Quality Counts"	1334 Willow Park Road, Elmhurst, CA 94543-1701 Toll Free Telephone: (877) 232-9142 / Fax: (925) 232-9149 http://www.mccampbell.com / E-mail: maita@mccampbell.com
	Analytical Report	

Client:	SRL Labs	WorkOrder:	1808194
Date Received:	8/6/18 12:50	Extraction Method:	SW5030B
Date Prepared:	8/8/18-8/9/18	Analytical Method:	SW8021B/8015Bm
Project:	FlowCore: Midland	Unit:	µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Control	1808194-001F	Water	08/06/2018 09:42	GC3 08081812.D	162972
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH(g) (C6-C12)	14,000		500	10	08.08/2018 14:26
MTBE	---		50	10	08.08/2018 14:26
Benzene	---		5.0	10	08.08/2018 14:26
Toluene	---		5.0	10	08.08/2018 14:26
Ethylbenzene	---		5.0	10	08.08/2018 14:26
m,p-Xylene	---		10	10	08.08/2018 14:26
o-Xylene	---		5.0	10	08.08/2018 14:26
Xylenes	---		5.0	10	08.08/2018 14:26
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>		
aaa-TFT	89	S	90-117		08.08/2018 14:26
<u>Analyst(s):</u>	HD		<u>Analytical Comments:</u> d7,d1,p12,b6		

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Process 1	1808194-002F	Water	08/06/2018 10:24	GC3 08091830.D	163055
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH(g) (C6-C12)	3000		500	10	08.09/2018 23:10
MTBE	---		50	10	08.09/2018 23:10
Benzene	---		5.0	10	08.09/2018 23:10
Toluene	---		5.0	10	08.09/2018 23:10
Ethylbenzene	---		5.0	10	08.09/2018 23:10
m,p-Xylene	---		10	10	08.09/2018 23:10
o-Xylene	---		5.0	10	08.09/2018 23:10
Xylenes	---		5.0	10	08.09/2018 23:10
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
aaa-TFT	99		90-117		08.09/2018 23:10
<u>Analyst(s):</u>	HD		<u>Analytical Comments:</u> d7,d1		

Midland Flow Core Inc., Lab Analysis

8.06.18

Total Extractable Petroleum Hydrocarbons

	McCampbell Analytical, Inc. "When Quality Counts"	1334 Willow Pass Road, Pittsburg, CA 94565-1701 Toll Free Telephone: (877) 252-9242 / Fax: (925) 252-9249 http://www.mccampbell.com / E-mail: maita@mccampbell.com
	Analytical Report	

Client: SRL Labs
Date Received: 8/6/18 12:50
Date Prepared: 8/6/18
Project: FlowCore: Midland

WorkOrder: 1808194
Extraction Method: SW3510C
Analytical Method: SW8015B
Unit: µg/L

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Control	1808194-001F	Water	08/06/2018 09:42	GC39A 08071814.D	162765
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	26,000		1000	20	08.07/2018 19:01
TPH-Motor Oil (C18-C36)	22,000		5000	20	08.07/2018 19:01
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>		
C9	262	S	61-139		08.07/2018 19:01
<u>Analyst(s):</u> JIS	<u>Analytical Comments:</u> e1,e7,e8,e4,c2				

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Process 1	1808194-002F	Water	08/06/2018 10:24	GC6A 08061854.D	162765
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH-Diesel (C10-C23)	9900		500	10	08.07/2018 03:10
TPH-Motor Oil (C18-C36)	9800		2500	10	08.07/2018 03:10
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
C9	136		61-139		08.07/2018 03:10
<u>Analyst(s):</u> JIS	<u>Analytical Comments:</u> e2,e7,e8				

Midland Flow Core Inc., Lab Analysis

8.06.18

Total Suspended Solids

	McC Campbell Analytical, Inc. "When Quality Counts"	1134 Willow Park Road, Pittsburg, CA 94565-1701 Toll Free Telephone: (877) 232-9242 / Fax: (925) 232-9249 http://www.mccampbell.com / E-mail: mca@mccampbell.com
	Analytical Report	

Client:	SRL Labs	WorkOrder:	1808194
Date Received:	8/6/18 12:50	Extraction Method:	SM2540 D-1997
Date Prepared:	8/7/18	Analytical Method:	SM2540 D-1997
Project:	FlowCore: Midland	Unit:	mg/L

Total Suspended Solids

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Control	1808194-001C	Water	08/06/2018 09:42	Wet Chem	162849
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Total Suspended Solids	302		10.0	10	08.07/2018 15:35

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Proc II 1	1808194-002C	Water	08/06/2018 10:24	Wet Chem	162849
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Total Suspended Solids	113		5.00	5	08.07/2018 15:46

Analyst(s): AL



Oilfield Labs of America

3302 Pilot Ave.

Midland, Texas 79706

432-789-1860

Report Date: 4/6/2018

Adenosine Triphosphate (ATP) Report

OLA Client:	Ecotechnology	Log Out Date:	4/6/18
Sales Rep:	Jerry Broussard	Analyst:	RWS

Sample ID	Sample Date	Operator	Region	Lease	Location	cATP (pg/ml)
01180405141	4/5/18	Ajax	Martin Co	SWD	Raw 1137AM	32888
01180405142	4/5/18	Ajax	Martin Co	SWD	Clean Filter 1137AM	40

QGO-M cATP Interpretation Guidelines

Application	Good Control	Preventative Action	Corrective Action
	(pg cATP/mg)		
Finished Fuels Conventional Lubricants *	< 10	10 to 100	> 100
Polymers, Admixes, Personal Care, Home Care	< 100	100 to 1,000	> 1,000
Crude Oil, Fuel Associated Water, Oily Brines, Chemical Products, Oilfield Waters	< 100	100 to 1,000	>1,000
Metal Working Fluids, Fire Retardant Lubricants	< 1,000	1,000 to 10,000	> 10,000

* The interpretation guidelines provided above are based on samples that meet defined standards (from ASTM, ISO or otherwise) for water content. For example, diesel fuels should contain ≤ 500 ppm water and sediment (per ASTM D 975 and D 7467), while jet fuels should contain ≤ 30 ppm, (per ASTM D 1655). If the sample has greater water content than defined as acceptable by the standard, interpretation guidelines may vary. Contact LuminUltra for interpretation advice.

Note: These interpretation guidelines are designed for generic risk management guidance only. Users are encouraged to establish their own control ranges on which to base process decisions. LuminUltra and its affiliates of not accept any liability for any decision or assessment taken or made as a consequence of using this test kit.



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 2003941 **Amended:** 04/01/2020

Revision: 1

Report Created for: SRL Labs

5236 Pacheco Blvd
Pacheco, CA 94553

Project Contact: Michael Green

Project P.O.:

Project: Metals

Project Received: 03/20/2020

Analytical Report reviewed & approved for release on 03/27/2020 by:

Jennifer Lagerbom

Project Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Analytical Report

Client: SRL Labs
Date Received: 03/20/2020 9:22
Date Prepared: 03/23/2020
Project: Metals

WorkOrder: 2003941
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Metals (>1% Sediment Content)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Control	2003941-001A	Water	03/19/2020 12:28	ICP-MS2 057SMPL.D	196009

Analytes	Result	MDL	RL	DF	Date Analyzed
Barium	113,900	190.0	2500	100	03/24/2020 15:00
Iron	ND	17,000	25,000	100	03/24/2020 15:00
Mercury	ND	10.00	25.00	100	03/24/2020 15:00
Strontium	1,125,000	210.0	2500	100	03/24/2020 15:00

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	101	70-130	03/24/2020 15:00

Analyst(s): MIG

Analytical Comments: a1



Analytical Report

Client: SRL Labs
Date Received: 03/20/2020 9:22
Date Prepared: 03/23/2020
Project: Metals

WorkOrder: 2003941
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Process	2003941-002A	Water	03/19/2020 12:43	ICP-MS4 305SMPL.d	196021

Analytes	Result	MDL	RL	DF	Date Analyzed
Barium	24,190	7.200	100.0	20	03/25/2020 21:46
Iron	9787	1200	2000	20	03/25/2020 21:46
Mercury	ND	0.6600	1.000	20	03/25/2020 21:46
Strontium	1,113,000	390.0	5000	1,000	03/26/2020 21:20

Surrogates	REC (%)	Limits
Terbium	100	70-130

Analyst(s): DB

Analytical Comments: a1



Quality Control Report

Client: SRL Labs
Date Prepared: 03/23/2020
Date Analyzed: 03/23/2020 - 03/24/2020
Instrument: ICP-MS2, ICP-MS4
Matrix: Water
Project: Metals

WorkOrder: 2003941
BatchID: 196009
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS/LCSD-196009
 2003941-001AMS/MSD

QC Report for Metals (>1% Sediment Content)

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Barium	ND	1.90	25.0	-	-	-
Iron	ND	170	250	-	-	-
Mercury	0.165,J	0.100	0.250	-	-	-
Strontium	ND	2.10	25.0	-	-	-
Surrogate Recovery						
Terbium	2420			2500	97	70-130



Quality Control Report

Client: SRL Labs
Date Prepared: 03/23/2020
Date Analyzed: 03/23/2020 - 03/24/2020
Instrument: ICP-MS2, ICP-MS4
Matrix: Water
Project: Metals

WorkOrder: 2003941
BatchID: 196021
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS/LCSD-196021

QC Summary Report for Metals

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Barium	ND	0.360	5.00	-	-	-
Iron	ND	58.0	100	-	-	-
Mercury	ND	0.0330	0.0500	-	-	-
Strontium	ND	0.390	5.00	-	-	-

Surrogate Recovery

Terbium	506			500	101	70-130
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Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Barium	506	504	500	101	101	85-115	0.218	20
Iron	5070	4960	5000	101	99	85-115	2.17	20
Mercury	1.22	1.22	1.25	98	98	85-115	0.327	20
Strontium	507	508	500	101	102	85-115	0.253	20

Surrogate Recovery

Terbium	518	508	500	104	102	70-130	2.01	20
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 <p>McCAMPBELL ANALYTICAL, INC. 1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701 Telephone: (877) 252-9262 / Fax: (925) 252-9269 www.mccampbell.com main@mccampbell.com</p>	CHAIN OF CUSTODY RECORD			
	1 Day	2 Day	3 Day	STD <input checked="" type="checkbox"/>
	Quote #		Bottle Order #	
Delivery Format: PDF		Other		

Report To: Michael Green Bill To: SRL Labs

Company: SRL Labs

Email: mgreen@srlabs.com

Alt Email: _____ Tele: _____

Project Name: Metals Project #: _____

Project Location: Frederick CA PO #: _____

Sampler Signature: [Signature]

Analysis Requested

SAMPLE ID Location / Field Point	Sampling		#Containers	Matrix	Preservative																
	Date	Time																			
+ "Control" BARIUM STRONTIUM IRON MERCURY RADIUM	3/19	12:28																			
	(F) "Process" BARIUM STRONTIUM IRON MERCURY RADIUM	3/19	12:43																		

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
<u>[Signature]</u>	3/20	0922	<u>[Signature]</u>	3/20/2020	0922

Comments / Instructions

** DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe
 Preservative Code: 1=4°C 2=HCl 3=H₂SO₄ 4=HNO₃ 5=NaOH 6=ZnOAc/NaOH 7=None

Clients MUST disclose any dangerous chemicals known to be present in their submitted samples that may cause immediate harm handling by MAI staff. Non-disclosure incurs an immediate \$250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

Please provide an adequate volume of sample. If insufficient for a MS/MSD a LCS/LCSD will be prepared in its place.
 If water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Temp 3.1 °C Initials WET

Page ___ of ___



Sample Receipt Checklist

Client Name: **SRL Labs**
 Project: **Metals**

Date and Time Received: **3/20/2020 09:22**

Date Logged: **3/20/2020**

Received by: **Tina Perez**

Logged by: **Tina Perez**

WorkOrder No: **2003941** Matrix: Water
 Carrier: Client Drop-In

Chain of Custody (COC) Information

Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample IDs noted by Client on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Date and Time of collection noted by Client on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sampler's name noted on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
COC agrees with Quote?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper containers/bottles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
Samples Received on Ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

(Ice Type: WET ICE)

Sample/Temp Blank temperature	Temp: 3.1°C		NA <input type="checkbox"/>
Water - VOA vials have zero headspace / no bubbles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
Sample labels checked for correct preservation?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
pH acceptable upon receipt (Metal: <2; Nitrate 353.2/4500NO3: <2; 522: <4; 218.7: >8)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>

UCMR Samples:

pH tested and acceptable upon receipt (200.8: ≤2; 525.3: ≤4; 530: ≤7; 541: <3; 544: <6.5 & 7.5)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Free Chlorine tested and acceptable upon receipt (<0.1mg/L)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

 Comments:

