

## Analytical Report

Bill To: Flagstaff County	Project ID:	Lot ID: <b>1345499</b>
Box 358	Project Name:	Control Number:
4902 - 50 Street	Project Location:	Date Received: Apr 18, 2019
Sedgewick, AB, Canada	LSD:	Date Reported: Apr 25, 2019
T0B 4C0	P.O.:	Report Number: 2397769
Attn: Marilyn Patten	Proj. Acct. code:	
Sampled By:		
Company:		

<b>Reference Number</b>	1345499-1
<b>Sample Date</b>	April 17, 2019
<b>Sample Time</b>	12:00
<b>Sample Location</b>	NE-11-44-11-w4
<b>Sample Description</b>	Lougheed / 6.2°C
<b>Sample Matrix</b>	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
<b>Metals Dissolved</b>					
Subsample		Lab Filtered			
<b>Metals Total</b>					
Aluminum	Total mg/L	<0.04	0.02	0.1	Below OG
Calcium	Total mg/L	83.5	0.2		
Iron	Total mg/L	0.43	0.05	0.3	Above AO
Magnesium	Total mg/L	21.6	0.2		
Manganese	Total mg/L	0.17	0.005	0.05	Above AO
Potassium	Total mg/L	9.9	0.4		
Silicon	Total mg/L	4.80	0.05		
Sodium	Total mg/L	578	0.4	200	Above AO
Sulfur	Total mg/L	317	0.3		
Mercury	Total mg/L	<0.000005	0.000005	0.001	Below MAC
Antimony	Total mg/L	<0.0004	0.0002	0.006	Below MAC
Arsenic	Total mg/L	<0.0004	0.0002	0.01	Below MAC
Barium	Total mg/L	0.009	0.001	1.0	Below MAC
Beryllium	Total mg/L	<0.0002	0.0001		
Bismuth	Total mg/L	<0.001	0.0005		
Boron	Total mg/L	0.411	0.002	5.0	Below MAC
Cadmium	Total mg/L	<0.00002	0.00001	0.005	Below MAC
Chromium	Total mg/L	<0.001	0.0005	0.05	Below MAC
Cobalt	Total mg/L	<0.0002	0.0001		
Copper	Total mg/L	<0.002	0.001	1.0	Below AO
Lead	Total mg/L	0.0005	0.0001	0.005	Below MAC
Lithium	Total mg/L	0.250	0.001		
Molybdenum	Total mg/L	<0.002	0.001		
Nickel	Total mg/L	<0.001	0.0005		
Selenium	Total mg/L	<0.0002	0.0002	0.05	Below MAC
Silver	Total mg/L	<0.00002	0.00001		
Strontium	Total mg/L	1.80	0.001		
Thallium	Total mg/L	<0.0001	0.00005		
Tin	Total mg/L	<0.002	0.001		
Titanium	Total mg/L	<0.001	0.0005		
Uranium	Total mg/L	<0.001	0.0005	0.02	Below MAC
Vanadium	Total mg/L	<0.0002	0.0001		
Zinc	Total mg/L	0.307	0.001	5.0	Below AO
Zirconium	Total mg/L	<0.002	0.001		
<b>Routine Water</b>					
pH		8.16		7.0-10.5	Within OG Range

## Analytical Report

Bill To: Flagstaff County Box 358 4902 - 50 Street Sedgewick, AB, Canada T0B 4C0	Project ID: Project Name: Project Location: LSD: P.O.: Proj. Acct. code:	Lot ID: <b>1345499</b> Control Number: Date Received: Apr 18, 2019 Date Reported: Apr 25, 2019 Report Number: 2397769
Attn: Marilyn Patten		
Sampled By:		
Company:		

<b>Reference Number</b>	1345499-1
<b>Sample Date</b>	April 17, 2019
<b>Sample Time</b>	12:00
<b>Sample Location</b>	NE-11-44-11-w4
<b>Sample Description</b>	Lougheed / 6.2°C
<b>Sample Matrix</b>	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
<b>Routine Water - Continued</b>					
Temperature of observed	°C	21.0			
pH					
Electrical Conductivity	at 25 °C µS/cm	2810	1		
Calcium	Dissolved mg/L	83.5	0.2		
Magnesium	Dissolved mg/L	21.6	0.2		
Sodium	Dissolved mg/L	589	0.4	200	Above AO
Potassium	Dissolved mg/L	10	0.4		
Iron	Dissolved mg/L	<0.02	0.01	0.3	Below AO
Manganese	Dissolved mg/L	0.16	0.005	0.05	Above AO
Chloride	Dissolved mg/L	32.3	0.4	250	Below AO
Nitrate - N	mg/L	0.2	0.01	10	Below MAC
Nitrite - N	mg/L	0.17	0.005	1	Below MAC
Nitrate and Nitrite - N	mg/L	0.4	0.01	10	Below MAC
Sulfate (SO4)	Dissolved mg/L	943	0.9	500	Above AO
Hydroxide	mg/L	<5			
Carbonate	mg/L	<6			
Bicarbonate	mg/L	728			
P-Alkalinity	as CaCO3 mg/L	<5	5		
T-Alkalinity	as CaCO3 mg/L	597	5		
Total Dissolved Solids	Calculated mg/L	2040	1	500	Above AO
Hardness	Dissolved as CaCO3 mg/L	297			
Ionic Balance	Dissolved %	98			

## Analytical Report

Bill To: Flagstaff County	Project ID:	Lot ID: <b>1345499</b>
Box 358	Project Name:	Control Number:
4902 - 50 Street	Project Location:	Date Received: Apr 18, 2019
Sedgewick, AB, Canada	LSD:	Date Reported: Apr 25, 2019
T0B 4C0	P.O.:	Report Number: 2397769
Attn: Marilyn Patten	Proj. Acct. code:	
Sampled By:		
Company:		

<b>Reference Number</b>	1345499-2
<b>Sample Date</b>	April 17, 2019
<b>Sample Time</b>	11:00
<b>Sample Location</b>	NE-3-44-14-w4
<b>Sample Description</b>	Killam TL / 6.2°C
<b>Sample Matrix</b>	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments	
<b>Metals Dissolved</b>		Subsample Lab Filtered				
<b>Metals Total</b>						
Aluminum	Total	mg/L	<0.02	0.02	0.1	Below OG
Calcium	Total	mg/L	88.1	0.2		
Iron	Total	mg/L	4.44	0.05	0.3	Above AO
Magnesium	Total	mg/L	26.6	0.2		
Manganese	Total	mg/L	0.013	0.005	0.05	Below AO
Potassium	Total	mg/L	4.5	0.4		
Silicon	Total	mg/L	5.70	0.05		
Sodium	Total	mg/L	50.0	0.4	200	Below AO
Sulfur	Total	mg/L	49.2	0.3		
Mercury	Total	mg/L	<0.000005	0.000005	0.001	Below MAC
Antimony	Total	mg/L	<0.0002	0.0002	0.006	Below MAC
Arsenic	Total	mg/L	0.0009	0.0002	0.01	Below MAC
Barium	Total	mg/L	0.025	0.001	1.0	Below MAC
Beryllium	Total	mg/L	<0.0001	0.0001		
Bismuth	Total	mg/L	<0.0005	0.0005		
Boron	Total	mg/L	0.094	0.002	5.0	Below MAC
Cadmium	Total	mg/L	<0.00001	0.00001	0.005	Below MAC
Chromium	Total	mg/L	<0.0005	0.0005	0.05	Below MAC
Cobalt	Total	mg/L	<0.0001	0.0001		
Copper	Total	mg/L	<0.001	0.001	1.0	Below AO
Lead	Total	mg/L	0.0001	0.0001	0.005	Below MAC
Lithium	Total	mg/L	0.050	0.001		
Molybdenum	Total	mg/L	0.002	0.001		
Nickel	Total	mg/L	<0.0005	0.0005		
Selenium	Total	mg/L	<0.0002	0.0002	0.05	Below MAC
Silver	Total	mg/L	<0.00001	0.00001		
Strontium	Total	mg/L	0.845	0.001		
Thallium	Total	mg/L	<0.00005	0.00005		
Tin	Total	mg/L	<0.001	0.001		
Titanium	Total	mg/L	<0.0005	0.0005		
Uranium	Total	mg/L	<0.0005	0.0005	0.02	Below MAC
Vanadium	Total	mg/L	<0.0001	0.0001		
Zinc	Total	mg/L	0.068	0.001	5.0	Below AO
Zirconium	Total	mg/L	<0.001	0.001		
<b>Routine Water</b>						
pH			8.04		7.0-10.5	Within OG Range

## Analytical Report

Bill To: Flagstaff County Box 358 4902 - 50 Street Sedgewick, AB, Canada T0B 4C0	Project ID: Project Name: Project Location: LSD: P.O.: Proj. Acct. code:	Lot ID: <b>1345499</b> Control Number: Date Received: Apr 18, 2019 Date Reported: Apr 25, 2019 Report Number: 2397769
Attn: Marilyn Patten		
Sampled By:		
Company:		

<b>Reference Number</b>	1345499-2
<b>Sample Date</b>	April 17, 2019
<b>Sample Time</b>	11:00
<b>Sample Location</b>	NE-3-44-14-w4
<b>Sample Description</b>	Killam TL / 6.2°C
<b>Sample Matrix</b>	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
<b>Routine Water - Continued</b>					
Temperature of observed	°C	21.4			
pH					
Electrical Conductivity	at 25 °C µS/cm	804	1		
Calcium	Dissolved mg/L	92.5	0.2		
Magnesium	Dissolved mg/L	27.2	0.2		
Sodium	Dissolved mg/L	50.8	0.4	200	Below AO
Potassium	Dissolved mg/L	4.7	0.4		
Iron	Dissolved mg/L	<0.01	0.01	0.3	Below AO
Manganese	Dissolved mg/L	<0.005	0.005	0.05	Below AO
Chloride	Dissolved mg/L	1.1	0.4	250	Below AO
Nitrate - N	mg/L	0.67	0.01	10	Below MAC
Nitrite - N	mg/L	<0.005	0.005	1	Below MAC
Nitrate and Nitrite - N	mg/L	0.67	0.01	10	Below MAC
Sulfate (SO4)	Dissolved mg/L	151	0.9	500	Below AO
Hydroxide	mg/L	<5			
Carbonate	mg/L	<6			
Bicarbonate	mg/L	383			
P-Alkalinity	as CaCO3 mg/L	<5	5		
T-Alkalinity	as CaCO3 mg/L	314	5		
Total Dissolved Solids	Calculated mg/L	516	1	500	Above AO
Hardness	Dissolved as CaCO3 mg/L	343			
Ionic Balance	Dissolved %	97			

## Analytical Report

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Attn: Marilyn Patten	Proj. Acct. code:	
Sampled By:		
Company:		

<b>Reference Number</b>	1345499-3
<b>Sample Date</b>	April 17, 2019
<b>Sample Time</b>	10:00
<b>Sample Location</b>	SW-10-45-16-w4
<b>Sample Description</b>	Daysland TL / 6.2°C
<b>Sample Matrix</b>	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
<b>Metals Dissolved</b>		Subsample Lab Filtered			
<b>Metals Total</b>					
Aluminum	Total mg/L	<0.04	0.02	0.1	Below OG
Calcium	Total mg/L	59.6	0.2		
Iron	Total mg/L	2.50	0.05	0.3	Above AO
Magnesium	Total mg/L	14	0.2		
Manganese	Total mg/L	0.01	0.005	0.05	Below AO
Potassium	Total mg/L	3.3	0.4		
Silicon	Total mg/L	5.02	0.05		
Sodium	Total mg/L	513	0.4	200	Above AO
Sulfur	Total mg/L	246	0.3		
Mercury	Total mg/L	<0.000005	0.000005	0.001	Below MAC
Antimony	Total mg/L	<0.0004	0.0002	0.006	Below MAC
Arsenic	Total mg/L	<0.0004	0.0002	0.01	Below MAC
Barium	Total mg/L	0.007	0.001	1.0	Below MAC
Beryllium	Total mg/L	<0.0002	0.0001		
Bismuth	Total mg/L	<0.001	0.0005		
Boron	Total mg/L	0.306	0.002	5.0	Below MAC
Cadmium	Total mg/L	<0.00002	0.00001	0.005	Below MAC
Chromium	Total mg/L	<0.001	0.0005	0.05	Below MAC
Cobalt	Total mg/L	<0.0002	0.0001		
Copper	Total mg/L	<0.002	0.001	1.0	Below AO
Lead	Total mg/L	<0.0002	0.0001	0.005	Below MAC
Lithium	Total mg/L	0.229	0.001		
Molybdenum	Total mg/L	<0.002	0.001		
Nickel	Total mg/L	<0.001	0.0005		
Selenium	Total mg/L	<0.0002	0.0002	0.05	Below MAC
Silver	Total mg/L	<0.00002	0.00001		
Strontium	Total mg/L	1.00	0.001		
Thallium	Total mg/L	<0.0001	0.00005		
Tin	Total mg/L	<0.002	0.001		
Titanium	Total mg/L	<0.001	0.0005		
Uranium	Total mg/L	<0.001	0.0005	0.02	Below MAC
Vanadium	Total mg/L	<0.0002	0.0001		
Zinc	Total mg/L	0.097	0.001	5.0	Below AO
Zirconium	Total mg/L	<0.002	0.001		
<b>Routine Water</b>					
pH		8.20		7.0-10.5	Within OG Range

## Analytical Report

Bill To: Flagstaff County Box 358 4902 - 50 Street Sedgewick, AB, Canada T0B 4C0	Project ID: Project Name: Project Location: LSD: P.O.:	Lot ID: <b>1345499</b> Control Number: Date Received: Apr 18, 2019 Date Reported: Apr 25, 2019 Report Number: 2397769
Attn: Marilyn Patten	Proj. Acct. code:	
Sampled By:		
Company:		

<b>Reference Number</b>	1345499-3
<b>Sample Date</b>	April 17, 2019
<b>Sample Time</b>	10:00
<b>Sample Location</b>	SW-10-45-16-w4
<b>Sample Description</b>	Daysland TL / 6.2°C
<b>Sample Matrix</b>	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
<b>Routine Water - Continued</b>					
Temperature of observed	°C	21.7			
pH					
Electrical Conductivity	at 25 °C µS/cm	2460	1		
Calcium	Dissolved mg/L	57.4	0.2		
Magnesium	Dissolved mg/L	14	0.2		
Sodium	Dissolved mg/L	499	0.4	200	Above AO
Potassium	Dissolved mg/L	3.0	0.4		
Iron	Dissolved mg/L	<0.02	0.01	0.3	Below AO
Manganese	Dissolved mg/L	<0.01	0.005	0.05	Below AO
Chloride	Dissolved mg/L	6.5	0.4	250	Below AO
Nitrate - N	mg/L	<0.05	0.01	10	Below MAC
Nitrite - N	mg/L	<0.02	0.005	1	Below MAC
Nitrate and Nitrite - N	mg/L	<0.07	0.01	10	Below MAC
Sulfate (SO4)	Dissolved mg/L	799	0.9	500	Above AO
Hydroxide	mg/L	<5			
Carbonate	mg/L	<6			
Bicarbonate	mg/L	726			
P-Alkalinity	as CaCO3 mg/L	<5	5		
T-Alkalinity	as CaCO3 mg/L	595	5		
Total Dissolved Solids	Calculated mg/L	1740	1	500	Above AO
Hardness	Dissolved as CaCO3 mg/L	199			
Ionic Balance	Dissolved %	90			

## Analytical Report

Bill To: Flagstaff County Box 358 4902 - 50 Street Sedgewick, AB, Canada T0B 4C0	Project ID: Project Name: Project Location: LSD: P.O.:	Lot ID: <b>1345499</b> Control Number: Date Received: Apr 18, 2019 Date Reported: Apr 25, 2019 Report Number: 2397769
Attn: Marilyn Patten	Proj. Acct. code:	
Sampled By:		
Company:		

<b>Reference Number</b>	1345499-4
<b>Sample Date</b>	April 17, 2019
<b>Sample Time</b>	09:30
<b>Sample Location</b>	SE-27-41-16-w4
<b>Sample Description</b>	Hastings Coulee TL / 6.2°C
<b>Sample Matrix</b>	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments	
<b>Metals Dissolved</b>		Subsample Lab Filtered				
<b>Metals Total</b>						
Aluminum	Total	mg/L	<0.04	0.02	0.1	Below OG
Calcium	Total	mg/L	6.4	0.2		
Iron	Total	mg/L	0.1	0.05	0.3	Below AO
Magnesium	Total	mg/L	0.6	0.2		
Manganese	Total	mg/L	<0.01	0.005	0.05	Below AO
Potassium	Total	mg/L	2	0.4		
Silicon	Total	mg/L	4.32	0.05		
Sodium	Total	mg/L	458	0.4	200	Above AO
Sulfur	Total	mg/L	126	0.3		
Mercury	Total	mg/L	<0.000005	0.000005	0.001	Below MAC
Antimony	Total	mg/L	<0.0004	0.0002	0.006	Below MAC
Arsenic	Total	mg/L	<0.0004	0.0002	0.01	Below MAC
Barium	Total	mg/L	0.012	0.001	1.0	Below MAC
Beryllium	Total	mg/L	<0.0002	0.0001		
Bismuth	Total	mg/L	<0.001	0.0005		
Boron	Total	mg/L	0.622	0.002	5.0	Below MAC
Cadmium	Total	mg/L	<0.00002	0.00001	0.005	Below MAC
Chromium	Total	mg/L	<0.001	0.0005	0.05	Below MAC
Cobalt	Total	mg/L	<0.0002	0.0001		
Copper	Total	mg/L	<0.002	0.001	1.0	Below AO
Lead	Total	mg/L	0.0002	0.0001	0.005	Below MAC
Lithium	Total	mg/L	0.127	0.001		
Molybdenum	Total	mg/L	<0.002	0.001		
Nickel	Total	mg/L	<0.001	0.0005		
Selenium	Total	mg/L	<0.0002	0.0002	0.05	Below MAC
Silver	Total	mg/L	<0.00002	0.00001		
Strontium	Total	mg/L	0.152	0.001		
Thallium	Total	mg/L	<0.0001	0.00005		
Tin	Total	mg/L	<0.002	0.001		
Titanium	Total	mg/L	<0.001	0.0005		
Uranium	Total	mg/L	<0.001	0.0005	0.02	Below MAC
Vanadium	Total	mg/L	<0.0002	0.0001		
Zinc	Total	mg/L	0.039	0.001	5.0	Below AO
Zirconium	Total	mg/L	<0.002	0.001		
<b>Routine Water</b>						
pH			8.31		7.0-10.5	Within OG Range

## Analytical Report

Bill To: Flagstaff County Box 358 4902 - 50 Street Sedgewick, AB, Canada T0B 4C0	Project ID: Project Name: Project Location: LSD: P.O.:	Lot ID: <b>1345499</b> Control Number: Date Received: Apr 18, 2019 Date Reported: Apr 25, 2019 Report Number: 2397769
Attn: Marilyn Patten	Proj. Acct. code:	
Sampled By:		
Company:		

<b>Reference Number</b>	1345499-4
<b>Sample Date</b>	April 17, 2019
<b>Sample Time</b>	09:30
<b>Sample Location</b>	SE-27-41-16-w4
<b>Sample Description</b>	Hastings Coulee TL / 6.2°C
<b>Sample Matrix</b>	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
<b>Routine Water - Continued</b>					
Temperature of observed	°C	21.4			
pH					
Electrical Conductivity	at 25 °C µS/cm	2090	1		
Calcium	Dissolved mg/L	6.4	0.2		
Magnesium	Dissolved mg/L	0.6	0.2		
Sodium	Dissolved mg/L	467	0.4	200	Above AO
Potassium	Dissolved mg/L	2	0.4		
Iron	Dissolved mg/L	<0.02	0.01	0.3	Below AO
Manganese	Dissolved mg/L	<0.01	0.005	0.05	Below AO
Chloride	Dissolved mg/L	3.4	0.4	250	Below AO
Nitrate - N	mg/L	0.61	0.01	10	Below MAC
Nitrite - N	mg/L	<0.02	0.005	1	Below MAC
Nitrate and Nitrite - N	mg/L	0.61	0.01	10	Below MAC
Sulfate (SO4)	Dissolved mg/L	382	0.9	500	Below AO
Hydroxide	mg/L	<5			
Carbonate	mg/L	<6			
Bicarbonate	mg/L	771			
P-Alkalinity	as CaCO3 mg/L	<5	5		
T-Alkalinity	as CaCO3 mg/L	632	5		
Total Dissolved Solids	Calculated mg/L	1240	1	500	Above AO
Hardness	Dissolved as CaCO3 mg/L	18			
Ionic Balance	Dissolved %	100			



## Analytical Report

Bill To: Flagstaff County Box 358 4902 - 50 Street Sedgewick, AB, Canada T0B 4C0	Project ID: Project Name: Project Location: LSD: P.O.:	Lot ID: <b>1345499</b> Control Number: Date Received: Apr 18, 2019 Date Reported: Apr 25, 2019 Report Number: 2397769
Attn: Marilyn Patten	Proj. Acct. code:	
Sampled By:		
Company:		

<b>Reference Number</b>	1345499-5
<b>Sample Date</b>	April 17, 2019
<b>Sample Time</b>	09:00
<b>Sample Location</b>	SE-2-43-13-w4
<b>Sample Description</b>	Sedgavick TL / 6.2°C
<b>Sample Matrix</b>	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments	
<b>Metals Dissolved</b>		Subsample Lab Filtered				
<b>Metals Total</b>						
Aluminum	Total	mg/L	<0.02	0.02	0.1	Below OG
Calcium	Total	mg/L	69.2	0.2		
Iron	Total	mg/L	0.67	0.05	0.3	Above AO
Magnesium	Total	mg/L	22.8	0.2		
Manganese	Total	mg/L	0.021	0.005	0.05	Below AO
Potassium	Total	mg/L	2.1	0.4		
Silicon	Total	mg/L	6.18	0.05		
Sodium	Total	mg/L	20.7	0.4	200	Below AO
Sulfur	Total	mg/L	9.9	0.3		
Mercury	Total	mg/L	<0.000005	0.000005	0.001	Below MAC
Antimony	Total	mg/L	<0.0002	0.0002	0.006	Below MAC
Arsenic	Total	mg/L	0.0005	0.0002	0.01	Below MAC
Barium	Total	mg/L	0.114	0.001	1.0	Below MAC
Beryllium	Total	mg/L	<0.0001	0.0001		
Bismuth	Total	mg/L	<0.0005	0.0005		
Boron	Total	mg/L	0.042	0.002	5.0	Below MAC
Cadmium	Total	mg/L	0.00001	0.00001	0.005	Below MAC
Chromium	Total	mg/L	<0.0005	0.0005	0.05	Below MAC
Cobalt	Total	mg/L	<0.0001	0.0001		
Copper	Total	mg/L	0.005	0.001	1.0	Below AO
Lead	Total	mg/L	0.0002	0.0001	0.005	Below MAC
Lithium	Total	mg/L	0.025	0.001		
Molybdenum	Total	mg/L	0.002	0.001		
Nickel	Total	mg/L	0.0024	0.0005		
Selenium	Total	mg/L	<0.0002	0.0002	0.05	Below MAC
Silver	Total	mg/L	<0.00001	0.00001		
Strontium	Total	mg/L	0.370	0.001		
Thallium	Total	mg/L	<0.00005	0.00005		
Tin	Total	mg/L	<0.001	0.001		
Titanium	Total	mg/L	<0.0005	0.0005		
Uranium	Total	mg/L	0.0006	0.0005	0.02	Below MAC
Vanadium	Total	mg/L	<0.0001	0.0001		
Zinc	Total	mg/L	0.035	0.001	5.0	Below AO
Zirconium	Total	mg/L	<0.001	0.001		
<b>Routine Water</b>						
pH			8.07		7.0-10.5	Within OG Range

## Analytical Report

Bill To: Flagstaff County Box 358 4902 - 50 Street Sedgewick, AB, Canada T0B 4C0	Project ID: Project Name: Project Location: LSD: P.O.:	Lot ID: <b>1345499</b> Control Number: Date Received: Apr 18, 2019 Date Reported: Apr 25, 2019 Report Number: 2397769
Attn: Marilyn Patten	Proj. Acct. code:	
Sampled By:		
Company:		

<b>Reference Number</b>	1345499-5
<b>Sample Date</b>	April 17, 2019
<b>Sample Time</b>	09:00
<b>Sample Location</b>	SE-2-43-13-w4
<b>Sample Description</b>	Sedgavick TL / 6.2°C
<b>Sample Matrix</b>	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
<b>Routine Water - Continued</b>					
Temperature of observed pH	°C	21.7			
Electrical Conductivity	at 25 °C µS/cm	547	1		
Calcium	Dissolved mg/L	70.0	0.2		
Magnesium	Dissolved mg/L	23.0	0.2		
Sodium	Dissolved mg/L	20.2	0.4	200	Below AO
Potassium	Dissolved mg/L	1.9	0.4		
Iron	Dissolved mg/L	<0.01	0.01	0.3	Below AO
Manganese	Dissolved mg/L	0.044	0.005	0.05	Below AO
Chloride	Dissolved mg/L	3.1	0.4	250	Below AO
Nitrate - N	mg/L	0.06	0.01	10	Below MAC
Nitrite - N	mg/L	<0.005	0.005	1	Below MAC
Nitrate and Nitrite - N	mg/L	0.06	0.01	10	Below MAC
Sulfate (SO4)	Dissolved mg/L	29	0.9	500	Below AO
Hydroxide	mg/L	<5			
Carbonate	mg/L	<6			
Bicarbonate	mg/L	356			
P-Alkalinity	as CaCO3 mg/L	<5	5		
T-Alkalinity	as CaCO3 mg/L	292	5		
Total Dissolved Solids	Calculated mg/L	322	1	500	Below AO
Hardness	Dissolved as CaCO3 mg/L	270			
Ionic Balance	Dissolved %	97			

Approved by:



Murray Klutz  
Senior Agronomist

Data have been validated by Analytical Quality Control and Element's Integrated Data Validation System (IDVS).

Generation and distribution of the report, and approval by the digitized signature above, are performed through a secure and controlled automatic process.

## Quality Control

Bill To: Flagstaff County	Project ID:	Lot ID: <b>1345499</b>
Box 358	Project Name:	Control Number:
4902 - 50 Street	Project Location:	Date Received: Apr 18, 2019
Sedgewick, AB, Canada	LSD:	Date Reported: Apr 25, 2019
T0B 4C0	P.O.:	Report Number: 2397769
Attn: Marilyn Patten	Proj. Acct. code:	
Sampled By:		
Company:		

## Metals Dissolved

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC	
Sulfur	mg/L	-0.0188	-0.3	0.2	yes	
Date Acquired: April 23, 2019						
Client Sample Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Sulfur	mg/L	394	399	10	0.1	yes
Date Acquired: April 23, 2019						
Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC	
Sulfur	mg/L	148	138.5	155.3	yes	
Date Acquired: April 23, 2019						
Sulfur	mg/L	10.2	9.2	11.0	yes	
Date Acquired: April 23, 2019						
Sulfur	mg/L	3.0	2.8	3.3	yes	
Date Acquired: April 23, 2019						

## Metals Total

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.0024	-0.02	0.02	yes
Calcium	mg/L	0.0048	-0.1	0.1	yes
Iron	mg/L	0.0023	-0.01	0.02	yes
Magnesium	mg/L	0.0028	-0.04	0.04	yes
Manganese	mg/L	-0.0001	-0.005	0.005	yes
Potassium	mg/L	0.0297	-0.1	0.2	yes
Silicon	mg/L	0.0026	-0.03	0.04	yes
Sodium	mg/L	0.0108	-0.4	0.4	yes
Sulfur	mg/L	0.0171	-0.1	0.2	yes
Mercury	µg/L	0.0001633	-0.038000	0.070000	yes
Antimony	µg/L	0.0159922	-0.2	0.2	yes
Arsenic	µg/L	0.00346387	-0.2	0.2	yes
Barium	µg/L	0.00508027	-1	1	yes
Beryllium	µg/L	-0.0129085	-0.1	0.1	yes
Bismuth	µg/L	0.00280257	-0.5	0.5	yes
Boron	µg/L	0.0555255	-1	3	yes
Cadmium	µg/L	0.00133064	-0.007	0.012	yes
Chromium	µg/L	-0.0573089	-0.7	0.3	yes
Cobalt	µg/L	0.00110756	-0.1	0.1	yes
Copper	µg/L	0.0204681	-1	1	yes
Lead	µg/L	0.0104141	-0.1	0.1	yes
Lithium	µg/L	0.0232297	-1	1	yes
Molybdenum	µg/L	0.00702247	-1	1	yes
Nickel	µg/L	0.00572436	-0.5	0.5	yes
Selenium	µg/L	0.00592419	-0.2	0.2	yes
Silver	µg/L	0.000267924	-0.02	0.10	yes
Strontium	µg/L	0.00245695	-1	1	yes
Thallium	µg/L	0.000632618	-0.05	0.05	yes

## Quality Control

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4902 - 50 Street	Project Location:	Date Received: Apr 18, 2019
Sedgewick, AB, Canada	LSD:	Date Reported: Apr 25, 2019
T0B 4C0	P.O.:	Report Number: 2397769
Attn: Marilyn Patten	Proj. Acct. code:	
Sampled By:		
Company:		

## Metals Total - Continued

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
Tin	µg/L	0.00140649	-1	1	yes
Titanium	µg/L	-0.111565	-0.5	0.5	yes
Uranium	µg/L	0.000558041	-0.5	0.5	yes
Vanadium	µg/L	-0.0362502	-0.1	0.1	yes
Zinc	µg/L	0.221155	-0	1	yes
Zirconium	µg/L	-0.000619645	-1	1	yes

Date Acquired: April 22, 2019

Client Sample Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Iron	mg/L	75.0	73.1	15	0.20	yes
Manganese	mg/L	0.81	0.80	15	0.010	yes
Mercury	mg/L	<0.000005	<0.000005	10	0.000030	yes
Antimony	µg/L	0.3	0.3	15	0.4	yes
Arsenic	µg/L	5.0	4.8	15	0.4	yes
Barium	µg/L	151	146	15	2	yes
Beryllium	µg/L	0.2	0.2	15	0.2	yes
Bismuth	µg/L	<0.5	<0.5	15	1.1	yes
Boron	µg/L	85	84	15	4	yes
Cadmium	µg/L	0.14	0.13	15	0.022	yes
Chromium	µg/L	7.1	7.3	15	1.1	yes
Cobalt	µg/L	3.1	3.0	15	0.2	yes
Copper	µg/L	11	11	15	2	yes
Lead	µg/L	3.8	3.7	15	0.2	yes
Lithium	µg/L	19	19	15	2	yes
Molybdenum	µg/L	1	1	15	2	yes
Nickel	µg/L	14.9	14.6	15	1.1	yes
Selenium	µg/L	0.4	0.4	15	0.4	yes
Silver	µg/L	0.07	0.07	15	0.22	yes
Strontium	µg/L	161	156	15	2	yes
Thallium	µg/L	0.08	0.08	15	0.11	yes
Tin	µg/L	<1	<1	15	2	yes
Titanium	µg/L	53.3	57.4	15	1.1	yes
Uranium	µg/L	1.9	1.8	15	1.1	yes
Vanadium	µg/L	14.7	15.2	15	0.2	yes
Zinc	µg/L	38	37	15	2	yes
Zirconium	µg/L	2	3	15	2	yes

Date Acquired: April 22, 2019

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	4.03	3.61	4.45	yes
Calcium	mg/L	51.4	47.3	56.5	yes
Iron	mg/L	2.05	1.91	2.27	yes
Magnesium	mg/L	19.8	17.88	21.86	yes
Manganese	mg/L	0.513	0.472	0.568	yes
Potassium	mg/L	49.9	46.8	56.8	yes

## Quality Control

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## Metals Total - Continued

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
Silicon	mg/L	2.01	1.86	2.28	yes
Sodium	mg/L	51.8	47.5	57.5	yes
Sulfur	mg/L	10.0	9.2	11.2	yes
Antimony	µg/L	11.7	10.8	13.2	yes
Arsenic	µg/L	11.5	10.8	12.9	yes
Barium	µg/L	59	54	68	yes
Beryllium	µg/L	5.5	4.9	6.8	yes
Bismuth	µg/L	30.2	26.2	35.8	yes
Boron	µg/L	117	102	139	yes
Cadmium	µg/L	0.60	0.549	0.705	yes
Chromium	µg/L	29.6	26.5	33.7	yes
Cobalt	µg/L	5.8	5.2	6.8	yes
Copper	µg/L	59	53	67	yes
Lead	µg/L	6.1	5.2	7.1	yes
Lithium	µg/L	59	53	77	yes
Molybdenum	µg/L	60	56	66	yes
Nickel	µg/L	29.8	27.6	32.8	yes
Selenium	µg/L	10.9	9.9	13.5	yes
Silver	µg/L	5.90	5.39	7.13	yes
Strontium	µg/L	61	54	69	yes
Thallium	µg/L	3.02	2.70	3.60	yes
Tin	µg/L	60	56	66	yes
Titanium	µg/L	29.7	26.6	35.7	yes
Uranium	µg/L	30.4	25.7	36.3	yes
Vanadium	µg/L	5.9	5.1	7.2	yes
Zinc	µg/L	56	53	65	yes
Zirconium	µg/L	59	53	67	yes
Date Acquired: April 22, 2019					
Antimony	µg/L	40.3	37.5	43.1	yes
Arsenic	µg/L	40.3	36.5	43.5	yes
Barium	µg/L	199	183	212	yes
Beryllium	µg/L	19.2	17.1	21.9	yes
Bismuth	µg/L	99.2	91.3	106.3	yes
Boron	µg/L	382	343	436	yes
Cadmium	µg/L	2.08	1.925	2.255	yes
Chromium	µg/L	97.7	90.0	110.0	yes
Cobalt	µg/L	19.5	18.1	21.7	yes
Copper	µg/L	192	188	208	yes
Lead	µg/L	20.1	18.0	24.0	yes
Lithium	µg/L	193	173	222	yes
Molybdenum	µg/L	209	182	218	yes
Nickel	µg/L	99.1	90.0	110.0	yes
Selenium	µg/L	37.8	36.7	43.3	yes
Silver	µg/L	19.6	18.00	22.00	yes

## Quality Control

Bill To: Flagstaff County	Project ID:	Lot ID: <b>1345499</b>
Box 358	Project Name:	Control Number:
4902 - 50 Street	Project Location:	Date Received: Apr 18, 2019
Sedgewick, AB, Canada	LSD:	Date Reported: Apr 25, 2019
T0B 4C0	P.O.:	Report Number: 2397769
Attn: Marilyn Patten	Proj. Acct. code:	
Sampled By:		
Company:		

## Metals Total - Continued

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
Strontium	µg/L	202	171	231	yes
Thallium	µg/L	10.1	9.01	10.99	yes
Tin	µg/L	203	190	218	yes
Titanium	µg/L	101	93.2	107.0	yes
Uranium	µg/L	98.5	90.2	109.0	yes
Vanadium	µg/L	19.8	16.9	22.1	yes
Zinc	µg/L	198	183	218	yes
Date Acquired: April 22, 2019					
Mercury	mg/L	0.000102	0.000070	0.000130	yes
Antimony	µg/L	12.0	10.8	13.2	yes
Arsenic	µg/L	12.0	10.8	13.2	yes
Barium	µg/L	60	55	67	yes
Beryllium	µg/L	5.9	5.2	6.5	yes
Bismuth	µg/L	30.8	27.5	33.5	yes
Boron	µg/L	116	108	132	yes
Cadmium	µg/L	0.62	0.560	0.692	yes
Chromium	µg/L	29.6	27.0	33.0	yes
Cobalt	µg/L	5.8	5.4	6.6	yes
Copper	µg/L	60	54	66	yes
Lead	µg/L	6.2	5.4	6.6	yes
Lithium	µg/L	57	53	66	yes
Molybdenum	µg/L	59	53	64	yes
Nickel	µg/L	29.7	27.1	33.1	yes
Selenium	µg/L	11.3	10.3	13.4	yes
Silver	µg/L	5.99	5.40	6.60	yes
Strontium	µg/L	60	54	66	yes
Thallium	µg/L	3.05	0.00	6.00	yes
Tin	µg/L	60	54	66	yes
Titanium	µg/L	31.3	27.0	33.0	yes
Uranium	µg/L	30.1	27.0	33.0	yes
Vanadium	µg/L	5.9	5.4	6.6	yes
Zinc	µg/L	59	56	64	yes
Zirconium	µg/L	59	54	66	yes
Date Acquired: April 22, 2019					
Mercury	mg/L	0.000021	0.000006	0.000036	yes
Antimony	µg/L	1.9	1.8	2.2	yes
Arsenic	µg/L	2.0	1.7	2.2	yes
Barium	µg/L	10	9	10	yes
Beryllium	µg/L	1.0	0.8	1.1	yes
Bismuth	µg/L	5.1	4.7	5.3	yes
Boron	µg/L	19	17	23	yes
Cadmium	µg/L	0.10	0.089	0.113	yes
Chromium	µg/L	4.9	4.6	5.3	yes

**Quality Control**

Bill To: Flagstaff County	Project ID:	Lot ID: <b>1345499</b>
Box 358	Project Name:	Control Number:
4902 - 50 Street	Project Location:	Date Received: Apr 18, 2019
Sedgewick, AB, Canada	LSD:	Date Reported: Apr 25, 2019
T0B 4C0	P.O.:	Report Number: 2397769
Attn: Marilyn Patten	Proj. Acct. code:	
Sampled By:		
Company:		

**Metals Total - Continued**

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
Cobalt	µg/L	1.0	0.9	1.1	yes
Copper	µg/L	10	9	11	yes
Lead	µg/L	1.0	0.9	1.1	yes
Lithium	µg/L	10	9	11	yes
Molybdenum	µg/L	10	9	10	yes
Nickel	µg/L	4.9	4.5	5.5	yes
Selenium	µg/L	1.9	1.6	2.2	yes
Silver	µg/L	0.98	0.89	1.13	yes
Strontium	µg/L	10	9	11	yes
Thallium	µg/L	0.50	0.44	0.54	yes
Tin	µg/L	10	9	11	yes
Titanium	µg/L	4.8	4.2	5.7	yes
Uranium	µg/L	5.0	4.7	5.3	yes
Vanadium	µg/L	0.9	0.9	1.2	yes
Zinc	µg/L	10	9	11	yes
Zirconium	µg/L	10	9	11	yes
Date Acquired: April 22, 2019					
Aluminum	mg/L	19.4	18.80	20.60	yes
Calcium	mg/L	243	236.0	263.6	yes
Iron	mg/L	9.42	9.16	10.24	yes
Magnesium	mg/L	96.6	92.78	104.72	yes
Manganese	mg/L	2.38	2.290	2.590	yes
Potassium	mg/L	239	234.2	261.8	yes
Silicon	mg/L	9.69	9.13	10.93	yes
Sodium	mg/L	243	228.8	269.4	yes
Sulfur	mg/L	146	135.5	165.3	yes
Date Acquired: April 22, 2019					
Aluminum	mg/L	3.89	3.60	4.40	yes
Calcium	mg/L	50.4	46.5	56.5	yes
Iron	mg/L	1.99	1.87	2.27	yes
Magnesium	mg/L	19.4	18.05	22.07	yes
Manganese	mg/L	0.503	0.466	0.568	yes
Potassium	mg/L	48.7	45.4	55.5	yes
Silicon	mg/L	1.98	1.93	2.24	yes
Sodium	mg/L	50.2	45.9	55.9	yes
Sulfur	mg/L	9.9	9.3	11.3	yes
Date Acquired: April 22, 2019					
Aluminum	mg/L	0.39	0.36	0.44	yes
Calcium	mg/L	5.2	4.8	5.8	yes
Iron	mg/L	0.21	0.19	0.25	yes
Magnesium	mg/L	2.0	1.84	2.20	yes
Manganese	mg/L	0.052	0.047	0.059	yes
Potassium	mg/L	5.0	4.8	5.8	yes

## Quality Control

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Box 358	Project Name:	Control Number:
4902 - 50 Street	Project Location:	Date Received: Apr 18, 2019
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Attn: Marilyn Patten	Proj. Acct. code:	
Sampled By:		
Company:		

## Metals Total - Continued

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
Silicon	mg/L	0.20	0.17	0.23	yes
Sodium	mg/L	5.1	4.8	5.6	yes
Sulfur	mg/L	2.9	2.8	3.3	yes
Date Acquired: April 22, 2019					

## Routine Water

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	0.0079	-0.2	0.2	yes
Magnesium	mg/L	0.0148	-0.1	0.1	yes
Sodium	mg/L	0.0554	-0.4	0.4	yes
Potassium	mg/L	0.0917	-0.4	0.4	yes
Iron	mg/L	0.0007	-0.01	0.01	yes
Manganese	mg/L	0	-0.004	0.004	yes
Chloride	mg/L	0.26	-0.4	0.4	yes
Nitrate - N	mg/L	0.00122786	-0.01	0.01	yes
Nitrite - N	mg/L	0	-0.005	0.005	yes
Date Acquired: April 22, 2019					

Client Sample Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
pH		7.86	7.88	0	0.10	yes
Electrical Conductivity	dS/m	0.357	0.356	10	0.002	yes
Calcium	mg/L	489	505	10	0.6	yes
Magnesium	mg/L	137	141	10	0.7	yes
Sodium	mg/L	81.3	84.5	10	1.2	yes
Potassium	mg/L	12	12	10	1.2	yes
Iron	mg/L	<0.02	<0.02	10	0.05	yes
Manganese	mg/L	0.743	0.762	10	0.010	yes
Chloride	mg/L	19.4	19.4	10	0.5	yes
Nitrate - N	mg/L	<0.01	<0.01	10	0.01	yes
Nitrite - N	mg/L	<0.005	<0.005	10	0.010	yes
Hydroxide	mg/L	<5	<5	10		yes
Carbonate	mg/L	<6	<6	10	6	yes
Bicarbonate	mg/L	135	133	10	6	yes
P-Alkalinity	mg/L	<5	<5	10	5	yes
T-Alkalinity	mg/L	111	109	10	5	yes
Date Acquired: April 18, 2019						

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
Electrical Conductivity	dS/m	32.8	27.200	36.800	yes
Date Acquired: April 18, 2019					
pH		9.20	8.90	9.44	yes
Electrical Conductivity	dS/m	2.74	2.600	2.858	yes
Calcium	mg/L	248	230.0	260.0	yes
Magnesium	mg/L	98.2	92.3	102.0	yes
Sodium	mg/L	248	233.3	257.3	yes



## Quality Control

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Box 358	Project Name:	Control Number:
4902 - 50 Street	Project Location:	Date Received: Apr 18, 2019
Sedgewick, AB, Canada	LSD:	Date Reported: Apr 25, 2019
T0B 4C0	P.O.:	Report Number: 2397769
Attn: Marilyn Patten	Proj. Acct. code:	
Sampled By:		
Company:		

## Routine Water - Continued

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
Potassium	mg/L	251	229.0	259.0	yes
Iron	mg/L	9.64	8.91	10.20	yes
Manganese	mg/L	2.39	2.240	2.540	yes
Nitrate - N	mg/L	10.3	9.03	11.13	yes
Nitrite - N	mg/L	10.3	9.460	10.600	yes
Nitrate and Nitrite - N	mg/L	20.5	19.27	20.97	yes
P-Alkalinity	mg/L	495	447	560	yes
T-Alkalinity	mg/L	994	941	1061	yes
Date Acquired: April 18, 2019					
pH		6.89	6.79	6.97	yes
Electrical Conductivity	dS/m	0.076	0.069	0.083	yes
Calcium	mg/L	51.9	44.9	56.9	yes
Magnesium	mg/L	19.7	17.9	22.0	yes
Sodium	mg/L	50.9	47.7	55.5	yes
Potassium	mg/L	51.4	45.8	55.8	yes
Iron	mg/L	2.06	1.89	2.25	yes
Manganese	mg/L	0.508	0.468	0.552	yes
Chloride	mg/L	84.8	74.9	86.9	yes
Nitrate - N	mg/L	4.89	4.60	5.20	yes
Nitrite - N	mg/L	5.02	4.470	5.430	yes
Nitrate and Nitrite - N	mg/L	9.91	8.80	10.60	yes
P-Alkalinity	mg/L	45	28	72	yes
T-Alkalinity	mg/L	129	114	140	yes
Date Acquired: April 18, 2019					
Calcium	mg/L	5.3	4.7	5.8	yes
Magnesium	mg/L	2.0	1.8	2.2	yes
Sodium	mg/L	5.3	4.7	5.7	yes
Potassium	mg/L	5.4	4.7	5.7	yes
Iron	mg/L	0.22	0.19	0.24	yes
Manganese	mg/L	0.053	0.048	0.058	yes
Chloride	mg/L	15.2	13.3	16.5	yes
Nitrate - N	mg/L	0.50	0.47	0.56	yes
Nitrite - N	mg/L	0.509	0.424	0.564	yes
Nitrate and Nitrite - N	mg/L	1.01	0.92	1.10	yes
Date Acquired: April 22, 2019					

## Methodology and Notes

Bill To: Flagstaff County Box 358 4902 - 50 Street Sedgewick, AB, Canada T0B 4C0	Project ID: Project Name: Project Location: LSD: P.O.:	Lot ID: <b>1345499</b> Control Number: Date Received: Apr 18, 2019 Date Reported: Apr 25, 2019 Report Number: 2397769
Attn: Marilyn Patten	Proj. Acct. code:	
Sampled By:		
Company:		

## Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
Alkalinity, pH, and EC in water	APHA	* Alkalinity - Titration Method, 2320 B	Apr 18, 2019	Element Edmonton - Roper Road
Alkalinity, pH, and EC in water	APHA	* Conductivity, 2510 B	Apr 18, 2019	Element Edmonton - Roper Road
Alkalinity, pH, and EC in water	APHA	* pH - Electrometric Method, 4500-H+ B	Apr 18, 2019	Element Edmonton - Roper Road
Anions (Routine) by Ion Chromatography	APHA	* Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	Apr 22, 2019	Element Edmonton - Roper Road
Approval-Edmonton	APHA	Checking Correctness of Analyses, 1030 E	Apr 23, 2019	Element Edmonton - Roper Road
Chloride in Water	APHA	* Automated Ferricyanide Method, 4500-Cl-E	Apr 22, 2019	Element Edmonton - Roper Road
Mercury (Total) in water	EPA	* Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry, 245.7	Apr 22, 2019	Element Edmonton - Roper Road
Mercury (Total) in water	US EPA	* Determination of Hg in Sediment by Cold Vapor Atomic Absorption Spec, 245.5	Apr 22, 2019	Element Edmonton - Roper Road
Metals ICP-MS (Total) in water	APHA/USEPA	* Metals By Inductively Coupled Plasma/Mass Spectrometry, APHA 3125 B / USEPA 200.2, 200.8	Apr 22, 2019	Element Edmonton - Roper Road
Metals ICP-MS (Total) in water	US EPA	* Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	Apr 22, 2019	Element Edmonton - Roper Road
Metals Trace (Dissolved) in water	APHA	Hardness by Calculation, 2340 B	Apr 22, 2019	Element Edmonton - Roper Road
Metals Trace (Dissolved) in water	APHA	* Inductively Coupled Plasma (ICP) Method, 3120 B	Apr 22, 2019	Element Edmonton - Roper Road
Metals Trace (Total) in water	APHA	* Inductively Coupled Plasma (ICP) Method, 3120 B	Apr 22, 2019	Element Edmonton - Roper Road

\* Reference Method Modified

## References

APHA	Standard Methods for the Examination of Water and Wastewater
APHA/USEPA	Standard Methods For Water/ Environmental Protection Agency
EPA	Environmental Protection Agency Test Methods - US
US EPA	US Environmental Protection Agency Test Methods

## Guidelines

Guideline Description	Health Canada GCDWQ
Guideline Source	Guidelines for Canadian Drinking Water Quality, Health Canada, February 2017
Guideline Comments	MAC = Maximum Acceptable Concentration AO = Aesthetic Objective OG = Operational Guideline for Water Treatment Plants (does not apply to private groundwater wells). Refer to Health Canada for complete guidelines at <a href="http://www.hc-sc.gc.ca">www.hc-sc.gc.ca</a>

## Comments:

- Apr 24, 2019 - Sample 1345499-5; 6573431: Some trace total metal results were less than dissolved metal results for sample 1345499-5. Total metals were analyzed from the metals bottle and dissolved from the routine bottle. Results were verified.

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**Methodology and Notes**

Bill To: Flagstaff County	Project ID:	Lot ID: <b>1345499</b>
Box 358	Project Name:	Control Number:
4902 - 50 Street	Project Location:	Date Received: Apr 18, 2019
Sedgewick, AB, Canada	LSD:	Date Reported: Apr 25, 2019
T0B 4C0	P.O.:	Report Number: 2397769
Attn: Marilyn Patten	Proj. Acct. code:	
Sampled By:		
Company:		

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- Apr 24, 2019 - Some trace total metal results were less than dissolved metal results for samples 1345499-1 to -4. The results were verified and are within expected measurement uncertainty.

The comparison of test results to guideline limits is provided for information purposes only. This is not to be taken as a statement of conformance / nonconformance to any guideline, regulation or limit. The data user is responsible for all conclusions drawn with respect to the data and is advised to consult official regulatory references when evaluating compliance.

Please direct any inquiries regarding this report to our Client Services group.

Results relate only to samples as submitted.

The test report shall not be reproduced except in full, without the written approval of the laboratory.

# Exova

**Brenda Martin**  
Assistant Agriculture  
Fieldman



Control Number   
**Sample Information Sheet**  
This form is required in order to proceed with analysis

**Billing Address:**  
Company: Flagstaff County  
Address: 12 135 TWP RD 442 P.O Box 358 Sedgewick, AB T0B 4C0  
Website: www.flagstaff.ab.ca

Office Direct: (780) 384-1129  
Cell: (780) 390-0342  
Fax: (780) 384-3635  
Email: bmartin@flagstaff.ab.ca

Copy of invoice:   
Mail invoice to this address for approval

APR 18 AM 8:42

Attention: \_\_\_\_\_ Report Result: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax   
Fax: \_\_\_\_\_ Mail   
Cell: \_\_\_\_\_ Courier   
e-mail: \_\_\_\_\_ e-mail  Cell: \_\_\_\_\_  
e-Service  e-mail: \_\_\_\_\_

**Information to be included on Report and Invoice**

Project ID: \_\_\_\_\_  
Project Name: \_\_\_\_\_  
Project Location: \_\_\_\_\_  
Legal Location: \_\_\_\_\_  
PO#: \_\_\_\_\_  
Proj. Acct. Code: \_\_\_\_\_  
Agreement ID: \_\_\_\_\_

**RUSH** Please contact the laboratory to confirm rush dates and times before submitting samples.  
Upon filling out this section, client accepts that surcharges will be attached to this analysis

RUSH required on:  All Analysis  or  As indicated

Date Required: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Exova Authorization: \_\_\_\_\_

Sample Custody (Please Print)  
Sampled by: \_\_\_\_\_  
Company: \_\_\_\_\_ Signature: \_\_\_\_\_  
I authorize Exova to proceed with the work work indicated on this form:  
Date: \_\_\_\_\_ Initial: \_\_\_\_\_  
Received by: S. JUNEZ Sample Temp. 6.2  
Waybill #: PURO Date \_\_\_\_\_  
Company: \_\_\_\_\_ Time \_\_\_\_\_

**Special Instructions / Comments**

**FOR LAB USE ONLY**  
Condition of containers/coolers upon arrival at lab

Check here if Exova is required to report results directly to a regulatory body (Please include contact information)

Check here if you are testing **POTABLE WATER** for **HUMAN CONSUMPTION**

Number of Containers	Routine	Totals	Mercury								

Please indicate which regulations you are required to meet: \_\_\_\_\_

	Sample Identification	Location	Depth			Date/Time Sampled	Matrix	Sampling Method	↓	Enter tests above (✓ relevant samples below)												
			IN	CM	M																	
1	Loughheed TL	NE-11-44-11-W4	---	---	---	Apr 17 12	---	Bottle	3	✓	✓	✓										
2	Killam TL	NE-3-44-14-W4	---	---	---	Apr 17 11	---	Bottle	3	✓	✓	✓										
3	Daysland TL	SW-10-45-16-W4	---	---	---	Apr 17 10	---	Bottle	3	✓	✓	✓										
4	Hastings coulee TL	SE-27-41-16-W4	---	---	---	Apr 17 9:30	---	Bottle	3	✓	✓	✓										
5	Sedgewick TL	SE-2-43-13-W4	---	---	---	Apr 17 9	---	Bottle	3	✓	✓	✓										
6																						
7																						
8																						
9																						
10																						
11																						
12																						
13																						
14																						
15																						