

Report Transmission Cover Page

Bill To: City of Parksville 1116 Herring Gull Way Parksville, BC, Canada V9P 1R2	Project ID: Project Name: Full Spectrum Project Location: LSD: P.O.:	Lot ID: 1509019 Control Number: Date Received: Jul 28, 2021 Date Reported: Aug 6, 2021 Report Number: 2645858
Attn: Accounts Payable Sampled By: Barbara Silenieks Company: City of Parksville	Proj. Acct. code:	

Contact	Company	Address	
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<u>Delivery</u>	<u>Format</u>	<u>Deliverables</u>	
Email - Single Report	PDF	Invoice	
Barbara Silenieks	City of Parksville	1116 Herring Gull Way Parksville, BC V9P 1R2 Phone: (250) 951-2489 Fax: Email: bsilenieks@parksville.ca	
<u>Delivery</u>	<u>Format</u>	<u>Deliverables</u>	
Email - Single Report	PDF	COA	
Email - Single Report	PDF	COC / Test Report	

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Analytical Report

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		Reference Number	1509019-1	1509019-2	1509019-3	
		Sample Date	Jul 27, 2021	Jul 27, 2021	Jul 27, 2021	
		Sample Time	08:15	08:20	08:35	
		Sample Location				
	Sample Description	PWY / Sample Port / 9.8 °C	WTP / Lab / 9.8 °C	River / Intake / 9.8 °C		
	Matrix	Water	Water	Water		
Analyte	Units	Results	Results	Results	Nominal Detection Limit	
Inorganic Nonmetallic Parameters						
Cyanide	Total	mg/L	<0.002	<0.002	<0.002	0.002
Metals Total						
Calcium	Total	mg/L	12	12	12	0.01
Magnesium	Total	mg/L	1.3	1.4	1.5	0.02
Potassium	Total	mg/L	0.19	0.20	0.23	0.04
Silicon	Total	mg/L	2.2	2.2	2.5	0.005
Sodium	Total	mg/L	14	14	6.0	0.1
Digestion	Preparation		Field Pres, digest as total Hg	Field Pres, digest as total Hg	Field Pres, digest as total Hg	
Mercury	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00005
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	<1.0	>2419.6	1.0
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	<1.0	27.5	1.0
Physical and Aggregate Properties						
Colour	True	Colour units	<5	<5	<5	5
Turbidity		NTU	<0.10	<0.10	0.36	0.1
Routine Water						
Digestion	Dissolved		Lab filtered & preserved Exceeded	Lab filtered & preserved Exceeded	Lab filtered & preserved Exceeded	
pH - Holding Time						
pH	at 25 °C		8.36	8.25	7.48	0.01
Electrical Conductivity		µS/cm at 25 °C	137	139	106	1
T-Alkalinity	as CaCO3	mg/L	42	42	27	5
Chloride	Dissolved	mg/L	16.3	16.5	14.6	0.05
Fluoride	Dissolved	mg/L	<0.01	<0.01	<0.01	0.01
Nitrate - N	Dissolved	mg/L	<0.01	<0.01	<0.01	0.01
Nitrite - N	Dissolved	mg/L	<0.01	<0.01	<0.01	0.01
Sulfate (SO4)	Dissolved	mg/L	1.4	1.4	1.4	0.1
Hardness	as CaCO3 (dissolved)	mg/L	30	30	31	5
Total Dissolved Solids	Calculated	mg/L	72	72	55	1
Langelier Index			-0.4	-0.5	-1.4	
Trace Metals Total						
Aluminum	Total	mg/L	0.013	0.005	0.021	0.001
Antimony	Total	mg/L	<0.00002	<0.00002	<0.00002	0.00002
Arsenic	Total	mg/L	0.0002	0.0002	0.0002	0.0001
Barium	Total	mg/L	0.0063	0.0069	0.0071	0.0001
Boron	Total	mg/L	0.021	0.018	0.017	0.002
Cadmium	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001

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	Sample Time	08:15	08:20	08:35		
	Sample Location					
	Sample Description	PWY / Sample Port / 9.8 °C	WTP / Lab / 9.8 °C	River / Intake / 9.8 °C		
	Matrix	Water	Water	Water		
Analyte	Units	Results	Results	Results	Nominal Detection Limit	
Trace Metals Total - Continued						
Chromium	Total	mg/L	<0.00005	<0.00005	0.00006	0.00005
Copper	Total	mg/L	0.0027	0.0005	0.0007	0.0002
Iron	Total	mg/L	0.009	0.007	0.072	0.002
Lead	Total	mg/L	0.00023	<0.00001	<0.00001	0.00001
Manganese	Total	mg/L	0.003	0.003	0.009	0.001
Selenium	Total	mg/L	<0.0002	<0.0002	<0.0002	0.0002
Strontium	Total	mg/L	0.047	0.048	0.048	0.0001
Uranium	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Zinc	Total	mg/L	0.0016	<0.0005	<0.0005	0.0005

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		Reference Number	1509019-4	1509019-5	
		Sample Date	Jul 27, 2021	Jul 27, 2021	
		Sample Time	09:40	10:00	
		Sample Location			
		Sample Description	Springwood # 8 / Well / 9.8 °C	Railway 3 1 / Well / 9.8 °C	
		Matrix	Water	Water	
Analyte		Units	Results	Results	Nominal Detection Limit
Inorganic Nonmetallic Parameters					
Cyanide	Total	mg/L	<0.002	<0.002	0.002
Metals Total					
Calcium	Total	mg/L	38	30	0.01
Magnesium	Total	mg/L	19	15	0.02
Potassium	Total	mg/L	0.98	0.82	0.04
Silicon	Total	mg/L	11	10	0.005
Sodium	Total	mg/L	7.5	7.9	0.1
Digestion	Preparation		Field Pres, digest as total Hg	Field Pres, digest as total Hg	
Mercury	Total	mg/L	<0.00001	<0.00001	0.00005
Microbiological Analysis					
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	<1.0	1.0
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	<1.0	1.0
Physical and Aggregate Properties					
Colour	True	Colour units	<5	<5	5
Turbidity		NTU	0.40	0.11	0.1
Routine Water					
Digestion	Dissolved		Lab filtered & preserved Exceeded	Lab filtered & preserved Exceeded	
pH - Holding Time					
pH	at 25 °C		7.79	7.87	0.01
Electrical Conductivity		µS/cm at 25 °C	366	300	1
T-Alkalinity	as CaCO3	mg/L	152	115	5
Chloride	Dissolved	mg/L	19.7	23.1	0.05
Fluoride	Dissolved	mg/L	<0.01	<0.01	0.01
Nitrate - N	Dissolved	mg/L	1.21	0.36	0.01
Nitrite - N	Dissolved	mg/L	<0.01	<0.01	0.01
Sulfate (SO4)	Dissolved	mg/L	7.2	4.7	0.1
Hardness	as CaCO3 (dissolved)	mg/L	155	119	5
Total Dissolved Solids	Calculated	mg/L	211	173	1
Langelier Index			0.1	-0.03	
Trace Metals Total					
Aluminum	Total	mg/L	0.001	0.001	0.001
Antimony	Total	mg/L	0.00002	0.00002	0.00002
Arsenic	Total	mg/L	0.0003	0.0004	0.0001
Barium	Total	mg/L	0.0074	0.015	0.0001
Boron	Total	mg/L	0.012	0.015	0.002
Cadmium	Total	mg/L	<0.00001	<0.00001	0.00001

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Reference Number	1509019-4	1509019-5
Sample Date	Jul 27, 2021	Jul 27, 2021
Sample Time	09:40	10:00
Sample Location		
Sample Description	Springwood # 8 / Well / 9.8 °C	Railway 3 1 / Well / 9.8 °C
Matrix	Water	Water

Analyte	Units	Results	Results	Results	Nominal Detection Limit
Trace Metals Total - Continued					
Chromium	Total	mg/L	0.00087	0.00087	0.00005
Copper	Total	mg/L	0.0009	0.0006	0.0002
Iron	Total	mg/L	0.069	0.011	0.002
Lead	Total	mg/L	0.00011	0.00027	0.00001
Manganese	Total	mg/L	0.012	0.005	0.001
Selenium	Total	mg/L	<0.0002	<0.0002	0.0002
Strontium	Total	mg/L	0.099	0.087	0.0001
Uranium	Total	mg/L	0.00031	0.00031	0.00001
Zinc	Total	mg/L	0.0013	0.0023	0.0005

Approved by: 
 Max Hewitt
 Operations Manager

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

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Methodology and Notes

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Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
Alk, pH, EC, Turb in water (BC)	APHA	* Alkalinity - Titration Method, 2320 B	Jul 28, 2021	Element Vancouver
Alk, pH, EC, Turb in water (BC)	APHA	* Conductivity, 2510 B	Jul 28, 2021	Element Vancouver
Alk, pH, EC, Turb in water (BC)	APHA	* pH - Electrometric Method, 4500-H+ B	Jul 28, 2021	Element Vancouver
Anions by IEC in water (VAN)	APHA	* Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	Jul 29, 2021	Element Vancouver
Cyanide (Total) in water	US EPA	* US EPA method, 335.3	Aug 3, 2021	Element Edmonton - Roper Road
Mercury Low Level (Total) in water (VAN)	EPA	* Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry, 245.7	Jul 29, 2021	Element Vancouver
Metals SemiTrace (Dissolved) in water (VAN)	US EPA	* Metals & Trace Elements by ICP-AES, 6010C	Aug 3, 2021	Element Vancouver
Metals SemiTrace (Total) in Water (VAN)	US EPA	* Metals & Trace Elements by ICP-AES, 6010C	Jul 29, 2021	Element Vancouver
Total and E-Coli - Colilert - DW (VAN)	APHA	Enzyme Substrate Test, APHA 9223 B	Jul 28, 2021	Element Vancouver
Trace Metals (Total) in Water (VAN)	US EPA	* Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	Jul 29, 2021	Element Vancouver
True Color in water (VAN)	APHA	* Spectrophotometric - Single Wavelength Method, 2120 C	Jul 29, 2021	Element Vancouver
Turbidity - Water (VAN)	APHA	* Turbidity - Nephelometric Method, 2130 B	Jul 28, 2021	Element Vancouver

* Reference Method Modified

References

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

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