

**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.: S22-5095 Proj. Acct. code:	Lot ID: <b>1597462</b> Control Number: Date Received: Sep 8, 2022 Date Reported: Sep 14, 2022 Report Number: 2785045
Attn: Accounts Payable Sampled By: Barbara Silenieks Company: City of Parksville		

Contact	Company	Address
Accounts Payable	City of Parksville	1116 Herring Gull Way Parksville, BC V9P 1R2 Phone: (250) 951-2489 Fax: Email: ap@parksville.ca

Delivery	Format	Deliverables
Email - Single Deliverable	PDF	Invoice

Contact	Company	Address
Barbara Silenieks	City of Parksville	1116 Herring Gull Way Parksville, BC V9P 1R2 Phone: (250) 951-2489 Fax: Email: bsilenieks@parksville.ca

Delivery	Format	Deliverables
Email - Single Deliverable	PDF	COA
Email - Single Deliverable	PDF	COC / Test Report
Email - Single Deliverable	Standard Crosstab Without Tabs	Test Report

**Notes To Clients:**

- Sep 09, 2022 - Sample 1597462-2; 8243794: Reduction of analytical volume was necessary for chloride analysis to bring results within the analytical range for sample 1597462-2. Detection limits are adjusted accordingly.

## Analytical Report

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.: S22-5095 Proj. Acct. code:	Lot ID: <b>1597462</b> Control Number: Date Received: Sep 8, 2022 Date Reported: Sep 14, 2022 Report Number: 2785045
Attn: Accounts Payable Sampled By: Barbara Silenieks Company: City of Parksville		

	Reference Number	1597462-1	1597462-2	1597462-3		
	Sample Date	Sep 06, 2022	Sep 06, 2022	Sep 06, 2022		
	Sample Time	10:50	10:30	10:10		
	Sample Location					
	Sample Description	Railway Well #4 // 12.3 °C	Railway Well #5 / 12.3 °C	Springwood Well #11 / 12.3 °C		
	Matrix	Water	Water	Water		
Analyte	Units	Results	Results	Results	Nominal Detection Limit	
<b>Inorganic Nonmetallic Parameters</b>						
Cyanide	Total	mg/L	<0.002	<0.002	<0.002	0.002
<b>Metals Total</b>						
Calcium	Total	mg/L	34	37	29	0.01
Magnesium	Total	mg/L	16	17	13	0.02
Potassium	Total	mg/L	0.75	0.97	0.70	0.04
Silicon	Total	mg/L	11	11	12	0.005
Sodium	Total	mg/L	7.3	14	8.4	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	0.00001
<b>Microbiological Analysis</b>						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	<1.0	<1.0	1.0
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	<1.0	<1.0	1.0
<b>Physical and Aggregate Properties</b>						
Colour	True	Colour units	<5	<5	<5	5
Turbidity		NTU	<0.10	<0.10	<0.10	0.1
<b>Routine Water</b>						
Digestion	Dissolved		Lab filtered & preserved Exceeded	Lab filtered & preserved Exceeded	Lab filtered & preserved Exceeded	
pH - Holding Time						
pH	at 25 °C		7.58	7.68	7.48	0.01
Electrical Conductivity		µS/cm at 25 °C	336	407	295	1
T-Alkalinity	as CaCO3	mg/L	126	124	105	5
Chloride	Dissolved	mg/L	17.9	36.9	18.6	0.05
Fluoride	Dissolved	mg/L	0.05	0.05	0.05	0.01
Nitrate - N	Dissolved	mg/L	0.73	1.52	1.50	0.01
Nitrite - N	Dissolved	mg/L	<0.01	<0.01	<0.01	0.01
Sulfate (SO4)	Dissolved	mg/L	11.9	9.2	6.6	0.1
Hardness	as CaCO3 (dissolved)	mg/L	152	166	127	5
Total Dissolved Solids	Calculated	mg/L	198	228	180	1
Langelier Index			-0.2	-0.07	-0.4	
<b>Trace Metals Total</b>						
Aluminum	Total	mg/L	0.004	0.003	0.002	0.001
Antimony	Total	mg/L	0.00006	0.00002	0.00003	0.00002
Arsenic	Total	mg/L	0.0003	0.0005	0.0003	0.0001
Barium	Total	mg/L	0.013	0.021	0.0063	0.0001
Boron	Total	mg/L	0.012	0.017	0.011	0.002
Cadmium	Total	mg/L	0.00082	<0.00001	<0.00001	0.00001

## Analytical Report

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.: S22-5095 Proj. Acct. code:	Lot ID: <b>1597462</b> Control Number: Date Received: Sep 8, 2022 Date Reported: Sep 14, 2022 Report Number: 2785045
Attn: Accounts Payable Sampled By: Barbara Silenieks Company: City of Parksville		

Reference Number	1597462-1	1597462-2	1597462-3
Sample Date	Sep 06, 2022	Sep 06, 2022	Sep 06, 2022
Sample Time	10:50	10:30	10:10
Sample Location			
Sample Description	Railway Well #4 // 12.3 °C	Railway Well #5 / 12.3 °C	Springwood Well #11 / 12.3 °C
Matrix	Water	Water	Water

Analyte	Units	Results	Results	Results	Nominal Detection Limit	
<b>Trace Metals Total - Continued</b>						
Chromium	Total	mg/L	0.00043	0.0056	0.00041	0.00005
Copper	Total	mg/L	0.0027	0.0014	0.0018	0.0002
Iron	Total	mg/L	0.005	0.032	0.009	0.002
Lead	Total	mg/L	0.00017	0.00018	0.00022	0.00001
Manganese	Total	mg/L	0.018	0.005	0.023	0.001
Selenium	Total	mg/L	0.0004	<0.0002	<0.0002	0.0002
Strontium	Total	mg/L	0.094	0.10	0.083	0.0001
Uranium	Total	mg/L	0.00028	0.00026	0.00009	0.00001
Zinc	Total	mg/L	0.0049	0.0045	0.0051	0.0005

## Analytical Report

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.: S22-5095 Proj. Acct. code:	Lot ID: <b>1597462</b> Control Number: Date Received: Sep 8, 2022 Date Reported: Sep 14, 2022 Report Number: 2785045
Attn: Accounts Payable Sampled By: Barbara Silenieks Company: City of Parksville		

		Reference Number	1597462-4	1597462-5	1597462-6	
		Sample Date	Sep 06, 2022	Sep 06, 2022	Sep 06, 2022	
		Sample Time	12:00	12:35	11:35	
		Sample Location				
		Sample Description	Works Yard / 12.3 °C	Water Treatment Plant / 12.3 °C	River / 12.3 °C	
		Matrix	Water	Water	Water	
Analyte	Units	Results	Results	Results	Results	Nominal Detection Limit
<b>Inorganic Nonmetallic Parameters</b>						
Cyanide	Total	mg/L	<0.002	<0.002	<0.002	0.002
<b>Metals Total</b>						
Calcium	Total	mg/L	11	11	11	0.01
Magnesium	Total	mg/L	1.3	1.2	1.3	0.02
Potassium	Total	mg/L	0.13	0.10	0.09	0.04
Silicon	Total	mg/L	2.0	2.0	2.2	0.005
Sodium	Total	mg/L	12	13	5.3	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	0.00001
<b>Microbiological Analysis</b>						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	<1.0	>200.5	1.0
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	<1.0	9.9	1.0
<b>Physical and Aggregate Properties</b>						
Colour	True	Colour units	<5	<5	<5	5
Turbidity		NTU	<0.10	<0.10	0.61	0.1
<b>Routine Water</b>						
Digestion	Dissolved		Lab filtered & preserved Exceeded	Lab filtered & preserved Exceeded	Lab filtered & preserved Exceeded	
pH - Holding Time						
pH	at 25 °C		7.84	7.95	7.34	0.01
Electrical Conductivity		µS/cm at 25 °C	128	130	97	1
T-Alkalinity	as CaCO3	mg/L	36	38	24	5
Chloride	Dissolved	mg/L	13.7	13.9	11.6	0.05
Fluoride	Dissolved	mg/L	0.03	0.03	0.03	0.01
Nitrate - N	Dissolved	mg/L	0.02	0.02	0.02	0.01
Nitrite - N	Dissolved	mg/L	<0.01	<0.01	<0.01	0.01
Sulfate (SO4)	Dissolved	mg/L	1.5	1.4	1.5	0.1
Hardness	as CaCO3 (dissolved)	mg/L	32	32	32	5
Total Dissolved Solids	Calculated	mg/L	67	69	51	1
Langelier Index			-0.9	-0.8	-1.6	
<b>Trace Metals Total</b>						
Aluminum	Total	mg/L	0.010	0.007	0.030	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	0.0059	0.0060	0.0063	0.0001
Boron	Total	mg/L	0.015	0.014	0.013	0.002
Cadmium	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001

**Analytical Report**

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.: S22-5095 Proj. Acct. code:	Lot ID: <b>1597462</b> Control Number: Date Received: Sep 8, 2022 Date Reported: Sep 14, 2022 Report Number: 2785045
Attn: Accounts Payable Sampled By: Barbara Silenieks Company: City of Parksville		

Reference Number	1597462-4	1597462-5	1597462-6
Sample Date	Sep 06, 2022	Sep 06, 2022	Sep 06, 2022
Sample Time	12:00	12:35	11:35
Sample Location			
Sample Description	Works Yard / 12.3 °C	Water Treatment Plant / 12.3 °C	River / 12.3 °C

Analyte	Matrix	Units	Results			Nominal Detection Limit
			Water	Water	Water	
<b>Trace Metals Total - Continued</b>						
Chromium	Total	mg/L	0.00013	0.00014	0.0012	0.00005
Copper	Total	mg/L	0.0038	0.0005	0.0006	0.0002
Iron	Total	mg/L	0.016	0.014	0.100	0.002
Lead	Total	mg/L	0.00026	<0.00001	0.00001	0.00001
Manganese	Total	mg/L	0.003	0.005	0.011	0.001
Selenium	Total	mg/L	<0.0002	<0.0002	<0.0002	0.0002
Strontium	Total	mg/L	0.041	0.041	0.042	0.0001
Uranium	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Zinc	Total	mg/L	0.0015	0.0005	<0.0005	0.0005

Approved by:   
 Max Hewitt  
 Operations Manager

## Methodology and Notes

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.: S22-5095 Proj. Acct. code:	Lot ID: <b>1597462</b> Control Number: Date Received: Sep 8, 2022 Date Reported: Sep 14, 2022 Report Number: 2785045
Attn: Accounts Payable Sampled By: Barbara Silenieks Company: City of Parksville		

## Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
Alk, pH, EC, Turb in water (BC)	APHA	* Alkalinity - Titration Method, 2320 B	Sep 9, 2022	Element Vancouver
Alk, pH, EC, Turb in water (BC)	APHA	* Conductivity, 2510 B	Sep 9, 2022	Element Vancouver
Alk, pH, EC, Turb in water (BC)	APHA	* pH - Electrometric Method, 4500-H+ B	Sep 9, 2022	Element Vancouver
Anions by IEC in water (VAN)	APHA	* Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	Sep 8, 2022	Element Vancouver
Cyanide (Total) in water	US EPA	* US EPA method, 335.3	Sep 13, 2022	Element Edmonton - Roper Road
Mercury Low Level (Total) in water (VAN)	EPA	* Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry, 245.7	Sep 12, 2022	Element Vancouver
Metals SemiTrace (Dissolved) in water (VAN)	US EPA	* Metals & Trace Elements by ICP-AES, 6010C	Sep 13, 2022	Element Vancouver
Metals SemiTrace (Total) in Water (VAN)	US EPA	* Metals & Trace Elements by ICP-AES, 6010C	Sep 9, 2022	Element Vancouver
Total and E-Coli - Colilert - DW (VAN)	APHA	Enzyme Substrate Test, APHA 9223 B	Sep 8, 2022	Element Vancouver
Trace Metals (Total) in Water (VAN)	US EPA	* Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	Sep 9, 2022	Element Vancouver
True Color in water (VAN)	APHA	* Spectrophotometric - Single Wavelength Method, 2120 C	Sep 8, 2022	Element Vancouver
Turbidity - Water (VAN)	APHA	* Turbidity - Nephelometric Method, 2130 B	Sep 8, 2022	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

## Comments:

- Sep 09, 2022 - Sample 1597462-2; 8243794: Reduction of analytical volume was necessary for chloride analysis to bring results within the analytical range for sample 1597462-2. Detection limits are adjusted accordingly.

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.