

**Otter Lake Solid Waste Management
Facility
Site Development and Operations Report**
Annual Report - 2023
Approval 2022-3051773-00

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Otter Lake Solid Waste Management Facility
2023 Annual Report

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1.0 Introduction

This document has been prepared by MIRROR Nova Scotia to summarize 2023 operational activities at the Otter Lake Solid Waste Management Facility. The purpose of this report is to satisfy the requirements of Nova Scotia Environment and Climate Change (NSECC) Approval (Approval No. 2022-3051773-00) and the Operations Plans contained therein.

The Otter Lake Solid Waste Management Facility has been in operation since acceptance testing began during the summer of 1998. Subsequently, operations began on January 1st, 1999 with all processed wastes being disposed of in the Residual Disposal Facility (RDF) Cells #1 through #7.

2.0 Operations Overview

As per the Approval, **Section 18 b)** outlines the information requested in the Annual Report. Relevant Approval sections and conditions, and provided information are presented below.

- Section 18 b) i) Monitoring analysis of:**
- (a) Air emissions**
 - (b) Surface water**
 - (c) Sediment**
 - (d) Groundwater**
 - (e) Leachate**

Quarterly monitoring of Surface water and Groundwater at the site was conducted in 2023 by Dillon Consulting and annual monitoring of sediment was also completed by Dillon during the Q3 event of 2023. Surface water, groundwater and sediment analysis is provided in the 2023 Dillon Annual Surface and Groundwater report provided under separate cover.

Further monitoring of surface water was conducted by MIRROR NS during discharges from the sedimentation ponds and during rain events. Appendix A contains the surface water discharge summary which includes the results for TSS and pH. Analytical results for the full analyses for the North and South Sedimentation Pond discharges can be found in Appendix B. There were no exceedances to TSS or pH in 2023.

The leak detection layers were pumped as needed throughout the year (weekly or monthly). Leak detection analytical data is supplied in Appendix C.

Leachate removed from site in 2023 is summarized in Table 1.

Table 1 Leachate Volumes (Litres) by Month

Leachate	2023
January	10,637,640
February	5,523,390
March	7,119,036
April	5,032,422
May	4,500,540
June	6,014,358
July	7,896,402
August	9,123,822
September	7,896,402
October	5,850,702
November	5,646,132
December	6,587,154
	<u>81,828,000</u>

Section 18 b) ii) *Inventory of dangerous/ waste dangerous goods which have been stored at the Facility over the past operating year and specifying what remains as of December 31 of that operating year,*

As of December 31st, 2023, there was a small amount of waste Dangerous Goods stored on site as all material removed from the waste stream are removed from site regularly. Monthly inventories are available.

Section 18 b) iii) *Analysis of solid waste handled, recorded by month and in tonnes as applicable:*

- a) ***Quantity, type, source and carrier of waste received***
- b) ***Quantity and type of banned materials removed from the FEP, RDF, Tipping Face and Waste Transfer Station***
- c) ***Quantity of material handled at each portion of the Facility (FEP, WSF, Waste Transfer Station and RDF)***
- d) ***contaminated soils/solids disposed of in the RDF, including compliance testing, quantity, the generator, and the location of the source material.***

The following tables summarize and characterize the waste received and the recyclables removed (Table 2), and the material handled at each portion of the Facility (Tables 2 and 3).

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Table 2 - Monthly Site Tonnage Summary for Otter Lake Solid Waste Management Facility (metric tons (mt))

OTTER LAKE	RESIDENTIAL	SPECIAL Compost/Haz	SPECIAL Handling	WILDFIRE DEBRIS	DIRECT TO RDF	TOTAL RECEIVED	FEP TO RDF	TRAILER TO RDF	IN WSF	OUT WSF	METAL	POP BOTTLES	PAPER C/B	RDF TOTAL
January 2023	3,923.97	-	7.68	-	71.06	4,002.71	-	-	-	434.10	269.41	-	-	4,436.81
February 2023	3,093.50	-	25.80	-	85.95	3,205.25	-	-	-	-	-	-	-	3,205.25
March 2023	3,674.17	-	8.38	-	257.22	3,939.77	-	-	-	-	-	-	-	3,939.77
April 2023	3,727.45	-	6.30	-	84.02	3,817.77	-	-	-	-	-	-	-	3,817.77
May 2023	4,393.35	-	9.25	-	105.14	4,507.74	-	-	-	-	-	-	-	4,507.74
June 2023	4,237.03	-	5.74	39.38	129.54	4,411.69	-	-	-	-	109.42	-	-	4,411.69
July 2023	4,290.44	-	4.78	4.51	90.38	4,390.11	-	-	-	-	193.92	-	-	4,390.11
August 2023	4,949.07	-	-	0.20	103.98	5,053.25	-	-	-	-	-	-	-	5,053.25
September 2023	4,329.47	-	-	-	59.14	4,388.61	-	-	-	-	-	-	-	4,388.61
October 2023	4,311.61	-	-	-	111.84	4,423.45	-	-	-	-	-	-	-	4,423.45
November 2023	4,266.12	-	-	-	100.63	4,366.75	-	-	-	-	285.90	-	-	4,366.75
December 2023	3,620.10	-	-	-	42.57	3,662.67	-	-	-	-	-	-	-	3,662.67
TOTAL	48,816.28	-	67.93	44.09	1,241.47	50,169.77	-	-	-	434.10	858.65	-	-	50,603.87

RDF Received (mt) = 50,603.87

Less Metal Shipped (mt) = - 858.65

Material Landfilled (mt) = 49,745.22

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Table 3 Transfer Station Monthly Tonnage Summary (mt)

2023	COMM	SPECIAL Compost/Haz	SPECIAL Handling Fee	WILDFIRE DEBRIS	DIRECT TO RDF	TOTAL RECEIVED
JAN	6,311.54	14.91	7.68	-	71.06	6,405.19
FEB	5,151.51	12.80	25.80	-	85.95	5,276.06
MARCH	6,208.57	10.29	8.38	-	257.22	6,484.46
APRIL	5,726.47	11.22	6.30	-	84.02	5,828.01
MAY	6,469.88	16.12	9.25	-	105.14	6,600.39
JUNE	6,520.74	15.19	5.74	39.38	129.54	6,710.59
JULY	6,917.10	8.43	4.78	4.51	90.38	7,025.20
AUG	7,636.91	13.86	-	0.20	103.98	7,754.95
SEPT	6,824.14	19.12	-	-	59.14	6,902.40
OCT	6,454.37	16.25	-	-	111.84	6,582.46
NOV	6,119.13	11.67	-	-	100.63	6,231.43
DEC	5,879.12	14.53	-	-	42.57	5,936.22
TOTALS	76,219.48	164.39	67.93	44.09	1,241.47	77,737.36

Quantities of the contaminated solids that were disposed of directly to the RDF are summarized in Table 2 (Direct to RDF column).

The generator and location of source can be found in Appendix D with compliance testing included.

Section 18 b) iv) summary table and discussion of Performance Audits, including discussion of progress towards Compliance Plan(s) and or Enhanced Diversion Plan(s);

Quarterly Performance Audits are completed by Strum Environmental, with four Performance audits being completed in 2023. A summary report for the Performance Audits and the Compliance Plan is provided under separate cover.

Section 18 b) v) *Quantity, type and location of any stockpiled materials, including daily, intermediate and final cover, feedstocks, etc., including summary of construction and demolition debris mix used as daily cover on the RDF, including compliance testing, quantity received and quantity used.*

There are no stockpiles of alternate cover or rock materials kept on site other than 1-2 days worth of material kept near the working face.

We keep approximately 100-200 tonnes of clay east of Cell 7 for emergency use.

Table 4 summarizes use of alternate cover, rock, clay and soil cover received during 2023.

Table 4 Summary of Alternate Cover used for RDF

2023	Alternate Cover	Rock	Clay	Totals
January	519.73	290.88		810.61
February	388.01	239.90		627.91
March	453.55	373.19		826.74
April	422.34	232.82		655.16
May	697.83	182.83		880.66
June	656.22	307.32		963.54
July	400.29	41.36		441.65
August	600.27	335.50		935.77
September	616.43	144.89		761.32
October	518.58	193.21		711.79
November	630.93	182.03		812.96
December	461.95	57.15	6,080.00	6,599.10
Totals	6,366.13	2,581.08	6,080.00	15,027.21

All Construction & Demolition Debris used on site as cover and was weighed on our scale in volumes reported on Table 4. All materials were supplied by Halifax C&D Ltd. Compliance testing is reported in Appendix E. There is only about 1-2 days worth of debris mix kept on hand at any time throughout the year.

Clay was placed as intermediate cover on areas of the landfill that will not be utilized in the near future.

Section 18 b) vi) *Details of any spills or releases at the Facility;*

There were no reportable spills at the facility in 2023.

Section 18 b) vii) Any complaints and measures taken to resolve the complaints;

Odour complaints received in 2023 can be found in Appendix F.

Section 18 b) viii) Updates to Operations & Maintenance Manual, Environmental Management Plan, and Contingency Plan documents, which shall include the dates of reviews, modifications and reasons for any modifications;

The Operations & Maintenance Manual, Environmental Management Plan and Contingency Plan were not modified in 2023.

Section 18 b) ix) Any violations of the conditions of this Approval and actions taken by the Approval Holders to correct those violations;

No violations to the conditions of the Approval took place in 2023.

Section 18 b) x) Recommendations assembled by the Site Professional(s), the Engineer(s), the Hydrogeologist(s), and any other consultant(s) or author(s) contributing to the Annual Report

Recommendations can be reviewed in the 2023 Dillon Annual Surface and Groundwater report.

Section 18 b) xi) Comments from the Approval Holder(s) reporting whether each recommendation from Condition ix., above, was accepted, what action has been taken, or justification of why the recommendation has not been accepted.

Recommendations provided in the 2023 Annual Surface and Groundwater Report are actively being considered for implementation during 2024.

In addition to the annual reporting requirements of Section 12 (presented above), the Approval also specifies operating records to be maintained.

Section 15 k) The used oil holding tank at the maintenance building shall be inspected regularly, as per Industry standards. The liquid from the holding tank shall be disposed of

through the services of a licensed used oil collector. The Department shall be advised in writing of the collector and final treatment for this liquid as part of the annual report.

Waste oil was collected by GFL. A summary of the volume collected is included in Appendix G.

Section 15 m) The Approval Holder shall conduct a visual inspection every two years of the RDF leachate collection system using a remote video camera or another method approved by the Department. The findings shall form part of the annual report for the year of inspection.

Video inspection was conducted on June 26th, 2023 and the report is attached in Appendix

3.0 Future Work in 2024

In early 2024, landfill operations will continue in the upper sections of Cell 7A.

- Fill Plan - For 2024, we anticipate completing Cell #7A in late 2024 and entering Cell 7B.
- Major Construction - We anticipate completion of the construction of Cell 7B in 2024.

4.0 Statement of Compliance

On a continuing basis, MIRROR NS and HRM have made all reasonable efforts to maintain compliance with our Approval and operating plans while communicating any issues relating to the approval to construct and operate with NSECC.

5.0 Summary

This report has summarized the operational and developmental aspects of the Otter Lake Solid Waste Management Facility during 2023. This was the twenty fifth year of operation of the facility. Incidents that did occur were managed and measures were put in place to minimize further occurrences.

Appendix A - Surface Water Discharge Summary

SURFACE WATER ANALYSIS 2023

2023	Sample Code	Sample Location	TSS	pH
January	SSP-050123-01	Discharge from the South Sed Pond	8	6.75
January	SW4-120123-01	Discharge from behind the Pumphouse	< 5	7.52
January	FD-120123-02	Discharge from Front Ditch	< 5	6.46
January	NSP-160123-01	Discharge from the North Sed Pond	< 5	6.88
January	SSP-160123-02	Discharge from the South Sed Pond	18	7.14
January	SSP-180123-02	Discharge from the South Sed Pond	< 5	6.69
January	SSP-310123-08	Discharge from the South Sed Pond	< 5	6.54
January	FD-270123-04	Discharge from Front Ditch	< 5	6.70
January	SW4-270123-05	Discharge from behind the Pumphouse	< 5	7.20
January Average			6.8	6.88
2023	Sample Code	Sample Location	TSS	pH
February	SSP-220223-1	Discharge from the South Sed Pond	7	6.66
February	NSP-220223-2	Discharge from the North Sed Pond	10	6.74
February Average			8.5	6.70
2023	Sample Code	Sample Location	TSS	pH
March	SSP-220323-01	Discharge from the South Sed Pond	6	6.53
March	SSP-290323-02	Discharge from the South Sed Pond	6	6.58
March	FD-310323-05	Discharge from Front Ditch	< 5	6.45
March Average			5.7	6.52
2023	Sample Code	Sample Location	TSS	pH
April	SSP-080423-07	Discharge from the South Sed Pond	< 5	6.88
April Average			5.0	6.88
2023	Sample Code	Sample Location	TSS	pH
May	NSP-030523-01	Discharge from the North Sed Pond	< 5	6.67
May	SSP-030523-03	Discharge from the South Sed Pond	< 5	6.68
May	SW4-030523-06	Discharge from behind the Pumphouse	< 5	7.37
May Average			5.0	6.91
2023	Sample Code	Sample Location	TSS	pH
June	NSP-080623-02	Discharge from the North Sed Pond	< 5	6.74
June	SSP-120623-01	Discharge from the South Sed Pond	< 5	6.70
June Average			5.0	6.72
2023	Sample Code	Sample Location	TSS	pH
July	SSP-170723-01	Discharge from the South Sed Pond	< 5	7.40
July	NSP-200723-02	Discharge from the North Sed Pond	< 5	7.95
July	NSP-200723-02	Discharge from the North Sed Pond	12	6.64
July	SSP-310723-01	Discharge from the South Sed Pond	5.92	31.00
July Average			7.0	13.25
2023	Sample Code	Sample Location	TSS	pH
August	SSP-030823-01	Discharge from the South Sed Pond	10	6.56
August	NSP-090823-02	Discharge from the North Sed Pond	< 5	6.90
August	NSP-090823-04	Discharge from the North Sed Pond	9	6.90
August	FD-100823-03	Discharge from Front Ditch	12	7.13

SURFACE WATER ANALYSIS 2023

August	SSP-140823-01	Discharge from the South Sed Pond	10	6.35
August	SSP-190823-01	Discharge from the South Sed Pond	5	6.56
August	SSP-230823-01	Discharge from the South Sed Pond	< 5	6.45
August	NSP-230823-02	Discharge from the North Sed Pond	5	6.88
August	SSP-250823-01	Discharge from the South Sed Pond	14	6.38
August	SW4-310823-02	Discharge from behind the Pumphouse	< 5	6.98
August	FD-310823-03	Discharge from Front Ditch	8	7.06

August Average			8.0	6.74
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2023	Sample Code	Sample Location	TSS	pH
September	NSP-010923-01	Discharge from the North Sed Pond	< 5	7.08
September	SSP-080923-02	Discharge from the South Sed Pond	6	6.50
September	FD-150923-01	Discharge from Front Ditch	8	6.30
September	SW4-150923-02	Discharge from behind the Pumphouse	< 5	6.85
September	SSP-150923-03	Discharge from the South Sed Pond	27	6.37
September	SSP-210923-01	Discharge from the South Sed Pond	12	6.31
September	NSP-210923-03	Discharge from the North Sed Pond	< 5	6.72
September	SSP-250923-01	Discharge from the South Sed Pond	7	6.88
September	SW4-250923-03	Discharge from behind the Pumphouse	1.3	7.68

September Average			1.3	7.68
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2023	Sample Code	Sample Location	TSS	pH
October	SSP-041023-02	Discharge from the South Sed Pond	5.6	7.73
October	FD-191023-02	Discharge from Front Ditch	3.6	7.07
October	NSP-251023-02	Discharge from the North Sed Pond	1.6	7.53
October	SSP-301023-01	Discharge from the South Sed Pond	4.2	7.70

September Average			4.6	7.40
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2023	Sample Code	Sample Location	TSS	pH
November	FD-021123-02	Discharge from Front Ditch	5.6	7.02
November	SW4-021123-04	Discharge from behind the Pumphouse	3.3	7.74
November	FD-091123-03	Discharge from Front Ditch	5.6	6.90
November	SW4-091123-04	Discharge from behind the Pumphouse	2	7.63
November	FD-161123-03	Discharge from Front Ditch	3.54	6.51
November	SW4-161123-04	Discharge from behind the Pumphouse	ND	7.61
November	NSP-201123-01	Discharge from the North Sed Pond	6.24	7.28
November	SSP-231123-02	Discharge from the South Sed Pond	3.6	7.52
November	SW4-231123-04	Discharge from behind the Pumphouse	6.4	7.64
November	FD-231123-05	Discharge from Front Ditch	5.5	6.75
November	SSP-281123-01	Discharge from the South Sed Pond	6.4	7.36
November	NSP-281123-02	Discharge from the North Sed Pond	4.8	7.24

November Average			4.8	7.27
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2023	Sample Code	Sample Location	TSS	pH
December	SSP-041223-01	Discharge from the South Sed Pond	2.6	7.65
December	SSP-091223-01	Discharge from the South Sed Pond	5.6	7.34
December	SSP-RUSH	Discharge from the South Sed Pond	3.6	7.34
December	SSP-211223-02	Discharge from the South Sed Pond	8.6	7.75
December	SW4-281223-01	Discharge from behind the Pumphouse	3	7.54
December	NSP-291223-03	Discharge from the North Sed Pond	5.6	7.44

December Average			4.8	7.51
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Appendix B - NSP/SSP Full Analysis Summary

Standard Water Analysis + Total Metals

Sample Description	Unit	G / S	RDL	CCME	5-Jan	22-Feb	22-Feb	23-Mar	8-Apr	3-May	3-May
				FWALG	050123-01	220223-1	220223-2	300323-01	080423-07	0305230-02	0305230-03
Date Sampled					01/06/2023	12/23/2023	12/23/2023	13/30/2023	14/08/2023	15/03/2023	15/03/2023
Parameter					4661662	4803563	4803564	4893291	4908226	4963061	4963062
pH				6.5-9.0	6.75	6.66	6.74	6.97	6.88	6.67	6.68
Chloride	mg/L		1	120	22	20	4	5	12	3	11
Fluoride	mg/L		0.12		<0.12	<0.12	<0.12	0.25	<0.12	<0.12	<0.12
Sulphate	mg/L		2		9	8	3	7	10	<2	7
Alkalinity	mg/L		5		36	94.7	90	37	65	34	59
Turbidity	NTU		0.5		6.2	7.5	18.5	14.3	3.73	2.66	5.7
Electrical Conductivity	umho/cm		1		183	160	81	76	155	63	155
Nitrate + Nitrite as N	mg/L		0.05		<0.05	0.06	<0.05	0.27	0.18	<0.05	0.06
Nitrate as N	mg/L		0.05	2.935	<0.05	0.06	<0.05	0.27	0.18	<0.05	0.06
Nitrite as N	mg/L		0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia as N	mg/L		0.03	see Note 1	0.04	<0.03	<0.03	<0.03	<0.03	<0.03	0.06
Total Organic Carbon	mg/L		0.5		2.5	1.9	4.9	4.3	3	10	13
Total Sodium	mg/L		0.1		9.5	7.5	2.9	2.7	6.1	2.7	6.6
Total Potassium	mg/L		0.1		2.8	1.9	2.1	1.7	1.8	1.9	2.4
Total Calcium	mg/L		0.1		19.5	16	10	9.1	15.9	6.9	16.3
Total Magnesium	mg/L		0.1		2.6	2.3	1.4	1.2	2.3	1.1	2.5
Bicarb. Alkalinity (as CaCO3)	mg/L		5		36	94.7	90	37	65	34	59
Carb. Alkalinity (as CaCO3)	mg/L		10		<10	<10	<10	<10	<10	<10	<10
Hydroxide	mg/L		5		<5	<5	<5	<5	<5	<5	<5
Calculated TDS	mg/L		1		90	115	79	51	89	36	82
Hardness	mg/L				59.4	49.4	30.7	27.7	49.2	21.8	51
Langelier Index (@20C)	NA				-1.99	-1.75	-1.88	-2.06	-1.69	-2.5	-1.92
Langelier Index (@ 4C)	NA				-2.31	-2.07	-2.2	-2.38	-2.01	-2.82	-2.24
Saturation pH (@ 20C)	NA				8.74	8.41	8.62	9.03	8.57	9.17	8.6
Saturation pH (@ 4C)	NA				9.06	8.73	8.94	9.35	8.89	9.49	8.92
Anion Sum	me/L				1.53	2.63	1.98	1.05	1.86	0.76	1.64
Cation sum	me/L				1.95	1.5	0.92	0.76	1.35	0.62	1.44
% Difference/ Ion Balance	%				12	27.5	36.4	15.9	16	10.4	6.5
Total Aluminum	ug/L		5	5-100	2310	928	869	320	343	146	512
Total Antimony	ug/L		2		<2	<2	<2	<2	<2	<2	<2
Total Arsenic	ug/L		2	5	<2	<2	<2	<2	<2	<2	<2
Total Barium	ug/L		5		35	24	20	12	16	7	19
Total Beryllium	ug/L		2		<2	<2	<2	<2	<2	<2	<2
Total Bismuth	ug/L		2		<2	<2	<2	<2	<2	<2	<2
Total Boron	ug/L		5	1500	9	<8	<8	12	9	6	10
Total Cadmium	ug/L		0.09	see Note 2	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
Total Chromium	ug/L		1	1	<1	<2	<2	<2	<2	<2	<2
Total Cobalt	ug/L		1		<1	<1	<1	<1	<1	<1	<1
Total Copper	ug/L		1	see Note 3	<1	2	3	2	<2	<2	<2
Total Iron	ug/L		50	300	203	254	769	248	221	93	213
Total Lead	ug/L		0.5	Note 4	<0.5	<0.5	1	<0.5	<0.5	<0.5	<0.5
Total Manganese	ug/L		2		149	518	22	7	169	6	96
Total Molybdenum	ug/L		2	73	<2	<2	<2	<2	<2	<2	<2
Total Nickel	ug/L		2	Note 5	<2	<2	<2	<2	6	<2	<2
Total Phosphorous	mg/L		0.02		0.09	0.57	1.06	0.4	0.21	0.09	0.39
Total Selenium	ug/L		1	1	<1	<1	<1	<1	<1	<1	<1
Total Silver	ug/L		0.1	0.25	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Strontium	ug/L		5		49	41	23	21	44	14	44
Total Thallium	ug/L		0.1	0.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Tin	ug/L		2		<2	<2	<2	<2	<2	<2	<2
Total Titanium	ug/L		2		6	5	21	6	<3	<3	8
Total Uranium	ug/L		0.2	15	0.3	0.2	0.7	0.4	0.4	0.3	0.2
Total Vanadium	ug/L		2		<2	<2	<2	<2	<2	<2	<2
Total Zinc	ug/L		5	30	<5	28	14	<5	21	<5	<5
				50							
				(see Note 6)							
Total Suspended Solids	mg/L		5		8	7	10	<5	<5	<5	<5
				25							
				(see Note 6)							

Comments:

3407365

RDL - Reported Detection Limit; G / S - Guideline / Standard

% Difference / Ion Balance, Hardness, Langelier Index, Nitrate + Nitrite, Hydroxide and Saturation pH are calculated param

8-Jun NSP- 080623- 02	12-Jun SSP - 120623 - 01	17-Jul SSP- 170723- 01	20-Jul NSP- 200723- 02	20-Jul NSP- 200723- 02	3-Aug SSP- 030823- 01
5050211	5062241	5150835	5155138	5155133	5191502
6.74	6.7	7.4	7.95	6.64	6.56
7	13	8	10	4	19
0.19	<0.12	<0.12	<0.12	<0.12	<0.12
3	7	5	71	2	7
29	43	58	349	38	36
3.5	5.14	146	<0.50	11.7	7.15
91	158	<0.05	891	103	156
0.05	<0.05	<0.05	1.56	<0.05	<0.05
<0.05	<0.05	<0.05	1.56	<0.05	<0.05
0.05	<0.05	<0.03	<0.05	<0.05	<0.05
7.92	<0.03	6.1	<0.03	<0.03	<0.03
14.5	11.4	<0.01	3	13.7	5.7
65.7	5.8	3.3	96.9	2.5	7
4.1	2.9	19.5	4.7	3.4	3.7
89.5	17	2.8	93.4	14.7	17.5
15.8	2.6	58	16.8	1.7	2
29	43	<10	349	38	36
<10	<10	<5	<10	<10	<10
<5	<5	78	<5	<5	<5
213	75	60.2	509	52	80
289	53.2	-1.12	302	43.7	51.9
-1.47	-2.01	-1.44	0.81	-2.17	-2.22
-1.79	-2.33	8.52	0.49	-2.49	-2.54
8.21	8.71	8.84	7.14	8.81	8.78
8.53	9.03	1.49	7.46	9.13	9.1
0.84	1.37	1.5	8.85	0.91	1.4
9.3	1.44	0.3	10.4	1.1	1.56
83.4	2.3	214	8	9.3	5.2
13	340	<2	51	79	680
<2	<2	<2	<2	<2	<2
3	<2	20	3	4	4
85	20	<2	104	18	30
<2	<2	<2	<2	<2	<2
<2	<2	16	<2	<2	<2
89	<5	<0.09	83	18	25
<0.09	<0.09	<2	<0.09	<0.09	<0.09
<2	<2	<1	<2	9	<2
<1	<1	<2	<1	<1	<1
7	<2	54	4	3	<2
<50	181	<0.5	<50	395	340
<0.5	<0.5	134	<0.5	<0.5	<0.5
<2	108	<2	2	216	839
<2	<2	<2	3	<2	<2
2	<2	0.28	<2	<2	<2
2.6	0.27	<1	3.55	0.29	1.17
<1	<1	<0.1	<1	<1	<1
<0.1	<0.1	55	<0.1	<0.1	<0.1
452	50	<0.1	500	35	46
<0.1	<0.1	<2	<0.1	<0.1	<0.1
<2	<2	<3	<2	<2	<2
<3	4	0.7	<3	<3	10
17.7	0.4	<2	30.6	0.5	0.3
<2	<2	<5	<2	<2	<2
<5	<5	<5	9	10	13
<5	<5		<5	12	10

eters. The calculated parameters are non-accredited. The componer

Standard Water Analysis + Total Metals

Sample Description	NSP-090832-04
Date Sampled	08/09/2023
Parameter	5204407
pH	6.9
Reactive Silica as SiO2	2.4
Chloride	2
Fluoride	<0.12
Sulphate	<2
Alkalinity	31
True Color	57.6
Turbidity	14.3
Electrical Conductivity	80
Nitrate + Nitrite as N	<0.05
Nitrate as N	<0.05
Nitrite as N	<0.05
Ammonia as N	<0.03
Total Organic Carbon	11.3
Ortho-Phosphate as P	0.13
Total Sodium	1.7
Total Potassium	3.8
Total Calcium	11.3
Total Magnesium	1.3
Bicarb. Alkalinity (as CaCO3)	31
Carb. Alkalinity (as CaCO3)	<10
Hydroxide	<5
Calculated TDS	41
Hardness	33.6
Langelier Index (@20C)	-2.1
Langelier Index (@ 4C)	-2.42
Saturation pH (@ 20C)	9
Saturation pH (@ 4C)	9.32
Anion Sum	0.68
Cation sum	0.97
% Différence/ Ion Balance	17.8
Total Aluminum	818
Total Antimony	<2
Total Arsenic	4
Total Barium	20
Total Beryllium	<2
Total Bismuth	<2
Total Boron	<5
Total Cadmium	<0.09
Total Chromium	<2
Total Cobalt	<1
Total Copper	4
Total Iron	718
Total Lead	<0.5
Total Manganese	270
Total Molybdenum	<2
Total Nickel	<2
Total Phosphorous	1.4
Total Selenium	<1
Total Silver	<0.1
Total Strontium	25
Total Thallium	<0.1
Total Tin	<2
Total Titanium	22
Total Uranium	0.7
Total Vanadium	<2
Total Zinc	<5
Total Suspended Solids	9

Mirror Nova Scotia Ltd

ELEMENTS BY ICP/MS (WATER)			4-Oct	25-Oct	23-Nov	28-Nov	4-Dec	9-Dec	21-Dec	29-Dec
Bureau Veritas ID			XFC356	XKH749	XRW985	XTC083	XUP670	XVT496	XYU061	XZQ482
Sampling Date			2023/10/05 12:05	2023/10/25 15:30	2023/11/23 10:20	2023/11/28 10:00	2023/12/04 17:15	2023/12/09 07:30	2023/12/21 16:30	2023/12/29 08:00
COC Number			N/A	790743	806719	N/A	N/A	C#967058-02-01	N/A	N/A
	UNITS	RDL	SSP - 041023 - 02	NSP - 251023 - 02	SSP - 231123 - 02	NSP-281123-02	SSP 041223-01	SSP-091223-03	SSP-211223-02	NSP-291223 -03
Metals										
Total Aluminum (Al)	ug/L	5.0	340	170	310	400	490	710	720	500
Total Antimony (Sb)	ug/L	1.0	ND	ND	ND	ND	ND	ND	ND	ND
Total Arsenic (As)	ug/L	1.0	1.3	1.7	ND	1.4	ND	ND	ND	1.4
Total Barium (Ba)	ug/L	1.0	37	17	32	18	47	56	41	17
Total Beryllium (Be)	ug/L	0.10	ND	ND	ND	ND	ND	ND	ND	ND
Total Bismuth (Bi)	ug/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND
Total Boron (B)	ug/L	50	ND	ND	ND	ND	ND	ND	ND	ND
Total Cadmium (Cd)	ug/L	0.010	ND	ND	ND	ND	0.017	0.016	0.011	ND
Total Calcium (Ca)	ug/L	100	25000	15000	21000	12000	22000	25000	26000	10000
Total Chromium (Cr)	ug/L	1.0	ND	ND	ND	ND	ND	ND	ND	ND
Total Cobalt (Co)	ug/L	0.40	ND	ND	ND	ND	ND	ND	ND	ND
Total Copper (Cu)	ug/L	0.50	1.6	2.7	1.3	2.8	0.62	0.86	1.1	2.2
Total Iron (Fe)	ug/L	50	220	270	190	450	69	290	400	420
Total Lead (Pb)	ug/L	0.50	ND	3.0	ND	0.62	ND	ND	ND	0.51
Total Magnesium (Mg)	ug/L	100	3000	1500	2600	1400	2600	2800	3100	1200
Total Manganese (Mn)	ug/L	2.0	200	19	100	18	170	310	280	22
Total Molybdenum (Mo)	ug/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND
Total Nickel (Ni)	ug/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND
Total Phosphorus (P)	ug/L	100	ND	110	ND	ND	ND	ND	ND	ND
Total Potassium (K)	ug/L	100	3800	2900	3100	3300	3000	3400	3100	3000
Total Selenium (Se)	ug/L	0.50	ND	ND	ND	ND	ND	ND	ND	ND
Total Silver (Ag)	ug/L	0.10	ND	ND	ND	ND	ND	ND	ND	ND
Total Sodium (Na)	ug/L	100	7600	3200	7800	2700	13000	13000	10000	2600
Total Strontium (Sr)	ug/L	2.0	58	29	52	24	55	64	66	22
Total Thallium (Tl)	ug/L	0.10	ND	ND	ND	ND	ND	ND	ND	ND
Total Tin (Sn)	ug/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND
Total Titanium (Ti)	ug/L	2.0	4.9	8.2	6.0	12	ND	7.3	11	13
Total Uranium (U)	ug/L	0.10	0.32	0.52	0.10	0.59	ND	ND	0.31	0.53
Total Vanadium (V)	ug/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND
Total Zinc (Zn)	ug/L	5.0	ND	5.4	8.9	5.6	ND	ND	ND	ND
Calculated Parameters										
Anion Sum	me/L	N/A	1.82	0.950	1.63	0.950	2.01	2.13	2.05	0.700
Bicarb. Alkalinity (calc. as CaCO ₃)	mg/L	1.0	44	38	39	39	21	28	44	25
Calculated TDS	mg/L	1.0	110	53	94	50	120	130	120	41
Carb. Alkalinity (calc. as CaCO ₃)	mg/L	1.0	ND	ND	ND	ND	ND	ND	ND	ND
Cation Sum	me/L	N/A	1.95	1.08	1.70	0.920	1.95	2.14	2.11	0.830
Hardness (CaCO ₃)	mg/L	1.0	76	43	64	35	65	74	78	31
Ion Balance (% Difference)	%	N/A	3.45	6.40	2.10	1.60	1.52	0.230	1.44	8.50
Langelier Index (@ 20C)	N/A		-0.570	-1.03	-0.902	-1.41	-1.05	-1.17	-0.540	-1.44
Langelier Index (@ 4C)	N/A		-0.820	-1.28	-1.15	-1.66	-1.30	-1.43	-0.791	-1.70
Nitrate (N)	mg/L	0.050	0.13	ND	0.19	0.10	0.33	0.25	0.28	ND
Saturation pH (@ 20C)	N/A		8.30	8.56	8.42	8.65	8.70	8.52	8.29	8.88
Saturation pH (@ 4C)	N/A		8.55	8.82	8.67	8.90	8.95	8.77	8.54	9.14
Inorganics										
Total Alkalinity (Total as CaCO ₃)	mg/L	2.0	44	39	39	39	21	28	44	25
Dissolved Chloride (Cl ⁻)	mg/L	1.0	24	6.3	22	5.5	46	44	29	5.4
Colour	TCU	5.0	10	69	ND	66	ND	ND	7.6	47
Nitrate + Nitrite (N)	mg/L	0.050	0.13	ND	0.19	0.10	0.33	0.27	0.28	ND
Nitrite (N)	mg/L	0.010	ND	ND	ND	ND	ND	0.015	ND	ND
Nitrogen (Ammonia Nitrogen)	mg/L	0.050	0.056	ND	0.079	0.077	0.072	0.11	0.14	0.077
Total Organic Carbon (C)	mg/L	0.50	4.4	11	2.7	8.8	1.3	1.9	2.3	6.4
Orthophosphate (P)	mg/L	0.010	ND	0.027	ND	0.045	ND	0.011	ND	0.025
pH	pH		7.73	7.53	7.52	7.24	7.65	7.34	7.75	7.44
Reactive Silica (SiO ₂)	mg/L	0.50	4.3	1.4	2.6	0.98	2.9 (1)	3.3	3.6	0.73
Total Suspended Solids	mg/L	1.0	5.6	1.6	3.6	4.8	2.6	5.6	8.6	5.6
Dissolved Sulphate (SO ₄)	mg/L	2.0	12	ND	11	ND	14	15	15	2.0
Turbidity	NTU	0.10	3.6	3.6	8.1	14	1.7	7.4	14	11
Conductivity	uS/cm	1.0	200	110	210	100	260	270	240	93

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

ND = Not Detected at a concentration equal or greater than the indicated Detection Limit

Appendix C - Leak Detection Analysis Results

2023 Standard Water Analysis + Metals (Total)
Leak Detection 2023

CELL #1

Parameter	Unit	G / S	RDL	CCME	7-Jan	2-Feb	2-Mar	6-Apr	11-May
				FWALG	LD1-020223-01	LD1-020223-02	LD1-020223-03	LD1-020223-04	LD1-110523-05
Reactive Silica as SiO2	mg/L	0.5		6.5-9.0	7.79	7.74	7.65	7.67	7.36
Chloride	mg/L	1		120	8.4	9.4	8.8	7.4	8.1
Fluoride	mg/L	0.12			25	8	14	8	12
Sulphate	mg/L	2			<0.12	<0.12	<0.12	<0.12	<0.12
Alkalinity	mg/L	5			46	17	22	13	16
True Color	TCU	5			331	299	373	367	406
Turbidity	NTU	0.1			5.98	<5.00	<5.00	<5.00	12.9
Electrical Conductivity	umho/cm	1			0.8	25.2	0.8	<0.50	<0.50
Nitrate + Nitrite as N	mg/L	0.05			705	581	636	682	729
Nitrate as N	mg/L	0.05		2,935	1.94	0.7	1.58	0.81	1.24
Nitrite as N	mg/L	0.05		0.06	1.94	0.7	1.58	0.81	1.24
Ammonia as N	mg/L	0.03		see Note 1	<0.05	<0.05	<0.05	<0.05	<0.05
Total Organic Carbon	mg/L	0.5			<0.03	0.11	<0.03	<0.03	<0.03
Ortho-Phosphate as P	mg/L	0.01			4.3	3.2	3	3.1	91
Total Sodium	mg/L	0.1			0.01	0.03	0.02	0.04	0.01
Total Potassium	mg/L	0.1			50	27	18.9	20.7	22.7
Total Calcium	mg/L	0.1			5.8	4.9	5	4.8	5.1
Total Magnesium	mg/L	0.1			95.4	87.7	95	93.4	112
Bicarb. Alkalinity (as CaCO3)	mg/L	5			10.3	9.5	9.6	9	9.9
Carb. Alkalinity (as CaCO3)	mg/L	10			331	299	373	367	406
Hydroxide	mg/L	5			<10	<10	<10	<10	<10
Calculated TDS	mg/L	1			<5	<5	<5	<5	<5
Hardness	mg/L				440	337	395	373	427
Langgeller Index (@20C)	NA				281	258	270	270	320
Langgeller Index (@4C)	NA				0.64	0.52	0.55	0.56	0.37
Saturation pH (@20C)	NA				0.32	0.2	0.23	0.24	0.05
Saturation pH (@4C)	NA				7.15	7.22	7.1	7.11	6.99
Anion Sum	me/L				8.42	6.61	8.43	7.89	8.88
Cation sum	me/L				7.94	6.47	6.5	6.43	7.53
% Difference/ Ion Balance (NS)	%				2.9	1.1	12.9	10.2	8.2
Total Aluminum	ug/L	5		5-100	<5	7	89	18	21
Total Antimony	ug/L	2			<2	<2	<2	<2	<2
Total Arsenic	ug/L	2			3	3	3	2	3
Total Barium	ug/L	5			90	71	82	79	93
Total Beryllium	ug/L	2			<2	<2	<2	<2	<2
Total Bismuth	ug/L	2			<2	<2	<2	<2	<2
Total Boron	ug/L	5		1500	32	27	33	32	42
Total Cadmium	ug/L	0.017		see Note 2	<0.09	<0.09	<0.09	<0.09	<0.09
Total Chromium	ug/L	1			<1	<1	<1	<1	<1
Total Cobalt	ug/L	1			<1	<1	<1	<1	<1
Total Copper	ug/L	1		see Note 3	4	3	4	4	4
Total Iron	ug/L	50			79	<50	63	<50	<50
Total Lead	ug/L	0.5		Note 4	<0.5	<0.5	<0.5	<0.5	<0.5
Total Manganese	ug/L	2			<2	<2	6	<2	<2
Total Molybdenum	ug/L	2		73	<2	<2	<2	<2	<2
Total Nickel	ug/L	2		Note 5	7	<2	3	23	2
Total Phosphorous	mg/L	0.02			0.06	1.6	1.57	1.23	1.38
Total Selenium	ug/L	1			1	<1	<1	<1	<1
Total Silver	ug/L	0.1		0.25	<0.1	<0.1	<0.1	<0.1	<0.1
Total Strontium	ug/L	5			258	246	248	247	264
Total Thallium	ug/L	0.1		0.8	<0.1	<0.1	<0.1	<0.1	<0.1
Total Tin	ug/L	2			<2	<2	<2	<2	<2
Total Titanium	ug/L	2			<2	<2	<3	<3	<3
Total Uranium	ug/L	0.1		15	3.4	2.1	1.7	2	2
Total Vanadium	ug/L	2			<2	<2	<2	<2	<2
Total Zinc	ug/L	5		30	<5	6	17	11	8
Total Suspended Solids	mg/L	5		see Note 5	<5	<5	<5	<5	<5

Comments: RDL - Reported Detection (see Note 6)

2023 Standard Water Analysis + Metals (Total)
Leak Detection 2023

CELL #3	Parameter	Unit	G / S	RDL	7-Jan	2-Feb	2-Mar	6-Apr	11-May
	CCME				LD3- 070123-02	LD3- 020223- 03	LD3- 020323-02	LD3- 060423-02	LD3 - 110523 - 02
	FWALG				01/07/2023 02/02/2023 03/02/2023 04/06/2023 05/11/2023	4739431	4816482	4808222	4879898
					7.55	7.42	7.73	7.39	7.35
	Reactive Silica as SiO2	mg/L	0.5		7.1	8.6	7.2	6.3	7.6
	Chloride	mg/L	1		28	9	17	11	15
	Fluoride	mg/L	0.12		<0.12	<0.12	<0.12	<0.12	<0.12
	Sulphate	mg/L	2		53	23	40	24	33
	Alkalinity	mg/L	5		296	291	358	301	331
	TCU	mg/L	5		8.23	5.43	9.92	7.49	5.65
	True Color	NTU	0.1		1.4	<0.5	1.5	1.36	<0.5
	Turbidity	umho/cm	1		700	611	642	619	676
	Electrical Conductivity	mg/L	0.05		2.61	1.26	1.2	0.67	1.04
	Nitrate + Nitrite as N	mg/L	0.05		2.935	1.26	1.2	0.67	1.04
	Nitrate as N	mg/L	0.05		0.06	<0.05	<0.05	<0.05	<0.05
	Nitrite as N	mg/L	0.03		<0.03	<0.03	<0.03	<0.03	<0.03
	Ammonia as N	mg/L	0.5		6.4	5.3	6.7	5.8	8.0
	Total Organic Carbon	mg/L	0.01		0.01	0.02	0.02	0.04	0.01
	Ortho-Phosphate as P	mg/L	0.1		66	59	64.5	46.9	56
	Total Sodium	mg/L	0.1		6.3	5.8	5.4	4.9	5.6
	Total Potassium	mg/L	0.1		73.1	69.5	62.5	61.7	70.6
	Total Calcium	mg/L	0.1		9	9	8.2	8	9.1
	Total Magnesium	mg/L	0.1		655	291	358	301	331
	Bicarb. Alkalinity (as CaCO3)	mg/L	5		296	<10	<10	<10	<10
	Carb. Alkalinity (as CaCO3)	mg/L	10		<5	<5	<5	<5	<5
	Hydroxide	mg/L	5		425	356	418	340	393
	Calculated TDS	mg/L	1		220	211	190	187	214
	Hardness	mg/L			0.24	0.08	0.43	0.02	0.07
	Langelier Index (@20C)	NA			-0.08	-0.24	0.11	-0.3	-0.25
	Langgeller Index (@ 4C)	NA			7.31	7.34	7.3	7.37	7.28
	Saturation pH (@ 20C)	NA			7.63	7.66	7.62	7.69	7.6
	Saturation pH (@ 4C)	NA			7.43	6.93	6.75	5.91	6.87
	Anion Sum	me/L			3.7	2.1	11.8	7.5	6.4
	Cation sum	me/L			6	14	63	55	54
	% Difference/ Ion Balance (NS)	%			2	<2	<2	<2	<2
	Total Aluminum	ug/L	5		2	2	2	3	2
	Total Antimony	ug/L	2		57	52	44	46	53
	Total Arsenic	ug/L	2		<2	<2	<2	<2	<2
	Total Barium	ug/L	5		<2	<2	<2	<2	<2
	Total Barium	ug/L	5		67	57	62	51	69
	Total Beryllium	ug/L	2		<0.09	<0.09	<0.09	<0.09	<0.09
	Total Bismuth	ug/L	2		<1	<1	<1	<1	<1
	Total Boron	ug/L	5		<1	<1	<1	<1	<1
	Total Cadmium	ug/L	0.017		5	5	5	5	5
	Total Chromium	ug/L	1		112	<50	109	73	149
	Total Cobalt	ug/L	1		<0.5	<0.5	<0.5	<0.5	<0.5
	Total Copper	ug/L	1		6	5	3	4	22
	Total Iron	ug/L	1		<2	<2	<2	<2	<2
	Total Lead	ug/L	50		73	3	2	8	<2
	Total Lead	ug/L	0.5		0.07	1.6	1.25	1.07	1.29
	Total Manganese	ug/L	2		0.25	<0.1	<0.1	<0.1	<0.1
	Total Molybdenum	ug/L	2		278	289	301	282	323
	Total Nickel	ug/L	2		<0.1	<0.1	<0.1	<0.1	<0.1
	Total Phosphorous	ug/L	0.02		<2	<2	<2	<2	<2
	Total Selenium	ug/L	1		<2	<2	<2	<2	<2
	Total Silver	ug/L	0.1		15	9	16.3	10.8	13.7
	Total Strontium	ug/L	5		30	7	7	9	6
	Total Thallium	ug/L	0.1		<2	<2	<2	<2	<2
	Total Tin	ug/L	2		14.2	9	16.3	10.8	13.7
	Total Titanium	ug/L	2		<2	<2	<2	<2	<2
	Total Uranium	ug/L	0.1		9	7	7	9	6
	Total Vanadium	ug/L	2		<2	<2	<2	<2	<2
	Total Zinc	ug/L	5		<5	<5	<5	<5	<5
	Total Suspended Solids	mg/L	5		<5	<5	<5	<5	<5

RDL - Reported Detection Limit:
(see Note 6)

Comments:
(see Note 6)

2023 Standard Water Analysis + Metals (Total)
Leak Detection 2023

CELL #4	Parameter	Unit	G / S	RDL	CCME FWALG	7-Jan LD4- 070123- 03 04	2-Feb LD4- 020223- 04
	pH				6.5-9.0	8.23	8.24
	Reactive Silica as SiO2	mg/L		0.5		8.6	11.4
	Chloride	mg/L	1		120	25	10
	Fluoride	mg/L	0.12			0.17	0.17
	Sulphate	mg/L	2			178	126
	Alkalinity	mg/L	5			430	425
	True Color	TCU	5			26.2	<5.00
	Turbidity	NTU	0.1			4.2	1.8
	Electrical Conductivity	umho/cm	1			1265	1070
	Nitrate + Nitrite as N	mg/L	0.05			2.53	1.36
	Nitrate as N	mg/L	0.05		2.935	2.53	1.36
	Nitrite as N	mg/L	0.05		0.06	<0.05	<0.05
	Ammonia as N	mg/L	0.03		see Note 1	<0.03	0.09
	Total Organic Carbon	mg/L	0.5			12.7	10.2
	Ortho-Phosphate as P	mg/L	0.01			0.02	0.06
	Total Sodium	mg/L	0.1			298	195
	Total Potassium	mg/L	0.1			5	5
	Total Calcium	mg/L	0.1			66.7	53.8
	Total Magnesium	mg/L	0.1			18.1	16
	Bicarb. Alkalinity (as CaCO3)	mg/L	5			430	425
	Carb. Alkalinity (as CaCO3)	mg/L	10			<10	<10
	Hydroxide	mg/L	5			<5	<5
	Calculated TDS	mg/L	1			861	667
	Hardness	mg/L				241	200
	Langelier Index (@20C)	NA				1.01	0.93
	Langelier Index (@4C)	NA				0.69	0.61
	Saturation pH (@ 20C)	NA				7.22	7.31
	Saturation pH (@ 4C)	NA				7.54	7.63
	Anion Sum	me/L				17.9	12.6
	Cation sum	me/L				16.2	4.6
	% Difference/ Ion Balance (NS)	%				57	27
	Total Aluminum	ug/L	5		5-100	3	<2
	Total Antimony	ug/L	2			29	31
	Total Arsenic	ug/L	2		5	27	28
	Total Barium	ug/L	5			<2	<2
	Total Beryllium	ug/L	2			<2	<2
	Total Bismuth	ug/L	2			117	105
	Total Boron	ug/L	5		1500	<0.09	<0.09
	Total Cadmium	ug/L	0.017		see Note 2	1	<1
	Total Chromium	ug/L	1		1	<1	<1
	Total Cobalt	ug/L	1		see Note 3	3	2
	Total Copper	ug/L	1		300	478	<50
	Total Iron	ug/L	50		Note 4	0.9	<0.5
	Total Lead	ug/L	0.5			3	<2
	Total Manganese	ug/L	2		73	10	9
	Total Molybdenum	ug/L	2		Note 5	3	<2
	Total Nickel	ug/L	2			0.11	2.1
	Total Phosphorous	mg/L	0.02			13	<1
	Total Selenium	ug/L	1		1	<0.1	<0.1
	Total Silver	ug/L	0.1		0.25	436	414
	Total Strontium	ug/L	5		0.8	<0.1	<0.1
	Total Thallium	ug/L	0.1			<2	<2
	Total Tin	ug/L	2			<2	<2
	Total Titanium	ug/L	2			97	50
	Total Uranium	ug/L	0.1		15	<2	<2
	Total Vanadium	ug/L	2			<2	<2
	Total Zinc	ug/L	5		30	10	8
	Total Suspended Solids	mg/L	5		(see Note)	<5	<5

2023 Standard Water Analysis + Metals (Total)
Leak Detection 2023

CELL #5	Parameter	Unit	G / S	RDL	7-Jan LD5 - 070123-04	2-Feb LD5 - 020223 - 05	2-Mar LD5 - 020323-03	6-Apr LD5 - 060423-04	11-May LD5 - 110523 - 03
	Reactive Silica as SiO2	mg/L	0.5		8.21	8.21	8.19	8.07	8.1
	Chloride	mg/L	1		20.9	24.3	22.9	22.4	23.5
	Fluoride	mg/L	0.12		33	9	28	20	20
	Sulphate	mg/L	2		0.21	<0.12	0.17	0.17	<0.12
	Alkalinity	mg/L	5		68	21	62	45	47
	True Color	TCU	5		327	335	434	399	428
	Turbidity	NTU	0.1		6.97	5.39	6.78	5.49	<5.00
	Electrical Conductivity	umho/cm	1		1.4	2.1	5.8	5.89	3.58
	Nitrate + Nitrite as N	mg/L	0.05		806	782	857	869	904
	Nitrate as N	mg/L	0.05		6.54	2.3	5.69	2.69	3.86
	Nitrite as N	mg/L	0.05		6.54	2.3	5.69	2.69	3.86
	Ammonia as N	mg/L	0.03		<0.05	<0.05	<0.05	<0.05	<0.05
	Total Organic Carbon	mg/L	0.03		<0.03	<0.03	<0.03	<0.03	<0.03
	Ortho-Phosphate as P	mg/L	0.5		6.5	6.3	7	7.9	103
	Total Sodium	mg/L	0.01		0.03	0.04	0.03	0.02	0.02
	Total Potassium	mg/L	0.1		118	112	118	116	117
	Total Calcium	mg/L	0.1		4	4.4	3.8	3.6	4
	Total Magnesium	mg/L	0.1		44.8	47.2	47.1	42.4	55.8
	Bicarb. Alkalinity (as CaCO3)	mg/L	5		21.3	25.4	23.5	21.4	25.9
	Carb. Alkalinity (as CaCO3)	mg/L	10		327	335	434	399	428
	Hydroxide	mg/L	5		<10	<10	<10	<10	<10
	Calculated TDS	mg/L	5		<5	<5	<5	<5	<5
	Hardness	mg/L	1		514	432	569	500	544
	Langelier Index (@20C)	NA			0.72	0.76	0.84	0.64	0.82
	Langelier Index (@4C)	NA			0.4	0.44	0.52	0.32	0.5
	Saturation pH (@20C)	NA			7.49	7.45	7.35	7.43	7.28
	Saturation pH (@4C)	NA			7.81	7.77	7.67	7.75	7.6
	Anion Sum	me/L			9.35	7.56	11.2	9.67	10.4
	Cation sum	me/L			9.22	9.57	9.55	9.04	10.1
	% Difference/ Ion Balance (NS)	%			0.7	11.8	7.8	3.4	1.2
	Total Aluminum	ug/L	5		19	1050	268	188	237
	Total Antimony	ug/L	2		<2	<2	<2	<2	<2
	Total Arsenic	ug/L	2		4	4	3	3	3
	Total Barium	ug/L	5		37	45	45	38	50
	Total Beryllium	ug/L	2		<2	<2	<2	<2	<2
	Total Bismuth	ug/L	2		<2	<2	<2	<2	<2
	Total Boron	ug/L	5		93	96	97	100	110
	Total Cadmium	ug/L	0.017		<0.09	<0.09	<0.09	<0.09	<0.09
	Total Chromium	ug/L	1		2	2	2	2	2
	Total Cobalt	ug/L	1		<1	<1	<1	<1	<1
	Total Copper	ug/L	1		2	2	3	2	2
	Total Iron	ug/L	50		86	796	200	247	167
	Total Lead	ug/L	0.5		<0.5	0.6	<0.5	<0.5	<0.5
	Total Manganese	ug/L	2		5	21	11	12	8
	Total Molybdenum	ug/L	2		4	4	2	3	3
	Total Nickel	ug/L	2		4	2	<2	54	<2
	Total Phosphorous	mg/L	0.02		0.08	5.1	3.89	3.73	4.42
	Total Selenium	ug/L	1		5	<1	<1	<1	<1
	Total Silver	ug/L	0.1		0.25	<0.1	<0.1	<0.1	<0.1
	Total Strontium	ug/L	5		259	296	301	272	330
	Total Thallium	ug/L	0.1		0.8	<0.1	<0.1	<0.1	<0.1
	Total Tin	ug/L	2		<2	<2	<2	<2	<2
	Total Titanium	ug/L	2		<2	30	4	4	4
	Total Uranium	ug/L	0.1		14.6	11.7	12.6	13	14.9
	Total Vanadium	ug/L	2		<2	2	<2	<2	<2
	Total Zinc	ug/L	5		6	11	14	127	16
	Total Suspended Solids	mg/L	5		<5	8	6	<5	<5
					25				
	Total Organic Carbon	mg/L	0.5						

(see Note 25)
(see Note 6)
RDL - Reported Detection Limit, G / S - Guideline / Standard
Comments:

2023 Standard Water Analysis + Metals (Total)
Leak Detection 2023

Parameter	Unit	G/S	RDL	CELL #6 (Start date 22 Oct 2012)													
				7-Jan	12-Jan	27-Jan	2-Feb	9-Feb	16-Feb	2-Mar	25-Feb	9-Mar	16-Mar	23-Mar	31-Mar	6-Apr	13-Apr
pH				7.91	7.85	7.99	8.07	8.08	8.07	8.06	8.22	8.06	7.88	8.06	8.11	8.02	7.85
Reactive Silica as SiO2	mg/L		0.5	20.9	19.1	22	29.9	26.5	23.8	22.6	22.2	23.3	22	22.2	22.4	22.7	21.8
Chloride	mg/L		1	14	11	9	4	9	9	11	33	14	10	6	9	8	11
Fluoride	mg/L		0.12	<0.12	0.13	0.17	<0.12	0.2	<0.12	0.16	0.12	0.14	0.18	<0.12	<0.12	0.12	0.14
Sulphate	mg/L		2	65	49	40	40	37	41	50	41	30	46	24	38	38	40
Alkalinity	mg/L		5	655	652	624	645	650	650	689	675	636	603	631	658	671	658
True Color	TCU		5	<5.00	<5.00	35.9	<5.00	<5.00	<5.00	<5.00	7.19	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Turbidity	NTU		0.1	1.4	4.9	27.8	18.8	<0.5	1.3	11.1	1.5	<0.5	11.9	1.8	3.4	0.71	<0.50
Electrical Conductivity	umho/cm		1	1247	1440	1160	1150	1160	1250	1150	1270	1200	1160	1110	1170	1200	1150
Nitrate + Nitrite as N	mg/L		0.05	0.32	0.51	0.69	<0.05	0.65	<0.05	0.75	0.3	0.12	0.08	0.08	0.12	0.09	0.12
Nitrate as N	mg/L		0.05	0.32	0.51	0.58	<0.05	0.65	<0.05	0.7	0.17	0.12	0.08	0.08	0.12	0.09	0.12
Nitrite as N	mg/L		0.05	<0.05	<0.05	0.11	<0.05	<0.05	<0.05	0.05	0.13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia as N	mg/L		0.03	<0.03	<0.03	0.12	<0.03	<0.03	<0.03	<0.03	<0.03	0.18	<0.03	0.49	<0.03	<0.03	<0.03
Total Organic Carbon	mg/L		0.5	4.2	12.6	6.8	3.8	16.8	3.7	3.6	6.2	4	3.8	3.6	3.8	4	4.2
Ortho-Phosphate as P	mg/L		0.01	0.02	0.03	0.03	0.01	0.03	0.03	0.03	0.03	0.03	0.02	0.04	0.03	0.02	0.03
Total Sodium	mg/L		0.1	177	156	161	167	168	165	159	154	412	165	151	150	151	150
Total Potassium	mg/L		0.1	5.2	4.9	5.1	5.2	5.4	5.4	4.9	5.7	5.2	5.1	4.5	4.8	4.6	4.7
Total Calcium	mg/L		0.1	112	108	91.9	94	104	107	92.9	104	254	86.3	86.5	94.4	88.5	97.6
Total Magnesium	mg/L		0.1	24.1	24.3	24.4	24.8	25.3	25.8	24.4	26.9	26.4	24.9	23.5	24.7	23.2	24.5
Bicarb. Alkalinity (as CaCO3)	mg/L		5	655	652	624	645	660	660	689	675	636	603	631	658	671	658
Carb. Alkalinity (as CaCO3)	mg/L		10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hydroxide	mg/L		5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Calculated TDS	mg/L		1	792	747	710	702	748	789	760	771	1120	671	658	700	709	731
Hardness	mg/L		1	379	370	330	332	364	373	332	370	743	318	313	337	317	345
Langelier Index (@20C)	NA			1.1	1.02	1.08	1.18	1.24	1.28	1.19	1.39	1.61	0.89	1.11	1.21	1.11	0.99
Langelier Index (@4C)	NA			0.78	0.7	0.76	0.86	0.92	0.96	0.87	1.07	1.29	0.57	0.79	0.89	0.79	0.67
Saturation pH (@20C)	NA			6.81	6.83	6.91	6.89	6.84	6.79	6.87	6.83	6.48	6.99	6.95	6.9	6.91	6.86
Saturation pH (@4C)	NA			7.13	7.15	7.23	7.21	7.16	7.11	7.19	7.15	6.8	7.31	7.27	7.22	7.23	7.18
Anion Sum	me/L			14.9	14.4	13.6	13.4	14.3	15.6	15.2	15.3	13.7	12.3	12.7	13.7	14.2	14.6
Cation sum	me/L			15.4	14.3	13.8	14.1	14.7	14.8	13.8	14.3	32.9	13.7	13	13.4	13	13.5
% Difference / Ion Balance (NS)	%			1.8	0.3	0.5	2.5	1.6	2.8	4.8	3.6	41.1	5.4	0.9	1	4.3	3.7
Total Aluminum	ug/L		5	19	109	108	10	34	49	658	41	30	482	64	33	30	83
Total Antimony	ug/L		2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Arsenic	ug/L		2	3	4	3	3	3	3	3	3	3	3	3	3	3	2
Total Barium	ug/L		5	105	98	82	91	95	105	94	96	100	93	90	94	88	99
Total Beryllium	ug/L		2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Bismuth	ug/L		2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Boron	ug/L		5	141	136	156	164	176	168	145	169	163	126	128	148	136	144
Total Cadmium	ug/L		0.017	<0.09	<0.09	<0.09	<0.09	<0.16	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
Total Chromium	ug/L		1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total Cobalt	ug/L		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total Copper	ug/L		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total Iron	ug/L		50	132	165	442	<50	<180	<50	770	100	<50	561	73	<50	<50	<50
Total Lead	ug/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<0.5	0.6	<0.5	<0.5
Total Manganese	ug/L		2	6	11	20	43	15	<8	41	6	4	16	13	21	12	9
Total Molybdenum	ug/L		2	3	7	7	6	4	6	5	4	4	6	4	4	4	4
Total Nickel	ug/L		2	6	5	28	<2	<9	<9	<2	<2	<2	<2	<2	<2	<2	<2
Total Phosphorous	mg/L		0.02	0.08	0.05	4.3	4.3	4.48	4.03	4.39	4.33	4.47	4.51	3.57	4.02	3.5	3.92
Total Selenium	ug/L		1	4	3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total Silver	ug/L		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Strontium	ug/L		5	693	630	628	661	741	763	675	736	726	647	627	687	651	693
Total Thallium	ug/L		0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Tin	ug/L		2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Titanium	ug/L		2	<2	3	3	3	3	3	3	3	3	3	3	3	3	3
Total Uranium	ug/L		0.1	35	34	22	23	22.8	23.3	21.7	22.4	22.7	23.2	20.4	19.2	20.2	21.1
Total Vanadium	ug/L		2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Zinc	ug/L		5	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Total Suspended Solids	mg/L		5	<5	<5	53	<5	<5	<5	18	<5	14	8	<5	6	27	<5

RDL - Reported Detection Limit; G/S - Guideline / Standard
Comments:

2023 Standard Water Analysis + Metals (Total)
Leak Detection 2023

CELL #7 (Start date 25 May 2017)

Parameter	Unit	G / S	RDL	7-Jan	12-Jan	27-Jan	2-Feb	9-Feb	16-Feb	2-Mar	25-Feb	9-Mar	16-Mar	23-Mar	31-Mar	6-Apr	13-Apr
				LD7- 120123- 04	LD7- 120123- 04	LD7- 270123- 03	LD7- 020223- 07	LD7- 090223- 03	LD7- 160223- 03	LD7- 020323- 05	LD7- 250223- 03	LD7- 090323- 02	LD7- 160323- 02	LD7- 230323- 02	LD7- 310323- 04	LD7- 060423- 06	LD7- 130423- 04
Reactive Silica as SiO2	mg/L		0.5	8.04	7.92	7.85	8.06	8.1	8.02	8.23	8.22	8.23	7.99	8.06	8.12	8.04	7.81
Chloride	mg/L		1	16.4	12.9	15.5	20.6	23.5	19.7	18.6	15.4	19.9	6.1	15.8	16.6	16.8	17
Fluoride	mg/L		0.12	0.14	0.16	0.15	0.14	0.15	<0.12	0.19	0.18	0.15	0.29	<0.12	0.3	0.18	0.14
Sulphate	mg/L		2	85	82	60	54	70	80	87	62	60	71	32	60	77	76
Alkalinity	mg/L		5	378	446	371	380	452	512	497	363	412	322	603	337	409	459
True Color	TCU		5	6.05	25.2	<5.00	<5.00	<5.00	<5.00	<5.00	6.04	<5.00	<5.00	<5.00	7.53	5.32	6.84
Turbidity	NTU		0.1	1.6	<0.5	<0.5	0.6	<0.5	<0.5	1.7	0.6	<0.5	1.4	0.5	0.7	0.7	<0.50
Electrical Conductivity	umho/cm		1	852	1130	816	830	918	999	847	819	888	760	1110	867	942	997
Nitrate + Nitrite as N	mg/L		0.05	0.35	0.36	0.27	1.91	1.54	0.86	2.61	3.39	3.39	4.66	2.05	3.54	3.49	4.03
Nitrate as N	mg/L		0.05	0.35	0.36	0.27	1.91	1.54	0.86	2.61	3.39	3.39	4.66	2.05	3.54	3.49	4.03
Nitrite as N	mg/L		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia as N	mg/L		0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	<0.03	<0.03	<0.03
Total Organic Carbon	mg/L		0.5	3.4	3	3.7	3.3	3	2.7	3.2	3.5	2.8	3.7	5	5.1	4.8	5
Ortho-Phosphate as P	mg/L		0.01	0.02	0.12	0.03	0.02	0.04	0.04	0.05	0.04	0.03	<0.01	0.03	0.04	0.05	0.04
Total Sodium	mg/L		0.1	97	115	75	83	105	114	88.1	88.8	243	70.1	68.8	81.1	80.9	97.3
Total Potassium	mg/L		0.1	4.7	4.6	4.1	4.1	4.6	4.9	3.9	4.2	4.3	3.8	4	4.1	3.9	4.2
Total Calcium	mg/L		0.1	90.1	93.4	87.2	84.8	81.6	80.2	80.2	81	89	80.6	83.4	86.4	80.8	85
Total Magnesium	mg/L		0.1	15.9	19.4	16.3	16.1	17.4	19.1	15.8	15.8	17.2	15.5	16	16.6	15.6	17.3
Bicarb. Alkalinity (as CaCO3)	mg/L		5	378	446	371	380	452	512	497	363	412	322	603	336	409	459
Carb. Alkalinity (as CaCO3)	mg/L		10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hydroxide	mg/L		5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Calculated TDS	mg/L		1	540	596	482	489	572	631	602	483	673	475	586	484	539	593
Hardness	mg/L			290	313	285	271	283	307	265	267	293	265	274	284	266	283
Langelier Index (@20C)	NA			0.91	0.87	0.7	0.9	1.02	1.02	1.17	1.03	1.12	0.75	1.1	0.93	0.9	0.74
Langelier Index (@4C)	NA			0.59	0.55	0.38	0.58	0.7	0.7	0.85	0.71	0.8	0.43	0.78	0.61	0.58	0.42
Saturation pH (@20C)	NA			7.13	7.05	7.15	7.16	7.08	7	7.06	7.19	7.11	7.24	6.96	7.19	7.14	7.07
Saturation pH (@4C)	NA			7.45	7.37	7.47	7.48	7.4	7.32	7.38	7.51	7.43	7.56	7.28	7.51	7.46	7.39
Anion Sum	me/L			9.89	11	9.14	9.23	10.9	12.2	12.4	9.3	9.78	8.81	13.2	8.75	10.6	11.6
Cation sum	me/L			10.1	11.4	9.06	9.13	10.3	11.2	9.25	8.45	16.6	8.45	8.58	9.32	8.94	10
% Difference/ Ion Balance (NS)	%			1.3	1.8	0.4	0.5	2.8	4.3	14.6	4.8	25.7	2.1	21.2	3.1	8.5	7.4
Total Aluminum	ug/L		5	<5	13	10	11	<31	39	118	28	35	49	14	30	30	19
Total Antimony	ug/L		2	4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Arsenic	ug/L		2	3	3	3	3	3	4	3	3	4	3	3	3	3	3
Total Barium	ug/L		5	106	83	89	89	92	101	80	74	87	81	79	88	83	99
Total Beryllium	ug/L		2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Bismuth	ug/L		2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Boron	ug/L		5	68	63	70	72	84	84	67	82	74	47	92	104	92	112
Total Cadmium	ug/L		0.017	<0.09	<0.09	<0.09	<0.09	<0.16	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
Total Chromium	ug/L		1	<1	<1	<1	<1	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Cobalt	ug/L		1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total Copper	ug/L		1	3	5	5	5	4	4	5	6	4	6	9	10	8	8
Total Iron	ug/L		50	77	100	<50	<50	<180	<50	123	<50	434	62	<50	<50	<50	<50
Total Lead	ug/L		0.5	<0.5	<0.5	<0.5	0.5	<2.1	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Manganese	ug/L		2	<2	<2	<2	<2	<8	<8	2	<2	3	3	<2	<2	<2	<2
Total Molybdenum	ug/L		2	3	2	3	3	4	6	4	3	5	3	3	3	3	4
Total Nickel	ug/L		2	6	5	<2	4	<9	9	3.14	12	2	17	4	3	15	3
Total Phosphorus	mg/L		0.02	0.08	0.07	2.8	3	3.02	3.24	3.14	3.01	3.26	2.69	2.64	2.89	2.57	2.99
Total Selenium	ug/L		1	2	<1	<1	<1	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1
Total Silver	ug/L		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Strontium	ug/L		5	411	550	485	470	549	618	468	435	510	450	463	483	465	528
Total Thallium	ug/L		0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Tin	ug/L		2	<2	<2	<2	<2	<6	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Titanium	ug/L		2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Uranium	ug/L		0.1	31	48	20	21	27.4	32.3	29.6	19.6	34.9	22.9	21.8	24.1	26.5	29.3
Total Vanadium	ug/L		2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Zinc	ug/L		5	7	7	10	11	12	12	12	8	8	10	8	7	63	11
Total Suspended Solids	mg/L		5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Comments: RDL - Reported Detection Limit; (see Note 6)

25 (see Note 6)

3-Aug	10-Aug	17-Aug	24-Aug	31-Aug	8-Sep	14-Sep	21-Sep
LD7-030823-01	LD7-100823-01	LD7-170823-02	LD7-240823-3	LD7-310823-01	LD7-080923-01	LD7-140923-01	LD7-210923-02
08/03/2023	08/10/2023	08/17/2023	08/24/2023	09/01/2023	09/08/2023	09/14/2023	09/21/2023
5187565	5204386	5220311	5236386	5253661	5272059	5286605	5304620
7.66	7.79	7.77	7.79	7.94	7.55	7.98	8.01
19.2	16.9	20.7	16.5	15.7	6.3	18.8	15.6
10	12	15	19	16	14	8	15
<0.12	<0.24	<0.12	0.14	0.13	<0.12	<0.12	<0.12
80	67	76	66	56	61	67	44
369	379	491	322	321	356	411	305
<5.00	13.3	<5.00	9.25	7.74	<5.00	<5.00	<5.00
<0.50	<0.50	22.8	1.91	0.54	<0.50	0.56	<0.50
889	856	1100	814	783	828	921	743
1.42	1.55	0.48	1.73	1.42	1.46	0.41	1.21
1.42	1.55	0.43	1.73	1.42	1.46	0.41	1.21
<0.05	<0.10	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
<0.03	<0.03	<0.03	1.05	<0.03	<0.03	<0.03	<0.03
3.1	4.4	3.6	5	6.5	3.4	3	3.7
0.02	0.02	0.03	0.05	0.02	0.02	0.03	0.02
80	72	132	71.1	62	77.3	93.9	54.7
4.2	4.2	5.6	4.3	4.2	4.2	4.2	4.1
90.4	96.4	120	94.5	88.1	93.7	93.5	86.1
16	15.8	23.4	16.3	14.5	16	17.3	13.7
369	379	491	322	321	356	411	305
<10	<10	<10	<10	<10	<10	<10	<10
<5	<5	<5	<5	<5	<5	<5	<5
508	502	671	473	440	486	532	406
292	306	396	303	280	300	305	271
0.53	0.7	0.87	0.62	0.74	0.42	0.9	0.78
0.21	0.38	0.55	0.3	0.42	0.1	0.58	0.46
7.13	7.09	6.9	7.17	7.2	7.13	7.08	7.23
9.43	7.41	7.22	7.49	7.52	7.45	7.4	7.55
9.42	9.42	11.9	8.47	8.14	8.89	9.87	7.53
9.42	9.35	14	9.34	8.4	9.47	10.3	7.91
0	0.4	8.3	4.9	1.6	3.2	2.1	2.5
52	10	1510	44	17	27	48	25
<2	<2	<2	<2	<2	<2	<2	<2
2	2	4	2	2	2	2	<2
100	91	139	90	85	97	106	84
<2	<2	<2	<2	<2	<2	<2	<2
<2	<2	<2	<2	<2	<2	<2	<2
92	62	94	117	93	82	61	84
<0.09	<0.09	0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<2	<2	<2	<2	<2	<2	<2	<2
<1	<1	<1	<1	<1	<1	<1	<1
5	6	5	9	7	6	3	6
<50	<50	1040	<50	<50	<50	50	<50
<0.5	<0.5	1.8	0.5	<0.5	<0.5	<0.5	<0.5
<2	<2	27	2	<2	<2	2	<2
<2	<2	4	<2	<2	2	3	<2
<2	<2	4	4	3	2	2	<2
3.3	4.4	7.15	4.65	4.14	5.09	5.1	4.5
<1	<1	<1	<1	<1	<1	<1	<1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
464	450	734	458	415	466	519	392
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<2	<2	<2	<2	<2	<2	<2	<2
<3	<3	50	<3	<3	<3	<3	<3
23.3	18.2	36.5	19.3	14.1	19.5	25	13
<2	<2	2	<2	<2	<2	<2	<2
12	7	16	7	14	7	14	<5
<5	<5	18	<5	<5	<5	<5	<5

Mirror Nova Scotia Ltd

ELEMENTS BY ICP/MS (WATER)			28-Sep	6-Oct	12-Oct	19-Oct	25-Oct	25-Oct	2-Nov
Bureau Veritas ID			XDJ627	XFC355	XGU178	XJF763	XKH748	XKH748	XMN586
Sampling Date			2023/09/28 09:40	2023/10/06 07:40	2023/10/12 08:00	2023/10/19 08:00	2023/10/25 13:00	2023/10/25 13:00	2023/11/02
COC Number			n/a	N/A	N/A	786759	790743	790743	795186
	UNITS	RDL	LD7-280923-02	LD7 - 051023 - 01	LD7-121023-01	LD7 - 191023 - 01	LD7 - 251023 - 01	LD7 - 251023 - 01	LD7 - 021123 - 03
Metals									
Total Aluminum (Al)	ug/L	5.0	9.7	22	43	15	20	20	40
Total Antimony (Sb)	ug/L	1.0	ND	ND	ND	ND	ND	ND	ND
Total Arsenic (As)	ug/L	1.0	2.1	2.4	2.6	2.5	2.4	2.4	2.7
Total Barium (Ba)	ug/L	1.0	110	110	94	94	86	86	100
Total Beryllium (Be)	ug/L	0.10	ND	ND	ND	ND	ND	ND	ND
Total Bismuth (Bi)	ug/L	2.0	ND	ND	ND	ND	ND	ND	ND
Total Boron (B)	ug/L	50	83	77	68	81	79	79	70
Total Cadmium (Cd)	ug/L	0.010	0.075	0.073	0.052	0.068	0.057	0.057	0.053
Total Calcium (Ca)	ug/L	100	98000	100000	88000	89000	89000	89000	97000
Total Chromium (Cr)	ug/L	1.0	ND	ND	ND	ND	ND	ND	ND
Total Cobalt (Co)	ug/L	0.40	ND	ND	ND	ND	ND	ND	ND
Total Copper (Cu)	ug/L	0.50	4.4	2.8	2.8	4.3	4.3	4.3	2.8
Total Iron (Fe)	ug/L	50	ND	ND	ND	ND	ND	ND	ND
Total Lead (Pb)	ug/L	0.50	ND	ND	ND	ND	ND	ND	ND
Total Magnesium (Mg)	ug/L	100	17000	19000	16000	16000	16000	16000	19000
Total Manganese (Mn)	ug/L	2.0	ND	2.0	2.6	ND	ND	ND	3.0
Total Molybdenum (Mo)	ug/L	2.0	2.7	3.6	3.9	3.2	3.3	3.3	4.5
Total Nickel (Ni)	ug/L	2.0	2.3	2.2	2.2	3.0	2.2	2.2	2.3
Total Phosphorus (P)	ug/L	100	ND	ND	ND	ND	ND	ND	ND
Total Potassium (K)	ug/L	100	4400	4500	4000	4000	4100	4100	4500
Total Selenium (Se)	ug/L	0.50	ND	ND	ND	ND	ND	ND	ND
Total Silver (Ag)	ug/L	0.10	ND	ND	ND	ND	ND	ND	ND
Total Sodium (Na)	ug/L	100	87000	110000	95000	88000	78000	78000	110000
Total Strontium (Sr)	ug/L	2.0	490	520	450	460	430	430	560
Total Thallium (Tl)	ug/L	0.10	ND	ND	ND	ND	ND	ND	ND
Total Tin (Sn)	ug/L	2.0	ND	ND	ND	ND	ND	ND	ND
Total Titanium (Ti)	ug/L	2.0	ND	ND	ND	ND	ND	ND	ND
Total Uranium (U)	ug/L	0.10	24	28	28	26	25	25	33
Total Vanadium (V)	ug/L	2.0	ND	ND	ND	ND	ND	ND	ND
Total Zinc (Zn)	ug/L	5.0	11	11	7.5	9.7	6.9	6.9	11
Calculated Parameters									
Anion Sum	me/L	N/A	9.48	10.9	9.16	9.43	8.79	0.950	10.8
Bicarb. Alkalinity (calc. as CaC	mg/L	1.0	380	450	370	360	330	38	440
Calculated TDS	mg/L	1.0	540	610	520	530	500	53	600
Carb. Alkalinity (calc. as CaCO	mg/L	1.0	2.6	3.0	2.4	2.9	2.5	ND	2.9
Cation Sum	me/L	N/A	10.1	11.6	9.96	9.72	9.27	1.08	11.3
Hardness (CaCO3)	mg/L	1.0	310	330	290	290	290	43	320
Ion Balance (% Difference)	%	N/A	3.36	3.20	4.18	1.51	2.66	6.40	2.22
Langelier Index (@ 20C)	N/A		0.959	1.02	0.872	0.958	0.906	-1.03	0.983
Langelier Index (@ 4C)	N/A		0.711	0.773	0.624	0.711	0.658	-1.28	0.735
Nitrate (N)	mg/L	0.050	0.89	0.27	0.27	2.1	4.2	ND	0.52
Saturation pH (@ 20C)	N/A		6.90	6.83	6.96	6.97	7.00	8.56	6.86
Saturation pH (@ 4C)	N/A		7.15	7.08	7.21	7.21	7.25	8.82	7.11
Inorganics									
Total Alkalinity (Total as CaCO	mg/L	2.0	390	450	380	360	330	39	440
Dissolved Chloride (Cl-)	mg/L	1.0	12	10	6.3	16	17	6.3	10
Colour	TCU	5.0	ND	ND	5.8	ND	6.0	69	18
Nitrate + Nitrite (N)	mg/L	0.050	0.89	0.27	0.27	2.1	4.2	ND	0.52
Nitrite (N)	mg/L	0.010	ND	ND	ND	ND	ND	ND	ND
Nitrogen (Ammonia Nitrogen)	mg/L	0.050	ND	ND	ND	ND	0.098	ND	ND
Total Organic Carbon (C)	mg/L	0.50	2.7	2.3	2.3	2.8	3.1	11	2.5
Orthophosphate (P)	mg/L	0.010	0.023	0.026	0.026	0.027	0.025	0.027	0.028
pH	pH		7.86	7.85	7.83	7.92	7.90	7.53	7.84
Reactive Silica (SiO2)	mg/L	0.50	18	18	18	18	16	1.4	18
Total Suspended Solids	mg/L	1.0	ND	1.2	1.6	1.2	ND	1.6	
Dissolved Sulphate (SO4)	mg/L	2.0	65	74	69	75	65	ND	79
Turbidity	NTU	0.10	0.46	0.74	0.91	0.51	1.4	3.6	2.0
Conductivity	uS/cm	1.0	890	1000	880	950	830	110	1000

	9-Nov	16-Nov	23-Nov	30-Nov	7-Dec	14-Dec	21-Dec	28-Dec
XOG980	XPZ184	XRW989	XTC084	XVT531	XXA031	XYU060	XZQ481	
2023/11/09 07:05	2023/11/16 07:05	2023/11/23 08:05	2023/11/30 08:15	2023/12/07 10:00	2023/12/14 08:00	2023/12/21 09:40	2023/12/28 08:05	
799011	802838	806719	N/A	CH967058-01-01	N/A	N/A	N/A	
LD7 - 091123 - 01	LD7 - 161123 - 02	LD7 - 231123 - 06	LD7-301123-03	LD7-071223.02	LD7-141223-02	LD7-211223-01	LD7-281223 -02	
18	22	21	8.6	24	22	27	11	
ND	ND	ND	ND	ND	ND	ND	ND	
2.6	3.2	3.2	2.9	3.0	3.3	3.4	3.2	
93	86	78	87	89	80	82	91	
ND	ND	ND	ND	ND	ND	ND	ND	
ND	ND	ND	ND	ND	ND	ND	ND	
63	71	72	70	62	66	71	73	
0.050	0.044	0.047	0.049	0.048	0.046	0.049	0.048	
87000	85000	86000	93000	89000	86000	90000	95000	
ND	ND	ND	ND	ND	ND	ND	ND	
ND	ND	ND	ND	ND	ND	ND	ND	
2.7	2.6	3.9	4.8	2.6	3.1	3.5	3.4	
ND	ND	ND	ND	ND	ND	ND	ND	
ND	ND	ND	ND	ND	ND	ND	ND	
16000	16000	15000	16000	16000	16000	16000	18000	
ND	2.1	ND	ND	2.4	ND	2.1	ND	
4.3	5.4	3.5	3.0	4.8	4.5	4.5	4.6	
ND	ND	2.2	2.1	ND	ND	ND	ND	
ND	ND	ND	ND	ND	ND	ND	ND	
4000	4200	4000	4200	4200	4100	4200	4300	
ND	ND	ND	ND	ND	ND	ND	ND	
ND	ND	ND	ND	ND	ND	ND	ND	
95000	100000	73000	72000	93000	90000	87000	93000	
460	460	420	440	480	430	450	510	
ND	ND	ND	ND	ND	ND	ND	ND	
ND	ND	ND	ND	ND	ND	ND	ND	
ND	ND	ND	ND	ND	ND	ND	ND	
28	34	25	22	33	30	29	31	
ND	ND	ND	ND	ND	ND	ND	ND	
9.4	6.7	6.9	7.1	120	5.5	5.2	6.4	
10.0	9.21	7.86	8.29	9.85	8.60	9.06	8.92	
400	360	300	320	390	320	330	320	
550	540	460	480	550	510	520	530	
2.0	2.3	2.7	2.4	3.7	2.7	3.5	2.5	
9.89	10.3	8.78	9.19	9.90	9.64	9.78	10.3	
280	280	280	300	290	280	290	310	
0.700	5.39	5.53	5.15	0.250	5.70	3.82	7.32	
0.793	0.842	0.934	0.914	1.07	0.919	1.06	0.934	
0.545	0.594	0.686	0.666	0.819	0.671	0.811	0.686	
0.66	0.51	1.9	2.3	0.96	1.3	1.9	1.8	
6.94	6.99	7.05	6.99	6.94	7.03	7.00	6.99	
7.18	7.24	7.30	7.24	7.19	7.28	7.25	7.24	
400	360	300	320	390	320	330	320	
10	8.1	12	18	12	14	18	18	
5.1	ND	ND	5.8	ND	ND	14	ND	
0.66	0.51 (1)	1.9	2.3	0.96	1.3	1.9	1.8	
ND	ND	ND	0.015	ND	ND	ND	ND	
ND	ND	0.051	ND	ND	ND	0.050	ND	
2.6	2.6	2.9	3.3 (1)	2.6	2.7	3.1	3.1	
0.032	0.030	0.035	0.030	0.036	0.035	0.037	0.035	
7.73	7.83	7.98	7.91	8.01	7.95	8.06	7.92	
17	17	15	15	16	16	16	17	
	ND	ND	ND	3.2	ND	1.0	ND	
79	83	62	59	79	79	82	85	
0.76	0.77	0.56	0.27	0.51	0.51	0.82	0.35	
940	970	790	790	940	920	860	940	

Appendix D - Contaminated Solids Summary

Direct to Landfill Loads 2023

Date	Description	Generator	Hauler	Mass (Kg)
3-Jan	Septic Screenings	WWT Plant - HFX	ReGroup	2,800
3-Jan	Cannabis Waste	Atlantic Cann Med	ReGroup	570
4-Jan	Cannabis Waste	Atlantic Cann Med	ReGroup	1,010
4-Jan	Septic Screenings	WWT Plant - Dart	ReGroup	2,310
4-Jan	Pulp Bin	Oland's Brewery	Clean Earth	5,280
6-Jan	Septic Screenings	WWT Plant - HFX	ReGroup	1,640
6-Jan	Cannabis Waste	Atlantic Cann Med	ReGroup	1,420
6-Jan	Pulp Bin	Oland's Brewery	Clean Earth	4,690
9-Jan	Cannabis Waste	Atlantic Cann Med	ReGroup	800
9-Jan	Pulp Bin	Oland's Brewery	Clean Earth	4,110
10-Jan	Septic Screenings	WWT Plant - HFX	ReGroup	2,040
10-Jan	Septic Screenings	Burnside Corrections	GFL Env.	2,650
11-Jan	Cannabis Waste	Atlantic Cann Med	ReGroup	330
11-Jan	Septic Screenings	WWT Plant - Dart	ReGroup	1,960
13-Jan	Septic Screenings	WWT Plant - HFX	ReGroup	2,170
13-Jan	Cannabis Waste	Atlantic Cann Med	ReGroup	490
13-Jan	Pulp Bin	Oland's Brewery	Clean Earth	5,030
17-Jan	Septic Screenings	WWT Plant - HFX	ReGroup	4,230
17-Jan	Septic Screenings	WWT Plant - Herr. Cove	ReGroup	1,730
18-Jan	Cannabis Waste	Atlantic Cann Med	ReGroup	1,230
18-Jan	Septic Screenings	WWT Plant - Dart	ReGroup	2,540
18-Jan	Septic Screenings	WWT Plant - East. Pass	ReGroup	1,960
20-Jan	Septic Screenings	WWT Plant - HFX	ReGroup	1,370
20-Jan	Cannabis Waste	Atlantic Cann Med	ReGroup	480
23-Jan	Cannabis Waste	Atlantic Cann Med	ReGroup	140
24-Jan	Septic Screenings	WWT Plant - HFX	ReGroup	3,900
24-Jan	Septic Screenings	Burnside Corrections	GFL Env.	1,350
25-Jan	Cannabis Waste	Atlantic Cann Med	ReGroup	430
25-Jan	Septic Screenings	WWT Plant - Dart	ReGroup	3,050
27-Jan	Septic Screenings	WWT Plant - HFX	ReGroup	2,010
27-Jan	Cannabis Waste	Atlantic Cann Med	ReGroup	1,200
30-Jan	Cannabis Waste	Atlantic Cann Med	ReGroup	1,670
30-Jan	Cannabis Waste	Atlantic Cann Med	ReGroup	960
30-Jan	Paper Mache	Maritime Paper	GFL Env.	3,510
1-Feb	Cannabis Waste	Atlantic Cann Med	REGroup	1,330
1-Feb	Cannabis Waste	Atlantic Cann Med	REGroup	1,130
2-Feb	Soil Bin	MAXXAM	Leo J. Beazley	2,300
3-Feb	Septic Screenings	WWT Plant - HFX	REGroup	3,830
3-Feb	Septic Screenings	WWT Plant - Dart	REGroup	3,350
6-Feb	Cannabis Waste	Atlantic Cann Med	REGroup	280
8-Feb	Cannabis Waste	Atlantic Cann Med	REGroup	1,060
8-Feb	Septic Screenings	WWT Plant - Dart	REGroup	1,630

Direct to Landfill Loads 2023

Date	Description	Generator	Hauler	Mass (Kg)
8-Feb	Septic Screenings	Burnside Corrections	GFL ENV.	1,800
9-Feb	Septic Screenings	WWT Plant - East. Passage	REGroup	1,580
10-Feb	Cannabis Waste	Atlantic Cann Med	REGroup	1,290
10-Feb	Septic Screenings	WWT Plant - HFX	REGroup	3,890
10-Feb	Pulp Bin	Oland's Brewery	J. Ross & Son's	5,710
10-Feb	Mussels	NS Power - Tuft's Cove	Clean Earth	1,380
13-Feb	Cannabis Waste	Atlantic Cann Med	REGroup	260
15-Feb	Cannabis Waste	Atlantic Cann Med	REGroup	1,520
15-Feb	Cannabis Waste	Atlantic Cann Med	REGroup	910
17-Feb	Septic Screenings	WWT Plant - HFX	REGroup	4,520
17-Feb	Septic Screenings	WWT Plant - Dart	REGroup	2,910
22-Feb	Septic Screenings	WWT Plant - Dart	REGroup	2,340
22-Feb	Septic Screenings	Burnside Corrections	GFL ENV.	1,200
22-Feb	Septic Screenings	WWT Plant - Canal St.	REGroup	2,780
23-Feb	Septic Screenings	WWT Plant - East. Passage	REGroup	3,660
24-Feb	Cannabis Waste	Atlantic Cann Med	REGroup	1,030
24-Feb	Septic Screenings	WWT Plant - HFX	REGroup	5,310
28-Feb	Sludge	NS Power - Tuft's Cove	GFL ENV.	7,190
28-Feb	Sludge	NS Power - Tuft's Cove	GFL ENV.	6,960
28-Feb	Sludge	NS Power - Tuft's Cove	GFL ENV.	7,510
28-Feb	Sludge	NS Power - Tuft's Cove	GFL ENV.	7,290
1-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	7,580
1-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	7,150
1-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	8,170
1-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	7,830
1-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	7,790
1-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	10,190
1-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	7,030
1-Mar	Sludge	NS Power - Tufts Cove	Clean Earth	2,750
1-Mar	Sludge	NS Power - Tufts Cove	Clean Earth	3,600
1-Mar	Sludge	NS Power - Tufts Cove	Clean Earth	3,000
1-Mar	Cannabis Waste	Atlantic Cann Med	ReGroup	330
1-Mar	Septic Waste	WWT Plant - Dart	ReGroup	2,100
1-Mar	Pulp Bin	Olands	J. Ross & Sons	6,210
2-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	7,160
2-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	3,430
2-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	9,650
2-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	7,360
2-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	10,380
2-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	7,760
2-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	6,900
2-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	8,090

Direct to Landfill Loads 2023

Date	Description	Generator	Hauler	Mass (Kg)
2-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	7,110
2-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	7,840
2-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	9,170
2-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	8,190
2-Mar	Cannabis Waste	Atlantic Cann Med	ReGroup	330
2-Mar	Septic Waste	WWT Plant - Herring Cove	ReGroup	1,360
2-Mar	Septic Waste	WWT Plant - Hfx	ReGroup	2,440
4-Mar	Rubber Dust	Miller TireCraft	Clean Earth	3,570
4-Mar	Rubber Dust	Miller TireCraft	Clean Earth	3,030
6-Mar	Cannabis Waste	Atlantic Cann Med	ReGroup	770
6-Mar	Cannabis Waste	Atlantic Cann Med	ReGroup	1,360
8-Mar	Cannabis Waste	Atlantic Cann Med	ReGroup	1,670
8-Mar	Cannabis Waste	Atlantic Cann Med	ReGroup	750
8-Mar	Septic Waste	WWT Plant - Dart	ReGroup	1,720
9-Mar	Septic Waste	WWT Plant - Hfx	ReGroup	3,450
9-Mar	Septic Waste	Burnside Corrections	GFL Env.	2,540
10-Mar	Cannabis Waste	Atlantic Cann Med	ReGroup	270
15-Mar	Cannabis Waste	Atlantic Cann Med	ReGroup	720
15-Mar	Cannabis Waste	Atlantic Cann Med	ReGroup	1,490
15-Mar	Septic Waste	WWT Plant - Dart	ReGroup	2,350
17-Mar	Cannabis Waste	Atlantic Cann Med	ReGroup	1,080
17-Mar	Septic Waste	WWT Plant - Hfx	ReGroup	4,710
20-Mar	Glass Mulch	Olands	GFL Env.	1,250
20-Mar	Glass Mulch	Olands	GFL Env.	9,350
20-Mar	Glass Mulch	Olands	GFL Env.	13,780
22-Mar	Cannabis Waste	Atlantic Cann Med	ReGroup	1,000
22-Mar	Septic Waste	WWT Plant - Dart	ReGroup	2,250
22-Mar	Pulp Bin	Olands	J. Ross & Sons	5,120
22-Mar	Septic Waste	WWT Plant - East. Passage	ReGroup	2,580
23-Mar	Sludge	NS Power - Tufts Cove	GFL Env.	330
24-Mar	Cannabis Waste	Atlantic Cann Med	ReGroup	1,800
24-Mar	Cannabis Waste	Atlantic Cann Med	ReGroup	740
24-Mar	Septic Waste	WWT Plant - Hfx	ReGroup	4,390
27-Mar	Cannabis Waste	Atlantic Cann Med	ReGroup	360
28-Mar	Septic Waste	Burnside Corrections	GFL Env.	2,740
29-Mar	Septic Waste	WWT Plant - Dart	ReGroup	6,650
31-Mar	Cannabis Waste	Atlantic Cann Med	ReGroup	350
31-Mar	Septic Waste	WWT Plant - Hfx	ReGroup	4,150
5-Apr	Septic Screenings	WWT Plant - Mawiomi	ReGroup	2,460
5-Apr	Septic Screenings	WWT Plant - Herr. Cove	ReGroup	1,690
5-Apr	Mussels	NS Power - Tufts Cove	Clean Earth	5,230
5-Apr	Cannabis Waste	Atlantic Cann Med	ReGroup	1,330

Direct to Landfill Loads 2023

Date	Description	Generator	Hauler	Mass (Kg)
5-Apr	Cannabis Waste	Atlantic Cann Med	ReGroup	950
6-Apr	Septic Screenings	WWT Plant - Hfx	ReGroup	3,250
8-Apr	Mussels	NS Power - Tufts Cove	Clean Earth	6,470
10-Apr	Mussels	DND	Clean Earth	740
11-Apr	Septic Screenings	WWT Plant - East. Passage	ReGroup	1,990
11-Apr	Tobacco Products	Federal Gov.	Cash 40	320
12-Apr	Septic Screenings	WWT Plant - Mawiomi	ReGroup	2,340
12-Apr	Cannabis Waste	Atlantic Cann Med	ReGroup	1,430
12-Apr	Cannabis Waste	Atlantic Cann Med	ReGroup	1,560
12-Apr	Sludge Bin	NS Power	Miller Waste	9,270
12-Apr	Sludge Bin	NS Power	Miller Waste	5,190
13-Apr	Needles - Rej. From MRF	MRF	ReGroup	360
14-Apr	Cannabis Waste	Atlantic Cann Med	ReGroup	220
14-Apr	Septic Screenings	WWT Plant - Hfx	ReGroup	3,640
14-Apr	Pulp bin	Olands Brewery	J. Ross & Sons	3,630
17-Apr	Cannabis Waste	Atlantic Cann Med	ReGroup	570
19-Apr	Septic Screenings	WWT Plant - Mawiomi	ReGroup	2,060
19-Apr	Cannabis Waste	Atlantic Cann Med	ReGroup	320
19-Apr	Needles - Rej. From MRF	MRF	ReGroup	2,180
20-Apr	Spent Carbon	HFX Water - Aeroteck Park	GFL Env	2,230
20-Apr	Spent Carbon	HFX Water - Aeroteck Park	GFL Env	2,780
21-Apr	Cannabis Waste	Atlantic Cann Med	ReGroup	1,700
21-Apr	Septic Screenings	WWT Plant - Hfx	ReGroup	4,620
24-Apr	Spent Carbon	HFX Water - Aeroteck Park	GFL Env	2,230
24-Apr	Septic Screenings	Dartmouth Corrections	GFL Env	1,680
25-Apr	Paper Mache	Maritime Paper	GFL Env	4,110
26-Apr	Septic Screenings	WWT Plant - Mawiomi	ReGroup	1,380
26-Apr	Cannabis Waste	Atlantic Cann Med	ReGroup	450
26-Apr	Tobacco Products	Federal Gov.	Cash 8	660
27-Apr	Recyc. Contam. With Sharps		ReGroup	360
28-Apr	Cannabis Waste	Atlantic Cann Med	ReGroup	1,390
28-Apr	Septic Screenings	WWT Plant - Hfx	ReGroup	3,230
1-May	Cannabis Waste	Atlantic Cann Med	ReGroup	1,030
2-May	Septic Waste	WWT Plant - East. Passage	ReGroup	2,320
3-May	Cannabis Waste	Atlantic Cann Med	ReGroup	330
3-May	Septic Waste	WWT Plant - Drt	ReGroup	2,630
5-May	Cannabis Waste	Atlantic Cann Med	ReGroup	1,640
5-May	Septic Waste	WWT PLANT - HFX	ReGroup	5,070
5-May	Pulp Bin	Oland's Brewery	John Ross	5,280
8-May	Cannabis Waste	Atlantic Cann Med	ReGroup	930
10-May	Cannabis Waste	Atlantic Cann Med	ReGroup	310
10-May	Septic Waste	WWT Plant - Drt	ReGroup	2,040

Direct to Landfill Loads 2023

<i>Date</i>	<i>Description</i>	<i>Generator</i>	<i>Hauler</i>	<i>Mass (Kg)</i>
12-May	Septic Waste	WWT PLANT - HFX	ReGroup	3,020
17-May	Cannabis Waste	Atlantic Cann Med	ReGroup	790
17-May	Septic Waste	WWT Plant - Drt	ReGroup	1,270
17-May	International Soil	Atlantic Cat	ReGroup	9,200
17-May	International Soil	Atlantic Cat	ReGroup	6,570
17-May	International Soil	Atlantic Cat	ReGroup	4,700
17-May	International Soil	Atlantic Cat	ReGroup	4,780
17-May	International Soil	Atlantic Cat	ReGroup	8,630
17-May	Septic Waste	WWT Plant - Her. Cove	ReGroup	1,300
19-May	Cannabis Waste	Atlantic Cann Med	ReGroup	550
19-May	Septic Waste	WWT PLANT - HFX	ReGroup	2,840
23-May	Cannabis Waste	Atlantic Cann Med	ReGroup	1,420
23-May	Cannabis Waste	Atlantic Cann Med	ReGroup	1,440
23-May	Septic Waste	Burnside Corrections	GFL Env.	4,330
23-May	Soil Samples	MAXXAM	Leo J. Beazley	2,230
24-May	Cannabis Waste	Atlantic Cann Med	ReGroup	600
24-May	Septic Waste	WWT Plant - Drt	ReGroup	1,900
24-May	Septic Waste	WWT Plant - Drt	ReGroup	1,920
25-May	Septic Waste	WWT Plant - East. Passage	ReGroup	1,390
26-May	Septic Waste	WWT PLANT - HFX	ReGroup	4,670
30-May	Mussels	NS Power - Tufts Cove	GFL Env.	5,080
31-May	Mussels	NS Power - Tufts Cove	GFL Env.	4,410
31-May	Mussels	NS Power - Tufts Cove	GFL Env.	6,280
31-May	Mussels	NS Power - Tufts Cove	GFL Env.	4,240
1-Jun	Septic Screenings	WWT Plant - Dart	ReGroup	1,030
2-Jun	Septic Screenings	WWT Pant - HFX	ReGroup	2,320
2-Jun	Cannabis Waste	Atlantic Cann Med	ReGroup	1,630
5-Jun	Septic Screenings	WWT Pant - HFX	ReGroup	5,510
5-Jun	Cannabis Waste	Atlantic Cann Med	ReGroup	910
5-Jun	Mussels	NS Power Tufts Cove	Clean Earth	6,830
5-Jun	Mussels	NS Power Tufts Cove	Clean Earth	4,740
6-Jun	Mussels	NS Power Tufts Cove	Clean Earth	6,990
6-Jun	Mussels	NS Power Tufts Cove	Clean Earth	5,110
8-Jun	Septic Screenings	WWT Plant - Dart	ReGroup	3,690
9-Jun	Septic Screenings	WWT Pant - HFX	ReGroup	3,110
9-Jun	Cannabis Waste	Atlantic Cann Med	ReGroup	530
9-Jun	Creosote Wood	John Brackett Dr.	Cash	4,060
9-Jun	Pulp Bin	Olands Brewery	GFL Env.	4,620
12-Jun	Cannabis Waste	Atlantic Cann Med	ReGroup	1,470
12-Jun	Pulp Bin	Olands Brewery	GFL Env.	9,490
12-Jun	Pulp Bin	Olands Brewery	GFL Env.	6,230
12-Jun	Pulp Bin	Olands Brewery	GFL Env.	8,300

Direct to Landfill Loads 2023

<i>Date</i>	<i>Description</i>	<i>Generator</i>	<i>Hauler</i>	<i>Mass (Kg)</i>
12-Jun	Pet Waste	West River Rd. Park	GFL Env.	410
13-Jun	Rail Road Ties	Quarry	ReGroup	11,240
14-Jun	Septic Screenings	WWT Plant - Dart	ReGroup	1,320
16-Jun	Septic Screenings	WWT Pant - HFX	ReGroup	4,120
16-Jun	Cannabis Waste	Atlantic Cann Med	ReGroup	1,140
19-Jun	Cannabis Waste	Atlantic Cann Med	ReGroup	750
21-Jun	Cannabis Waste	Atlantic Cann Med	ReGroup	1,530
21-Jun	Septic Screenings	Burnside Corrections	GFL Env.	4,110
21-Jun	Septic Screenings	WWT Plant - Eastern Passage	ReGroup	2,740
23-Jun	Septic Screenings	WWT Plant - Dart	ReGroup	2,440
23-Jun	Septic Screenings	WWT Pant - HFX	ReGroup	4,070
23-Jun	Cannabis Waste	Atlantic Cann Med	ReGroup	1,340
23-Jun	Pulp Bin	Olands Brewery	GFL Env.	3,290
27-Jun	Septic Screenings	WWT Pant - HFX	ReGroup	4,870
27-Jun	Creosote Timbers	Eagle Ocean Contractors	Cash	1,580
28-Jun	Cannabis Waste	Atlantic Cann Med	ReGroup	620
29-Jun	Septic Screenings	WWT Plant - Dart	ReGroup	2,010
30-Jun	Septic Screenings	WWT Pant - HFX	ReGroup	3,740
30-Jun	Cannabis Waste	Atlantic Cann Med	ReGroup	1,650
3-Jul	Cannabis Waste	Atlantic Cann Med	ReGroup	680
3-Jul	Septic Waste	WWT Plant - Halifax	ReGroup	1,590
5-Jul	Septic Waste	WWT Plant - Halifax	ReGroup	3,530
6-Jul	Bear Spray	Province of NS - Internal Affairs	Cash 32	40
6-Jul	Septic Waste	WWT Plant - Dartmouth	ReGroup	1,970
6-Jul	Septic Waste	Burnside Corrections	GFL Env.	4,720
7-Jul	Cannabis Waste	Atlantic Cann Med	ReGroup	1,160
7-Jul	Pulp Bin	Olands Brewery	J. Ross & Sons	3,800
10-Jul	Cannabis Waste	Atlantic Cann Med	ReGroup	830
10-Jul	Pulp Bin	Maritime Paper	GFL Env.	2,590
10-Jul	Mussels	DND Dockyard	Clean Earth	440
11-Jul	Rubber Tracks	Halifax C&D	ReGroup	9,310
12-Jul	Cannabis Waste	Atlantic Cann Med	ReGroup	190
12-Jul	Septic Waste	WWT Plant - Herring Cove	ReGroup	2,190
13-Jul	Rubber Tracks	Halifax C&D	ReGroup	11,670
14-Jul	Cannabis Waste	Atlantic Cann Med	ReGroup	880
14-Jul	Septic Waste	WWT Plant - Halifax	ReGroup	4,660
14-Jul	Rubber Tracks	Halifax C&D	ReGroup	9,570
14-Jul	Rubber Tracks	Halifax C&D	ReGroup	1,910
14-Jul	Elevator Mud		GFL Env.	1,260
17-Jul	Cannabis Waste	Atlantic Cann Med	ReGroup	1,260
19-Jul	Cannabis Waste	Atlantic Cann Med	ReGroup	820
19-Jul	Ultra Electronics	Military	GFL Env.	1,570

Direct to Landfill Loads 2023

Date	Description	Generator	Hauler	Mass (Kg)
19-Jul	Septic Waste	WWT Plant - Drt	ReGroup	1,000
21-Jul	Septic Waste	WWT Plant - Halifax	ReGroup	4,180
21-Jul	Septic Waste	Burnside Corrections	GFL Env.	2,930
24-Jul	Cannabis Waste	Atlantic Cann Med	ReGroup	500
26-Jul	Cannabis Waste	Atlantic Cann Med	ReGroup	500
27-Jul	Septic Waste	WWT Plant - Halifax	ReGroup	2,580
28-Jul	Cannabis Waste	Atlantic Cann Med	ReGroup	1,270
28-Jul	Septic Waste	WWT Plant - Halifax	ReGroup	3,820
28-Jul	Septic Waste	WWT Plant - Dartmouth	ReGroup	3,160
28-Jul	Boat Scrapping	M&M	Clean Earth	3,050
31-Jul	Cannabis Waste	Atlantic Cann Med	ReGroup	750
2-Aug	Cannabis Waste	Atlantic Cann Med	ReGroup	330
3-Aug	Mussels	NS Power - Tufts Cove	Clean Earth	5,980
3-Aug	Pulp Bin	Olands Brewery	J. Ross & Sons	5,870
4-Aug	Mussels	NS Power - Tufts Cove	Clean Earth	5,450
4-Aug	Septic Screenings	WWT Plant - East. Passage	ReGroup	2,690
4-Aug	Septic Screenings	WWT Plant - Hfx	ReGroup	3,250
4-Aug	Septic Screenings	WWT Plant - Drt	ReGroup	1,120
9-Aug	Cannabis Waste	Atlantic Cann Med	ReGroup	240
9-Aug	Boxwood Plants		ReGroup	740
11-Aug	Cannabis Waste	Atlantic Cann Med	ReGroup	290
11-Aug	Septic Screenings	WWT Plant - Hfx	ReGroup	4,310
11-Aug	Septic Screenings	WWT Plant - Drt	ReGroup	2,800
11-Aug	Septic Screenings	Burnside Corrections	ReGroup	1,700
11-Aug	Old Trailers		Dexter	9,050
11-Aug	Old Trailers		Dexter	4,160
16-Aug	Cannabis Waste	Atlantic Cann Med	ReGroup	540
17-Aug	Septic Screenings	WWT Plant - Canal St.	ReGroup	1,570
18-Aug	Septic Screenings	WWT Plant - Hfx	ReGroup	3,680
18-Aug	Septic Screenings	WWT Plant - Drt	ReGroup	1,760
21-Aug	Cannabis Waste	Atlantic Cann Med	ReGroup	380
21-Aug	Septic Screenings	WWT Plant - East. Passage	ReGroup	2,220
21-Aug	Septic Screenings	WWT Plant - Herring Cove	ReGroup	2,500
23-Aug	Sludge	NS Power tufts Cove	Miller Waste	10,460
23-Aug	Sludge	NS Power tufts Cove	Miller Waste	6,490
25-Aug	Cannabis Waste	Atlantic Cann Med	ReGroup	710
25-Aug	Pulp Bin	Olands Brewery	J. Ross & Sons	5,880
25-Aug	Septic Screenings	WWT Plant - Hfx	ReGroup	6,030
25-Aug	Septic Screenings	WWT Plant - Drt	ReGroup	1,950
29-Aug	Sludge	NS Power tufts Cove	Miller Waste	1,680
31-Aug	Septic Screenings	WWT Plant - Hfx	ReGroup	4,330
31-Aug	Septic Screenings	WWT Plant - Drt	ReGroup	2,540

Direct to Landfill Loads 2023

Date	Description	Generator	Hauler	Mass (Kg)
31-Aug	Septic Screenings	Burnside Corrections	ReGroup	3,280
1-Sep	Cannabis Waste	Atlantic Cann Med	ReGroup	540
7-Sep	Sludge	NS Power - Tufts Cove	GFL Env.	7,760
7-Sep	Sludge	NS Power - Tufts Cove	GFL Env.	3,450
8-Sep	Cannabis Waste	Atlantic Cann Med	ReGroup	450
8-Sep	Septic Waste	WWT Plant - Dart	ReGroup	1,890
8-Sep	Septic Waste	WWT Plant - Hfx	ReGroup	2,780
14-Sep	Cannabis Waste	Atlantic Cann Med	ReGroup	3,480
14-Sep	Paper Mache	Maritime Paper	GFL Env.	2,910
15-Sep	Cannabis Waste	Atlantic Cann Med	ReGroup	890
15-Sep	Septic Waste	WWT Plant - Dart	ReGroup	2,060
15-Sep	Septic Waste	WWT Plant - Hfx	ReGroup	5,710
18-Sep	Septic Waste	WWT Plant - East. Passage	ReGroup	2,880
19-Sep	Septic Waste	WWT Plant - Hfx	ReGroup	3,360
19-Sep	Spent Carbon	Clean Earth	Clean Earth	9,970
22-Sep	Cannabis Waste	Atlantic Cann Med	ReGroup	760
22-Sep	Septic Waste	WWT Plant - Dart	ReGroup	3,170
28-Sep	Tobacco Waste	Cash15	Cash15	1,860
29-Sep	Cannabis Waste	Atlantic Cann Med	ReGroup	640
29-Sep	Septic Waste	WWT Plant - Hfx	ReGroup	1,390
29-Sep	Septic Waste	WWT Plant - Hfx	ReGroup	3,190
4-Oct	Soil Bin	Maxxam	Leo J. Beazley	3,420
4-Oct	Septic Waste	WWT Plant - Eastern Passage	ReGroup	1,120
4-Oct	Mussels	NS Power - Tufts Cove	Clean Earth	4,020
5-Oct	Mussels	NS Power - Tufts Cove	Clean Earth	4,240
6-Oct	Cannabis Waste	Atlantic Cann Med	ReGroup	600
6-Oct	Septic Waste	WWT Plant - Halifax	ReGroup	920
6-Oct	Septic Waste	WWT Plant - Dartmouth	ReGroup	1,280
6-Oct	Pulp Bin	Olands Brewery	J. Ross & Sons	4,920
10-Oct	Soaker Pit	Olands Brewery	GFL Env.	9,000
10-Oct	Soaker Pit	Olands Brewery	GFL Env.	1,330
12-Oct	Septic Waste	WWT Plant - Halifax	ReGroup	5,510
12-Oct	Septic Waste	WWT Plant - Dartmouth	ReGroup	3,370
13-Oct	Mussels	NS Power - Tufts Cove	Clean Earth	2,920
13-Oct	Cannabis Waste	Atlantic Cann Med	ReGroup	710
16-Oct	Mussels	NS Power - Tufts Cove	Clean Earth	7,650
16-Oct	Septic Waste	Burnside Corrections	GFL Env.	4,650
17-Oct	Mussels	NS Power - Tufts Cove	Clean Earth	3,460
17-Oct	Mussels	NS Power - Tufts Cove	Clean Earth	9,370
18-Oct	Mussels	NS Power - Tufts Cove	Clean Earth	2,490
18-Oct	Septic Waste	WWT Plant - Herring Cove	ReGroup	1,410
20-Oct	Cannabis Waste	Atlantic Cann Med	ReGroup	1,010

Direct to Landfill Loads 2023

Date	Description	Generator	Hauler	Mass (Kg)
20-Oct	Septic Waste	WWT Plant - Halifax	ReGroup	4,380
20-Oct	Septic Waste	WWT Plant - Dartmouth	ReGroup	1,440
24-Oct	Paper Mache	Maritime Paper	ReGroup	4,170
26-Oct	Carbon	United Rentals	GFL Env.	3,250
27-Oct	Septic Waste	WWT Plant - Eastern Passage	ReGroup	2,380
27-Oct	Cannabis Waste	Atlantic Cann Med	ReGroup	480
27-Oct	Septic Waste	WWT Plant - Halifax	ReGroup	4,620
27-Oct	Septic Waste	WWT Plant - Dartmouth	ReGroup	1,840
27-Oct	Glass Mulch	Olands Brewery	GFL Env.	12,910
27-Oct	Glass Mulch	Olands Brewery	GFL Env.	2,970
3-Nov	Pulp Bin	Olands Brewery	J. Ross & Sons	5,460
3-Nov	Cannabis Waste	Atlantic Cann Med	ReGroup	720
3-Nov	Septic Screenings	WWT Plant - HFX	ReGroup	3,550
3-Nov	Septic Screenings	WWT Plant - Dartmouth	ReGroup	1,470
7-Nov	Septic Screenings	WWT Plant - Canal St.	ReGroup	2,000
10-Nov	Cannabis Waste	Atlantic Cann Med	ReGroup	590
10-Nov	Septic Screenings	WWT Plant - HFX	ReGroup	3,250
10-Nov	Septic Screenings	WWT Plant - Dartmouth	ReGroup	1,270
13-Nov	Paper Mache	Maritime Paper	GFL Env.	6,060
17-Nov	Cannabis Waste	Atlantic Cann Med	ReGroup	580
17-Nov	Septic Screenings	WWT Plant - HFX	ReGroup	2,680
17-Nov	Septic Screenings	WWT Plant - Dartmouth	ReGroup	920
17-Nov	Septic Screenings	Burnside Corrections	GFL Env.	3,430
17-Nov	Rubber Trax	C&D	ReGroup	10,300
17-Nov	Sand & Plastic	Mariner Forage	Clean Earth	5,710
20-Nov	Cannabis Waste	Atlantic Cann Med	ReGroup	4,160
20-Nov	Septic Screenings	WWT Plant - HFX	ReGroup	4,170
21-Nov	Rubber Trax	C&D	ReGroup	11,100
21-Nov	Rubber Trax	C&D	ReGroup	12,660
21-Nov	Septic Screenings	WWT Plant - East. Passage	ReGroup	2,360
23-Nov	Fire Extinguisher Dust	Don Brentons	Cash15	980
24-Nov	Cannabis Waste	Atlantic Cann Med	ReGroup	380
24-Nov	Septic Screenings	WWT Plant - HFX	ReGroup	3,910
24-Nov	Septic Screenings	WWT Plant - Dartmouth	ReGroup	4,550
29-Nov	Septic Screenings	WWT Plant - HFX	ReGroup	3,720
30-Nov	Cannabis Waste	Atlantic Cann Med	ReGroup	4,650
1-Dec	Septic Screenings	WWT Plant - Dartmouth	ReGroup	2,810
1-Dec	Cannabis Waste	Atlantic Cann Med	ReGroup	420
5-Dec	Septic Screenings	WWT Plant - HFX	ReGroup	2,620
7-Dec	Septic Screenings	WWT Plant - East. Passage	ReGroup	1,390
8-Dec	Septic Screenings	WWT Plant - Dartmouth	ReGroup	1,900
8-Dec	Cannabis Waste	Atlantic Cann Med	ReGroup	400

Direct to Landfill Loads 2023

Date	Description	Generator	Hauler	Mass (Kg)
8-Dec	Septic Screenings	WWT Plant - HFX	ReGroup	1,040
8-Dec	Mussels	D&D Dockyard	GFL Env.	410
12-Dec	Pulp Bin	Olands Brewery	J. Ross & Sons	4,540
12-Dec	Tobbaco Products	Service Nova Scotia	Cash 41	1,130
13-Dec	Septic Screenings	WWT Plant - Herring Cove	ReGroup	1,130
14-Dec	Septic Screenings	Burnside Corrections	GFL Env.	1,850
15-Dec	Septic Screenings	WWT Plant - Dartmouth	ReGroup	2,110
15-Dec	Cannabis Waste	Atlantic Cann Med	ReGroup	750
15-Dec	Cannabis Waste	Atlantic Cann Med	ReGroup	4,050
15-Dec	Septic Screenings	WWT Plant - HFX	ReGroup	3,680
21-Dec	Cannabis Waste	Atlantic Cann Med	ReGroup	790
22-Dec	Septic Screenings	WWT Plant - Dartmouth	ReGroup	2,500
22-Dec	Septic Screenings	WWT Plant - HFX	ReGroup	4,200
29-Dec	Septic Screenings	WWT Plant - Dartmouth	ReGroup	1,720
29-Dec	Septic Screenings	WWT Plant - HFX	ReGroup	3,130

Appendix E- Alternate Cover Analysis Summary

ALTERNATE COVER ANALYSIS JANUARY 2023

<i>Analyte</i>	Units	EQL	12-Jan 2023	27-Jan 2023
			AC1	AC1
Aluminum	ug/l	100	1170	640
Antimony	ug/l	20	<20	<20
Arsenic	ug/l	20	<20	<20
Barium	ug/l	50	158	141
Beryllium	ug/l	50	<50	<50
Boron	ug/l	50	467	579
Cadmium	ug/l	3	3	3
Chromium	ug/l	20	34	35
Cobalt	ug/l	10	<10	14
Copper	ug/l	20	92	<20
Iron	ug/l	200	2640	3220
Lead	ug/l	5	160	209
Lithium	ug/l	20	<20	<20
Manganese	ug/l	20	1860	2120
Molybdenum	ug/l	20	<20	<20
Nickel	ug/l	20	66	96
Selenium	ug/l	20	<20	<20
Silver	ug/l	5	<5	<5
Strontium	ug/l	50	1730	1650
Thallium	ug/l	1	<1	<1
Tin	ug/l	20	<20	<20
Uranium	ug/l	1	<1	<1
Vanadium	ug/l	20	<20	<20
Zinc	ug/l	20	1390	2060
Final pH	NA	NA	NA	NA
Initial pH	NA	NA	NA	NA
Dry Weight Used	g	0	50	50
0.5N Acetic acid volume	ml/l	-		
Moisture	%	0	NA	NA
Dissolved Sulphate	ug/g	20	16600	

ALTERNATE COVER ANALYSIS FEBRUARY 2023

<i>Analyte</i>	Units	EQL	Units	RDL	9-Feb 2023	25-Feb 2023
					AC1	AC1
Aluminum	ug/l	100	mg/L	0.050	1.04	0.366
Antimony	ug/l	20	mg/L	0.010	<0.010	<0.010
Arsenic	ug/l	20	mg/L	0.010	<0.010	<0.010
Barium	ug/l	50	mg/L	0.010	0.132	0.258
Beryllium	ug/l	50	mg/L	0.010	<0.010	<0.010
Bismuth	ug/l		mg/L	0.008	<0.008	
Boron	ug/l	50	mg/L	0.050	0.73	0.721
Cadmium	ug/l	3	mg/L	0.01	<0.01	<0.01
Chromium	ug/l	20	mg/L	0.050	<0.050	<0.050
Cobalt	ug/l	10	mg/L	0.001	0.037	0.008
Copper	ug/l	20	mg/L	0.008	<0.228	0.097
Iron	ug/l	200	mg/L	0.200	3.09	<0.200
Lead	ug/l	5	mg/L	0.010	0.08	0.302
Lithium	ug/l	20	mg/L	0.020	1.00	
Manganese	ug/l	20	mg/L	0.01	<0.01	1.44
Molybdenum	ug/l	20	mg/L	0.002	0.004	<0.002
Nickel	ug/l	20	mg/L	0.010	0.034	0.028
Selenium	ug/l	20	mg/L	0.010	<0.010	<0.010
Silver	ug/l	5	mg/L	0.010	<0.010	<0.010
Strontium	ug/l	50	mg/L	0.003	2.16	2.12
Thallium	ug/l	1	mg/L	0.010	<0.010	<0.010
Tin	ug/l	20	mg/L	0.050	<0.050	<0.02
Uranium	ug/l	1	mg/L	0.050	<0.050	<0.050
Vanadium	ug/l	20	mg/L	0.020	<0.020	<0.020
Zinc	ug/l	20	mg/L	0.050	2.09	4
Final pH	NA	NA	NA	NA	NA	NA
Initial pH	NA	NA	NA	NA	NA	NA
Dry Weight Used	g	0		0	50	50
0.5N Acetic acid volume	ml/l	-				
Moisture	%	0		0	NA	NA
Dissolved Sulphate	ug/g	20		40	3610	16200

ALTERNATE COVER ANALYSIS MARCH 2023

<i>Analyte</i>	Units	RDL	9-Mar 2023	16-Mar 2023	31-Mar 2023
			AC1	AC1	AC1
Aluminum	mg/L	0.050	1.08	0.755	
Antimony	mg/L	0.010	<0.010	<0.010	
Arsenic	mg/L	0.010	<0.010	<0.010	<0.010
Barium	mg/L	0.010	0.190	0.269	0.267
Beryllium	mg/L	0.010	<0.010	<0.010	
Bismouth	mg/L	0.008		<0.008	
Boron	mg/L	0.050	0.734	0.601	2.32
Cadmium	mg/L	0.01	<0.01	<0.01	<0.010
Chromium	mg/L	0.050	<0.050	<0.050	<0.050
Cobalt	mg/L	0.001	0.015	0.012	
Copper	mg/L	0.008	0.067	0.051	
Iron	mg/L	0.200	0.322	0.462	
Lead	mg/L	0.010	0.235	0.390	1.040
Manganese	mg/L	0.020	1.12	2.05	
Mercury	mg/L	0			<0.01
Molybdenum	mg/L	0.002	<0.002	<0.002	
Nickel	mg/L	0.010	0.011	0.031	
Selenium	mg/L	0.010	<0.010	<0.010	<0.010
Silver	mg/L	0.010	<0.010	<0.010	<0.010
Strontium	mg/L	0.003	1.15	1.67	
Thallium	mg/L	0.010	<0.010	<0.010	
Tin	mg/L	0.02	<0.02	0.050	
Uranium	mg/L	0.050	<0.050	<0.050	
Vanadium	mg/L	0.020	<0.020	<0.020	
Zinc	mg/L	0.050	0.684	2.4	
Final pH	NA	NA	NA	NA	NA
Initial pH	NA	NA	NA	NA	NA
Dry Weight Used	g	0	50	50	50
0.5N Acetic acid volume	ml/l				
Moisture	%	0	NA	NA	NA
Dissolved Sulphate	ug/g	40	17400	15700	17500

ALTERNATE COVER ANALYSIS ARPIL 2023

<i>Analyte</i>	Units	RDL	13-Apr 2023	27-Apr 2023
			AC1	AC1
Aluminum	mg/l	0.050	1.03	1.63
Antimony	mg/l	0.010	0.024	<0.010
Arsenic	mg/l	0.010	0.014	0.026
Barium	mg/l	0.010	0.188	0.146
Beryllium	mg/l	0.010	<0.010	<0.010
Bismuth	mg/l	0.008	<0.008	<0.008
Boron	mg/l	0.050	0.512	0.611
Cadmium	mg/l	0.01	<0.01	<0.01
Chromium	mg/l	0.050	<0.050	<0.050
Cobalt	mg/l	0.001	0.014	0.011
Copper	mg/l	0.008	0.154	0.725
Iron	mg/l	0.200	<0.200	1.26
Lead	mg/l	0.010	2.59	0.202
Lithium	mg/l			
Manganese	mg/l	0.020	1.16	1.86
Mercury	mg/l	0.010	<0.01	<0.01
Molybdenum	mg/l	0.002	0.003	0.002
Nickel	mg/l	0.010	0.036	<0.010
Selenium	mg/l	0.010	<0.010	<0.010
Silver	mg/l	0.010	<0.010	<0.010
Strontium	mg/l	0.003	2.26	1.31
Thallium	mg/l	0.010	<0.010	<0.010
Titanium	mg/l	0.050	<0.050	<0.050
Tin	mg/l			
Uranium	mg/l	0.050	<0.050	<0.050
Vanadium	mg/l	0.020	<0.020	<0.020
Zinc	mg/l	0.050	3.93	2.4
Final pH	NA	NA	NA	NA
Initial pH	NA	NA	NA	NA
Dry Weight Used	g	0	50	50
0.5N Acetic acid volume	ml/l			
Moisture	%	0	NA	NA
Dissolved Sulphate	mg/g	40	17300	10300

ALTERNATE COVER ANALYSIS MAY 2023

<i>Analyte</i>	Units	RDL	30-May 2023
			AC1
Aluminum	ml/l	0.050	0.615
Antimony	ml/l	0.010	<0.010
Arsenic	ml/l	0.010	0.014
Barium	ml/l	0.010	0.167
Beryllium	ml/l	0.010	<0.010
Bismuth	ml/l	0.008	<0.008
Boron	ml/l	0.050	0.436
Cadmium	ml/l	0.01	0.19
Chromium	ml/l	0.050	<0.050
Cobalt	ml/l	0.001	0.013
Copper	ml/l	0.008	0.236
Iron	ml/l	0.200	<0.200
Lead	ml/l	0.010	1.04
Manganese	ml/l	0.020	1.31
Mercury	ml/l	0.010	<0.01
Molybdenum	ml/l	0.002	0.002
Nickel	ml/l	0.010	0.040
Selenium	ml/l	0.010	<0.020
Silver	ml/l	0.010	<0.010
Strontium	ml/l	0.003	1.55
Thallium	ml/l	0.010	0.02
Tin	ml/l	0.050	<0.050
Uranium	ml/l	0.050	<0.050
Vanadium	ml/l	0.020	<0.020
Zinc	ml/l	0.050	2.04
Final pH	NA	NA	NA
Initial pH	NA	NA	NA
Dry Weight Used	g	0	50
0.5N Acetic acid volume	ml/l		
Moisture	%	0	NA
Dissolved Sulphate	ml/g	40	3170

ALTERNATE COVER ANALYSIS JUNE 2023

<i>Analyte</i>	Units	RDL	1-Jun 2023	16-Jun 2023
			AC1	AC1
Arsenic	ml/l	0.010	0.057	<0.010
Barium	ml/l	0.020	0.234	<0.020
Boron	ml/l	0.050	0.471	0.163
Cadmium	ml/l	0.010	<0.010	<0.010
Chromium	ml/l	0.050	<0.050	<0.050
Lead	ml/l	0.010	0.139	0.129
Mercury		0.010	<0.01	<0.01
Selenium	ml/l	0.020	<0.020	<0.020
Silver	ml/l	0.010	<0.010	<0.010
Uranium	ml/l	0.050	<0.050	<0.050
Final pH	NA	NA	NA	NA
Initial pH	NA	NA	NA	NA
Dry Weight Used	g	0	50	50
0.5N Acetic acid volume	ml/l			
Moisture	%	0	NA	NA
Dissolved Sulphate	ml/g	40	15100	15800

ALTERNATE COVER ANALYSIS JUNE 2023

<i>Analyte</i>	<i>Unit</i>	<i>29-Jun 2023</i>
		AC1
Antimony - Leachate	mg/L	<0.5
Arsenic - Leachate	mg/L	<0.5
Barium - Leachate	mg/L	<0.5
Beryllium - Leachate	mg/L	<0.5
Boron - Leachate	mg/L	3.100
Cadmium - Leachate	mg/L	<0.1
Chromium - Leachate	mg/L	<0.5
Cobalt - Leachate	mg/L	<0.5
Copper - Leachate	mg/L	<0.5
Iron - Leachate	mg/L	3.3
Lead - Leachate	mg/L	<0.5
Mercury - Leachate	mg/L	<0.1
Nickel - Leachate	mg/L	<0.5
Selenium - Leachate	mg/L	<0.5
Silver - Leachate	mg/L	<0.5
Thallium - Leachate	mg/L	<0.5
Uranium - Leachate	mg/L	<0.5
Vanadium - Leachate	mg/L	<0.5
Zinc - Leachate	mg/L	1.7
Zirconium - Leachate	mg/L	<0.5
Sulphate (10:1)	µg/g	16200

ALTERNATE COVER ANALYSIS JULY 2023

<i>Analyte</i>	Units	EQL	13-Jul 2023		RDL	27-Jul 2023
			AC1			AC1
Aluminum	ml/l	0.050	0.268	ug/L	100	1200
Antimony	ml/l	0.010	<0.010	ug/L	20	<20
Arsenic	ml/l	0.010	<0.010	ug/L	20	47
Barium	ml/l	0.020	0.123	ug/L	50	150
Beryllium	ml/l	0.010	<0.010	ug/L	50	<50
Bismuth	ml/l	0.008	<0.008	ug/L		
Boron	ml/l	0.050	0.387	ug/L	50	1110
Cadmium	ml/l	0.01	<0.01	ug/L	3	<3
Chromium	ml/l	0.050	<0.050	ug/L	20	23
Cobalt	ml/l	0.001	0.012	ug/L	10	28
Copper	ml/l	0.080	0.162	ug/L	20	150
Iron	ml/l	0.200	27.1	ug/L	200	1080
Lead	ml/l	0.010	0.185	ug/L	5	348
Manganese	ml/l	0.020	1.52	ug/L	20	<20
Mercury	ml/l	0.01	<0.01	ug/L	20	1290
Molybdenum	ml/l	0.002	0.003	ug/L	20	<20
Nickel	ml/l	0.010	<0.010	ug/L	20	<20
Selenium	ml/l	0.020	<0.020	ug/L	20	<20
Silver	ml/l	0.010	<0.010	ug/L	5	<5
Strontium	ml/l	0.003	2.18	ug/L	50	1710
Thallium	ml/l	0.010	<0.010	ug/L	1	<1
Titanium	ml/l	0.050	<0.050	ug/L	20	<20
Uranium	ml/l	0.050	<0.050	ug/L	1	<1
Vanadium	ml/l	0.020	<0.020	ug/L	20	<20
Zinc	ml/l	0.050	2.58	ug/L	20	2520
Final pH	NA		NA			NA
Initial pH	NA		NA			NA
Dry Weight Used	g		50			50
0.5N Acetic acid volume	ml/l	0		ug/L	0	
Moisture	%	-	NA			NA
Dissolved Sulphate	ug/g	40	15300			15400

ALTERNATE COVER ANALYSIS AUGUST 2023

Analyte	Units	EQL	10-Aug 2023	31-Aug 2023
			AC1	AC1
Aluminum	ml/l	0.050	0.572	0.427
Antimony	ml/l	0.010	<0.010	<0.010
Arsenic	ml/l	0.010	0.056	0.029
Barium	ml/l	0.020	0.092	0.14
Beryllium	ml/l	0.010	<0.010	<0.010
Bismuth	ml/l	0.008	<0.008	<0.008
Boron	ml/l	0.050	<0.195	1.06
Cadmium	ml/l	0.01	<0.01	0.01
Chromium	ml/l	0.050	<0.050	<0.050
Cobalt	ml/l	0.001	<0.004	0.01
Copper	ml/l	0.080	0.314	0.312
Iron	ml/l	0.200	<0.200	<0.200
Lead	ml/l	0.010	0.235	0.186
Manganese	ml/l	0.020	0.533	1.50
Mercury	ml/l	0.01	<0.01	0.02
Molybdenum	ml/l	0.002	<0.002	0.003
Nickel	ml/l	0.010	<0.010	<0.010
Selenium	ml/l	0.020	<0.020	<0.020
Silver	ml/l	0.010	<0.010	<0.010
Strontium	ml/l	0.003	1.14	2.60
Thallium	ml/l	0.010	<0.010	<0.010
Tin	ml/l	0.050	<0.050	<0.050
Uranium	ml/l	0.050	<0.050	<0.050
Vanadium	ml/l	0.020	<0.020	<0.020
Zinc	ml/l	0.050	2.16	2.12
Final pH	NA		NA	NA
Initial pH	NA		NA	NA
Dry Weight Used	g		50	50
0.5N Acetic acid volume	ml/l	0		
Moisture	%	-	NA	NA
Dissolved Sulphate	ug/g	40	13000	16200

ELEMENTS BY ICP/MS (SOLID)		28-Sep	12-Oct	25-Oct	9-Nov	23-Nov	7-Dec
Bureau Veritas ID		XDI626	XGW560	XKH750	XOG981	XRW984	XYT588
Sampling Date		2023/09/28 07:30	2023/10/12	2023/10/25 16:00	2023/11/09 07:15	2023/11/23 10:05	2023/12/07
COC Number		n/a	N/A	790743	799011	806719	N/A
	UNITS	RDL	ACI-121023-02	ACI - 251023 - 03	ACI - 091123 - 02	ACI - 231123 - 01	ACI-041223-01
Metals							
Leachable Aluminium (Al)	ug/L	100	430	1500	580	ND	890
Leachable Antimony (Sb)	ug/L	20	ND	ND	ND	ND	ND
Leachable Arsenic (As)	ug/L	74	ND	ND	ND	ND	ND
Leachable Barium (Ba)	ug/L	50	130	130	100	ND	130
Leachable Beryllium (Be)	ug/L	20	ND	ND	ND	ND	ND
Leachable Boron (B)	ug/L	500	1000	770	ND	ND	520
Leachable Cadmium (Cd)	ug/L	3.0	ND	ND	ND	ND	57
Leachable Calcium (Ca)	ug/L	1000	830000	1000000	660000	830000	1100000
Leachable Chromium (Cr)	ug/L	20	ND	ND	ND	ND	ND
Leachable Cobalt (Co)	ug/L	10	16	ND	ND	ND	ND
Leachable Copper (Cu)	ug/L	20	120	80	23	ND	110
Leachable Iron (Fe)	ug/L	500	ND	510	820	ND	2200
Leachable Lead (Pb)	ug/L	5.0	3600	150	310	160	440
Leachable Lithium (Li)	ug/L	20	23	ND	ND	ND	ND
Leachable Magnesium (Mg)	ug/L	1000	11000	14000	8900	11000	11000
Leachable Manganese (Mn)	ug/L	20	1700	1400	850	1100	1200
Leachable Molybdenum (Mo)	ug/L	20	ND	ND	ND	ND	ND
Leachable Nickel (Ni)	ug/L	20	ND	ND	ND	ND	ND
Leachable Potassium (K)	ug/L	1000	17000	14000	10000	ND	10000
Leachable Selenium (Se)	ug/L	10	ND	ND	ND	ND	ND
Leachable Silver (Ag)	ug/L	5.0	ND	ND	ND	ND	ND
Leachable Strontium (Sr)	ug/L	50	1300	1900	1400	1400	1800
Leachable Thallium (Tl)	ug/L	1.0	ND	ND	ND	ND	ND
Leachable Tin (Sn)	ug/L	20	ND	ND	ND	ND	ND
Leachable Uranium (U)	ug/L	1.0	ND	ND	ND	ND	ND
Leachable Vanadium (V)	ug/L	20	ND	ND	ND	ND	ND
Leachable Zinc (Zn)	ug/L	50	3300	2200	1700	2000	3400
Inorganics							
Sample Weight (as received)	g	N/A	100	100	100	100	74
Sulphate (SO4)	mg/kg	2000	8600	9300	7900	13000	8100
Initial pH	N/A		5.0	5.0	4.9	4.9	5.0
Final pH	N/A		5.1	5.3	5.2	5.3	5.3

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

ND = Not Detected at a concentration equal or greater than the indicated Detection Limit

Results relate only to the items tested.

Otter Lake Solid Waste Management Facility
2023 Annual Report

Appendix F- Odor Complaint Log

Received	Area of Concern	In regards to	Follow Up
January 27, 2023	Goodwood	Odour	Email to HRM/Environment
February 9, 2023	No location provided	Odour	Email to HRM/Environment
June 10, 2023	Timberlea	Odour	Email to HRM/Environment
August 15, 2023	Sobeys - Timberlea	Odour	Email to HRM/Environment
August 15, 2023	Timberlea Village Parkway	Odour	Email to HRM/Environment
September 3, 2023	Tuscany Run	Odour	Email to HRM/Environment
September 18, 2023	Sobeys - Timberlea	Odour	Email to HRM/Environment
September 18, 2023	Brunello Golf Course	Odour	Email to HRM/Environment
September 23, 2023	Tim Hortons - Timberlea	Odour	Email to HRM/Environment
September 24, 2023	Tuscany Run	Odour	Email to HRM/Environment
September 26, 2023	Timbelea	Odour	Email to HRM/Environment
September 28, 2023	Old Coach Road	Odour	Email to HRM/Environment
September 29, 2023	Devonshire Dr. - Timberlea	Odour	Email to HRM/Environment
October 3, 2023	Marketway Lane - Timberlea	Odour	Email to HRM/Environment
October 4, 2023	Maple Drive - Timberlea	Odour	Email to HRM/Environment
October 5, 2023	Highway between Exit 3 & 4	Odour	Email to HRM/Environment
October 5, 2023	Maple Drive - Timberlea	Odour	Email to HRM/Environment
October 5, 2023	Maple Drive - Timberlea	Odour	Email to HRM/Environment
October 6, 2023	Tim Hortons - Timberlea	Odour	Email to HRM/Environment
October 6, 2023	St. Margarets Bay Road - Greenwood Heights Subdivision	Odour	Email to HRM/Environment
October 6, 2023	Riverwood Drive	Odour	Email to HRM/Environment
October 6, 2023	Yoon Court	Odour	Email to HRM/Environment
October 6, 2023	Greenwood Heights	Odour	Email to HRM/Environment
October 6, 2023	Greenwood Heights	Odour	Email to HRM/Environment
October 10, 2023	Tuscany Run	Odour	Email to HRM/Environment
October 19, 2023	Yorkshire Drive	Odour	Email to HRM/Environment
October 26, 2023	Cabernet Court, Brunello Estates	Odour	Email to HRM/Environment
October 26, 2023	Intersection of St. Margarets Bay Road and Timberlea Parkway	Odour	Email to HRM/Environment
October 26, 2023	Bayers lake Superstore	Odour	Email to HRM/Environment

NOTE:

Individual complainant information has been recorded as per the approval and is available from MIRROR NS and HRM upon request.

Appendix G – Waste Oil Summary

WORK ORDER

Service Location / Consignor:
 MIRROR NOVA SCOTIA Site# 000583431
 600 OTTER LAKE DRIVE
 Lakeside, NS B3T 1M6
 Tel 902-453-3490 Fax
 Attn Accounts Payable
 Email gfenrv@gfenrv.com
 T 000-000-0000

Invoice Location:
 MIRROR NOVA SCOTIA Act # 10555626
 600 OTTER LAKE DRIVE
 Lakeside, NS B3T 1M6
 Tel 902-453-3490 Fax
 Attn Accounts Payable
 Email gfenrv@gfenrv.com
 T (000) 000-0000

Work Order Number: W2514083 (1 of 1)
Reference Number:
Scheduled Date (mm/dd/yyyy): 02/19/2024
Project #:
Leaving Yard:
Arriving At Yard:
Time In: 8:31:41
Time Out:

Service Date	Week	Purchase Order	TSR	Driver	Srd. Zone	Route	Payment Method	\$U #	Payment Terms	Truck	Trailer	Time In	Time Out
02/19/2024			Jody Trainor	Ronald Clements	NSI	197956	On Account	309	Net 30 Days	122011			

#	Ordered	Part	EC	Service Description	Customer Description	TDG Ref	Prov. ID	SNV	Serial	Supply of	Vol. Item Oved	Billed Qty	Unit of	Price per	Subtotal of
6665069	0	1505		Used oil removal service	Used Oil Collection (UOMA)	1	N/R	8		0	600		litre		

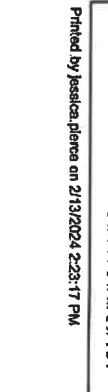
Good	Year	Parts Washer Condition/Operation	Good	Poor	Hydr. Cleaner Condition/Operation	Good	Poor	Spray Gun Condition/Operation	Subtotal
		Machine cleanliness & condition			Machine cleanliness & condition			Machine cleanliness & condition	
		Light assembly working and operating			Light assembly working and operating			Light assembly working and operating	
		Electrical wire no frays & ground intact			Wheels working and not sticking			Drain tub connecting correctly	
Yes	No	Siphon/hose/drush working correctly	Yes	No	No air leaks present	Yes	No	No air leaks present & WHMIS labels legible	
		WHMIS labels legible			Air blower operating correctly			Fume extraction working properly (if applicable)	
		Coarse/finable link operate correctly			Flow through hose operating correctly			Automatic wash cycle operating correctly	
		Paint in good condition			WHMIS labels legible			Clean wash cycle operating correctly	

Carrier Information:
 Carrier No: NBRT004108 Carrier: GFL Environmental Services Inc. 17 Jones Court, Sussex, NB, E4E 2S2, 506-432-9500
 Reg. 347 Exempt No: NSCC000116
 Reg. 347 Exempt No: NSCC000116
 Manifest Ref: 19X21014-8
 Manifest Ref: 19X21014-8

Transportation of Dangerous Goods Information:
 TDG Ref: Prov. ID: DG: UN Number: Shipping Name: Class (Sub class): Packing Group: Qty: UOM: Packaging NO.: Code: Physical State:

1 used oil (non TDGA regulated) N/R

Receiver Information:
 Receiver No: NBR004108 Receiver: GFL Environmental Services Inc. (Sussex) 17 Jones Court, Sussex, NB, E4E 2S2, 24-Hour No: 1-800-567-7455
 ROUTE 1556 DRUM
 ROUTE 1529 OIL
 Comments/Notes: RAC



Customer/Consignor Certification:
 I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition for transport according to the Transportation of Dangerous Goods Regulations. Services described in the work order are provided subject to the terms and conditions set out on the reverse side.

Customer/Consignor Representative: *M. McKeown*
 (Please Print)

Customer/Consignor Representative: *M. McKeown*
 (Please Print)

Appendix H – Video Inspection



MEMO

TO: Steve Copp, Landfill/Safety Manager, MIRROR NS
FROM: Chris Shortall, P.Eng, Tom Tzagarakis, EIT
DATE: September 26, 2023
SUBJECT: Otter Lake RDF Leachate System Observation
OUR FILE: 22-4735-1000

CleanEarth Technologies Inc. (CleanEarth) was engaged by Mirror Nova Scotia to conduct an inspection of the leachate collection system piping for Cells 1 to 7 at the Residuals Disposal Facility (RDF). A Dillon Consulting Ltd (Dillon) representative was present on-site to observe flushing and inspection and provide general guidance/direction to the operators. All cells and corresponding lines were flushed and video inspected by CleanEarth from June 26th, 2023 to June 29th, 2023. Lines were flushed and dry-run as many times required to achieve the greatest inspection lengths for recording. Closed-circuit television (CCTV) recordings were shared with Dillon via Google Drive from CleanEarth on August 29, 2023. Findings are summarized in **Table 1** of this report.

The perforated 150 and 200 mm HDPE leachate collection pipes span the length of each cell. Each collection pipe measures approximately 300 to 600 m in length with 3 to 10 collection pipes per cell. Refer to **Figure 1** for a site overview of the RDF leachate collection pipes in each cell. Each cell has a central perforated HDPE header pipe which collects leachate from each respective perforated collection pipe. The header pipe drains to a sump, otherwise known as the “stomach” where the leachate is pumped via double walled HDPE forcemain to the leachate storage tank. The leachate is held until it is trucked for disposal at the Mill Cove Wastewater Treatment Plant (WWTP) in Bedford. Cells 3, 5, and 6 also have horseshoe shaped perforated HDPE pipe which is used as a backup for cleaning the sump should the leachate collection header cleanout pipe become clogged. Leak detection pipes were inspected during the site inspection.

In an attempt to obtain representative data, it was decided by CleanEarth, the Dillon representative, and Otter Lake personnel that the inspection method would carry-on as follows:

1. Collection pipes identified based on map and collection pipe identifiers;
2. End caps removed;
3. Pipe flushed with jet rod hose as far as possible;
4. Camera inserted in pipe, not recorded, for a dry-run to view blockages;
5. Steps 3 and 4 repeated as many times necessary for maximum inspection length;
6. Camera inserted in pipe for and video recorded.

It should be noted that while the majority of collection pipes were cleaned up to 150 ft, bends encountered in some of the pipes prevented full flushing. For all three days of video inspection, a lateral push camera was manually fed into each pipe.

Recommendations/Observations

1. The lateral camera and method of inspection used has noticeable difficulty traversing bends/HDPE extrusion beads in the pipe which further limit the inspection of some of the pipes.
2. More time should be accounted for to allow water to drain after flushing prior to camera inspection, this will allow for more accurate inspection of pipe conditions.
3. A dry-run with push camera should be done after each flush to identify blockages that do not necessarily impact the passage of the jet rod, but the camera.
4. Jet-rodging and video camera inspection should be done simultaneously to ensure when lines are left to drain after jet-rodging, water is drained and blockages are blasted to ensure camera recording can occur more efficiently.
5. There is no record or video of Pipe #6, Cell 1&2.

TABLE 1: INSPECTION RESULTS

Pipe Identifier	Pipe Size (mm)	Approx Length (m)	Inspected Length (m)	Flush Count	In Water (m)	Out Water (m)	Comments
Cell 1 & 2							
1-1	150	84	54.4	1	14.8	20.0	Good condition, water inside the pipe, minimal buildup
1-2	150	171	50.6	1	14.3	15.8	Good condition, clear visibility, minimal water
1-3	150	210	54.0	1	12.3	17.6	Good condition, clear visibility with minimal buildup
1-4	150	245	51.2	1	14.0	19.9	Good condition, clear visibility
1-5	150	411	56.1	1	14.8	27.7	Good condition, clear visibility
1-6	-	-	-	-	-	-	-
1-7	150	455	51.5	1	14.2	16.6	Good condition, some white sludge buildup
1-8	150	461	46.5	1	14.6	19.4	Good condition, clear visibility
1-9	150	467	52.6	1	12.6	26.0	Good condition, clear visibility
1-10	150	485	49.2	1	5.0 12.1	8.7 35.2	Good condition, water blocking majority of inspection
1-Header	200	270	49.1	1	-	-	Good condition, clear visibility
Cell 3							
3-1	150	281	50.5	1	13.4	16.6	Good condition, clear visibility

Pipe Identifier	Pipe Size (mm)	Approx Length (m)	Inspected Length (m)	Flush Count	In Water (m)	Out Water (m)	Comments
3-2	150	498	44.5	1	11.8	23.7	Good condition, some buildup of white sludge
3-3	150	498	47.3	1	11.7	31.2	Good condition, water blocking visibility for majority of the inspection
3-4	150	534	22.0	1	11.0	21.9	Good condition, the camera was underwater for the majority of the measurement, poor visibility
3-Header	200	92	41.7	1	13.9 24.6	21.3 27.8	Good condition, clear visibility
3-Horseshoe	150	88	35.3	1	16.0	35.3	Good condition, water blocking visibility for majority of the inspection
Cell 4							
4-1	150	436	45.9	1	14.1	27.7	Good condition, clear visibility
4-2	150	548	45.9	1	10.3	23.7	Good condition, clear visibility
4-3	150	552	30.0	1	12.5	30.0	Good condition, water blocking visibility for majority of the inspection
4-Header	200	94	28.0	1	18.3	28.0	Good condition, clear visibility
Cell 5							
5-1	150	565	59.1	1	3.4 18.3	5.1 20.4	Good condition, clear visibility, minimal water blockage
5-2	150	582	41.1	2	12.8	30.9	Good condition, lots of sludge buildup, needed to be rinsed twice
5-3	150	600	59.7	1	3.0 14.4	7.4 40.5	Good condition, lots of water blocking visibility
5-Header #1	200	127 (approx.)	30.8	1	21.3	30.8	Good condition, clear visibility
5-Header #2	200	127 (approx.)	61.1	1	7.7	11.2	Good condition, clear visibility
5-Horseshoe #1	150	79	55.5	1	12.6	55.5	Good condition, water blocking visibility for

Pipe Identifier	Pipe Size (mm)	Approx Length (m)	Inspected Length (m)	Flush Count	In Water (m)	Out Water (m)	Comments
							majority of the inspection
5-Horseshoe #2	150	79 (approx.)	56.8	1	12.8	56.8	Good condition, water blocking visibility for majority of the inspection
5-Leak Detection Pipe #1	200	127 (approx.)	57.4	1	3.4 31.6	9.5 33.8	Good condition, clear visibility
5-Leak Detection Pipe #2	200	127 (approx.)	51.3	1	0.27 13.9	2.6 16.7	Good condition, clear visibility
Cell 6							
6-1	150	594	53.6	1	14.9	44.2	Good condition, lots of water blocking visibility
6-2	150	594	49.9	1	15.6	49.6	Good condition, sludge buildup around 49 meters.
6-3	150	584	37.4	1	24.7	37.4	Good condition, clear visibility until 37 meters, where camera was blocked
6-Header	200	116	38.2	1	18.7	32.2	Good condition, difficulty traversing pipe due to bends/joints
6-Horseshoe	150	97	55.8	1	16.7	53.4	Good condition, poor visibility for the majority of the inspection
6-Leak Detection Pipe	200	116 (approx.)	42.1	1	29.2	34.7	Good condition, clear visibility
Cell 7							
7-1	150	288	31.2	1	15.1	31.2	Good condition, poor visibility, lots of water
7-2	150	290	60.6	1	15.8	30.7	Good condition, clear visibility
7-3	150	289	62.8	1	3.4 17.7	5.1 61.8	Good condition, water blocking majority of inspection
7-Header	200	130	61.6	2	21.7	61.8	Good condition, water blocking majority of inspection

Pipe Identifier	Pipe Size (mm)	Approx Length (m)	Inspected Length (m)	Flush Count	In Water (m)	Out Water (m)	Comments
7- Leak Detection Pipe	200	130 (approx.)	61.0	1	32.9	51.6	Good condition, clear visibility, large water build-up