

The Corporation of the City of Kawartha Lakes
Agenda
Lindsay-Ops Landfill Public Review Committee Meeting

2021-001

Wednesday, January 20, 2021

**Electronic Participation Begins at 3:00pm. To attend the meeting and access the Zoom link contact
ksnoddy@kawarthalakes.ca**

Public Works and Engineering Boardroom

322 Kent Street West

Lindsay, ON K9V 4T7

Members:

Councillor Pat Dunn

Chris Appleton

Barry Hodgson

Lloyd Robertson

Larry Scrivens

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1.	Call to Order	
2.	Adoption of Agenda	
3.	Disclosures of Pecuniary Interest	
4.	Approval of the Minutes of the Previous Meeting	3 - 5
5.	Reports	
5.1.	PRC Activity Summary Spreadsheet	6 - 6
6.	Landfill Complaints	
7.	Leachate Outbreaks	
8.	Other New Business	
8.1.	2020 Work Summary and 2021 Work Plan	
8.2.	Waste Strategy Initiative Progress	
9.	Public Comment Period	
10.	Next Meeting	
11.	Adjournment	7 - 8

The Corporation of the City of Kawartha Lakes

Minutes

Lindsay-Ops Landfill Public Review Committee Meeting

2020-163

Wednesday, November 18, 2020

3:00 P.M.

Public Works and Engineering Boardroom

322 Kent Street West

Lindsay, ON K9V 4T7

Members:

Councillor Pat Dunn

Chris Appleton

Karen Buckley

Lloyd Robertson

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1. Call to Order

The Chair called the meeting to order at 3:06pm.

2. Adoption of Agenda

Moved By C. Appleton

Seconded By Councillor Dunn

Carried

3. Disclosures of Pecuniary Interest

There were no declarations of pecuniary interest disclosed.

4. Approval of the Minutes of the Previous Meeting

Moved By Councillor Dunn

Seconded By C. Appleton

Carried

5. Reports

5.1 PRC Activity Summary Spreadsheet

6. Landfill Complaints

There was a complaint in September regarding an odour issue at the landfill. This was immediately dealt with and the MECP was informed of the complaint.

7. Leachate Outbreaks

No leachate outbreaks.

8. Other New Business

8.1 WSP Capital Needs Assessment Presentation

Paul Mulholland from WSP and Greg Taras from UEM conducted a PowerPoint presentation on a capital needs assessment project lead by Tauhid Khan (also in attendance) from the City's Capital Assets group. The project looks at potential options once the Fenelon and Laxton Landfill reach capacity in approximately 2024. The main items which were discussed in the presentation were changes to the configuration and upgrades to the sawtooth area as well as additional scales at Lindsay Ops to reduce traffic congestion. The option of using the Fenelon and Laxton landfill sites as transfer stations once they reach capacity will also be explored further.

The committee discussed the presentation and asked questions including whether staff will provide their recommendations, whether the PRC would see the final report before it goes to council, if the cost of new scales was included within the pricing of each of the other options, and whether the transition of the blue box to producer responsibility or organics legislation was taken into consideration.

Moved By K. Buckley
Seconded By Councillor Dunn

Resolved that the PRC receive the presentation; and

That the PRC is provided with the draft report with staff comments before it is presented to council.

Carried

8.2 New Blue Box Regulation

Kerri presented on the draft blue box regulation posted on the Environmental Registry of Ontario for comment.

The PRC discussed, and asked if the AMO comments to the MECP could be circulated to the PRC.

9. Public Comment Period

Mr. Wilson asked if well 7-90 was repaired and being monitored for the height of the leachate, if he could receive copies of the 2018 and 2019 AMRs to photocopy, if the City would consider separating the leachate from the landfill into a lagoon rather than being treated at the wastewater treatment plant, and he inquired about a future Environmental Assessment and commented that previous EA's should be reviewed during this process.

10. Next Meeting

The next meeting will be Wednesday, January 20th at 3:00pm on Zoom.

11. Adjournment

The meeting was adjourned at 5:00pm.

**Lindsay Ops Landfill Public Review Committee
Action List**

Meeting Date of Activity	Action	Responsibility	Action Item Date:	Status
15-May-13	PRC requested operational updates on the Landfill Gas Electricity Generation.	CKL	Monthly	January 20 Meeting: Generator down for a couple weeks in December as it was undergoing it's regular scheduled 'minor overhaul'. It has been operating well since then. Report going to council February 9 as requested, summarizing the generator's performance in 2020.
15-Jan-14	That the PRC is copied on Staff Reports to Council regarding the Lindsay Ops Landfill	CKL	As Available	January 20 Meeting: Confidential member appointment report going to Council Jan 28 2021. PRC 2020 Work Summary and 2021 Work Plan will go to Council on March 9 2021.
21-Jan-15	Provide update on quarterly PCB testing (SW3/ SW13)	CKL	Quarterly	January 20 Meeting: 2020 sampling events completed (April 30, June 24, August 10, and Oct 22). No PCBs detected. All locations dry in August, SW13 dry in Oct.
17-Jun-15	MECP Comments	CKL	As Available	January 20 Meeting: ECA ammendment application for valve in compost pond approved for waste ECA. Still waiting on changes to stormwater ECA.
23-Nov-16	Biomonitoring	CKL	As Available	January 20 Meeting: Biomonitoring work for 2021 awarded to Cambium.
21-Jan-19	Leachate Water Quality Results	CKL	As Available	January 20 Meeting: See attached spreadsheet.
17-May-17	Waste Management Advisory Committee Update	CKL	As Available	January 20 Meeting: Meeting tentatively scheduled for Feb 1, 2021. Same Agenda items as PRC.
17-Jan-17	Updates on Blue Box markets and Legislation	CKL	As Available	January 20 Meeting: Draft regulation comment period ended. Final regulation not yet posted.
16-May-18	Construction and Demolition Update	CKL	As Available	January 20 Meeting: Mixed C&D program went well for 2020 with 267 Tonnes diverted. Pilot program to continue in 2021 with report back to council by the end of June. Our goal is to increase to 1000 tonnes.
8-Jan-20	Update on Implementation of Waste Strategy Iniatives	CKL	As Available	January 20 Meeting: To discuss as Agenda Item.
20-Jun-18	Lindsay Ops EA Process Update	CKL	As Available	January 20 Meeting: Dillon awarded work. Future Options Study to be completed by June 30, 2021.

Lindsay Ops Leachate 2019			Exceeds Bylaw Value Exceeds PW/QO Value														
Parameters	CKL Sewer Bylaw Limits (mg/L)	Provincial Water Quality Objectives (mg/L)	Jan. Results (mg/L)	Feb. Results (mg/L)	Mar. Results (mg/L)	April. Results (mg/L)	April. Results (mg/L) new cell	May Results (mg/L)	June Results (mg/L)	July Results (mg/L)	August Results (mg/L)	September Results (mg/L)	October. Results (mg/L) new cell	Oct Results (mg/L)	Nov Results (mg/L)	Dec Results (mg/L)	
Hardness (CaCO3)	N/A	N/A	593	596	544	653	925	557	475	628	649	664	1090	666	610	580	
Alkalinity (CaCO3)	N/A	N/A	609	599	601	482	1270	528	531	693	773	759	2380	731	610	543	
Biochemical Oxygen Demand (BOD)	300	N/A	<3	19	8	7	262	4	3	5	4	n/a	62	< 3	5	5	
TDS	N/A	N/A	991	1005	972	928	1550	796	743	1045	1144	1258	4318	1226	1017	868	
Dissolved Organic Carbon	N/A	N/A	13.1	13.4	13.5	12.9	207	14.8	12.1	16.1	18.5	1.3	130	11.4	10	8.2	
COD	N/A	N/A	73	62	63	56	644	40	38	76	78	112	692	87	59	50	
Chloride	N/A	N/A	176	199	198	127	27.5	107	106	138	202	307	887	278	201	146	
Ammonia (N) - Total	N/A	1.11	17.6	17.6	16.9	14.1	10	9.71	10.5	20.9	26.6	28.4	350	27.9	17.4	11.8	
Fluoride	10	N/A	0.2	0.1	< 0.1	< 0.1	0.8	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 3	< 0.1	< 0.1	< 0.1	
Phenolic, 4AAP	1	0.001	0.012	<0.002	< 0.002	< 0.002	0.14	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	
Sulphate	N/A	N/A	45	42	48	139	10	38	34	33	22	15	121	17	49	50	
Nitrite	N/A	N/A	<0.05	<0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 1	< 0.05	< 0.05	< 0.05	
Nitrate	N/A	N/A	0.08	0.15	0.18	0.16	< 0.05	0.42	0.32	< 0.05	< 0.05	< 0.05	< 1	< 0.05	0.21	0.49	
Kjeldahl Nitrogen - Total	50	N/A	19.7	20.5	20.8	17.6	104	10.9	10.5	25.2	30.7	35.8	364	35.3	18	14.9	
Aluminum - Total	50	0.075*	0.27	0.12	0.12	0.68	0.13	0.1	0.08	0.15	0.1	0.07	0.62	0.1	0.11	0.11	
Antimony - Total	5	0.02	<0.0005	<0.0001	< 0.0005	0.0006	0.0022	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.002	< 0.0005	< 0.0005	< 0.0005	
Arsenic - Total	1	0.1	0.0024	0.0013	0.0008	0.0013	0.0107	0.0013	0.0009	0.0026	0.0012	0.0014	0.0189	0.0013	0.0015	0.0012	
Barium	N/A	N/A	0.331	0.297	0.253	0.245	0.362	0.211	0.159	0.394	0.382	0.471	0.82	0.462	0.313	0.226	
Beryllium	N/A	1.1**	<0.002	<0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	
Boron	N/A	0.2	0.382	0.426	0.37	0.299	2.95	0.281	0.278	0.509	0.54	0.632	9.68	0.605	0.411	0.3	
Cadmium - Total	0.7	0.0002	<0.00007	<0.00015	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	
Calcium	N/A	N/A	179	175	160	211	273	184	154	184	186	180	267	182	184	185	
Chromium - Total	2.8	0.0099	0.017	0.011	0.012	0.161	0.013	0.004	0.001	0.013	< 0.001	0.004	0.037	0.003	0.01	0.004	
Cobalt - Total	5	0.0009	0.0013	0.007	0.0013	0.0025	0.0052	0.0009	0.0011	0.0015	0.001	0.0011	0.0159	0.0013	0.001	0.0008	
Copper - Total	2	0.005	0.0042	0.0011	0.0011	0.0062	0.011	0.001	0.0015	0.0021	< 0.0005	< 0.0005	0.008	< 0.0005	0.0006	0.0011	
Iron	N/A	0.3	27.7	11	5.64	21	7.96	20.9	10.8	45.5	14.4	15.1	59.6	11.8	13.9	13	
Lead - Total	1	0.005	0.0025	0.00012	0.0002	0.0016	0.0016	0.0004	0.0001	0.0005	< 0.0001	< 0.0001	0.0013	0.0002	0.0005	0.0002	
Magnesium	N/A	N/A	35.3	38.6	35.1	30.6	59.1	23.6	21.9	40.9	44.8	52	104	51.3	36.6	28.5	
Manganese - Total	5	N/A	0.45	0.363	0.355	0.618	0.63	0.439	0.35	0.447	0.379	0.299	0.837	0.272	0.404	0.416	
Mercury - Total	0.01	0.0002	<0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	
Molybdenum - Total	5	0.04	<0.0005	0.0002	< 0.0005	0.0022	0.0009	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0021	< 0.0005	0.0007	< 0.0005	
Nickel - Total	2	0.025	0.01	0.01	0.01	0.07	0.03	< 0.01	< 0.01	0.01	< 0.01	0.01	0.09	0.01	0.01	< 0.01	
Potassium	N/A	N/A	18.1	21.3	19.1	14.5	139	11.7	10.8	24	27.4	28.9	260	31.5	19	12.8	
Phosphorus	N/A	N/A	<0.1	<0.1	< 0.1	0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	3.3	< 0.1	< 0.1	< 0.1	
Phosphorus - Total	10	0.01	0.05	0.03	0.03	0.1	0.29	0.05	0.02	0.05	0.03	0.03	3.21	0.06	0.02	0.04	
Selenium - Total	1	0.1	<0.005	<0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.012	< 0.005	< 0.005	< 0.005	
Silver - Total	0.4	0.0001	<0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	
Sodium	N/A	N/A	121	136	123	97.6	257	81.6	73	136	149	168	740	179	124	91.6	
Strontium	N/A	10 bq/L	0.64 mg/L	0.715 mg/L	0.622	0.678	1.35	0.572	0.515	0.774	0.732	0.794	2.73	82.80%	0.679	0.6	
Thallium	N/A	0.0003	<0.0003	<0.00005	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	
Vanadium	N/A	0.006	0.0018	0.0009	0.0008	0.0025	0.0074	0.0009	0.0005	0.0018	0.0007	0.001	0.0239	0.001	0.001	0.0007	
Zinc - Total	2	0.03	0.023	0.009	0.03	0.035	0.034	0.009	< 0.005	0.006	< 0.005	0.005	0.185	< 0.005	0.018	< 0.005	
Benzene	0.01	0.1	0.0023	0.0007	0.0006	< 0.5	0.0007	< 0.0005	<0.0016	0.0006	< 0.0005	0.0018	0.0017	< 0.0005	0.0015	0.0019	
Toluene	0.02	0.0008	<0.0005	<0.0005	<0.0005	< 0.0005	0.0126	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Ethylbenzene	0.06	0.008	0.0027	<0.0005	<0.0005	< 0.0005	0.0006	< 0.0005	<0.0011	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0008	
Xylene, m, p -	N/A	N/A	0.0042	<0.001	<0.001	< 0.001	0.0012	<0.001	<0.0011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Xylene, o -	N/A	0.04	0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Xylene, m, p, o -	N/A	N/A	0.0042	<0.0011	<0.0011	<0.0011	0.0018	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	

Parameters	Limits	Provincial Water Quality Objectives	Jan. Results	Feb. Results	Mar. Results	April. Results	Apr. Results New Cell	May. Results	June. Results	July. Results	Aug. Results	Sept. Results	Oct. Results New Cell	Oct Results	Nov Results	Dec Results
pH (at 25 °C)	6.0 - 9.5	6.5 - 8.5	7.34	7.68	7.6	7.34	7.74	7.13	7.35	6.95	7.4	7.28	7.87	7.66	7.6	7.37
Conductivity (at 25 °C)	N/A	N/A	1750 µm ho/cm	1780 µm ho/cm	1790 µmho/cm	1590 µmho/cm	3490 µmho/cm	1370 µmho/cm	1350 µmho/cm	1860 µmho/cm	2000 µmho/cm	2160 µmho/cm	7050 µmho/cm	2110 µmho/cm	1750 µmho/cm	1540 µmho/cm
Conductivity (calculated)	N/A	N/A	1650 µm ho/cm	1720 µm ho/cm	1664 µmho/cm	1563 µmho/cm	2403 µmho/cm	1344 µmho/cm	1267 µmho/cm	1692 µmho/cm	1928 µmho/cm	2141 µmho/cm	6453 µmho/cm	2103 µmho/cm	1725 µmho/cm	1479 µmho/cm
Anion Sum	N/A	N/A	18.1 meq/L	18.5 meq/L	18.6 meq/L	16.1 meq/L	26.4 meq/L	14.4 meq/L	14.3 meq/L	18.4 meq/L	21.6 meq/L	24.1 meq/L	75.1 meq/L	22.8 meq/L	18.9 meq/L	16 meq/L
Cation Sum	N/A	N/A	20.3 meq/L	20.2 meq/L	18.2 meq/L	18.7 meq/L	34.4 meq/L	16.8 meq/L	14.3 meq/L	23 meq/L	22.8 meq/L	24.1 meq/L	88.5 meq/L	24.5 meq/L	20.1 meq/L	17.4 meq/L
% Difference	N/A	N/A	5.77%	4.51%	1.09%	7.29%	13.10%	7.78%	0.18%	11.00%	2.68%	0.02%	8.17%	3.55%	2.94%	415.00%
Ion Ratio (AS/CS)	N/A	N/A	0.891	0.914	1.02	0.864	0.769	0.856	1	0.801	0.948	1	0.849	0.931	0.943	0.92
Sodium Adsorption Ratio	N/A	N/A	2.16	2.42	2.29	1.66	3.68	1.5	1.46	2.36	2.54	2.84	9.73	3.02	2.18	1.66
TDS (calc.) / EC (actual)	N/A	N/A	0.567	0.565	0.542	0.585	0.444	0.58	0.551	0.561	0.572	0.582	0.612	0.581	0.582	0.562
Langelier Index (at 25°C)	N/A	N/A	0.875	1.19	1.08	0.845	1.77	0.635	0.78	0.543	1.05	0.903	2.12	1.27	1.14	0.88

Lindsay Ops Leachate 2020		Exceeds Bylaw Value Exceeds PWQO Value														
Parameters	CKL Sewer Bylaw Limits (mg/L)	Provincial Water Quality Objectives (mg/L)	Jan. Results (mg/L)	Feb. Results (mg/L)	Mar. Results (mg/L)	April. Results (mg/L)	April. Results (mg/L) new cell	May Results (mg/L)	June Results (mg/L)	July Results (mg/L)	August Results (mg/L)	September Results (mg/L)	October. Results (mg/L) new cell	Oct Results (mg/L)	Nov Results (mg/L)	Dec Results (mg/L)
Hardness (CaCO3)	N/A	N/A	609	616	556	574	370	602	654	694	684	620	875	864	571	672
Alkalinity (CaCO3)	N/A	N/A	579	560	529	603	442	626	697	710	719	688	1910	950	556	777
Biochemical Oxygen Demand (BOD)	300	N/A	5	5	< 3	4	4	3	5	5	7	6	80	< 3	< 10	< 10
TDS	N/A	N/A	896	927	791	906	1095	936	1076	1148	1178	1059	3296	1422	925	954
Dissolved Organic Carbon	N/A	N/A	11.1	12.9	10.9	10.6	34.4	12.4	11.6	15.8	17.5	12.5	67.5	13.4	9.5	17
COD	N/A	N/A	44	51	35	73	104	54	63	80	88	63	548	99	47	46
Chloride	N/A	N/A	135	162	116	136	274	142	185	215	241	199	705	149	185	87.1
Ammonia (N) - Total	N/A	1.11	13.6	12.8	10.6	16.6	0.31	16.2	21.2	25.4	29.6	21.6	250	31.6	14.7	20.8
Fluoride	10	N/A	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1
Phenolic, 4AAP	1	0.001	< 0.002		< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.036	< 0.002	< 0.002	< 0.002
Sulphate	N/A	N/A	46	44	42	45	94	39	34	29	19	21	58	9	34	17
Nitrite	N/A	N/A	< 0.05	< 0.05	< 0.05	< 0.05	0.07	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.05	< 0.05
Nitrate	N/A	N/A	0.11	0.18	0.36	0.16	8.54	0.15	0.09	0.91	0.99	0.18	0.61	0.35	0.09	2.49
Kjeldahl Nitrogen - Total	50	N/A	15.8	15.8	13.2	18	4.1	19.1	27.8	33.3	38.2	25.1	309	31.8	19.6	25.7
Aluminum - Total	50	0.075*	0.18	0.06	0.09	0.09	0.07	0.08	0.02	0.09	0.11	0.1	0.29	0.17	0.09	0.08
Antimony - Total	5	0.02	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0009	< 0.0005	0.0012	< 0.0005	< 0.0005	< 0.0005	0.0021	0.0008	< 0.0005	< 0.0005
Arsenic - Total	1	0.1	0.0022	0.0016	0.0014	0.0012	0.0018	0.001	0.0055	0.0012	0.0014	0.001	0.0171	0.0075	0.0011	0.0012
Barium	N/A	N/A	0.299	0.27	0.213	0.23	0.076	0.255	0.353	0.427	0.489	0.396	0.649	1.56	0.271	0.363
Beryllium	N/A	1.1**	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	N/A	0.2	0.336	0.327	0.258	0.334	2.74	0.324	0.519	0.559	0.668	0.484	6.5	1.28	0.344	0.635
Cadmium - Total	0.7	0.0002	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.00010	< 0.000059	< 0.000070	< 0.000070	< 0.000070
Calcium	N/A	N/A	192	196	182	179	83.3	188	194	202	192	183	239	217	175	181
Chromium - Total	2.8	0.0099	0.023	0.048	0.001	0.004	0.004	0.001	0.003	0.001	0.001	0.001	0.025	0.005	0.001	0.001
Cobalt - Total	5	0.0009	0.0008	0.0009	0.001	0.0009	0.0039	0.0008	0.0046	0.0012	0.0012	0.0013	0.013	0.0041	0.001	0.0014
Copper - Total	2	0.005	0.0021	0.0006	0.0036	< 0.0005	0.0055	< 0.0005	0.0022	0.0006	0.0015	< 0.0005	0.0009	0.01	< 0.0005	0.0015
Iron	N/A	0.3	33.6	26	21.3	15.3	0.226	14.8	16.4	15.3	14.1	15.8	36.1	188	7.47	16.8
Lead - Total	1	0.005	0.0005	0.0004	0.0002	< 0.0001	0.0002	< 0.0001	0.0006	0.0001	0.0003	0.0002	0.00031	0.0115	0.0001	0.0006
Magnesium	N/A	N/A	31.4	30.7	24.5	30.9	39.4	32.1	41.2	45.9	49.6	39.5	86.7	78.3	32.5	53.5
Manganese - Total	5	N/A	0.487	0.44	0.424	0.431	0.026	0.463	0.408	0.361	0.29	0.322	0.519	0.472	0.416	0.35
Mercury - Total	0.01	0.0002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00013	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum - Total	5	0.04	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0017	< 0.0005	0.0009	< 0.0005	< 0.0005	< 0.0005	0.0029	< 0.0005	< 0.0005	< 0.0005
Nickel - Total	2	0.025	< 0.01	0.01	< 0.01	< 0.01	0.03	< 0.01	0.01	0.01	< 0.01	0.01	0.06	0.02	< 0.01	< 0.01
Potassium	N/A	N/A	14.6	15.2	11.8	16.3	94.4	16.9	22.4	27.5	31.5	22.7	210	31.3	17.1	21.8
Phosphorus	N/A	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.04	< 0.1	< 0.1	1.1	1	< 0.1	0.1
Phosphorus - Total	10	0.01	0.03	0.03	0.02	0.01	0.05	0.02	0.02	< 0.1	0.04	0.04	2.29	0.61	0.03	0.18
Selenium - Total	1	0.1	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.006	< 0.005	< 0.005	< 0.001	0.005	< 0.005	< 0.005	< 0.005
Silver - Total	0.4	0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0001	< 0.0001
Sodium	N/A	N/A	95.8	100	75.4	99.5	244	107	137	155	161	138	496	139	121	83
Strontium	N/A	10 bq/L	0.664	0.641	0.54	0.6	0.671	0.644	0.73	0.734	0.78	0.695	2.39	0.89	0.637	0.656
Thallium	N/A	0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0001	0.00006	< 0.0003	< 0.0003	< 0.0003
Vanadium	N/A	0.006	0.0015	0.0007	0.0008	0.0006	0.0017	0.0006	0.0036	0.0008	0.0011	0.0011	0.0155	0.0061	< 0.0005	0.0006
Zinc - Total	2	0.03	0.006	0.006	0.007	< 0.005	0.363	< 0.005	0.013	< 0.005	0.016	0.011	0.194	0.026	0.008	< 0.005
Benzene	0.01	0.1	0.0014	0.001	0.0012	0.0015	< 0.0005	0.0016	0.0013	0.0014	0.0015	0.0012	n/a	0.025	0.011	0.0019
Toluene	0.02	0.0008	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	n/a	< 0.0005	< 0.0005	< 0.0005
Ethylbenzene	0.06	0.008	0.0003	0.0006	0.0007	0.0007	< 0.0005	0.0007	0.0006	< 0.0005	< 0.0005	< 0.0005	n/a	< 0.0005	< 0.0005	< 0.0005
Xylene, m, p -	N/A	N/A	0.0019	< 0.0001	< 0.0001	0.001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.001	< 0.001	n/a	0.0037	< 0.001	0.0035
Xylene, o -	N/A	0.04	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	n/a	< 0.0005	< 0.0005	< 0.0005
Xylene, m, p, o -	N/A	N/A	0.002	0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	n/a	0.0037	< 0.0011	0.0035

Parameters	Limits	Provincial Water Quality Objectives	Jan. Results	Feb. Results	Mar. Results	April. Results	Apr. Results New Cell	May. Results	June. Results	July. Results	Aug. Results	Sept. Results	Oct. Results New Cell	Oct Results	Nov Results	Dec Results
pH (at 25 °C)	6.0 - 9.5	6.5 - 8.5	7.27	7.6	7.29	8.00	8.54	7.53	7.31	7.36	7.5	7.34	7.80	7.07	7.36	7.61
Conductivity (at 25 °C)	N/A	N/A	1590	1590	1430	1600	2010	1650	1840	2010	2080	1870	5620	2230	1700	1730
Conductivity (calculated)	N/A	N/A	1448	1557	1309	1530	1852	1584	1814	1954	2024	1803	5181	1962	1609	1597
Anion Sum	N/A	N/A	16.3	16.7	14.7	16.8	19.1	17.3	19.9	20.9	21.6	19.8	59.2	23.4	17	18.5
Cation Sum	N/A	N/A	18.5	19.4	15.8	18.2	20.5	19.1	22	23.9	24.3	21.3	65.5	36.5	18.6	20
% Difference	N/A	N/A	6.32%	7.33%	3.62%	3.96%	3.34%	4.76%	5.07%	671.00%	5.84%	3.75%	5.02%	21.80%	4.23%	3.74%
Ion Ratio (AS/CS)	N/A	N/A	0.881	0.863	0.93	0.924	0.935	0.909	0.903	0.874	0.89	0.928	0.904	0.642	0.919	0.928
Sodium Adsorption Ratio	N/A	N/A	1.69	1.75	1.39	1.81	5.52	1.9	2.33	2.56	2.68	2.41	6.99	2.06	2.2	1.39
TDS (calc.) / EC (actual)	N/A	N/A	0.564	0.582	0.554	0.568	0.545	0.567	0.584	0.571	0.566	0.568	0.587	0.638	0.544	0.551
Langelier Index (at 25°C)	N/A	N/A	0.823	1.14	0.791	1.53	1.59	1.1	0.929	1	1.13	0.928	1.93	0.872	0.846	1.26