Wastewater Lagoons Annual Report 2025

March 2026, Version 1.0.

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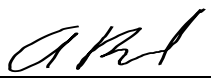
Version 1.0

Prepared by:



Andy Bilash
Manager of Wastewater Treatment

March 26, 2026
Date

Approved by:

Shawn Chretien
Director of Water Wastewater Treatment & Compliance

March 27, 2026
Date

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Introduction to the Annual Wastewater Report

Under Environmental Compliance Approval (ECA) agreements issued by the Ministry of Environment, Conservation & Parks (MECP), the City is required to annually report on the values/parameters indicated in the ECA and made available to the District Manager by March 31st of the calendar year following the period being reported upon.

The City of Greater Sudbury owns and operates four (4) Wastewater Lagoons each having their own distinct annual reporting requirements. To ensure compliance, the city will report on each facility separately. Individual annual lagoon summary reports are attached at the end of the report as appendices.

Capreol Lagoon

Annual Performance Report

Capreol Lagoon operates as an exfiltration lagoon system with a rated capacity of 5,000 m^3/d. Natural processes in the lagoon cell provide treatment of the wastewater. Effluent passes over a weir and through a culvert from the North Cell to the South Cell. The effluent then filters through the ground in the South Cell and travels easterly towards the Vermilion River. The system is operated on the conditions of the Ministry of Environment, Certificate of Approval Number 8214-4UVPUZ.

a. Summary of all monitoring data including an overview of the success and adequacy of the sewage treatment program.

All influent and effluent monitoring data are graphed and reviewed monthly by compliance staff and plant supervisory personnel. For the Capreol Lagoon, all parameters were within the lagoon's design objectives with the exception of effluent Total Phosphorus, which had an annual average concentration of 1.46 mg/L exceeding the objective of 1.38 mg/L. Ferric sulphate is currently dosed at the lagoon inlet to support phosphorus removal; however, reduced performance has been observed during periods of ice cover. This issue will continue to be evaluated to identify effective mitigation strategies.

The lagoon also recorded an annual average downstream BOD_5 concentration 37% higher than upstream levels, exceeding the 15% trigger threshold. This trend will continue to be monitored closely.

If abnormal influent conditions are detected, the City's Environmental Compliance Officers are dispatched to investigate and take appropriate corrective actions.

Influent	2025	2024	2023	2022	2021	2020
BOD_5 (mg/L)	58	47	79	84	98	105
TSS (mg/L)	98	81	72	140	83	73
TP (mg/L)	2.26	1.47	2.02	2.13	2.87	1.90
TKN (mg/L)	12.6	10.3	12.4	14.6	19.4	13.7

Effluent	2025	2024	2023	2022	2021	2020
Avg Daily Flow (m^3/d)	2743	2732	2621	2312	2368	3007
BOD_5 (mg/L)	15.17	17.10	24.24	25.63	25.78	26.97
TSS (mg/L)	27.89	18.33	20.12	29.20	25.39	23.41
TP (mg/L)	1.46	1.38	1.38	1.74	2.02	1.58
Total Ammonia (mg/L)	8.23	7.36	9.87	6.70	8.79	8.02

Effluent (Loading)	2025	2024	2023	2022	2021	2020
TSS (kg/d)	76.76	50.16	52.34	66.93	59.80	68.95
TP (kg/d)	3.62	3.63	3.40	4.55	2.87	4.50
Total Ammonia (kg/d)	20.99	18.82	24.59	14.28	20.51	21.58

Monthly BOD_5 for 2025								
Date	**Jun 3**	**Jun 26**	**Jul 1**	**Aug 5**	**Sep 2**	**Oct 1**	**Nov 4**	**Avg**
Upstream	0.6	0.5	0.1	0.5	2.4	0.5	1.3	0.8
Downstream	0.9	0.7	2.0	1.7	1.5	0.5	0.7	1.1

b. Comprehensive interpretation of all monitoring and analytical data obtained during the reporting period, and a comparison to the "baseline data" described in condition 4.1 for the ECA.

All analytical data described in condition 4.1 as well as parameters outlined in condition 2.1 are monitored as required. Annual performance report with all information will be included in this report.

c. Summary of any quality assurance or control measures undertaken during the reporting period.

Operations staff conduct routine rounds, with all observations documented in the lagoon logbook. Lift station flow monitoring provides continuous trending data for influent flows. Laboratory analyses are performed multiple times per week, and additional samples are collected and submitted for third-party testing. Monthly lagoon reports are prepared, incorporating flow measurements, in-house laboratory results, and third-party analytical data. A data clerk compiles this information into the monthly and annual performance reports to ensure accuracy and completeness. The finalized reports are then forwarded to the area supervisor for review and approval.

d. Summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism, or thing forming a part of the works.

The operating and maintenance staff at the Capreol Lagoon conducts scheduled and emergency maintenance of the WWTP equipment. The City of Greater Sudbury utilizes a Computerized Maintenance Management System (CMMS) known as Antero to issue work orders and maintain records for regular maintenance and emergency repair at the WWTP.

Corrective	Regular Scheduled Maintenance	Regulated Works Orders
Pump out valve chamber	Monitor Wells	Operations Manual Review
	Exercise Valves	

e. An account of any environmental and operating problems encountered at the site of the sewage treatment plant and the mitigative measures taken during the reporting period.

The lagoon has experienced issues with effluent phosphorus removal. CGS staff have chemically treated the lagoon since 2022 and continue to study chemical dosing strategies.

f. Summary of any alterations, extensions or replacements in the process or operation of the works which are considered for implementation over the next reporting period, especially those which may require approval under the Ontario Water Resources Act.

Due to annual daily flow averages for 2025 surpassing 2500 m^3/day, the sampling frequency increased from monthly to every two weeks per the *Wastewater Systems Effluent Regulations*

under the federal *Fisheries Act*. This also creates the obligation to test for acute lethality every quarter.

g. A list of users of Vermilion River, located downstream of the sewage works, up to a distance agreed to by the District Manager.

Attached is a map outlining downstream flow from the Capreol lagoon, including measured distances. A list of downstream residential property owners can be provided upon request.

h. An interpretation of data, opinion on performance of the lagoon treatment plant, impact on the environment and need for remedial measures, if required based on surface water results.

Based on annual surface water performance report (included) all ECA parameters have been adhered to for this reporting year. There is no need for remedial measures for next reporting year. Efforts will be undertaken to improve phosphorus removal by optimizing ferric sulphate dosing at the Vermilion lift station.

Chelmsford Lagoon

Annual Performance Report

Chelmsford lagoon is operated as an offline emergency storage lagoon for the Chelmsford Water Pollution Control Plant approved under Certificate of Approval No. 3-1572-94-956. The lagoon receives all sewage diverted from the existing Main Street sewage pumping station during extreme wet weather flow events. The sewage held in the lagoon is returned to the Chelmsford Water Pollution Control Plant via the Main Street sewage pumping station for further treatment and discharge to the Whitson River. In emergency situations sewage can be discharged directly to the Whitson River

Summary of all monitoring data including an overview of the success and adequacy of the sewage treatment program.

Samples are collected at the Chelmsford lagoon during periods of high flow when emergency storage is required throughout the year. All wastewater diverted to the lagoon is retained and subsequently returned to Chelmsford WWTP for full treatment. Due to a below-average spring melt and the absence of significant weather events, the Chelmsford lagoon was not utilized for emergency storage during this period; therefore, no monitoring data was collected.

a. Comprehensive interpretation of all monitoring and analytical data obtained during the reporting period, and a comparison to the effluent quality and quantity criteria stipulated in Conditions 1.1 through 1.6 together with Total Phosphorus loadings discharged to the Whitson River from the Chelmsford Water Pollution Control Plant and from the sewage lagoon during the (lagoon) discharge period.

There was no lagoon discharge for this reporting year.

b. Summary of any effluent quality assurance or control measures undertaken during the reporting period.

No effluent has been discharged from the lagoon for this reporting year.

c. Summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism, or thing forming a part of the works.

The operating and maintenance staff at the Chelmsford Lagoon are responsible for both scheduled and emergency maintenance of all lagoon equipment. The City of Greater Sudbury uses a Computerized Maintenance Management System (CMMS), Antero, to generate work orders and to maintain detailed records of routine maintenance activities and emergency repairs performed at the Lagoon.

Corrective	Regular Scheduled Maintenance	Regulated Works Orders
No correctives in this reporting year	Exercise Valves	No regulated work orders in this reporting year

d. An account of any environmental and operating problems encountered at the site of the sewage lagoon and the mitigative measures taken during the reporting period.

There were no issues or operational problems for this reporting year.

e. Summary of any alterations, extensions or replacements in the process or operation of the works which are considered for implementation over the next reporting period, especially those which may require approval under the Ontario Water Resources Act.

There were no alterations, extensions or replacements in the process or operation for this reporting year.

Garson Lagoon

Annual Performance Report

The Garson Lagoons have been converted into a sanitary sewage temporary detention facility to manage peak wet weather flows, located in Lot 7, Concession 2, Greater Sudbury City.

a. Description of any operating problems encountered, and corrective actions taken.

There were no operating problems for this reporting year.

b. Summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism, or thing forming part of the Works.

The operating and maintenance staff at the Garson Lagoon conducts scheduled and emergency maintenance of the Lagoon equipment. The City of Greater Sudbury utilizes a Computerized Maintenance Management System (CMMS) known as Antero to issue work orders and maintain records for regular maintenance and emergency repair at the Lagoon.

Corrective	Regular Scheduled Maintenance	Regulated Works Orders
Work Valves	Exercise valves	Operation Manual review
		Anchor point inspection

c. Summary of any complaints received during the reporting period and any steps taken to address the complaints.

No complaints for this reporting year.

d. Summary of all bypasses, spill, or abnormal discharge events; and

No bypasses or discharge events for this reporting year.

e. Any other information the District Manager requires from time to time.

There was no additional information for this reporting year.

Wahnapitae Lagoon

Annual Performance Report

The Wahnapitae Lagoon has a Rated Capacity of 1,246 m^3/d and consists of a 16.1 ha area waste stabilization pond with three cells, Cell No. 1 (5.4 ha), Cell No. 2 (5.4 ha) and Cell No. 3 (5.3 ha). The lagoon has influent works, interconnecting structures, effluent works, and an effluent ditch from the pond to the Wanapitei River.

a. Summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Condition 7, including an overview of the success and adequacy of the Works.

All influent and effluent monitoring data is graphed and reviewed monthly by plant supervisory staff. For the Wahnapitae lagoon, all parameters fell within plant design objectives and compliance limits.

Month	Raw Flows (Act meter)		Raw					
	Total	Avg Day	CBOD	TSS	TP	TAN	TKN	BOD
	m^3	m^3/d	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Nov-24	19240	641						
Dec-24	19445	627						
January	15988	516	33	308	1.30	6.70	11.1	37
February	13320	459	23	191	4.60	11.80	47.0	21
March	27305	881	62	178	1.88	23.60	35.8	69
April	44885	1496	48	98	1.50	8.12	15.9	55
May	30350	979	31	30	0.58	4.67	14.0	180
June	15441	515	22	32	0.10	8.44	10.6	23
July	22987	742	30	19	0.02	4.61	5.4	6
August	11893	384	23	186	1.37	9.29	11.0	19
September	10030	334	6	54	0.57	10.40	9.6	25
October	15581	503	43	3600	4.03	9.54	18.80	43
November	16193	540	57	59	0.78	8.80	11.00	52
December	17858	576	53	60	0.81	24.60	25.6	55
Total	241831							
Average			36	401	1.46	10.9	18.0	56
Spring EFF	140183							
Fall EFF	106282							
Q1 RAW			39	226	2.6	14.03	31.30	37
Q2 RAW			34	53	0.7	7.08	13.50	118
Q3 RAW			20	86	0.7	8.10	8.67	13
Q4 RAW			51	1240	1.9	14.31	18.47	50

	Pre Discharge Sampling - Spring								
	Cell #1			Cell #2			Cell #3		
Date	16-Jun-25	16-Jun-25	NA	16-Jun-25	16-Jun-25	16-Jun-25	Apr.15/25	Apr.15/25	16-Jun-25
CBOD (mg/L)	11.0	6.0		1.0	2.9	2.1	1.0	1.0	1.5
TSS (mg/L)	10.0	3.3		1.0	22.0	2.7	2.0	2.0	2.0
TP (mg/L)	0.051	0.106		0.048	0,113	0.040	0.024	0.027	0.026
TAN (mg/L)	6.41	5.76		3.36	3.96	3.29	1.64	1.63	0.91
pH	6.9	6.9		6.83	6.75	6.98	6.2	6.4	6.4
H_2S (mg/L)	0.02	0.02		0.02	0.03	0.02	0.02	0.02	0.02

	Pre Discharge Sampling - Fall										
	Cell #1			Cell #2			Cell #3			Cell #3		
Date	No Fall Discharge			Dec.16/25	Dec.16/25	Dec.16/25	Nov.24/25	Nov.24/25	Nov.24/25	Nov.11/25	Nov.11/25	Nov.11/25
CBOD (mg/L)				10.0	10.0	5.8	3.0	3.0	4.2	12.0	9.9	11.0
TSS (mg/L)				10.70	17.30	1.30	7.3	18.3	57.3	70.0	60.0	62.0
TP (mg/L)				0.024	0.046	0.011	0.002	0.010	0.021	0.189	0.017	0.030
TAN (mg/L)				6.50	8.40	4.90	3.23	1.03	0.1	1.77	1.70	1.8
pH				6.9	6.6	na	6.8	7.2	7.0	6.6	6.7	6.7
H_2S (mg/L)				0.02	0.02	0.0	0.02	0.02	0.02	0.02	0.02	0.02

	Spring Discharge								
	Cell #1			Cell #2			Cell #3		
Date	Jun.25/25	Jul.2/25	Jul.14/25	Jun.25/25	Jul.2/25	Jul.14/25	Apr.30/25	May.12/25	Jun.9/25
CBOD (mg/L)	2.3	1.0	3.1	1.5	4.9	3.3	1.3	1.8	8.3
TSS (mg/L)	8.7	1.3	11.0	9.2	3.0	8.0	21.0	0.7	28.7
TAN (mg/L)	3.87	3.26	4.68	3.71	4.80	5.01	7.60	6.01	3.10
TP (mg/L)	0.008	0.006	0.672	0.009	0.008	0.011	0.210	0.010	0.139
pH	7.10	7.00	6.90	7.10	6.80	6.90	7.10	7.00	7.10
E.Coli (CFU/100 mL)	21	44	103	29	8	131	85.0	9.5	0.0

	Fall Discharge								
	Cell #1			Cell #2			Cell #3		
Date	**N/A**	**N/A**	**N/A**	**Dec.23/25**	**Dec.30/25**	**6-Jan-26**	**Nov.25/25**	**Dec.2/25**	**Dec.4/25**
CBOD (mg/L)				2.0	3.1	9.1	2.8	3.4	1.7
TSS (mg/L)				6.30	9.33	16.00	36.0	8.7	6.70
TAN (mg/L)				5.47	7.10	8.30	2.04	1.41	2.8
TP (mg/L)				0.008	2.240	0.002	0.050	1.130	0.010
pH				7.45	7.2	7.0	7.1	7.1	7.2
E.Coli				470	510	41	1.0	9	8

Spring Pre Discharge Averages			
	Cell #1	**Cell #2**	**Cell #3**
CBOD (mg/L)	8.5	2.0	1.2
TSS (mg/L)	6.65	8.57	2.00
TP (mg/L)	0.079	0.067	0.026
TAN (mg/L)	6.09	3.54	1.39
pH	6.9	6.9	6.3
H2S (mg/L)	0.02	0.02	0.02

Fall Pre Discharge Averages			
	Cell #1	**Cell #2**	**Cell #3**
CBOD (mg/L)	**No Discharge**	8.6	3.4
TSS (mg/L)		9.77	27.6
TP (mg/L)		0.027	0.011
TAN (mg/L)		6.60	1.4
pH		6.8	7.0
H_2S (mg/L)		0.02	0.02

	Spring	**Fall**	**ECA Limits**
CBOD (mg/L)	3.1	2.0	30.00
TSS (mg/L)	7.5	5.5	40.00
TAN (mg/L)	1.2	0.4	NA
TP (mg/L)	1.8	0.0	NA
pH	6.9	6.7	6.0-9.5
E.Coli (CFU/100 mL)	31.1	21.8	NA

Spring Discharge Dates:	
Cell #1	Jun.25/25 to Jul.14/25
Cell #2	Jun.25/25 to Jul.14/25
Cell #3	April 30-June 9
Approx. Discharge Volume - 127,000 m3.	

Fall Discharge Dates:	
Cell #1	No Fall Release
Cell #2	Dec.23/25 to Jan 6, 2026
Cell #3	Nov.25/25 to Dec.4/25
Approx. Discharge Volume - 40, 143 m3.	

b. Description of any operating problems encountered, and corrective actions taken

During the spring season, beavers repeatedly dammed the lagoon discharge area, obstructing normal outflow from the system. These blockages elevated water levels at the discharge point and increased the risk of overflow within the lagoon cells. To restore capacity and prevent further backups, a contractor was hired to remove the beaver dams and establish normal flow conditions.

Additionally, significant cattail overgrowth throughout the lagoon system further reduced hydraulic capacity. The dense vegetation restricted movement of water through the cells and contributed to ongoing overflow conditions as the lagoon approached its functional limits. Operations identified that the recurring overgrowth created a compliance risk due to the increasing frequency of overflow events. Consequently, Operations prepared a request for reserve funding from Council to support full lagoon cleaning during the fall season.

In September, with Council approved reserve funds, cleaning work commenced in Cell 3. However, the presence of the amphibious excavator, which requires a minimum water level to remain afloat, delayed the regulated fall discharge.

Once the excavator was moved to Cell 2, Cell 3 was discharged to the environment. With vegetation having been pulled back to the banks, water level indicators were more difficult to assess, resulting in the cell being discharged in fewer days than normally prescribed under the facility's regulated discharge window.

As cleaning activities progressed in Cell 2, Cells 1 and 2 froze when colder temperatures arrived before lagoon levels could be sufficiently reduced. This resulted in overflow at the normal discharge location. All overflow events were fully captured, sampled, and reported in accordance with regulatory requirements.

With the onset of cold weather and worsening freeze conditions, the amphibious excavator was removed from the lagoon, and cleaning work was put on hold until Spring 2026. Following equipment removal, Cell 2 was released.

Throughout the fall, the local MECP office was updated weekly, ensuring continued regulatory awareness of the maintenance activities, discharge delays, overflow events, and operational constraints affecting lagoon performance.

c. Summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism, or thing forming part of the Works.

The operating and maintenance staff at the Wahnapitae Lagoon conducts scheduled and emergency maintenance of the Lagoon equipment. The City of Greater Sudbury utilizes a Computerized Maintenance Management System (CMMS) known as Antero to issue work orders and maintain records for regular maintenance and emergency repair at the Lagoon.

Corrective	Regular Scheduled Maintenance	Regulated Works Orders
Install plow markers on chamber Removing Beavers	Exercise valves	Operation Manual Review

d. Summary of any effluent quality assurance or control measures undertaken in the reporting period.

Operations conduct rounds which are recorded in lagoon logbook. Flow monitoring at the lift station record continuous trends for influent flows. Lab analysis is performed several times per week in addition to samples being collected and sent out for third party testing during lagoon discharge periods in the spring and fall. Lagoon monthly reports are created containing flow, in-house lab results and third-party lab results. This data is transferred to monthly and annual performance reports by a data clerk ensuring all information is accounted for. It is then sent to the area supervisor for final review.

e. Summary of the calibration and maintenance carried out on all effluent monitoring equipment.

There is no effluent flow monitoring at this site

f. Description of efforts made, and results achieved in meeting the Effluent Objectives of Condition 6.

A Lagoon rehabilitation project commenced in Fall of 2025 and is expected to be completed in 2026.

g. Summary of any complaints received during the reporting period and any steps taken to address the complaints.

There were no complaints for this reporting year

h. Summary of all Bypass, spill, or abnormal discharge events

Date	Duration (hrs)	Type of Occurrence	Receiving Stream ID	VOL (m^3)	Level of Treatment Received	Reason for Event
15-Apr-2025	1705	Overflow to normal Discharge	Wahnapitae River	71	Disinfection	Rain/Run off/Equip
22-Apr-2025	192	Overflow to normal Discharge	Wahnapitae River	8	Disinfection	Rain/Run off/Equip
4-Dec-2025	312	Overflow to normal Discharge	Wahnapitae River	13	No Treatment	Maintenance
22-Dec-25	72	Overflow to normal Discharge	Wahnapitae River	3	No Treatment	Maintenance

i. Any other information the District Manager requires from time to time.

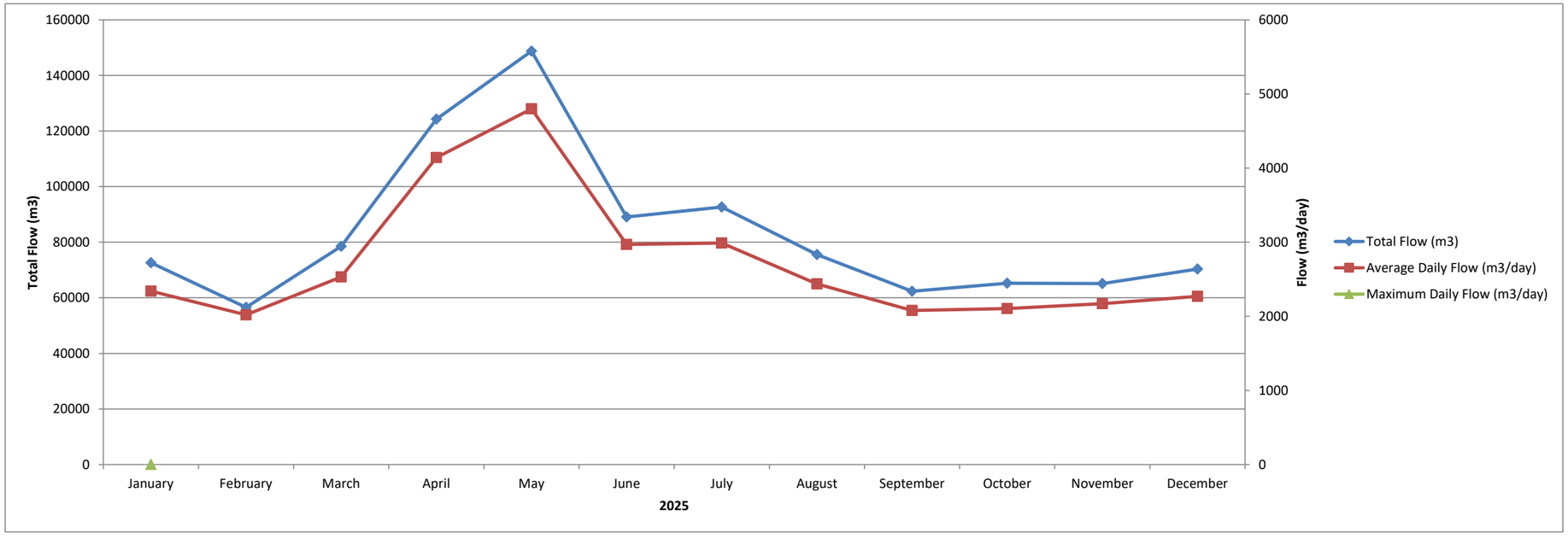
No other information for this reporting year.

Appendices

- 2025 Capreol Lagoon Annual Performance Report
- 2025 Capreol Lagoon Vermilion Sampling
- 2025 Capreol Lagoon Water Levels
- 2025 Capreol Lagoon Groundwater Monitoring Wells Data
- 2025 Capreol Lagoon Groundwater Monitoring Tables

2025 Capreol Wastewater Treatment Lagoon Performance

Month	Flows		Excess	CBOD	BOD5						Total Suspended Solids						Total Phosphorus						Total Ammonia						Un-ionized	TKN	
	Total	Avg Day	Capacity	Raw	Raw	Effluent	Loading	Raw Loading	Removed	Plant	Raw	Effluent	Loading	Raw Loading	Removed	Plant	Raw	Effluent	Loading	Raw Loading	Removed	Plant	Raw	Effluent	Loading	Raw Loading	Removed	Plant	Ammonia	Raw	Effluent
	m^3	m^3/d	10^3m^3	mg/L	mg/L	mg/L	kg/d	kg/day	kg/day	Efficiency	mg/L	mg/L	kg/d	kg/day	kg/day	Efficiency	mg/L	mg/L	kg/d	kg/day	kg/day	Efficiency	mg/L	mg/L	kg/d	kg/day	kg/day	Efficiency	µg/L	mg/L	mg/L
January	72574	2341	0.000	33	37	16.7	39.10	87	48	54.9%	74	30.5	71.40	173	102	58.8%	0.9	2.17	5.08	2.08	-3.00	-143.8%	8.00	12.95	30.32	18.73	-11.59	-61.9%	19.91	9.5	14.0
February	56559	2020	0.000	30	38	12.2	24.64	77	52	67.9%	90	16.5	33.33	182	148	81.7%	2.2	2.64	5.33	4.44	-0.89	-20.0%	13.40	13.50	27.27	27.07	-0.20	-0.7%	12.90	17.5	14.1
March	78499	2532	0.000	57	98	26.5	67.10	248	181	73.0%	162	34.0	86.10	410	324	79.0%	2.4	2.02	5.12	5.95	0.84	14.0%	9.80	15.15	38.36	24.82	-13.55	-54.6%	30.56	15.2	14.7
April	124297	4143	0.000	39	35	6.4	26.52	145	118	81.7%	108	20.3	84.11	447	363	81.2%	2.1	1.11	4.60	8.70	4.10	47.1%	12.30	9.17	37.99	50.96	12.97	25.4%	13.99	12.9	10.4
May	148770	4799	0.000	7	14	11.1	53.27	67	14	20.7%	15	27.7	132.69	72	-61	-84.3%	0.4	0.46	2.21	1.68	-0.53	-31.4%	1.09	3.48	16.70	5.23	-11.47	-219.3%	19.76	2.2	5.4
June	89100	2970	0.000	36	34	13.5	40.10	101	61	60.3%	186	33.9	100.62	552	452	81.8%	3.0	0.76	2.26	9.03	6.77	75.0%	6.01	2.79	8.29	17.85	9.56	53.6%	14.37	15.7	6.3
July	92644	2989	0.000	48	68	12.6	37.57	204	166	81.6%	81	38.0	113.56	241	128	52.9%	1.9	0.59	1.76	5.80	4.03	69.6%	10.60	1.56	4.66	31.68	27.02	85.3%	14.69	12.6	4.6
August	75538	2437	0.000	55	51	15.4	37.40	124	87	69.9%	29	43.7	106.56	71	-35	-49.2%	1.7	1.43	3.48	4.17	0.68	16.4%	10.00	2.59	6.31	24.37	18.06	74.1%	19.68	11.0	7.4
September	62378	2079	0.000	40	57	16.5	34.31	119	84	71.1%	143	22.7	47.14	297	250	84.1%	2.8	1.75	3.64	5.88	2.25	38.2%	12.40	4.07	8.46	25.78	17.32	67.2%	82.75	14.4	6.9
October	65235	2104	0.000	70	70	11.6	24.35	148	124	83.6%	105	33.1	69.65	221	151	68.5%	4.7	1.22	2.57	9.81	7.24	73.8%	9.90	8.90	18.73	20.83	2.10	10.1%	112.14	11.6	8.9
November	65129	2171	0.000	180	130	9.7	20.95	282	261	92.6%	117	20.0	43.42	254	211	82.9%	2.7	1.92	4.17	5.95	1.78	29.9%	14.00	11.40	24.75	30.39	5.64	18.6%	199.03	14.9	11.2
December	70348	2269	0.000	72	69	30.0	68.08	157	89	56.6%	65	14.3	32.52	148	115	78.0%	2.4	1.43	3.25	5.33	2.09	39.1%	11.70	13.23	30.03	26.55	-3.48	-13.1%	141.41	13.8	12.9
Total	1001071		0					1759	1285	73.1%				3070	2148	70.0%				69	25	36.9%				304	52	17.2%			
Average		2743		56	58	15.17	39.45	147	107	67.8%	98	27.89	76.76	256	179	51.3%	2.26	1.46	3.62	5.74	2.11	17.3%	9.93	8.23	20.99	25.36	4.37	-1.3%	56.77	12.6	9.7



Lagoon Type: Exfiltration
Design Capacity: 5000 m^3/day
Population Served: 3,408

Compliance Parameters:

	Concentration	
BOD_5	30 mg/L	Annual Avg
TSS	40 mg/L	Annual Avg
Total Phosphorus	1.38 mg/L	Annual Avg

Note: Effluent = North to South Cell Effluent
Annual Average of T.P. measured at the overflow culvert located between the north and south cell.

2025 Vermillion River Sampling

results as 0.0 indicates <MDL

Parameter (mg/L)	Jun.26/25		Oct.1/25		Annual Average	
	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
Alkalinity	17	17	25	26	21	22
Ammonia (as N)	0.03	0.03	0.05	0.04	0.04	0.04
Chloride	1.1	1.6	1.6	3.0	1.4	2.3
Sulphate	4.9	4.2	5.8	5.7	5.4	5.0
BOD_5	0.5	1.7	0.5	0.5	0.5	1.1
Aluminum	0.048	0.041	0.015	0.019	0.032	0.030
Antimony	0.0000	0.0005	0.0000	0.0000	0.0000	0.0003
Arsenic	0.000	0.000	0.000	0.000	0.000	0.000
Barium	0.012	0.012	0.014	0.014	0.013	0.013
Beryllium	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Cadmium	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Calcium	5.71	5.75	8.90	9.52	7.31	7.64
Chromium	0.000	0.000	0.000	0.000	0.000	0.000
Cobalt	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Copper	0.001	0.001	0.000	0.000	0.001	0.001
Iron	0.26	0.28	0.23	0.29	0.25	0.29
Lead	0.0001	0.0001	0.0001	0.0002	0.0001	0.0002
Magnesium	1.610	1.550	2.330	2.430	1.970	1.990
Manganese	0.052	0.059	0.030	0.043	0.041	0.051
Mercury	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Molybdenum	0.000	0.000	0.001	0.000	0.001	0.000
Nickel	0.002	0.002	0.002	0.002	0.002	0.002
Potassium	0.6	0.6	0.9	0.9	0.8	0.8
Selenium	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Silver	0.0001	0.0000	0.0000	0.0000	0.0001	0.0000
Sodium	1.3	1.7	2.1	3.1	1.7	2.4
Tellurium	0.000	0.000	0.000	0.000	0.000	0.000
Tin	0.000	0.000	0.000	0.000	0.000	0.000
Zinc	0.003	0.002	0.001	0.002	0.002	0.002
pH	7.37	7.41	7.59	7.62	7.48	7.52
pH (15 deg. C)	7.38	7.42	7.61	7.64	7.50	7.53
T.D.S.	30	50	55	55	43	53
T.K.N.	0.2	0.2	0.2	0.2	0.2	0.2
Total Phosphorus	0.005	0.007	0.000	0.000	0.003	0.004

Monthly Phosphorus Sampling		
Sample Date	Upstream	Downstream
Jun.3/25	0.004	0.005
Jun.26/25	0.005	0.007
Jul.1/25	0.004	0.004
Aug.5/25	0.005	0.005
Sep.2/25	0.004	0.006
Oct.1/25	0.002	0.002
Nov.4/25	0.005	0.015
Annual Average	0.004	0.006

Compliance Parameters:

Downstream

Total Phosphorus, 0.03 mg/L Annual average.

Annual average of CBOD5 and TKN can not exceed 15% of the Upstream annual average value.

Monthly eColi		
Sample Date	Upstream	Downstream
Jun.3/25	2	5
Jul.1/25	22	36
Aug.5/25	26	18
Sep.2/25	30	30
Oct 1/25	27	28
Nov.4/25	16	28
Annual Average	20.5	24.2

Monthly BOD5		
Sample Date	Upstream	Downstream
Jun.3/25	0.6	0.9
Jun.26/25	0.5	0.7
Jul.1/25	0.1	2.0
Aug.5/25	0.5	1.7
Sep.2/25	2.4	1.5
Oct.1/25	0.5	0.5
Nov.4/25	1.3	0.7
Annual Average	0.8	1.1

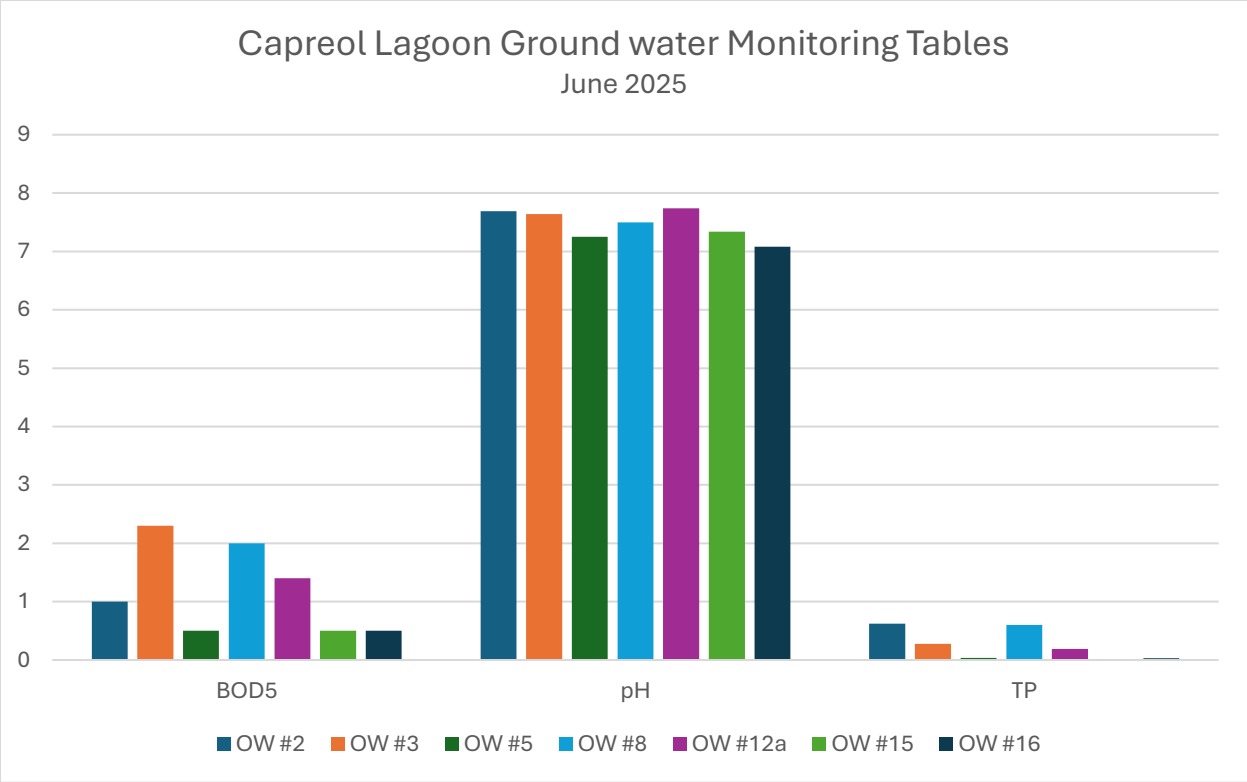
2025 Capreol Lagoon Ground/Surface Water Levels

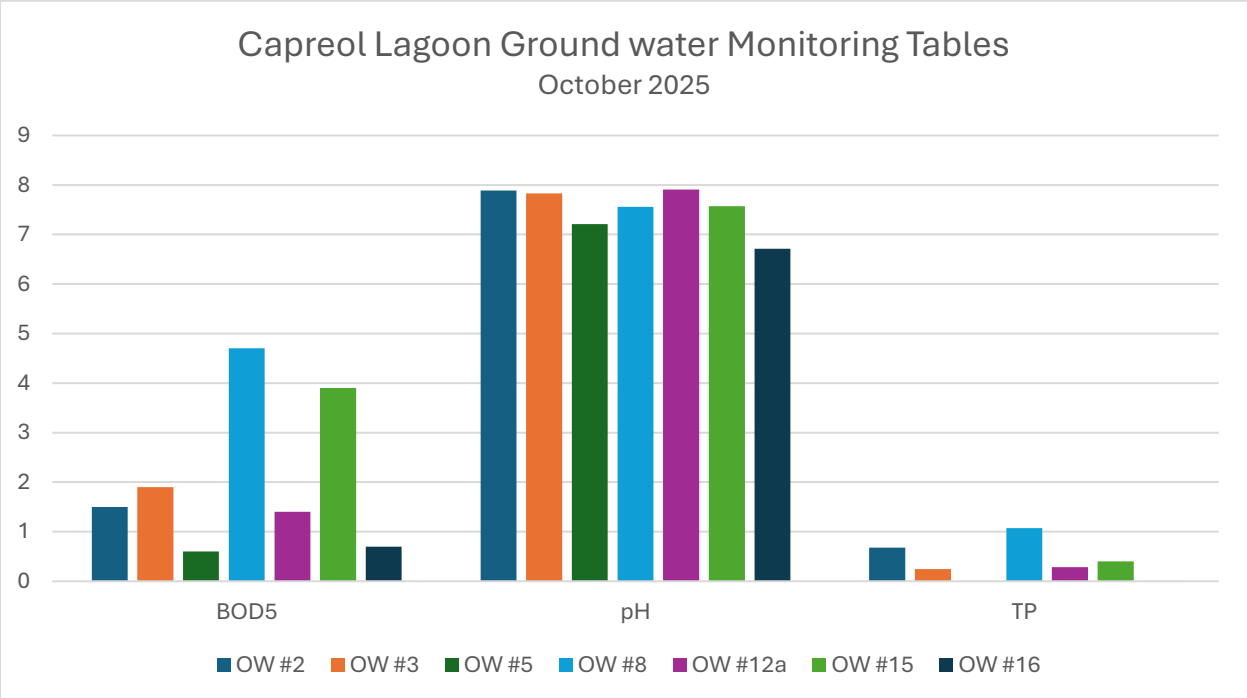
* Depth in metres from top of casing to water

Well I.D.	Water Level (m)*	Measure Date	Water Level (m)*	Measure Date
OW#1	3.25	Jul.3/25	4.28	Oct.3/25
OW#2	2.82	Jun.26/25	3.42	Oct.2/25
OW#3	3.24	Jun.26/25	3.90	Oct.2/25
OW#5	6.32	Jun.26/25	6.92	Oct.2/25
OW#7	Dry	Jul.7/25	Dry	Oct.3/25
OW#8	4.24	Jun.26/25	5.60	Oct.2/25
OW#10a	6.60	Jul.3/25	7.20	Oct.3/25
OW#10b	5.80	Jul.3/25	6.66	Oct.3/25
OW#11	5.10	Jul.3/25	5.67	Oct.2/25
OW#12				
OW#12a	2.52	Jun.26/25	2.90	Oct.2/25
OW#13a	4.87	Jul.3/25	5.82	Oct.3/25
OW#13b	5.07	Jul.3/25	5.88	Oct.3/25
OW#14	2.25	Jul.3/25	2.43	Oct.2/25
OW#15	6.71	Jun.26/25	7.19	Oct.2/25
OW#16	5.70	Jun.26/25	6.17	Oct.2/25
OW#21	2.93	Jul.3/25	3.59	Oct.3/25
OW#22	5.00	Jul.3/25	Dry	Oct.3/25
OW#23	5.68	Jul.3/25	6.25	Oct.2/25
OW#24	2.75	Jul.3/25	3.24	Oct.2/25
OW#25	4.20	Jul.3/25	4.76	Oct.2/25
OW#26	5.74	Jul.3/25	6.13	Oct.2/25
OW#28	2.32	Jul.3/25	2.54	Oct.2/25
OW#30	2.47	Jul.3/25	2.73	Oct.2/25
River @ Bridge	1.10	Jul.3/25	0.30	Oct.1/25

2025 Capreol Lagoon Groundwater Monitoring Wells

Parameter (mg/L)	OW #2		OW #3		OW #5		OW #8		OW #12a		OW #15		OW #16		Average
	Jun.26/25	Oct.2/25	Jun.26/25	Oct.2/25	Jun.26/25	Oct.2/25	Jun.26/25	Oct.2/25	Jun.26/25	Oct.2/25	Jun.26/25	Oct.2/25	Jun.26/25	Oct.2/25	
Total Coliform	NDOGT	NDOGT	NDOGT	5	0	41	0	NDOGT	26	200	0	NDOGT	1	21	33
Alkalinity	84	111	139	142	13	17	42	38	94	100	23	36	9	10	61
Ammonia (as N)	3.51	3.69	13.0	12.80	0.01	0.03	2.31	1.27	1.50	1.77	0.03	0.02	0.02	0.02	2.86
Nitrate (as N)	0.05	0.05	0.07	0.05	0.05	0.12	0.11	3.04	0.05	0.05	0.05	0.05	0.05	0.05	0.27
Nitrite (as N)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.14	0.05	0.05	0.05	0.05	0.05	0.05	0.06
BOD_5	1.0	1.5	2.3	1.9	0.5	0.6	2.0	4.7	1.4	1.4	0.5	3.9	0.5	0.7	1.6
CBOD	1.2	1.1	2.5	0.9	0.5	0.8	0.5	1.5	0.5	1.3	0.5	2.6	0.5	0.8	1.1
D.O.C.	3.0	5.5	4.0	4.4	1.0	0.8	2.2	5.0	3.9	5.1	2.9	5.1	1.1	1.2	3.2
Hardness (as $CaCO_3$)	71.8	81.3	69.6	82.4	15.6	20.8	51.5	41.5	76.9	92.9	35.7	38.4	9.5	11.3	49.9
Aluminum	0.004	0.007	0.003	0.0	0.018	0.007	0.004	0.004	0.008	0.010	0.005	0.028	0.018	0.008	0.009
Antimony	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Arsenic	0.003	0.004	0.007	0.008	0.001	0.001	0.002	0.003	0.006	0.006	0.001	0.001	0.001	0.001	0.003
Barium	0.049	0.055	0.073	0.070	0.008	0.010	0.023	0.016	0.057	0.059	0.022	0.027	0.004	0.0050	0.0341
Beryllium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Cadmium	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Calcium	20.00	3.00	19.00	22.70	3.87	5.58	14.60	11.90	22.80	27.40	9.40	10.30	2.45	3.02	12.57
Chromium	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.0010	0.0010
Cobalt	0.0012	0.0013	0.0061	0.0063	0.0002	0.0002	0.0055	0.0100	0.0042	0.0048	0.0001	0.0037	0.0001	0.0001	0.0031
Copper	0.001	0.004	0.001	0.003	0.001	0.002	0.007	0.015	0.002	0.003	0.005	0.005	0.001	0.002	0.004
Iron	5.10	4.40	13.30	14.70	0.02	0.02	0.22	0.09	2.03	1.36	0.02	0.08	0.02	0.02	2.96
Lead	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Magnesium	5.310	5.800	5.380	6.240	1.430	1.660	3.650	2.860	4.770	5.940	2.970	3.080	0.819	0.921	3.631
Manganese	0.370	0.264	0.860	0.740	0.002	0.002	0.255	0.360	7.10	3.89	0.027	0.430	0.002	0.001	1.022
Mercury	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Molybdenum	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.0010	0.0011
Nickel	0.002	0.003	0.004	0.004	0.003	0.004	0.006	0.008	0.003	0.003	0.003	0.006	0.001	0.0010	0.0036
Potassium	4.4	4.8	4.8	5.4	0.5	0.8	5.3	5.6	4.0	4.5	1.2	1.4	0.5	0.6	3.1
Selenium	0.0002	0.0003	0.0002	0.0002	0.0003	0.0004	0.0002	0.0003	0.0002	0.0002	0.0006	0.0003	0.0002	0.0002	0.0003
Silver	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Sodium	43.7	51.0	44.2	46.0	6.4	8.3	50.0	48.0	39.9	43.3	4.3	5.3	3.0	3.0	28.3
Tellurium	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Tin	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Zinc	0.002	0.002	0.005	0.003	0.005	0.004	0.003	0.003	0.002	0.001	0.005	0.004	0.004	0.003	0.003
pH	7.69	7.89	7.64	7.83	7.25	7.21	7.50	7.56	7.74	7.91	7.34	7.57	7.08	6.71	7.49
pH (15 deg. C)	7.71	7.92	7.66	7.86	7.26	7.22	7.52	7.58	7.77	7.94	7.35	7.59	7.08	6.70	7.51
T.K.N.	3.8	3.2	12.2	14.0	0.2	0.2	2.6	1.6	1.4	1.9	0.2	2.6	0.2	1.7	3.3
Total Phosphorus	0.625	0.678	0.278	0.247	0.034	0.002	0.602	1.070	0.187	0.287	0.012	0.401	0.030	0.002	0.318


Capreol Lagoon Ground water Monitoring Tables
June 2025
9
8
7
6
5
4
3
2
1
0
BOD5
pH
TP
OW #2
OW #3
OW #5
OW #8
OW #12a
OW #15
OW #16


Capreol Lagoon Ground water Monitoring Tables
October 2025
9
8
7
6
5
4
3
2
1
0
BOD5
pH
TP
OW #2
OW #3
OW #5
OW #8
OW #12a
OW #15
OW #16