



Wastewater Annual Report 2023



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2023 Annual Wastewater Report

Version 1.0

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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 (CGS) owns and operates 10 Wastewater Treatment Plants and 4 Wastewater Lagoons each having their own distinct annual reporting requirements. To ensure compliance, the city will report on each facility separately. Individual facility annual summary reports are attached at the end of the report an appendix.

Definitions

Alkalinity: a measurement of the ability of water to neutralize acid by absorbing hydrogen ions.

Average Concentration: the mean of all Single Sample Results of the concentration of a contaminant in a given stream (influent/effluent) measured during a specified time period.

Average Flow: the cumulative total influent or effluent flow measured during a defined time period (annual, monthly, etc.) divided by the number of days during that specified period.

Average Loading: the value obtained by multiplying the Average Concentration of a contaminant in a given stream (influent/effluent) by the Average Flow for that stream.

BOD₅: the five-day biochemical oxygen demand measured in an unfiltered sample and includes carbonaceous and nitrogenous oxygen demands.

Bypass: the diversion of sewage around one or more treatment processes, excluding Preliminary Treatment System, with the diverted sewage flows being returned to the Sewage Treatment Plant treatment train upstream of the Final Effluent sampling point(s) and discharged via the approved effluent disposal facilities.

cBOD₅: the five-day carbonaceous biochemical oxygen demand of biological organisms in the material, without the impact of oxygen depletion by nitrogenous bacteria.

E. coli: coliform bacteria that possess the enzyme beta-glucuronidase and are capable of cleaving a fluorogenic or chromogenic substrate with the corresponding release of a fluorogen or chromogen, which produces fluorescence under long wavelength (366 nm) UV light, or color development, respectively. Data are reported as colony forming units (CFU) per 100 mL.

Event: an action or occurrence, at a given location within the Works that causes a Bypass or Overflow. An Event ends when there is no recurrence of Bypass or Overflow in the 12-hour period following the start of the event.

Final Effluent: effluent that is discharged to the environment through the approved effluent disposal facilities, including all Bypasses, which are required to meet the compliance limits stipulated in the Approval for the Sewage Treatment Plant at the Final Effluent sampling point(s).

Influent: flows to the Sewage Treatment Plant from the collection system. Flows can fluctuate according to weather conditions and high flows are commonly due to Inflow and Infiltration, a condition that allows rain and/or snow melt to enter the sanitary sewer.

Monthly Geometric Mean Density: the mean of all Single Sample Results of *E. coli* measurement in the samples taken during a calendar month, calculated, and reported as per the methodology specified by the MECP.

Nitrite: the amount of nitrogen present in the effluent as the NO₂⁻ anion.

Nitrate: the amount of nitrogen present in the effluent as the NO₃⁻ anion.

Overflow: a discharge to the environment at location(s) other than the approved effluent discharge.

pH: the potential of hydrogen measured on a 14-point scale where 0 represents highly acidic material, 14 represents highly acidic material and 7 represents neutral material (such as water).

Rated Capacity: The Annual Average Daily Influent Flow for which the facility is designed to process.

T Amm: the total ammonia measured in the final effluent.

TKN: Total Kjeldahl Nitrogen; the total concentration of organic nitrogen & ammonia in the effluent.

TP: Total Phosphorous; the total amount of phosphorous measured in the final effluent.

TSS: Total Suspended Solids; the total amount of residual solid matter in the final effluent.

Un-ionized Amm: the calculated amount of un-ionized ammonia in the final effluent.

Sludge: the residual material produced through the wastewater treatment process.

WSER: Wastewater Systems Effluent Regulations, as defined in the Fisheries Act

Azilda Wastewater Treatment

Annual Performance Report

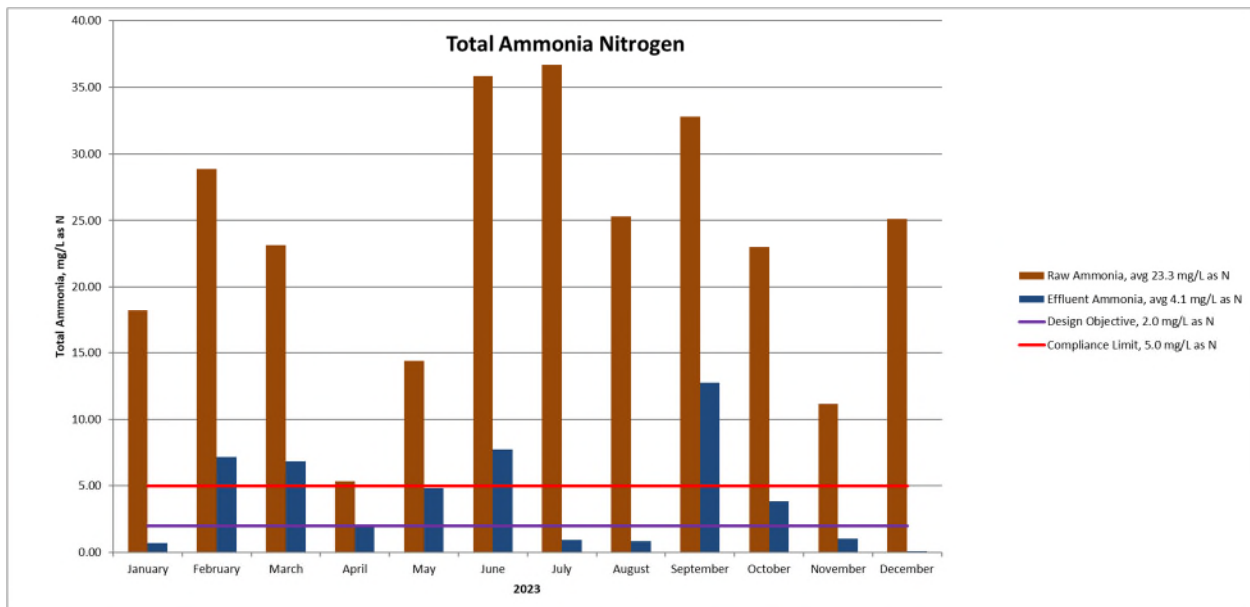
The Azilda Wastewater Treatment Plant is an extended aeration process plant located at 564 St. Agnes Street, having a Peak Flow Rated Capacity of 6,600 m³/d, discharging effluent to Pilon Drain (known as Azilda Creek) and eventually into the Whitson River.

a. Summary and interpretation of all Influent, monitoring data, and a review of the historical trend of the sewage characteristics and flow rates.

Influent monitoring data, historical trending of sewage characteristics and flow rates are graphed and reviewed annually by compliance and plant supervisory staff. No abnormalities were observed for the Azilda WWTP for this reporting year. If abnormal influent issues occur, CGS Environmental Compliance Officers (ECOs) can be deployed to investigate and react as needed.

b. Summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, loading and a comparison to the design objectives and compliance limits in this Approval, including an overview of the success and adequacy of the Works.

All effluent monitoring data is graphed and reviewed annually by compliance and plant supervisory staff. For the Azilda WWTP, all parameters fell within plant design objectives with the exception of Total Ammonia Nitrogen for half the year, and a third of the time for compliance limits. Increasing air distribution as well as monitoring and adjusting aeration solids were corrective actions taken as seen in Part C of report.



c. Summary of all operating issues encountered, and corrective actions taken.

Date	Parameter	Problem / Exceedance	Corrective Actions	Potential Cause	Date sent to MECP
03-Mar-23	Ammonia	Above ECA limit	Increased Air Distribution, monitoring solids in Aeration	Changes in Weather & Maintenance	7-Mar-2023
11-Apr-23	Ammonia	Above ECA limit	Increased Air Distribution, monitoring solids in Aeration	Changes in Weather & Maintenance	12-Apr-2023
08-Jun-23	Total Chlorine Residual	No disinfection	Added HTH and got pump going	Mechanical failure	8-Jun-2023
06-Jul-23	Ammonia	Above ECA limit	Increased Air Distribution, monitoring solids in Aeration	Changes in Weather & Maintenance	6-Jul-2023
30-Sep-23	Ammonia	Above ECA limit	Increased Air Distribution, monitoring solids in Aeration	Changes in Weather & Maintenance	19-Oct-2023

d. Summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus, or mechanism forming part of the Works.

The operating and maintenance staff at the Azilda WWTP 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.

e. Summary of any effluent quality assurance or control measures undertaken.

Operations conduct daily rounds which are recorded on checklists. SCADA systems record continuous trending for various flows and process monitoring. Lab analysis is performed several times per week in addition to samples being collected and sent out for third party testing. Plant monthly reports are created containing flow, in house lab results and third-party lab results. This data is transferred to a monthly and annual performance report by a data clerk ensuring all information is accounted for. It is then sent to the area supervisor for final review.

f. Summary of the calibration and maintenance carried out on all Influent, and Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer.

The calibration of flow meters is conducted annually by an accredited third-party company in accordance with the requirements of the Azilda WWTP ECA. Records and certificates are kept electronically.

g. Summary of efforts made to achieve the design objectives in this Approval, including an assessment of the issues and recommendations for pro-active actions if any are required under the following situations:

- when any of the design objectives is not achieved more than 50% of the time in a year, or
- there is an increasing trend in deterioration of Final Effluent quality when the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity.

For 2023 reporting year the wastewater treatment plant ran at approximately 62% of designed capacity. No increasing trend in deterioration of Final Effluent quality has been noticed when the annual average daily influent flow reaches 80% of the Rated Capacity. Design objectives were reached more than 50% of the time.

- h. **Tabulation of the volume of sludge generated an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed.**

Month	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov.	Dec.
Loads	7	8	9	9	7	10	7	13	14	7	10	8
Vol m³	279.8	324.2	287.7	206.2	220.1	407.1	283.1	547.6	588.5	286.4	408	329.4

Azilda generated 4,168m³ of waste sludge which was brought to the Sudbury Biosolids facility and processed into class A biosolids. A similar volume is anticipated for the next reporting period.

- i. **Summary of any complaints received, and any steps taken to address the complaints.**

Incident Location	System	Subject
Principale Lift Stn, 250 Montee Principale	Azilda	Callback- dispose of liquid wastewater

- j. **Summary of all Bypasses, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events.**

There were no Bypasses or Overflows for the current reporting year.

- k. **Summary of all Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 10, including a report on status of implementation of all modification.**

There was no Notice of Modifications to Sewage Works completed for this reporting year.

- l. **Summary of efforts made to achieve conformance with Procedure F-5-1 including but not limited to projects undertaken and completed in the sanitary sewer system that result in overall Bypass/Overflow elimination including expenditures and proposed projects to eliminate Bypass/Overflows with estimated budget forecast for the year following that for which the report is submitted.**

Clean out of Aeration tanks and clarifier to allow for peak flow rates to be maintained. Replacement of crossover valve between Aeration tanks was also completed.

- m. **Any changes or updates to the schedule for the completion of construction and commissioning operation of major process(es) / equipment groups in the Proposed Works.**

Continued with capital project that commenced in 2022.

- n. **Summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year.**

There were no deviations to the monitoring schedule in the current reporting year and no monitoring changes required for the next reporting year.

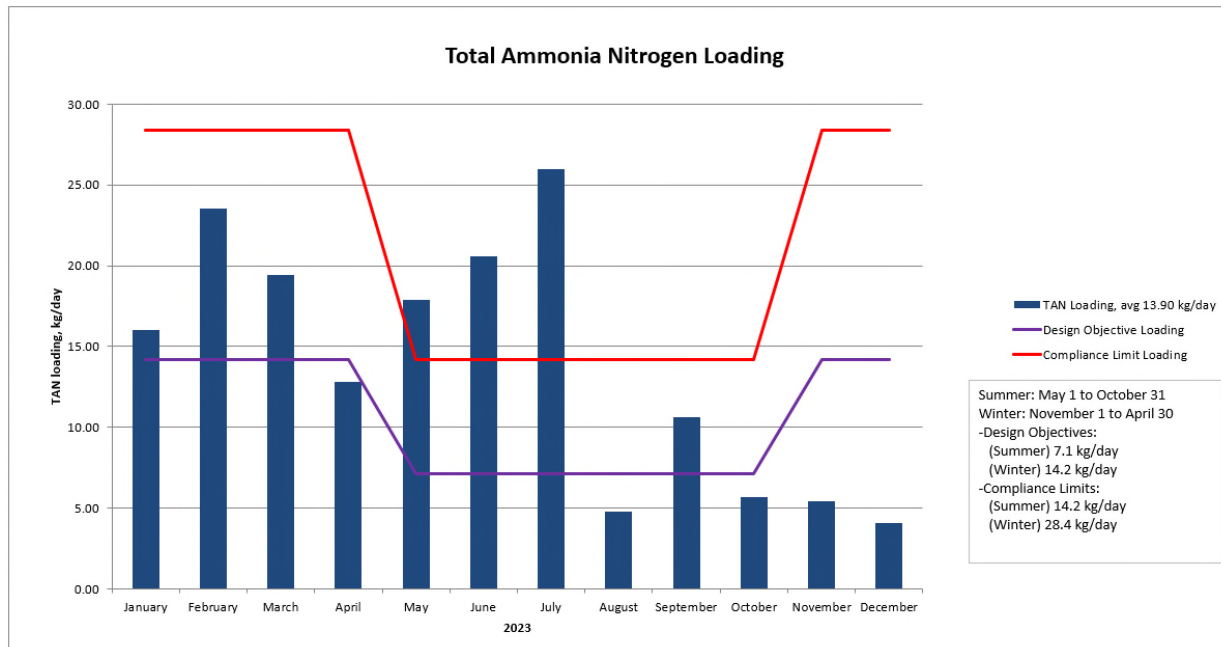
Chelmsford Wastewater Treatment

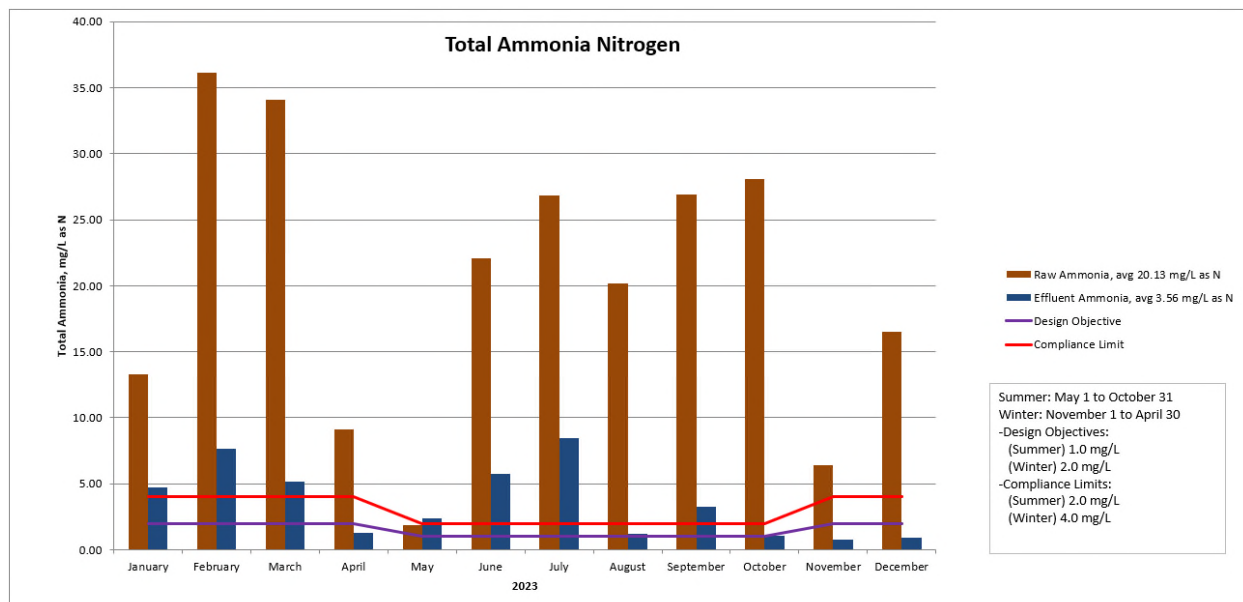
Annual Performance Report

The Chelmsford Wastewater Treatment Plant is a conventional activated sludge plant located at 265 Laurette St Chelmsford, it consists of three separate plants referred to as A plant, B plant and C plant. With rated capacities of 4,000 m³/d for A plant, 4,000 m³/d for B plant and 10,200 m³/d for C plant for a total Peak Flow Rated Capacity of 18,200 m³/d, discharging effluent to the Whitson River.

a. A summary and interpretation of all monitoring data and a comparison to the compliance limits outlined in Compliance Limits Condition, including an overview of the success and adequacy of the Works.

Historical trending of influent and effluent data for the Chelmsford WWTP showed all parameters were within plant design objectives apart from effluent Total Ammonia Nitrogen and Total Ammonia Nitrogen Loading. Operations will schedule aeration tank cleaning for 2024 and reconfigure plant flow to address these issues. If abnormal influent issues occur, CGS Environmental Compliance Officers can be deployed to investigate and react as needed.





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

Date	Parameter	Problem / Exceedance	Corrective Actions	Potential Cause	Date sent to MECP
05-Apr-23	Acute Lethality	Sample Missed due to safety	Sampled asap when safe to do so	Discharge point not safe to access due to snow and ice accumulation	20-Apr-2023
25-Aug-23	e. coli	Above ECA Objective	Run both UV banks	Poor effluent quality	25-Aug-2023
30-Sep-23	Total Phosphorus (TP)	Above ECA limit	Will Start QA/QC sampling/ monitor results	Unknown/possible contamination	13-Oct-2023
01-Nov-23	Total Suspended Solids (TSS)	Above ECA limit	Will complete tank cleaning, run in normal configuration	Run off/ plant configuration	6-Nov-2023
01-Nov-23	Ammonia	Above ECA limit	Will complete tank cleaning, run in normal configuration	Temperature/Plant configuration	6-Nov-2023

c. a 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 Chelmsford WWTP 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.

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

Operations conduct daily rounds which are recorded on checklists. SCADA systems record continuous trending for various flows and processes. Lab analysis is performed several times per week as well as samples collected and sent out for third party testing. Plant 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 data clerk ensuring all information is accounted for. It is then sent to area supervisor for final review.

- e. **a summary of the calibration and maintenance carried out on all effluent monitoring equipment.**

The calibration of flow meters was conducted by Induscontrols in accordance with the requirements of the Chelmsford WWTP ECA. Records and certificates are kept electronically.

- f. **Condition description of efforts made, and results achieved in meeting the Design Objectives**

For 2023 reporting year Chelmsford averaged approximately 68% of rated capacity and achieved its design objectives as listed in the ECA.

- g. **a tabulation of the volume of sludge generated in the reporting period, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed.**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Loads	24	19	28	18	23	25	21	24	23	26	26	25
Vol m ³	910.1	742.6	1105.7	688.3	871.2	1012.1	842.8	987.0	950.3	1077.8	1044.9	976.3

Chelmsford generated 11,209m³ of Waste sludge which was brought to the Sudbury Biosolids facility and processed into class A biosolids. A similar volume is anticipated for the next reporting period.

- h. **a summary of any complaints received during the reporting period and any steps taken to address the complaints.**

Incident Location	System	Subject
Main Lift Stn, 19 Emile St	Chelmsford	Garbage behind the lift station

- i. **a summary of all By-pass, spill, or abnormal discharge events; and**

There were no By-passes or spills reported at Chelmsford for this reporting year.

- j. **Any other information the Water Supervisor requires from time to time.**

There is no further information required for this reporting year.

Coniston Wastewater Treatment

Annual Performance Report

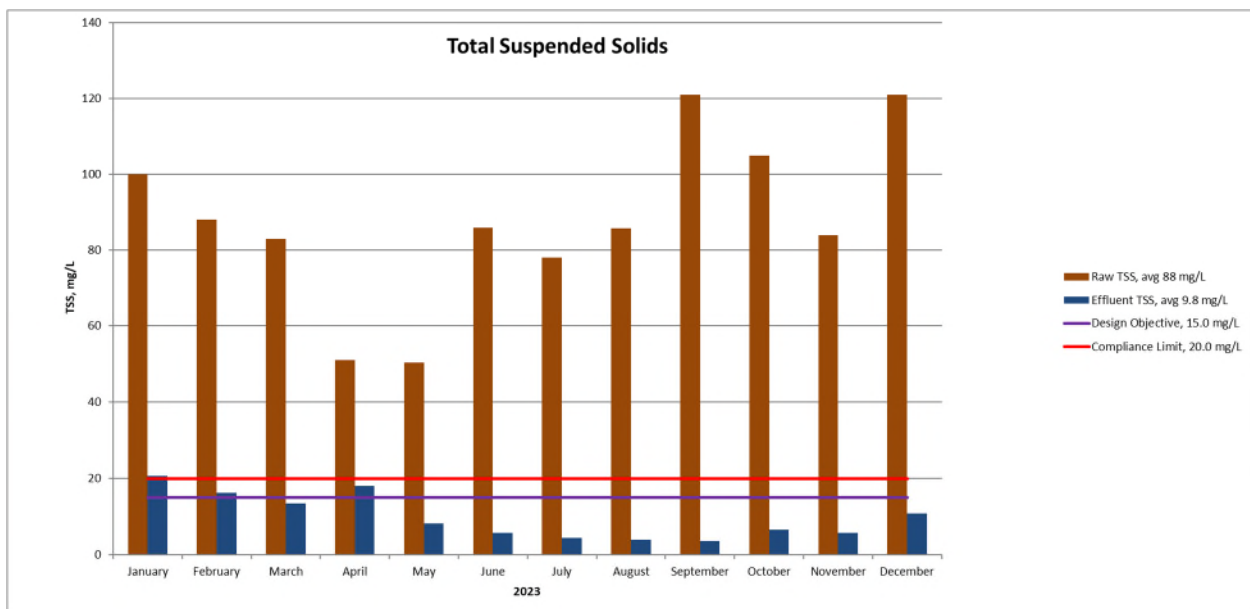
The Coniston Wastewater Treatment Plant located at 121 Government Rd. Coniston is an activated sludge plant that utilizes an oxidation ditch in the process. The plant has a Peak Flow Rated Capacity of 3,000 m³/d, and discharges effluent to Coniston Creek.

a. Summary and interpretation of all Influent, monitoring data, and a review of the historical trend of the sewage characteristics and flow rates.

All influent monitoring data, historical trending of sewage characteristics and flow rates are graphed and reviewed annually by compliance and plant supervisory staff. No abnormalities were observed for the Coniston WWTP for this reporting year. If abnormal influent issues occur, CGS Environmental Compliance Officers can be deployed to investigate and react as needed.

b. Summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, loading and a comparison to the design objectives and compliance limits in this Approval, including an overview of the success and adequacy of the Works.

All effluent monitoring data is graphed and reviewed annually by compliance and plant supervisory staff. For the Coniston WWTP, all parameters fell within plant design objectives except for Total Suspended Solids for 3 of 12 months of the year, and the month of January for compliance limits. Reseeding plant and monitoring and adjusting aeration ditch solids were corrective actions taken as seen in Part C of report.



c. Summary of all operating issues encountered, and corrective actions taken.

DATE	PARAMETER	CORRECTIVE ACTION TAKEN	PROBABLE CAUSE	DATE SENT
10-Jan-23	CBOD5	Reseed and monitor effluent	Weather conditions - Plant washed out	16-Jan-2023
10-Jan-23	CBOD5	Reseed and monitor effluent	Weather conditions - Plant washed out	16-Jan-2023
08-Feb-23	Total Suspended Solids (TSS)	Monitor and make plant adjustments	Plant was reseeded and it is slowing responding	08-Feb-23

d. Summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus, or mechanism forming part of the Works.

The operating and maintenance staff at the Coniston WWTP 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.

e. Summary of any effluent quality assurance or control measures undertaken.

Operations conduct daily rounds which are recorded on checklists. SCADA systems record continuous trending for various flows and processes. Lab analysis is performed several times per week in addition to samples being collected and sent out for third party testing. Plant 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.

f. Summary of the calibration and maintenance carried out on all Influent, and Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer.

The calibration of flow meters was conducted by Induscontrols in accordance with the requirements of the Coniston WWTP ECA. Records and certificates are kept electronically.

g. Summary of efforts made to achieve the design objectives in this Approval, including an assessment of the issues and recommendations for pro-active actions if any are required under the following situations:

- when any of the design objectives is not achieved more than 50% of the time in a year, or
- there is an increasing trend in deterioration of Final Effluent quality when the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity.

For 2023 reporting year Coniston WWTP averaged approximately 70% of rated capacity and achieved its design objectives as listed in the ECA.

h. Tabulation of the volume of sludge generated an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.
Loads	6	3	7	7	7	10	9	9	7	8	4	5
Vol m³	225.5	119.5	237.2	145.4	228.8	386.1	333	356.1	275.9	325.9	146.8	187

Coniston generated 2,967m³ of Waste sludge which was brought to the Sudbury Biosolids facility and processed into class A biosolids. A similar volume is anticipated for the next reporting period.

i. Summary of any complaints received, and any steps taken to address the complaints.

There were no complaints recorded for Coniston WWTP for this reporting year.

- j. **Summary of all Bypasses, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events.**

DATE	DURATION	TYPE OF OCCURRENCE	RECEIVING STREAM ID	VOL (m³)	LEVEL OF TREATMENT RECEIVED	REASON FOR EVENT
03-Apr-23	2hrs 50 min	Plant bypass: flow exceeds design capacity	Coniston Creek	380.00	Disinfection	Spring run-off
06-Apr-23	4 hrs. 40 min	Plant bypass: flow exceeds design capacity	Coniston Creek	635.00	Disinfection	Spring run-off
09-Apr-23	5 hrs	Plant bypass: flow exceeds design capacity	Coniston Creek	635.00	Disinfection	Spring run-off
10-Apr-23	420.2 hrs	Plant bypass: flow exceeds design capacity	Coniston Creek	47,072.0	Disinfection	Spring run-off
01-May-23	48 hrs	Plant bypass: flow exceeds design capacity	Coniston Creek	300.0	Disinfection	Spring run-off
29-Apr-23	179 hrs	Plant bypass: flow exceeds design capacity	Coniston Creek	22,682.0	Disinfection	Spring run-off
20-May-23	14 hrs	Plant bypass: flow exceeds design capacity	Coniston Creek	1,899.0	Disinfection	Heavy rain
06-Jul-23	14.4 hrs	Plant bypass: flow exceeds design capacity	Coniston Creek	1,829.0	Disinfection	Heavy rain
26-Oct-23	2 hrs	Collection system overflow	Coniston Creek	4.0	none	Heavy rain
26-Oct-23	12 hrs	Plant bypass: flow exceeds design capacity	Coniston Creek	916.0	Disinfection	Heavy rain

- k. **Summary of all Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 10, including a report on status of implementation of all modification.**

There were no Notice of Modifications to Sewage Works for this reporting year.

- l. **Summary of efforts made to achieve conformance with Procedure F-5-1 including but not limited to projects undertaken and completed in the sanitary sewer system that result in overall Bypass/Overflow elimination including expenditures and proposed projects to eliminate Bypass/Overflows with estimated budget forecast for the year following that for which the report is submitted.**

No major changes for the current reporting year.

Capital upgrades needed have been identified and added to capital plans.

- m. **Any changes or updates to the schedule for the completion of construction and commissioning operation of major process(es) / equipment groups in the Proposed Works.**

No current construction projects.

- n. **Summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year.**

There were no deviations to the monitoring schedule in the current reporting year, and no monitoring changes required for the next reporting year.

Dowling Wastewater Treatment

Annual Performance Report

The Dowling Wastewater Treatment Plant located at 62 Riverside Dr. Dowling is an extended aeration activated sludge plant, having a Peak Flow Rated Capacity of 3,200 m³/d, discharging effluent to the Onaping River.

a. Summary and interpretation of all Influent, monitoring data, and a review of the historical trend of the sewage characteristics and flow rates.

All influent monitoring data, historical trending of sewage characteristics and flow rates are graphed and reviewed annually by compliance and plant supervisory staff. No abnormalities were observed for the Dowling WWTP for this reporting year. If abnormal influent issues occur, CGS Environmental Compliance Officers can be deployed to investigate and react as needed.

b. Summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, loading and a comparison to the design objectives and compliance limits in this Approval, including an overview of the success and adequacy of the Works.

Annually, all effluent monitoring data is graphed and reviewed by compliance and plant supervisory staff. For the Dowling WWTP, all parameters fell within plant design objectives and compliance limits.

c. Summary of all operating issues encountered, and corrective actions taken.

Date	Parameter	Corrective Action	Probable Cause	Date Sent
08-Sep-23	pH	Chemical was stopped, added lime and more testing conducted	Chemical addition used to mitigate another parameter caused a drop in pH	11-Sep-23

d. Summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus, or mechanism forming part of the Works.

The operating and maintenance staff at the Dowling WWTP 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.

e. Summary of any effluent quality assurance or control measures undertaken.

Operations conduct daily rounds which are recorded on checklists. SCADA systems record continuous trending for various flows and processes. Lab analysis is performed several times per week in addition to samples being collected and sent out for third party testing. Plant 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.

f. Summary of the calibration and maintenance carried out on all Influent, and Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer.

The calibration of flow meters was conducted by Induscontrols in accordance with the requirements of the Dowling WWTP ECA. Records and certificates are kept electronically.

g. Summary of efforts made to achieve the design objectives in this Approval, including an assessment of the issues and recommendations for pro-active actions if any are required under the following situations:

- when any of the design objectives is not achieved more than 50% of the time in a year, or

- there is an increasing trend in deterioration of Final Effluent quality when the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity.

For 2023 reporting year Dowling WWTP averaged approximately 81% of rated capacity and achieved its design objectives as listed in the ECA.

The plant has been listed on the capital works plan for updates and upgrades.

- h. Tabulation of the volume of sludge generated an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed.**

Month	Jan.	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Loads	4	5	6	8	3	5	4	5	4	4	5	4
Vol m³	149.1	196.5	199.5	159.9	93.8	186.9	152.1	194.1	155	163.9	190	158.6

Dowling generated 2,000 m³ of Waste sludge which was brought to the Sudbury Biosolids facility and processed into class A biosolids. A similar volume is anticipated for the next reporting period.

- i. Summary of any complaints received, and any steps taken to address the complaints.**

There were no complaints received for Dowling in this reporting year.

- j. Summary of all Bypasses, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events.**

There were no By-passes or spills reported at Dowling for this reporting year.

- k. Summary of all Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 10, including a report on status of implementation of all modification.**

There were no Notice of Modifications to Sewage Works for this reporting year.

- l. Summary of efforts made to achieve conformance with Procedure F-5-1 including but not limited to projects undertaken and completed in the sanitary sewer system that result in overall Bypass/Overflow elimination including expenditures and proposed projects to eliminate Bypass/Overflows with estimated budget forecast for the year following that for which the report is submitted.**

Replacement of worn Effluent weir plate and replacement of effluent flow meter to ensure continued proper flow monitoring.

- m. Any changes or updates to the schedule for the completion of construction and commissioning operation of major process(es) / equipment groups in the Proposed Works.**

No current construction projects.

- n. Summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year.**

There were no deviations to the monitoring schedule in the current reporting year. Average daily flows increased in 2023 to above 2,500 m³ which has triggered Acute Lethality testing and monthly sampling regime for 2024.

Falconbridge Wastewater Treatment

Annual Performance Report

The Falconbridge Wastewater Treatment Plant located at Hodge St., Falconbridge is a low-rate biological filter and wetland polishing system, having a Rated Capacity of 909 m³/d, discharging effluent to NIR creek and eventually to the Coniston creek.

a. Summary and interpretation of all Influent, monitoring data, and a review of the historical trend of the sewage characteristics and flow rates.

All influent monitoring data, historical trending of sewage characteristics and flow rates are graphed and reviewed annually by compliance and plant supervisory staff. No abnormalities were observed for the Falconbridge WWTP for this reporting year. If abnormal influent issues occur, CGS Environmental Compliance Officers can be deployed to investigate and react as needed.

b. Summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, and loading. including an overview of the success and adequacy of the Works.

Annually, all effluent monitoring data are graphed and reviewed by compliance and plant supervisory staff. For the Falconbridge WWTP all parameters fell within plant design objectives and compliance limits.

c. Summary of all operating issues encountered, and corrective actions taken.

There were none for this reporting year.

d. Summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus, or mechanism forming part of the Works.

The operating and maintenance staff at the Falconbridge WWTP 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.

e. Summary of any effluent quality assurance or control measures undertaken.

Operations conduct rounds which are recorded on checklists. On site flow monitoring record continuous trending for various flows. Lab analysis is performed several times per week in addition to samples being collected and sent out for third party testing. Plant 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.

f. Summary of the calibration and maintenance carried out on all Influent, and Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment or recommended by the manufacturer.

The calibration of flow meters was conducted by a third-party contractor. Records and certificates are kept electronically.

g. Summary of any complaints received, and any steps taken to address the complaints.

There were no complaints recorded for Falconbridge in the current reporting year.

h. Summary of all Bypasses, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events.

There were no Bypasses or overflows for Falconbridge in the current reporting year.

i. Summary of all Notice of Modifications to Sewage Works completed.

There were no modifications to the sewage works for this reporting year.

j. Summary of efforts made to achieve conformance with Procedure F-5-1 including but not limited to projects undertaken and completed in the sanitary sewer system that result in overall Bypass/Overflow elimination including expenditures and proposed projects to eliminate Bypass/Overflows with estimated budget forecast for the year following that for which the report is submitted.

No changes for this reporting year.

Levack Wastewater Treatment

Annual Performance Report

The Levack Wastewater Treatment Plant located at 45 High St., Levack, is an extended aeration activated sludge plant having a Peak Flow Rated Capacity of 5,675 m³/d, discharging effluent to the Onaping River

a. Summary and interpretation of all Influent, monitoring data, and a review of the historical trend of the sewage characteristics and flow rates.

All influent monitoring data, historical trending of sewage characteristics and flow rates are graphed and reviewed annually by compliance and plant supervisory staff. No abnormalities were observed for the Levack WWTP for this reporting year. If abnormal influent issues occur, CGS Environmental Compliance Officers can be deployed to investigate and react as needed.

b. Summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, loading and a comparison to the design objectives and compliance limits in this Approval, including an overview of the success and adequacy of the Works.

All effluent monitoring data is graphed and reviewed annually by compliance and plant supervisory staff. For the Levack WWTP all parameters fell within plant design objectives and compliance limits.

c. Summary of all operating issues encountered, and corrective actions taken.

There were none reported for this year.

d. Summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus, or mechanism forming part of the Works.

The operating and maintenance staff at the Levack WWTP 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.

e. Summary of any effluent quality assurance or control measures undertaken.

Operations conduct daily rounds which are recorded on checklists. SCADA systems record continuous trending for various flows and processes. Lab analysis is performed several times per week in addition to samples being collected and sent out for third party testing. Plant 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.

f. Summary of the calibration and maintenance carried out on all Influent, and Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer.

The calibration of flow meters was conducted by Induscontrols in accordance with the requirements of the Levack WWTP ECA. Records and certificates are kept electronically.

g. Summary of efforts made to achieve the design objectives in this Approval, including an assessment of the issues and recommendations for pro-active actions if any are required under the following situations:

- when any of the design objectives is not achieved more than 50% of the time in a year, or
- there is an increasing trend in deterioration of Final Effluent quality when the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity.

For 2023 reporting year Levack WWTP averaged approximately 43% of rated capacity and achieved its design objectives as listed in the ECA.

- h. Tabulation of the volume of sludge generated an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed.**

Month	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Loads	5	4	4	4	5	8	4	5	5	5	4	5
Vol (m³)	200.3	156.9	159.3	158	192.9	320.7	153.1	206.3	202.5	211.2	161.6	174.2

Levack generated 2,297 m³ of Waste sludge which was brought to the Sudbury Biosolids facility and processed into a class A biosolid. A similar volume is anticipated for the next reporting period.

- i. Summary of any complaints received, and any steps taken to address the complaints.**

There were no complaints recorded for Levack in the current reporting year.

- j. Summary of all Bypasses, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events.**

There were no Bypasses or overflows for Levack in the current reporting year.

- k. Summary of all Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 10, including a report on status of implementation of all modification.**

There were no modifications to the sewage works for this reporting year.

- l. Summary of efforts made to achieve conformance with Procedure F-5-1 including but not limited to projects undertaken and completed in the sanitary sewer system that result in overall Bypass/Overflow elimination including expenditures and proposed projects to eliminate Bypass/Overflows with estimated budget forecast for the year following that for which the report is submitted.**

Wiring upgrades to various process equipment wiring to ensure solid performance and stability.

- m. Any changes or updates to the schedule for the completion of construction and commissioning operation of major process(es) / equipment groups in the Proposed Works.**

No Changes or updates.

- n. Summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year.**

There were no deviations to the monitoring schedule in the current reporting year. and no monitoring changes required for the next reporting year.

Lively Wastewater Treatment

Annual Performance Report

The Lively Wastewater Treatment Plant located at 231 First Ave, Lively is an extended aeration process plant having a Peak Flow Rated Capacity of 3,000 m³/d, discharging effluent to Meatbird Creek.

a. Summary and interpretation of all Influent, monitoring data, and a review of the historical trend of the sewage characteristics and flow rates.

All influent monitoring data, historical trending of sewage characteristics and flow rates are graphed and reviewed annually by compliance and plant supervisory staff. There were no abnormalities seen for the Lively WWTP for this reporting year. If abnormal influent issues occur, CGS Environmental compliance officers can be deployed to investigate and react as needed.

b. Summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, loading and a comparison to the design objectives and compliance limits in this Approval, including an overview of the success and adequacy of the Works.

All effluent monitoring data is graphed and reviewed annually by compliance and plant supervisory staff. For the Lively WWTP all parameters fell within plant design objectives and compliance limits.

c. Summary of all operating issues encountered, and corrective actions taken.

There were none for this reporting year.

d. Summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus, or mechanism forming part of the Works.

The operating and maintenance staff at the Lively WWTP 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.

e. Summary of any effluent quality assurance or control measures undertaken.

Operations conduct daily rounds which are recorded on checklists. SCADA systems record continuous trending for various flows and processes. Lab analysis is performed several times per week in addition to samples being collected and sent out for third party testing. Plant 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.

f. Summary of the calibration and maintenance carried out on all Influent, and Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer.

The calibration of flow meters was conducted by Induscontrols in accordance with the requirements of the Lively WWTP ECA. Records and certificates are kept electronically.

g. Summary of efforts made to achieve the design objectives in this Approval, including an assessment of the issues and recommendations for pro-active actions if any are required under the following situations:

- when any of the design objectives is not achieved more than 50% of the time in a year, or
- there is an increasing trend in deterioration of Final Effluent quality when the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity.

For 2023 reporting year Lively WWTP averaged approximately 123% of rated capacity and achieved its design objectives as listed in the ECA.

Excess flow above rated capacity can be diverted to the Walden WWTP

- h. Tabulation of the volume of sludge generated an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed.**

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Loads	2	3	5	8	7	4	6	7	8	6	6	3
Vol (m³)	77.1	106.4	178.8	308.5	275.1	132.3	235.3	278.2	272.4	250	240	122

Lively generated 2,476m³ of Waste sludge which was brought to the Sudbury Biosolids facility and processed into class A biosolids. A similar volume is anticipated for the next reporting period.

- i. Summary of any complaints received, and any steps taken to address the complaints.**

Compliant	Date/Time	Corrective action
Foul odour	10/24/2023 10:43 AM	Cleaned center rings
Foul Odour	10/24/2023 12:52 AM	Cleaned center rings

- j. Summary of all Bypasses, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events.**

DATE	DURATION	TYPE OF OCCURRENCE	RECEIVING STREAM ID	VOL (m ³)	LEVEL OF TREATMENT RECEIVED	REASON FOR EVENT
11-Apr-23	61 hrs	Plant overflow	None	10,106.0	disinfection	Spring run-off
30-Apr-23	1.5hrs	Collection system overflow	NA		dilution	Spring run-off
30-Apr-23	56 hrs	Plant overflow	None	5,052.0	disinfection	Spring run-off
18-Sep-23	5.5 hrs	Force main break	Ground	20L/sec	Dilution	Equipment (failure)
21-Aug-23	1.50	Force main break	Meatbird Creek	20L/sec		Equipment (failure)

- k. Summary of all Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 10, including a report on status of implementation of all modification.**

There were no modifications to the sewage works for this reporting year.

- l. Summary of efforts made to achieve conformance with Procedure F-5-1 including but not limited to projects undertaken and completed in the sanitary sewer system that result in overall Bypass/Overflow elimination including expenditures and proposed projects to eliminate Bypass/Overflows with estimated budget forecast for the year following that for which the report is submitted.**

Upgraded Chlorinator regulators and switchovers and upgraded to electronic Chlorine scales.

- m. Any changes or updates to the schedule for the completion of construction and commissioning operation of major process(es) / equipment groups in the Proposed Works.**

No Changes or updates.

- n. Summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year.**

There were no deviations to the monitoring schedule in the current reporting year, and no monitoring changes required for the next reporting year.

Sudbury Wastewater Treatment

Annual Performance Report

The Sudbury Wastewater Treatment Plant located at 1271 Kelly Lake Rd. Sudbury is a hybrid of a conventional activated sludge treatment plant and a high-rate treatment plant. having a Peak Flow Rated Capacity of 159,250 m³/d, discharging effluent to junction Creek and eventually into Kelly Lake.

- a. Summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Condition 2.8 or Condition 2.9, including an overview of the success and adequacy of the Works.**

All effluent monitoring data is graphed and reviewed by compliance and plant supervisory staff. For the Sudbury WWTP all parameters fell within plant design objectives and compliance limits.

- b. a description of any operating problems encountered, and corrective actions taken.**

There were none for this reporting year.

- c. a 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 Sudbury WWTP 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.

- d. a summary of any effluent quality assurance or control measures undertaken in the reporting period.**

Operations conduct daily rounds which are recorded on checklists. SCADA systems record continuous trending for various flows and processes. Lab analysis is performed several times per week in addition to samples being collected and sent out for third party testing. Plant 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. a summary of the calibration and maintenance carried out on all effluent monitoring equipment.**

The calibration of flow meters was conducted by Induscontrols in accordance with the requirements of the Sudbury WWTP ECA. Records and certificates are kept electronically.

- f. a description of efforts made, and results achieved in meeting the Effluent Objectives of Condition 2.7.**

Taking two final clarifiers offline for low flow seasons allowed for an optimized sludge retention time which led to a more efficient process.

- g. a tabulation of the volume of sludge generated in the reporting period, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed.**

Sudbury generated 64,464m³ of waste sludge which was pumped to the Sudbury Biosolids facility and processed into class A biosolids. A similar volume is anticipated for the next reporting period.

- h. a summary of any complaints received during the reporting period and any steps taken to address the complaints.

Incident Location	System	Subject
Oriole Lift Station #22	Sudbury	Call back / Lift station going off/ flooding
3060 Herold Drive,	Sudbury	callback request- strong sewer smell
Countryside Lift Stn	Sudbury	Water pumping station
Stewart Lift Stn	Sudbury	Tree branches behind/ behind pump station
2224 Hudson Street	Sudbury	Open pump station for locates
1271 Kelly Lake Road	Sudbury	call back - Repair work / plumbing manager from Witherall mechanical
1271 Kelly Lake Road	Sudbury	Fisher Wavy Inc - Emergency Procedure and Contact
1271 Kelly Lake Road	Sudbury	Recreational dumping station
Levesque Lift Stn, 2811 Bancroft Dr	Sudbury	Callback-Gate is locked
Selkirk Lift Stn, 40 Selkirk Ave	Sudbury	Call Back/large pile of sand
Levesque Lift Stn, 2811 Bancroft Dr	Sudbury	Callback - City cut his lock
Sudbury WWTP	Sudbury	Call Back/Cost of disposing of septic/sewage east
1915 Brierwood Court	Sudbury	Strong Odor Waste plant

- i. Summary of all By-pass, Plant Overflow, Overflow, spill, or abnormal discharge events.

DATE	DURATION	TYPE OF OCCURRENCE	RECEIVING STREAM ID	VOL (m ³)	LEVEL OF TREATMENT RECEIVED	REASON FOR EVENT
11-Apr-23	127hr 25 min	Plant bypass: flow exceeds design capacity	Junction Creek	708,000	disinfection	Spring run-off
30-Apr-23	80.4 hrs	Plant bypass: flow exceeds design capacity	Junction Creek	436,000	disinfection	Spring run-off
26-Jul-23	1hr	Force main break	Junction Creek	72.0	none	Heavy rain

- j. Any other information the Water Supervisor requires from time to time.

There were no deviations to the monitoring schedule in the current reporting year. Average daily flows increased in 2023 to above 50,000 m³ which has triggered increased Acute Lethality testing and monthly sampling regime for 2024.

- k. a copy of all Notices of Modification submitted to the Water Supervisor, with a status report on the implementation of Limited Operational Flexibility outlined under Schedule C of this Approval.

There were no modifications to the sewage works for this reporting year.

Valley East Wastewater Treatment

Annual Performance Report

The Valley East Wastewater Treatment Plant located at 1861 Yorkshire Dr. Val Caron is a Conventional Activated Sludge process plant, having a Peak Flow Rated Capacity of 11,365 m³/d, discharging effluent to a 13 km forcemain to the Vermillion River Pilon.

- a. 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 effluent monitoring data is graphed and reviewed by compliance and plant supervisory staff. For the Valley East WWTP all parameters fell within plant design objectives and compliance limits.

- b. a description of any operating problems encountered, and corrective actions taken.**

There were none for this reporting year.

- c. a 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 Valley East WWTP 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.

- d. a summary of any effluent quality assurance or control measures undertaken in the reporting period.**

Operations conduct daily rounds which are recorded on checklists. SCADA systems record continuous trending for various flows and processes. Lab analysis is performed several times per week in addition to samples being collected and sent out for third party testing. Plant 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. a summary of the calibration and maintenance carried out on all effluent monitoring equipment; and**

The calibration of flow meters was conducted by Induscontrols in accordance with the requirements of the Valley East WWTP ECA. Records and certificates are kept electronically.

- f. a description of efforts made, and results achieved in meeting the Effluent Objectives of Condition 6.**

Rebuild of several pumps including two return pumps and two Raw sludge pumps, installed new blower VFD and rebuilt primary clarifier drive to optimize process efficiency.

- g. a tabulation of the volume of sludge generated in the reporting period, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed.**

Month	Jan	Feb	Mar	Apr	May	June
Loads	33	35	38	31	31	33
Vol (m³)	1320	1391.3	1520.5	1226.2	1216.1	1312.9
	July	Aug	Sept	Oct	Nov	Dec
Loads	30	34	40	41	36	37
Vol (m³)	1194.8	1358.3	1616.9	1617.9	1427.8	1468.8

Valley East generated 16,671 m³ of Waste sludge which was brought to the Sudbury Biosolids facility and processed into class A biosolids. A similar volume is anticipated for the next reporting period.

- h. a summary of any complaints received during the reporting period and any steps taken to address the complaints.**

Incident Location	System	Subject
Helene Lift Station #69	Valley	Odd pressure
Spruce Lift Stn, 191 Spruce Street	Valley	HAZARDOUS Grate fence allowing kids to get into Lift station
Helene Lift Stn, 1706 Helene St	Valley	Callback - Damage to Property

- i. a summary of all By-pass, spill, or abnormal discharge events.**

DATE	DURATION	TYPE OF OCCURRENCE	RECEIVING STREAM ID	VOL (m ³)	LEVEL OF TREATMENT RECEIVED	REASON FOR EVENT
02-May-23	12 hrs	Plant bypass: flow exceeds design capacity	Whitson River	2,500.0	Disinfection - Full Treatment	Heavy rain
03-Oct-23	unknown	Plant overflow		1.0	To environment	Equipment (failure)

- j. a copy of all Notice of Modifications submitted to the Water Supervisor as a result of Schedule B, Section 1, with a status report on the implementation of each modification.**

There were no modifications to the sewage works for this reporting year.

- k. A report summarizing all modifications completed as a result of Schedule B, Section 3.**

There have been no modifications for this reporting year.

- l. Any other information the Water Supervisor requires from time to time.**

No other information is required at this time.

Walden Wastewater Treatment

Annual Performance Report

The Walden Wastewater Treatment Plant located at 1425 MR 55 Naughton, is an extended aeration process plant, having a Peak Flow Rated Capacity of 8,000 m³/d, discharging effluent to Junction Creek and eventually into Simon Lake.

a. summary and interpretation of all Influent, monitoring data, and a review of the historical trend of the sewage characteristics and flow rates.

All influent monitoring data, historical trending of sewage characteristics and flow rates are graphed and reviewed by compliance and plant supervisory staff. No abnormalities were observed for the Walden WWTP for this reporting year. If abnormal influent issues occur, CGS Environmental Compliance Officers can be deployed to investigate and react as needed.

b. a summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, loading and a comparison to the design objectives and compliance limits in this Approval, including an overview of the success and adequacy of the Works.

All effluent monitoring data is graphed and reviewed by compliance and plant supervisory staff. For the Walden WWTP all parameters fell within plant design objectives and compliance limits.

c. a summary of all operating issues encountered, and corrective actions taken.

Date	Parameter	Corrective Action	Reason For event
21-Apr-23	Acute Lethality	Sample taken once safety concerns was dealt with	Health and Safety Concern

d. a summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus, or mechanism forming part of the Works.

The operating and maintenance staff at the Walden WWTP 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.

e. a summary of any effluent quality assurance or control measures undertaken.

Operations conduct daily rounds which are recorded on checklists. SCADA systems record continuous trending for various flows and processes. Lab analysis is performed several times per week in addition to samples being collected and sent out for third party testing. Plant 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.

f. a summary of the calibration and maintenance carried out on all Influent and Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer.

The calibration of flow meters was conducted by Induscontrols in accordance with the requirements of the Walden WWTP ECA. Records and certificates are kept electronically.

g. a summary of efforts made to achieve the design objectives in this Approval, including an assessment of the issues and recommendations for pro-active actions if any are required under the following situations:

- when any of the design objectives is not achieved more than 50% of the time in a year, or there is an increasing trend in deterioration of Final Effluent quality.

- when the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity.

For 2023 reporting year Walden WWTP averaged approximately 55% of rated capacity and achieved its design objectives as listed in the ECA.

- h. a tabulation of the volume of sludge generated, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed.**

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Loads	12	7	14	10	10	14	13	14	9	12	10	12
Vol (m³)	481.6	282.5	569.3	403	404.2	575	544.9	569.5	338.3	466.8	390.2	483.7

Walden generated 5,509m³ of Waste sludge which was brought to the Sudbury Biosolids facility and processed into class A biosolids. A similar volume is anticipated for the next reporting period.

- i. a summary of any complaints received, and any steps taken to address the complaints.**

There were no complaints reported for this reporting year.

- j. a summary of all Bypasses, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events.**

DATE	DURATION (hr.)	TYPE OF OCCURRENCE	RECEIVING STREAM ID	VOL (m ³)	LEVEL OF TREATMENT RECEIVED	REASON FOR EVENT
13-Feb-23	1.25	Force main break	none	--	Disinfection	Equipment (failure)
20-Oct-23	1	Plant bypass	Simon Creek	UNK	To environment	Equipment (failure)

- k. a summary of all Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 10, including a report on status of implementation of all modification.**

There were no modifications to the sewage works for this reporting year.

- l. a summary of efforts made to achieve conformance with Procedure F-5-1 including but not limited to projects undertaken and completed in the sanitary sewer system that result in overall Bypass/Overflow elimination including expenditures and proposed projects to eliminate Bypass/Overflows with estimated budget forecast for the year following that for which the report is submitted.**

No Changes for this reporting year.

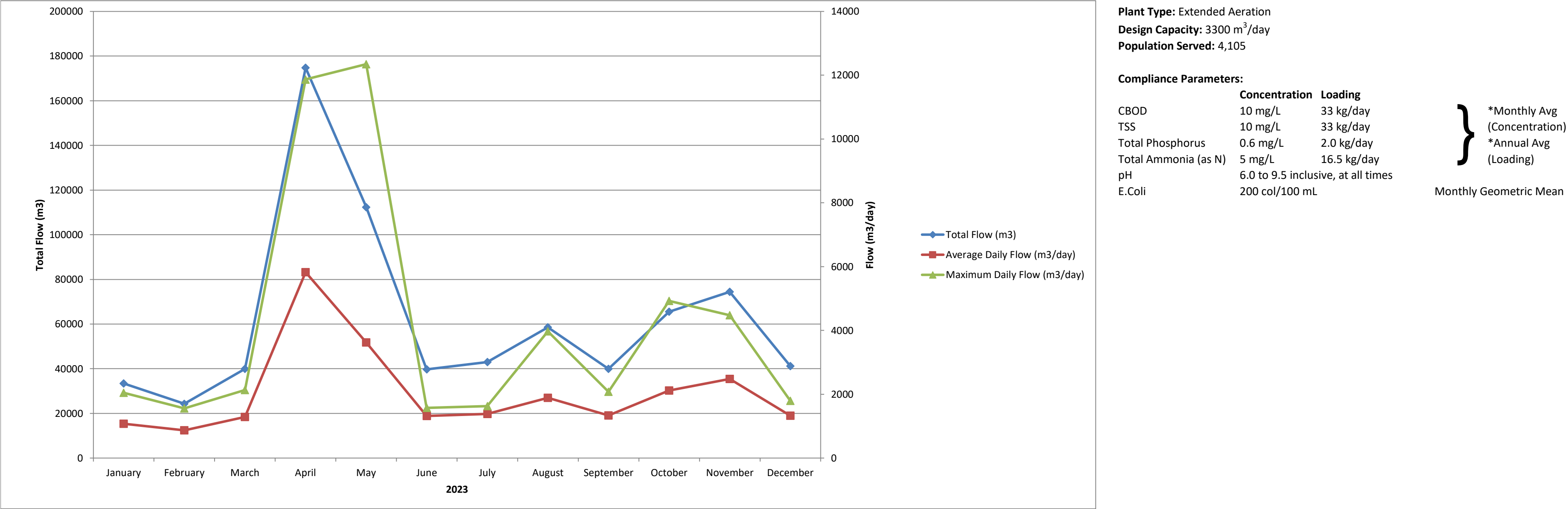
Appendices

- Azilda Plant Performance Report
- Azilda Metals Report
- Chelmsford Plant Performance Report
- Chelmsford Annual Sludge Report
- Coniston Annual Performance Report
- Coniston Annual Sludge Report
- Dowling Annual Performance Report
- Dowling Annual Sludge Report
- Falconbridge Annual Performance Report
- Levack Annual Performance Report
- Levack Annual Sludge Report
- Lively Annual Performance Report
- Lively Annual Sludge Report
- Sudbury Annual Metals Report
- Sudbury Annual Performance Report
- Sudbury Annual Sludge Report
- Valley East Annual Performance Report
- Valley East Annual Sludge Report
- Walden Annual Performance Report
- Walden Annual Sludge Report



2023 Azilda Wastewater Treatment Plant Performance

Month	Flows			BOD ₅	CBOD				Total Suspended Solids				Total Phosphorus				Total Ammonia				Un-ionized	TKN		Nitrate	Nitrite	pH		Alkalinity			Sludge			Chlorine		E.Coli
	Total	Avg Day	Max Day	Raw	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Ammonia	Raw	Effluent	Effluent	Effluent	Raw	Effluent	Raw	Effluent	Total m ³	Conc.	Total	Total	Residual	Geomean	
	m ³	m ³ /d	m ³ /d	mg/L	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	µg/L	mg/L	mg/L	mg/L	mg/L			mg/L	mg/L	Hauled	%	m ³	Kg	mg/L		# Col./100ml
January	33371	1076	2047	149	102	2.8	3.01	97.3%	142	4.4	4.74	96.9%	3.7	0.13	0.14	96.5%	18.20	0.72	0.78	96.0%	7.98	21.0	2.0	21.2	0.1	7.7	6.7	290	135.8	280	0.0		123.0	0.8	4	
February	24321	869	1557	178	158	3.9	3.39	97.5%	166	5.2	4.52	96.9%	4.6	0.23	0.20	95.0%	28.88	7.16	6.22	75.2%	78.28	30.5	3.5	22.5	0.2	7.5	6.8	303	118.4	320	2.1	6.7	79.2	0.6	5	
March	39957	1289	2132	172	153	3.8	4.90	97.5%	160	7.7	9.92	95.2%	3.7	0.22	0.28	94.1%	23.14	6.86	8.84	70.4%	82.18	24.8	6.7	18.0	0.1	7.5	6.7	259	144.5	280	2.1	5.9	115.7	0.7	2	
April	174782	5826	11867	68	48	3.0	17.48	93.8%	57	7.7	44.86	86.5%	1.6	0.11	0.64	93.1%	5.35	1.85	10.78	65.4%	28.57	9.7	2.7	6.4	0.1	7.6	7.0	244	192.7	180	2.1	3.8	236.8	0.7	65	
May	112371	3625	12347	115	81	1.4	5.07	98.3%	114	5.2	18.85	95.4%	2.4	0.12	0.43	95.0%	14.38	4.84	17.54	66.3%	68.51	17.4	4.3	8.8	0.2	7.8	6.9	267	177.3	200	3.5	7.0	201.0	0.9	12	
June	39709	1324	1569	213	163	2.8	3.71	98.3%	176	7.8	10.32	95.6%	5.1	0.23	0.30	95.5%	35.83	7.74	10.24	78.4%	111.60	27.8	4.3	18.1	0.9	7.5	6.6	280	84.9	400	0.0		114.2	0.7	15	
July	42981	1386	1628	173	121	1.5	2.08	98.8%	183	7.3	10.12	96.0%	4.4	0.46	0.64	89.5%	36.68	0.94	1.30	97.4%	11.35	29.8	0.4	29.1	0.3	7.0	6.6	279	96.9	320	2.4	7.7	177.8	0.7	3	
August	58500	1887	3968	116	105	1.6	3.02	98.5%	154	7.6	14.34	95.1%	5.3	0.39	0.74	92.6%	25.32	0.86	1.62	96.6%	10.90	19.6	0.3	20.06	0.6	7.3	6.7	294	122.4	520	2.0	10.4	240.6	0.4	10	
September	39973	1332	2074	137	139	2.0	2.66	98.6%	270	6.4	8.53	97.6%	6.2	0.27	0.36	95.6%	32.78	12.74	16.98	61.1%	223.89	31.2	9.7	9.45	1.1	7.5	6.7	270	116.7	560	0.0		213.2	1.0	2	
October	65534	2114	4923	105	73	2.8	5.92	96.2%	106	8.2	17.33	92.3%	3.1	0.17	0.36	94.5%	23.02	3.85	8.14	83.3%	97.68	23.9	4.5	8.85	1.1	7.2	6.6	293	170.5	320	2.8	9.0	210.0	0.6	18	
November	74392	2480	4479	46	48	2.6	6.45	94.6%	105	4.8	11.90	95.4%	1.9	0.13	0.32	93.2%	11.16	1.04	2.58	90.7%	3.55	14.8	0.4	11.68	0.1	7.5	6.9	286	175.1	200	0.0		260.0	0.7	22	
December	41134	1327	1790	140	115	1.5	1.99	98.7%	136	4.9	6.50	96.4%	4.6	0.11	0.15	97.6%	25.13	0.08	0.11	99.7%	0.50	34.1	0.3	20.88	0.05	7.6	7.0	287	103.3	320	0.0		177.8	0.8	4	
Total	747025							97.3%					94.7%				94.2%													3900		50.4				
Average		2047		134	109	2.48	4.97	97.3%	147	6.43	13.50	94.9%	3.88	0.21	0.38	94.4%	23.32	4.06	7.09	81.7%	60.4	23.69	3.24	16.24	0.40	7.48	6.77	279	137		2.43			0.72	13	





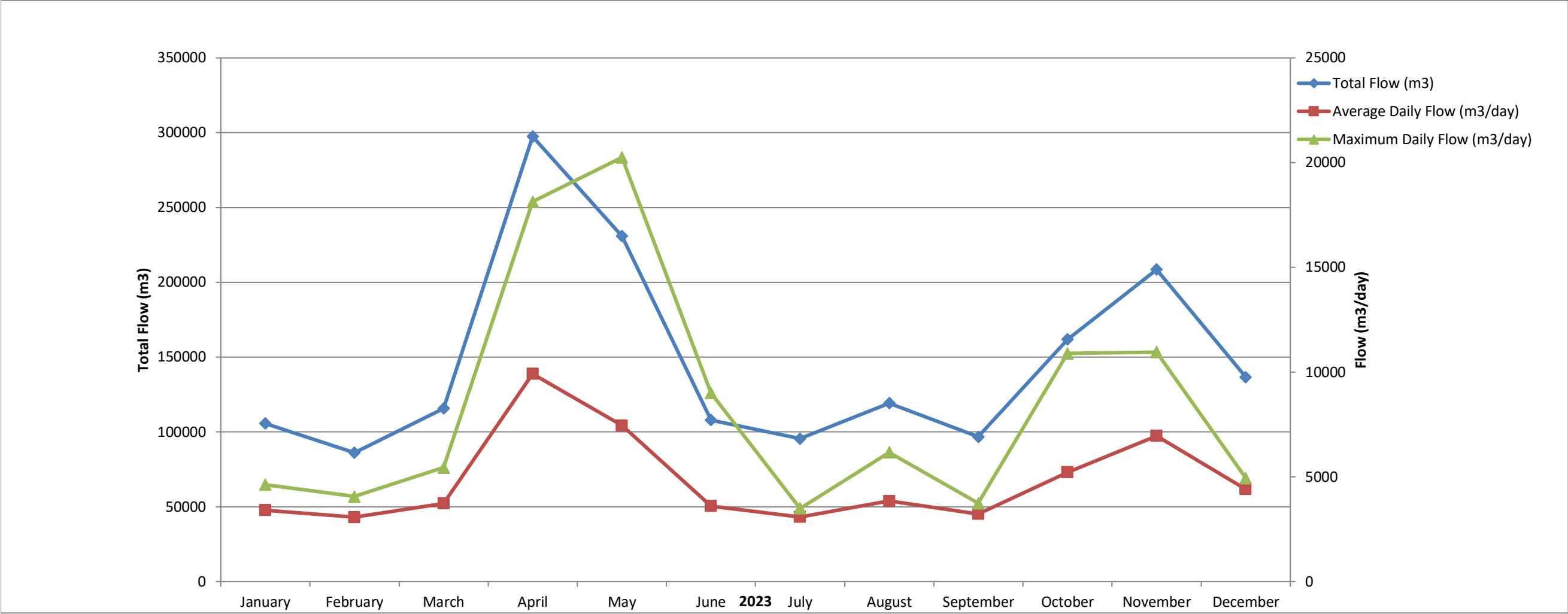
2023 Azilda Wastewater Treatment Plant Waste Sludge Analysis

Parameter (mg/L)	January	February	March	April	May	June	July	August	September	October	November	December	Average
Ammonia (as N)	39.5	18.5	92.7	21.1	5.8	18.3	48.3	33.7	31.1	135.0	17.3	25.2	41
Nitrate (as N)	0.5	0.25	0.70	0.5	0.1	0.20	0.25	0.25	0.25	0.70	0.15	0.05	0.3
Nitrite (as N)	0.5	0.25	0.50	0.50	0.1	0.20	0.25	0.25	0.25	0.50	0.15	0.05	0.3
Potassium	76	88	114	105	43	60	64	69	94	93	40	39	74
TKN	904	1210	1850	1230	455	717	1320	904	883	897	171	372	909
Total Phosphorus	178.0	278.0	376.0	67.0	146.0	162.0	183.0	98.6	137.00	89.9	47.9	106.0	156
Total Solids	18100	16700	23600	20800	12200	15000	21200	23700	20400	34000	8140	9810	18638
Arsenic	0.04	0.07	0.09	0.08	0.11	0.07	0.10	0.12	0.08	0.10	0.04	0.04	0.08
Cadmium	0.0064	0.0122	0.0216	0.0176	0.0097	0.0112	0.0171	0.0247	0.0147	0.0179	0.0062	0.0052	0.0137
Chromium	0.13	0.21	0.28	0.27	0.21	0.19	0.36	0.35	0.30	0.37	0.10	0.11	0.24
Cobalt	0.091	0.135	0.104	0.156	0.075	0.084	0.167	0.222	0.181	0.377	0.073	0.154	0.152
Copper	4.2	6.1	8.2	8.00	4.00	3.90	9.1	11.9	8.2	9.3	2.3	2.4	6.5
Lead	0.081	0.103	0.159	0.129	0.091	0.100	0.180	0.226	0.167	0.178	0.053	0.051	0.127
Mercury	0.002	0.002	0.003	0.004	0.002	0.002	0.003	0.002	0.002	0.005	0.001	0.001	0.002
Molybdenum	0.05	0.06	0.09	0.06	0.03	0.06	0.07	0.08	0.07	0.11	0.03	0.03	0.06
Nickel	0.41	0.65	0.72	1.09	1.50	0.64	1.02	1.16	1.03	1.22	0.44	0.46	0.86
Selenium	0.032	0.059	0.089	0.049	0.029	0.040	0.067	0.087	0.074	0.060	0.025	0.030	0.053
Zinc	3.57	5.89	10.00	7.05	4.07	4.33	8.70	13.10	8.60	10.50	3.49	3.03	6.86
Sample Date	Jan.4/23	Feb.1/23	Mar.1/23	Apr.5/23	May.3/23	June.7/23	Jul.12/23	Aug.2/23	Sept.5/23	Oct.4/23	Nov.7/23	Dec.6/23	#DIV/0!
Work order	487407	489707	491922	494922	497729	501914	505796	508101	511648	514749	518330	521139	



2023 Chelmsford Wastewater Treatment Plant Performance

Month	Flows			BOD ₅	CBOD				Total Suspended Solids				Total Phosphorus				Total Ammonia				Un-ionized	TKN		Nitrate	Nitrite	pH		Alkalinity		Sludge			E.Coli		
	Total	Avg Day	Max Day		Raw	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Ammonia	Raw	Effluent	Effluent	Effluent	Raw	Effluent	Raw	Effluent	Total m ³	Conc.	Total	Geomean	
	m ³	m ³ /d	m ³ /d		mg/L	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	µg/L	mg/L	mg/L	mg/L	mg/L			mg/L	mg/L	mg/L	Hauled	%	m ³	# Col./100mL
January	105663	3408	4630	140	140	2.8	9.54	98.0%	156	5.1	17.38	96.7%	2.7	0.19	0.65	93.0%	13.30	4.70	16.02	64.7%	39.14	21.00	5.50	6.08	0.08	7.4	7.0	272	192	960	3.0	28.8	3826		
February	86129	3076	4060	160	198	2.0	6.15	99.0%	199	8.3	25.53	95.8%	4.1	0.35	1.08	91.5%	36.10	7.65	23.53	78.8%	50.65	39.00	6.00	10.74	0.08	7.7	7.0	260	163	680		0.0	2614		
March	115707	3732	5440	389	270	3.6	13.44	98.7%	249	7.7	28.74	96.9%	4.0	0.33	1.23	91.8%	34.10	5.20	19.41	84.8%	40.08	35.00	5.67	8.67	0.09	7.4	7.0	256	187	1120	1.3	14.6	168		
April	297461	9915	18130	69	64	4.1	40.65	93.6%	81	7.9	78.33	90.2%	1.0	0.20	1.98	80.0%	9.10	1.29	12.79	85.8%	13.88	11.00	4.00	6.86	0.08	7.8	7.4	224	174	760		0.0	1642		
May	230854	7447	20250	8	11	2.9	21.60	73.6%	309	8.0	59.58	97.4%	2.2	0.25	1.86	88.6%	1.90	2.40	17.87	-26.3%	29.17	2.00	1.67	7.91	0.17	7.7	7.4	200	166	920	0.5	4.6	66		
June	107923	3597	9000	180	130	4.6	16.55	96.5%	190	13.0	46.77	93.2%	3.1	0.26	0.94	91.6%	22.10	5.72	20.58	74.1%	121.95	21.00	3.50	12.40	0.80	7.3	6.7	247	137	920	2.2	20.2	567		
July	95504	3081	3490	230	120	4.4	13.56	96.3%	247	8.9	27.42	96.4%	5.3	0.21	0.65	96.0%	26.80	8.43	25.97	68.5%	102.40	28.00	5.25	7.70	0.31	7.5	6.7	250	146	920	1.0	9.2	346		
August	119244	3847	6170	290	91	1.6	6.15	98.2%	235	8.8	33.85	96.3%	3.9	0.22	0.85	94.4%	20.20	1.25	4.81	93.8%	4.60	26.00	1.23	12.13	0.29	7.5	6.7	257	109	960	1.2	11.5	208		
September	96744	3225	3740	180	150	3.2	10.32	97.9%	324	9.9	31.93	96.9%	4.0	0.20	0.64	95.0%	26.90	3.29	10.61	87.8%	60.55	30.00	2.83	13.53	0.80	7.5	6.7	258	96	960	2.1	20.2	144		
October	161923	5223	10890	280	140	2.1	10.97	98.5%	318	6.8	35.52	97.9%	3.6	0.16	0.84	95.6%	28.10	1.09	5.69	96.1%	8.22	42.50	0.55	17.60	0.08	7.5	6.7	265	87	960	1.5	14.4	18		
November	208614	6954	10950	150	42	3.0	20.86	92.9%	160	6.7	46.59	95.8%	2.2	0.22	1.53	90.0%	6.40	0.78	5.42	87.8%	10.23	9.30	0.77	10.03	0.83	7.3	6.9	278	185	960		0.0	9971		
December	136622	4407	4941	270	130	3.1	13.66	97.6%	266	5.2	22.92	98.0%	2.5	0.25	1.10	90.0%	16.50	0.92	4.05	94.4%	7.48	30.40	1.90	13.40	0.05	7.5	6.8	265	151	960		0.0	9272		
Total	1762388							97.0%				96.4%				91.8%				83.0%												11080		123.5	
Average		4828				124	3.12	15.29	95.1%	228	8.03	37.88	96.0%	3.22	0.24	1.11	91.4%	20.13	3.56	13.90	74.2%	40.7	24.60	3.24	10.59	0.30	7.51	6.90	253	149		1.60		2404	
Summer							3.13	13.19	96.8%		9.23	39.18	96.8%		0.22	0.96	93.6%	21.00	3.70	14.26	82.5%														
Winter							3.10	17.38	97.1%		6.82	36.58	95.7%		0.26	1.26	89.6%	19.25	3.42	13.54	83.5%														



Plant Type: Extended Aeration w/modified activated sludge for denitrification

Design Capacity: 7100 m³/day

Population Served: 7,147 (Plant & Lagoon)

Compliance Parameters:

Summer - May 1 to October 31

	Conc.	Loading	
CBOD	7.0 mg/L	49.7 kg/day	Seasonal Average
TSS	7.0 mg/L	49.7 kg/day	Seasonal Average
Total Phosphorus	0.3 mg/L	2.13 kg/day	Monthly Average
Total Ammonia as N	2.0 mg/L	14.2 kg/day	Seasonal Average
E.Coli	200 col/100 mL		Monthly Geometric Mean
UV Disinfection turned on.			

Winter - November 1 to April 30

	Conc.	Loading	
CBOD	15.0 mg/L	106.5 kg/day	Seasonal Average
TSS	15.0 mg/L	106.5 kg/day	Seasonal Average
Total Phosphorus	0.5 mg/L	3.55 kg/day	Monthly Average
Total Ammonia as N	4.0 mg/L	28.4 kg/day	Seasonal Average
UV Disinfection turned off.			



2023 Chelmsford Wastewater Treatment Plant Waste Sludge Analysis

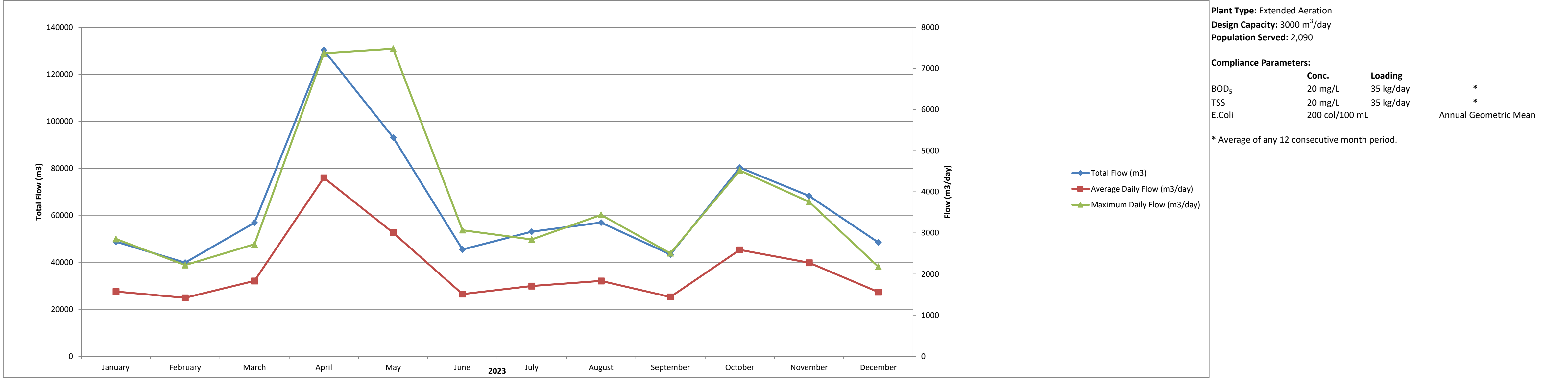
Parameter (mg/L)	January	February	March	April	May	June	July	August	September	October	November	December	Average
Ammonia (as N)	30.6	34.6	14.8	20.5	12.0	33.1	20.7	15.4	117.0	18.4	117.0	37.9	39.3
Nitrate (as N)	0.05	0.10	0.20	0.20	0.10	0.50	0.15	0.15	0.50	0.15	0.50	0.05	0.22
Nitrite (as N)	0.05	0.10	0.20	0.20	0.10	0.50	0.15	0.15	0.50	0.15	0.50	0.05	0.22
Potassium	54	46	64	67	20	67	32	38	62	113	62	74	58.25
TKN	596	500	794	1220	165	910	417	494	907	483	907	1280	723
Total Phosphorus	154.0	105.0	229.0	265.0	66.9	260.0	136.0	60.2	82.4	38.9	82.4	311	149
Total Solids	11000	7670	11700	18200	5440	20500	8670	11000	19400	9420	19400	23400	13817
Arsenic	0.03	0.03	0.04	0.10	0.03	0.90	0.04	0.04	0.10	0.03	0.10	0.13	0.13
Cadmium	0.0040	0.0031	0.0056	0.0128	0.0038	0.0137	0.0050	0.0073	0.0167	0.0048	0.0167	0.0175	0.0093
Chromium	0.11	0.09	0.14	0.30	0.10	0.32	0.10	0.12	0.42	0.11	0.42	0.41	0.22
Cobalt	0.035	0.043	0.055	0.180	0.039	0.182	0.074	0.066	0.207	0.054	0.207	0.529	0.139
Copper	2.90	2.30	3.30	6.50	1.40	6.00	2.80	3.60	9.50	1.00	9.50	9.30	4.84
Lead	0.072	0.058	0.098	0.173	0.057	0.188	0.075	0.092	0.243	0.084	0.243	0.231	0.135
Mercury	0.002	0.001	0.002	0.004	0.001	0.007	0.002	0.001	0.008	0.002	0.008	0.015	0.004
Molybdenum	0.03	0.03	0.04	0.04	0.03	0.06	0.03	0.03	0.09	0.03	0.09	0.07	0.05
Nickel	0.37	0.28	0.36	1.80	0.65	1.16	0.01	0.38	1.30	0.27	1.30	3.60	0.96
Selenium	0.022	0.020	0.027	0.056	0.010	0.060	0.019	0.025	0.082	0.017	0.082	0.080	0.042
Zinc	2.26	1.87	2.73	6.04	1.59	5.83	2.74	3.85	7.48	2.51	7.48	6.90	4.27
Sample Date	Jan.4/23	Feb.1/23	Mar.1/23	Apr.12/23	May.16/23	June.7/23	Jul.5/23	Aug.2/23	Sept.6/23	Oct.4/23	No.6/23	Dec.6/23	#DIV/0!

Work Order	487415	489711	491927	495479	499252	501907	504932	508100	511645	514761	511645	521137
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2023 Coniston Wastewater Treatment Plant Performance

Month	Flows			BOD ₅						CBOD						Total Suspended Solids				Total Phosphorus				Total Ammonia				Un-Ionized	TKN	Nitrate	Nitrite	pH		Alkalinity		Sludge			Chlorine		E.Coli	
	Total	Avg Day	Max Day	Raw	Effluent	Loading	Raw Loading	Removed	Plant	Raw	Effluent	Loading	Raw Loading	Removed	Plant	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Ammonia	Effluent	Effluent	Effluent	Raw	Effluent	Raw	Effluent	Total m ³	Conc.	Total	Total	Residual	Geomean	
	m ³	m ³ /d	m ³ /d	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	Efficiency	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	µg/L	mg/L	mg/L	mg/L			mg/L	mg/L	mg/L	Hauled	%	m ³	Kg	mg/L	# Col./100mL
January	48786	1574	2854	85	8.1	12.75	134	121	90.5%	56	5.4	8.50	88.1	80	90.4%	100	20.6	32.42	79.4%	2.5	1.25	1.97	50.0%	14.7	13.30	20.93	9.5%	94.31	11.50	0.21	0.05	7.20	7.0	156	141.4	240		0.0	55.3	0.9	178	
February	39859	1424	2219	110	5.7	8.11	157	148	94.8%	140	8.4	11.96	199.3	187	94.0%	88	16.2	23.06	81.6%	5.0	1.15	1.64	77.0%	21.6	14.40	20.50	33.3%	86.25	14.00	0.05	0.05	7.3	7.0	156	138.8	160	2.8	4.5	44.6	0.8	16	
March	56849	1834	2726	45	7.2	13.20	83	69	84.0%	54	3.6	6.60	99.0	92	93.3%	83	13.5	24.76	83.7%	2.2	0.94	1.72	57.3%	11.5	9.64	17.68	16.2%	38.23	11.00	0.14	0.05	7.5	7.3	165	155.6	240	1.1	2.6	61.9	0.7	80	
April	130261	4342	7369	75	6.6	28.66	326	297	91.2%	76	6.5	28.22	330.0	302	91.4%	51	18.0	78.16	64.7%	2.7	0.80	3.47	70.4%	8.5	3.87	16.80	54.5%	21.15	8.00	0.49	0.05	7.2	7.1	117	110.1	140	0.2	0.3	128.8	0.6	514	
May	93127	3004	7479	6	5.3	15.92	18	2	11.7%	6	7.2	21.63	18.0	-4	-20.0%	50.3	8.2	24.63	83.7%	1.1	0.67	2.01	39.1%	6.9	2.37	7.12	65.7%	37.82	3.90	2.40	0.05	7.4	7.2	110	101.0	360		0.0	109.7	0.7	5010	
June	45427	1514	3068	130	5.4	8.18	197	189	95.8%	120	3.0	4.54	181.7	177	97.5%	86	5.8	8.78	93.3%	3.7	1.11	1.68	1770.0%	17.7	3.16	4.78	82.1%	47.12	3.30	2.02	0.05	7.5	7.1	120	95.43	400	1.3	5.2	52.4	0.6	123	
July	53019	1710	2840	140	1.6	2.74	239	237	98.9%	110	1.1	1.88	188.1	186	99.0%	78	4.4	7.53	94.4%	4.5	1.13	1.93	74.9%	23.7	7.30	12.49	69.2%	119.17	5.60	0.10	0.10	7.2	6.9	149	105.4	360		0.0	98.8	0.6	40	
August	56883	1835	3440	47	1.0	1.83	86	84	97.9%	38	1.0	1.83	69.7	68	97.4%	85.8	3.9	7.16	95.5%	3.0	1.17	2.15	61.0%	11.50	0.55	1.01	95.2%	3.29	0.90	4.95	0.05	7.2	7.0	137	90.7	360	1.3	4.7	103.2	0.7	2	
September	43328	1444	2506	55	1.0	1.44	79	78	98.2%	39	1.0	1.44	56.3	55	97.4%	121	3.6	5.20	97.0%	3.0	1.11	1.60	63.0%	18.7	0.84	1.21	95.5%	10.68	1.40	5.40	0.05	7.4	7.0	150	82.1	280		0.0	68.4	0.7	2	
October	80321	2591	4518	55	2.3	5.96	143	137	95.8%	41	1.8	4.66	106.2	102	95.6%	105	6.6	17.10	93.7%	4.3	0.98	2.54	77.2%	19.5	1.89	4.90	90.3%	24.04	1.70	6.17	0.20	7.1	6.8	161	79.2	320	1.2	3.8	133.4	0.6	6	
November	68259	2275	3756	51	3.2	7.28	116	109	93.7%	51	1.0	2.28	116.0	114	98.0%	84	5.7	12.97	93.2%	2.1	0.69	1.57	67.1%	7.3	1.51	3.44	79.3%	3.01	1.80	4.37	0.05	7.1	6.8	132	93.0	200		0.0	78.1	0.6	270	
December	48467	1563	2177	35	5.5	8.60	55	46	84.3%	34	2.7	4.22	53.2	49	92.1%	121	10.9	17.04	91.0%	3.2	1.12	1.75	65.0%	7.2	8.18	12.79	-13.6%	39.87	9.20	2.30	0.10	7.3	7.0	137	103.5	200	2.4	4.8	52.7	0.7	148	
Total	764586																																									
Average		2095		70	4.41	9.56	136	126	93.0%	64	3.6	8.15	125.5	117	93.5%	88	9.78	21.57	87.4%	3.11	1.01	2.00	67.6%	14.07	5.58	10.30	0.56	43.74	6.03	2.58	0.07	7.28	7.03	141	108		2.16			0.68	61	





2023 Coniston Wastewater Treatment Plant Waste Sludge Analysis

Parameter (mg/L)	January	February	March	April	May	June	July	August	September	October	November	December	Average
Ammonia (as N)	16.9	131.0	27.4	103.0	22.5	8.9	7.3	32.1	23.5	20.7	160	168	60.1
Nitrate (as N)	0.1	0.5	0.20	0.20	0.15	0.10	0.05	0.1	0.15	0.15	0.1	0.5	0.19
Nitrite (as N)	0.1	3.6	0.20	0.20	0.15	0.10	0.05	0.1	0.15	0.15	0.1	0.4	0.44
Potassium	17	129	55	25	45	35	33	62	70	48	45	92	54.7
TKN	254	1770	645	166	590	454	526	865	866	771	290	1960	763
Total Phosphorus	63.8	389.0	7.33	51.5	149.0	116.0	121.0	180	95.4	58.3	81.4	297	134
Total Solids	7560	22400	10900	2060	12300	8680	9960	18300	16200	12300	12300	19200	12680
Arsenic	0.02	0.09	0.04	0.01	0.13	0.09	0.06	0.14	0.12	0.04	0.11	0.12	0.08
Cadmium	0.0055	0.0235	0.0097	0.0026	0.0346	0.0175	0.0161	0.0271	0.0208	0.0105	0.0187	0.0287	0.0179
Chromium	0.06	0.26	0.10	0.03	0.31	0.16	0.15	0.43	0.32	0.13	0.24	0.30	0.21
Cobalt	0.040	0.179	0.059	0.019	0.972	0.430	0.206	0.456	0.409	0.167	0.388	0.687	0.334
Copper	2.4	11.7	4.1	0.8	8.7	5.6	6.3	11.5	10.7	1.0	7.7	10.7	6.8
Lead	0.067	0.330	0.111	0.025	0.375	0.211	0.222	0.542	0.434	0.196	0.277	0.371	0.263
Mercury	0.001	0.004	0.001	0.001	0.001	0.004	0.001	0.001	0.001	0.001	0.002	0.001	0.002
Molybdenum	0.01	0.05	0.02	0.01	0.03	0.03	0.04	0.05	0.05	0.04	0.04	0.06	0.04
Nickel	0.97	4.50	1.70	0.61	6.90	3.40	3.50	7.00	6.30	1.90	4.70	6.00	3.96
Selenium	0.004	0.056	0.019	0.009	0.118	0.053	0.054	0.094	0.064	0.023	0.062	0.099	0.055
Zinc	2.25	9.50	3.13	0.58	7.03	4.21	5.21	10.10	7.00	4.24	5.58	8.00	5.57
Sample Date	Jan.12/23	Feb.16/23	Mar.7/23	Apr.11/23	May.9/23	Jun.6/23	Jul.4/23	Aug.8/23	Sept.5/23	Oct.3/23	Nov.7/23	Dec.5/23	

Work Order

488232

491038

492427

495266

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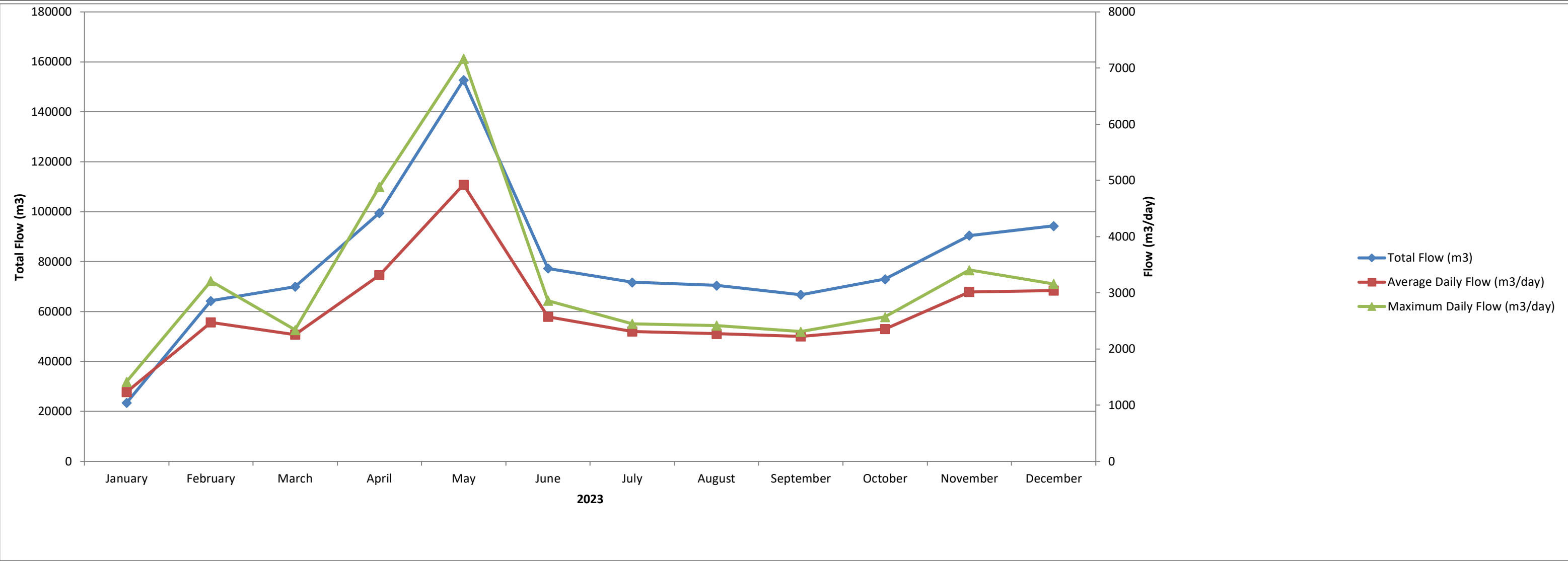
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2023 Dowling Wastewater Treatment Plant Performance

Month	Flows			BOD ₅				CBOD						Total Suspended Solids				Total Phosphorus				Total Ammonia				Un-ionized	TKN	Nitrate	Nitrite	pH		Alkalinity		Sludge			Chlorine		E.Coli
	Total	Avg Day	Max Day	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Raw Loading	Removed	Plant	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Ammonia	Effluent	Effluent	Effluent	Raw	Effluent	Raw	Effluent	Total m ³	Conc.	Total	Residual	Geomean	
	m ³	m ³ /d	m ³ /d	mg/L	mg/L	kg/d	Efficiency	mg/l	mg/l	kg/day	kg/day	kg/day	Efficiency	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	µg/L	mg/L	mg/L	mg/L	Raw	Effluent	mg/L	mg/L	Hauled	%	m ³	Kg	mg/L	# Col/100mL
January	23454	1234	1420	38	2.9	3.58	92.4%	31	1.7	2.1	38.3	36	94.5%	36	2.9	3.58	91.9%	1.0	0.45	0.56	55.0%	4.30	0.17	0.21	96.0%	1.03	2.00	5.08	0.05	6.9	6.8	86	52.3	160		0.0	138.8	0.5	46
February	64318	2474	3210	20	3.0	7.42	85.0%	35	2.6	6.4	86.6	80	92.6%	44	4.0	9.90	90.9%	1.3	0.49	1.21	62.3%	3.50	0.28	0.69	92.0%	1.34	1.50	5.26	0.13	6.9	6.7	90	57.6	160		0.0	157.0	0.7	8
March	69997	2258	2340	22	6.2	14.00	71.8%	27	2.4	5.4	61.0	56	91.1%	40	5.2	11.74	87.0%	1.0	0.48	1.08	52.0%	5.60	0.20	0.45	96.4%	1.07	1.00	5.46	0.05	7.0	6.9	86	52.8	200		0.0	148.7	0.8	17
April	99511	3317	4890	23	4.2	13.93	81.7%	27	3.0	10.0	89.6	80	88.9%	32	4.9	16.25	84.7%	1.0	0.36	1.19	64.0%	3.00	0.57	1.89	81.0%	3.26	3.00	4.81	0.11	6.9	6.7	74	57.1	160		0.0	177.4	0.6	23
May	152705	4926	7170	6	5.9	29.06	1.7%	9	6.1	30.0	44.3	14	32.2%	37	4.2	20.69	88.6%	0.8	0.31	1.53	61.3%	1.10	0.16	0.79	85.5%	0.61	2.00	3.18	0.05	6.8	6.8	75	53.5	60		0.0	269.8	0.8	14
June	77240	2575	2860	43	4.0	10.30	90.7%	32	2.2	5.7	82.4	77	93.1%	38	4.1	10.56	89.2%	0.8	0.48	1.24	40.0%	1.90	0.83	2.14	56.3%	6.57	0.85	3.87	0.55	6.8	6.7	78	50.5	200		0.0	174.5	0.7	26
July	71746	2314	2450	13	3.6	8.33	72.3%	6	1.0	2.3	13.9	12	83.3%	53	4.2	9.72	92.1%	0.8	0.50	1.16	37.5%	5.50	0.04	0.09	99.3%	0.42	0.20	4.95	0.05	6.6	6.7	79	52.8	160		0.0	152.3	0.7	10
August	70461	2273	2420	12	4.5	10.23	62.5%	19	1.1	2.5	43.2	41	94.2%	61	6.4	14.55	89.5%	1.2	0.60	1.36	50.0%	2.90	0.09	0.20	96.9%	0.11	0.60	5.34	0.05	6.7	6.7	83	55.5	200		0.0	152.1	0.7	10
September	66742	2225	2310	28	5.8	12.90	79.3%	17	1.7	3.8	37.8	34	90.0%	72	5.0	11.12	93.1%	1.0	0.46	1.02	54.0%	5.20	2.40	5.34	53.8%	24.31	3.00	5.65	0.26	6.6	6.5	80	55.0	160		0.0	158.2	0.7	6
October	73001	2355	2571	31	3.7	8.71	88.1%	37	1.6	3.8	87.1	83	95.7%	57	8.2	19.31	85.6%	1.1	0.63	1.48	42.7%	3.80	0.17	0.40	95.5%	1.61	0.20	5.89	0.05	6.8	6.6	78	55.3	160		0.0	141.8	0.6	5
November	90480	3016	3407	25	6.4	19.30	74.4%	14	4.1	12.4	42.2	30	70.7%	66	8.3	25.03	87.4%	0.9	0.69	2.08	23.3%	3.00	0.19	0.57	93.7%	0.70	0.50	4.56	0.05	6.9	6.6	79	52.2	200		0.0	143.9	0.6	22
December	94279	3041	3160	19	3.5	10.64	81.6%	16	2.5	7.6	48.7	41	84.4%	44	5.5	16.73	87.5%	0.8	0.41	1.25	48.8%	4.10	0.14	0.43	96.6%	0.36	1.00	4.93	0.05	7.0	6.7	79	52.0	160		0.0	168.2	0.7	17
Total	953934										675.0	583	86.4%				88.9%				50.4%				87.8%									0		1982.7			
Average		2614		23	4.48	12.37	78.4%	23	2.50	7.66	56.25	48.6	84.4%	48	5.24	14.10	89.0%	0.98	0.49	1.26	50.4%	3.66	0.44	1.10	0.87	3.45	1.32	4.92	0.12	6.83	6.69	81	54		0.00		0.68	17	



Plant Type: Extended Aeration
Design Capacity: 3200 m³/day
Population Served: 1,857

Compliance Parameters:

	Conc.	Loading	
BOD ₅	25 mg/L	80 kg/day	Annual Average
TSS	25 mg/L	80 kg/day	Annual Average
Total Phosphorus	1.0 mg/L	3.2 kg/day	Annual Average
E.Coli	200 col/100 mL		Monthly Geometric Mean



2023 Dowling Wastewater Treatment Plant Waste Sludge Analysis

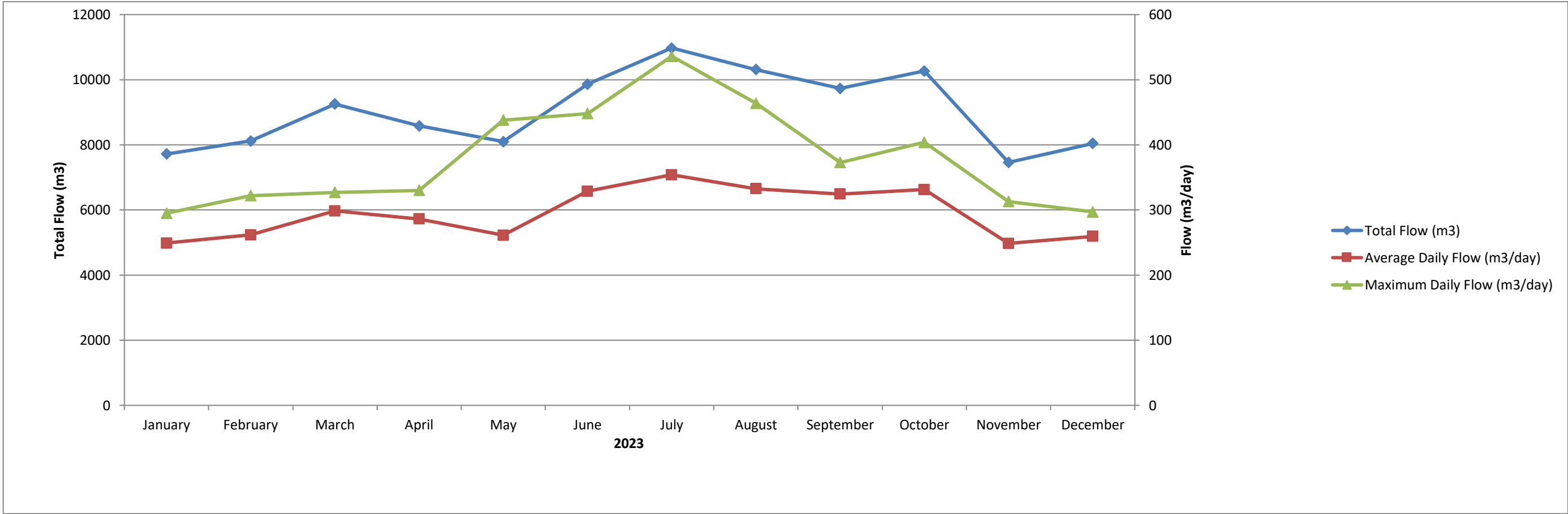
Parameter (mg/L)	January	February	March	April	May	June	July	August	September	October	November	December	Average
Ammonia (as N)	0.80	0.60	0.09	1.60	1.80	2.30	0.20	0.50	3.41	0.96	0.92	1.47	1.22
Nitrate (as N)	1.07	1.5	1.73	0.05	0.05	0.44	0.98	2.18	1.47	1.04	0.96	1.86	1.11
Nitrite (as N)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Potassium	10	10	9	11	18	12	10	9	12	9	9	11	10.8
TKN	101	67	83	119	191	72	79	40	78	80	124	134	97.3
Total Phosphorus	18.30	12.60	18.60	15.50	40.70	19.50	15.60	6.73	20.00	11.10	7.11	15.6	16.8
Total Solids	2940	960	1700	1900	3450	1600	1600	1500	1800	1500	1780	1920	1888
Arsenic	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cadmium	0.0012	0.0005	0.0011	0.0002	0.0024	0.0017	0.0013	0.0009	0.0012	0.0006	0.0008	0.0011	0.0011
Chromium	0.04	0.02	0.03	0.03	0.06	0.06	0.04	0.03	0.04	0.03	0.03	0.04	0.04
Cobalt	0.003	0.002	0.002	0.003	0.009	0.005	0.003	0.003	0.003	0.002	0.002	0.002	0.003
Copper	2.60	0.84	1.30	0.89	2.00	1.50	1.80	1.27	1.60	1.08	1.50	1.20	1.47
Lead	0.033	0.012	0.013	0.012	0.060	0.034	0.034	0.024	0.019	0.015	0.018	0.031	0.025
Mercury	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
Molybdenum	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Nickel	0.04	0.02	0.03	0.03	0.09	0.07	0.04	0.03	0.04	0.03	0.03	0.03	0.04
Selenium	0.007	0.004	0.008	0.002	0.013	0.008	0.006	0.005	0.003	0.002	0.011	0.008	0.006
Zinc	0.59	0.26	0.44	0.28	0.97	0.56	0.46	0.43	0.55	0.34	0.44	0.51	0.49
Sample Date	Jan.4/23	Feb.1/23	Mar.1/23	Apr.5/23	May.3/23	Jun.7/23	July.5/23	Aug.2/23	Sept.6/23	Oct.3/23	Nov.1/23	Dec.6/23	

Work order	487418	489704	491925	494920	497712	501924	504925	508102	511636	514530	517804	521142
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2023 Falconbridge Wastewater Treatment Plant Performance

Month	Flows			BOD ₅						Total Suspended Solids						Total Phosphorus				Total Ammonia				Un-ionized	TKN	Nitrate	Nitrite	pH		E.Coli
	Total m ³	Avg Day m ³ /d	Max Day m ³ /d	Raw mg/L	Effluent mg/L	Loading kg/d	Raw Loading kg/day	Removed kg/day	Plant Efficiency	Raw mg/L	Effluent mg/L	Loading kg/d	Raw Loading kg/day	Removed kg/day	Plant Efficiency	Raw mg/L	Effluent mg/L	Loading kg/d	Plant Efficiency	Raw mg/L	Effluent mg/L	Loading kg/d	Plant Efficiency	Ammonia µg/L	Effluent mg/L	Effluent mg/L	Effluent mg/L	Raw	Effluent	Average # Col./100mL
January	7722	249	295	230	1.3	0.32	57	57	99.4%	89	3.8	0.95	5	4	81.3%	6.4	0.03	0.01	99.5%	33.50	0.27	0.07	99.2%	1.17	0.20	0.43	0.25	7.3	6.8	278
February	8116	262	322	150	2.3	0.60	39	39	98.5%	94	2.7	0.71	4	3	80.6%	4.9	0.12	0.03	97.6%	21.40	0.42	0.11	98.0%	0.96	0.50	0.57	0.50	7.6	6.9	915
March	9252	298	327	180	1.4	0.42	54	53	99.2%	110	2.9	0.87	6	5	85.2%	6.6	0.05	0.01	99.2%	45.10	0.37	0.11	99.2%	1.17	1.00	0.50	0.20	7.8	7.1	1850
April	8584	286	330	170	1.6	0.46	49	48	99.1%	131	3.0	0.86	6	5	86.4%	6.7	0.06	0.02	99.1%	22.80	0.40	0.11	98.2%	1.00	2.00	0.20	0.20	7.6	7.0	1000
May	8099	261	438	110	1.0	0.26	29	28	99.1%	164	3.6	0.94	5	4	79.9%	4.6	0.02	0.01	99.6%	30.60	0.01	0.00	100.0%	0.05	0.20	0.05	0.05	7.8	7.1	70
June	9864	329	448	69	2.3	0.76	23	22	96.7%	118	3.6	1.18	3	1	54.3%	5.8	0.02	0.01	99.7%	41.30	0.08	0.03	99.8%	0.89	0.20	0.15	0.15	7.6	7.1	176
July	10974	354	536	170	3.0	1.06	60	59	98.2%	86	4.0	1.42	5	4	72.1%	5.9	0.01	0.00	99.8%	42.70	0.05	0.02	99.9%	0.52	0.20	0.15	0.15	7.2	6.8	35
August	10311	333	464	150	1.0	0.33	50	50	99.3%	170	1.0	0.33	8	8	96.1%	6.6	0.01	0.00	99.8%	27.90	0.01	0.00	100.0%	0.03	0.20	0.15	0.15	7.1	7.0	20
September	9732	324	373	150	2.3	0.75	49	48	98.5%	79	3.6	1.17	4	3	69.1%	6.4	0.01	0.00	99.8%	47.90	0.10	0.03	99.8%	1.06	0.20	0.15	0.15	7.3	7.0	70
October	10266	331	404	100	1.0	0.33	33	33	99.0%	147	2.7	0.89	5	4	81.4%	5.3	0.01	0.00	99.8%	32.60	0.07	0.02	99.8%	0.65	0.20	0.20	0.20	7.1	6.9	198
November	7461	249	313	99	1.0	0.25	25	24	99.0%	93	2.9	0.72	2	2	670.0%	6.7	0.02	0.00	99.7%	42.40	0.18	0.04	99.6%	0.13	0.20	0.10	0.10	7.2	6.7	1120
December	8041	259	297	160	1.2	0.31	42	41	99.3%	143	3.9	1.01	6	5	82.8%	15.9	0.03	0.01	99.8%	46.60	0.46	0.12	99.0%	1.66	0.90	0.35	0.15	7.38	7.0	366
Total	108422						508	502	98.8%				58	47	81.1%				99.5%				99.5%							
Average		297		145	1.62	0.49	42.36	41.87	98.85%	119	3.14	0.92	4.87	3.95	81.09%	6.82	0.03	0.01	99.5%	36.23	0.20	0.06	99.4%	0.77	0.50	0.25	0.19	7.41	6.94	508



Plant Type: Trickling Filter
Design Capacity: 909 m³/day
Population Served: 754

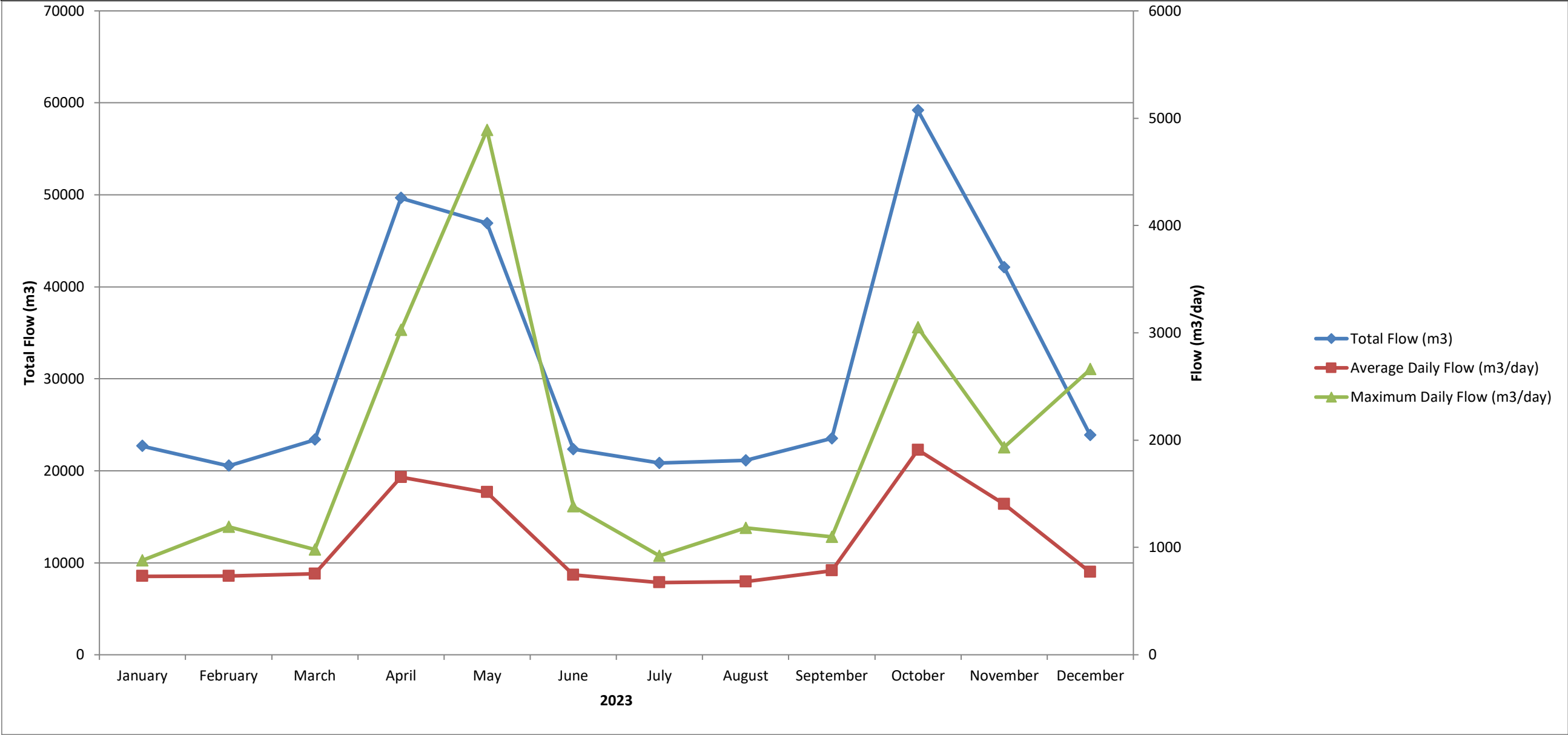
Compliance Parameters:

	Conc.	Loading	Annual Avg.
BOD ₅	15 mg/L	46 kg/day	Annual Avg.
TSS	15 mg/L	46 kg/day	Annual Avg.



2023 Levack Wastewater Treatment Plant Performance

Month	Flows			CBOD				Total Suspended Solids				Total Phosphorus				Total Ammonia				Un-Ionized	TKN		Nitrate	Nitrite	pH		Alkalinity		Sludge			Chlorine		E.Coli
	Total	Avg Day	Max Day	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Ammonia	Raw	Effluent	Effluent	Effluent	Raw	Effluent	Raw	Effluent	Total m³	Conc.	Total	Total	Residual	Geomean
	m³	m³/d	m³/d	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	µg/L	mg/L	mg/L	mg/L	mg/L			mg/L	mg/L	Hauled	%	m³	Kg	mg/L	# Col./100mL
January	22688	732	880	100	1.6	1.17	98.4%	166	6.1	4.46	96.3%	3.6	0.28	0.20	92.2%	18.30	0.52	0.38	97.2%	1.06	27.0	2.00	22.00	0.05	7.0	6.6	161	64.11	200		0.0	98.0	0.6	3
February	20534	733	1191	160	2.5	1.83	98.4%	161	9.6	7.04	94.0%	5.2	0.50	0.37	90.4%	30.50	9.20	6.75	69.8%	150.19	31.0	8.00	14.70	0.05	7.4	7.0	188	146.44	200	2.5	5.0	62.6	0.8	2
March	23373	754	981	160	4.4	3.32	97.3%	176	5.5	4.15	96.9%	4.8	0.44	0.33	90.8%	306.00	18.00	13.57	94.1%	199.72	59.0	15.00	6.97	0.05	7.1	6.8	192	129.79	160	2.5	4.0	48.6	0.8	1
April	49651	1655	3025	110	3.5	5.79	96.8%	75	4.5	7.45	94.0%	2.8	0.23	0.38	91.8%	23.00	12.10	20.03	47.4%	75.87	27.0	11.00	9.30	0.10	7.0	6.8	153	97.50	160		0.0	58.0	0.6	5
May	46926	1514	4889	20	2.9	4.39	85.5%	80	3.4	5.15	95.8%	3.7	0.34	0.51	90.8%	3.59	3.42	5.18	4.7%	18.27	4.0	3.20	2.98	0.05	7.0	6.7	134	87.55	200		0.0	87.2	0.8	3
June	22346	745	1382	94	3.0	2.23	96.8%	152	5.1	3.80	96.6%	5.3	0.35	0.26	93.4%	23.20	0.05	0.04	99.8%	0.15	19.0	0.20	20.00	0.05	7.0	6.6	183	66.67	280	1.8	5.0	253.4	0.6	6
July	20849	673	922	120	2.6	1.75	97.8%	172	6.4	4.30	96.3%	4.1	0.35	0.24	91.5%	21.60	0.05	0.03	99.8%	0.83	20.0	0.20	18.70	0.10	7.0	6.8	180	100.50	160	2.9	4.6	235.3	0.9	4
August	21118	681	1181	85	6.4	4.36	92.5%	158	6.4	4.36	95.9%	3.0	0.31	0.21	89.7%	20.00	1.51	1.03	92.5%	24.65	17.0	1.20	23.00	0.60	7.0	6.7	181	124.00	240		0.0	215.6	0.6	3
September	23515	784	1099	120	1.4	1.10	98.8%	119	7.6	5.96	93.6%	3.9	0.35	0.27	91.0%	23.00	0.13	0.10	99.4%	1.69	23.0	0.20	23.10	0.15	7.0	6.7	185	119.57	200	1.7	3.4	254.0	0.7	2
October	59178	1909	3050	69	2.0	3.82	97.1%	91	14.0	26.73	84.6%	2.8	0.38	0.73	86.4%	14.00	0.05	0.10	99.6%	0.51	15.1	0.20	15.60	0.20	6.8	6.5	107	62.33	200		0.0	270.2	0.7	4
November	42139	1405	1932	45	4.9	6.88	89.1%	98	12.4	17.42	87.3%	2.1	0.46	0.65	78.1%	7.20	0.11	0.15	98.5%	0.22	8.3	1.40	7.12	0.15	6.9	6.4	119	74.63	160		0.0	193.6	0.8	3
December	23864	770	2661	69	3.3	2.54	95.2%	131	10.3	7.93	92.1%	3.7	0.48	0.37	87.0%	21.20	0.43	0.33	98.0%	1.96	36.5	0.50	18.20	0.10	7.1	6.6	162	120.00	160		0.0	175.6	0.7	2
Total	376181						96.4%				93.2%				89.5%				88.8%										2320		22.1			
Average		1031		96	3.21	3.27	96.4%	132	7.61	8.23	93.2%	3.75	0.37	0.38	89.5%	42.63	3.80	3.97	88.8%	39.59	23.91	3.59	15.14	0.14	7.03	6.67	162	99		2.28			0.7	3



Plant Type: Extended Aeration			
Design Capacity: 2270 m ³ /day			
Population Served: 2,320			
Compliance Parameters:			
	Conc.	Loading	
CBOD	25 mg/L	56.75 kg/day	Annual Average
TSS	25 mg/L	56.75 kg/day	Annual Average
Total Phosphorus	1.0 mg/L	3.1 kg/day	Monthly Average
pH	6.0 to 9.5 inclusive, at all times		
E.Coli	200 col/100 mL		Monthly Geometric Mean



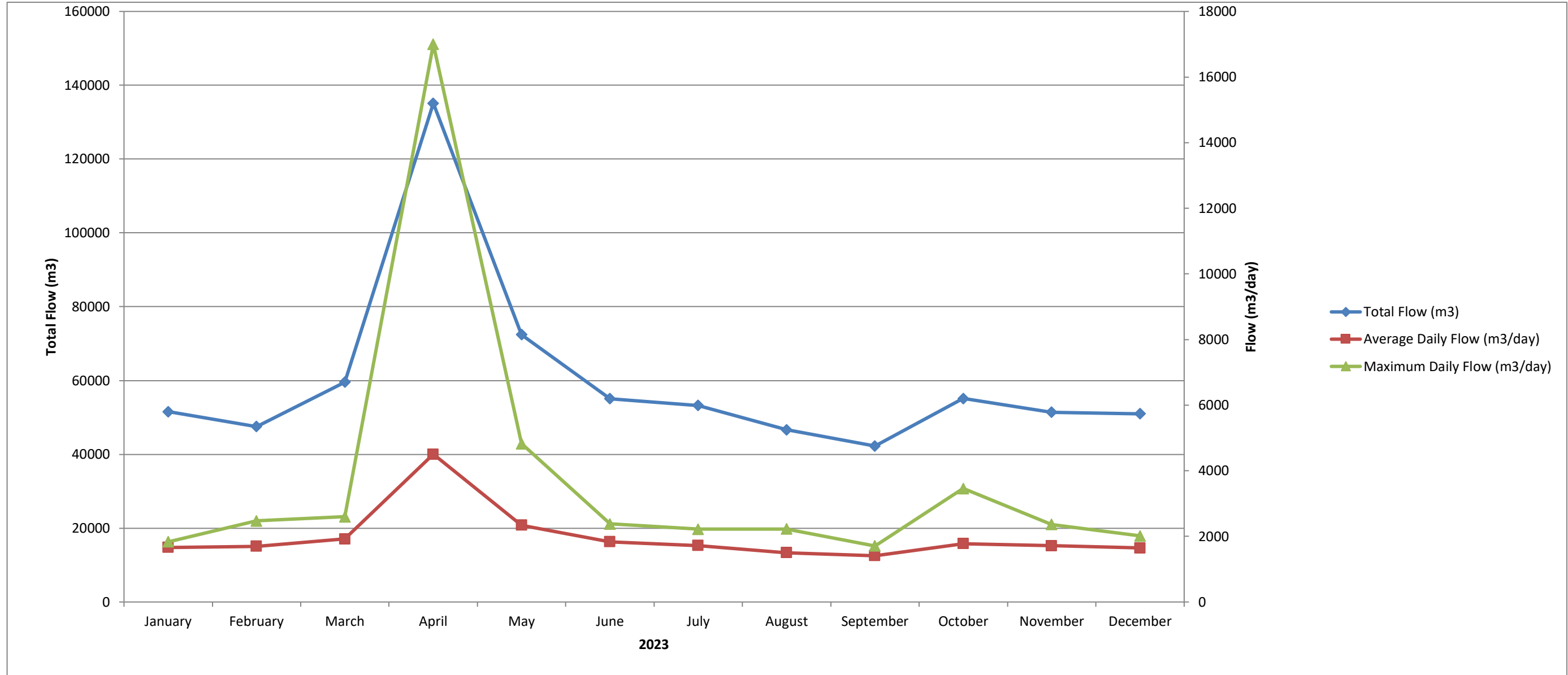
2023 Levack Wastewater Treatment Plant Waste Sludge Analysis

Parameter (mg/L)	January	February	March	April	May	June	July	August	September	October	November	December	Average
Ammonia (as N)	0.20	13.80	87.30	206.00	59.20	27.30	0.05	1.67	25.10	0.72	0.45		38.3
Nitrate (as N)	14.00	5.08	0.50	0.50	0.15	0.50	14.20	19.1	0.20	10.90	2.58		6.16
Nitrite (as N)	0.05	0.05	11.20	1.40	0.15	0.50	0.10	0.3	0.20	0.20	0.15		1.30
Potassium	19	21	114	94	33	76	13	18	64	22	28		46
TKN	74	92	1700	881	427	742	27	51	524	39	72		421
Total Phosphorus	25.4	28.9	82.3	60.9	172.0	283.0	15.0	18.1	90.1	7.47	18.3		73
Total Solids	1300	2350	23800	14100	7950	15000	1300	1800	11900	1900	2100		7591
Arsenic	0.01	0.01	0.03	0.02	0.02	0.03	0.01	0.01	0.70	0.01	0.01		0.08
Cadmium	0.0007	0.0007	0.0200	0.0090	0.0091	0.0192	0.0008	0.0013	0.0135	0.0006	0.0010		0.0069
Chromium	0.01	0.01	0.25	0.19	0.13	0.23	0.01	0.01	0.20	0.01	0.01		0.10
Cobalt	0.006	0.009	0.126	0.157	0.171	0.286	0.011	0.016	0.121	0.011	0.007		0.084
Copper	0.60	0.56	8.50	6.80	4.70	8.20	0.38	0.74	7.7	0.39	0.76		3.58
Lead	0.031	0.029	0.398	0.345	0.249	0.535	0.021	0.038	0.174	0.027	0.033		0.171
Mercury	0.001	0.001	0.006	0.008	0.004	0.010	0.001	0.001	0.001	0.001	0.001		0.003
Molybdenum	0.01	0.01	0.05	0.03	0.02	0.04	0.01	0.01	0.05	0.01	0.01		0.02
Nickel	0.17	0.20	2.00	1.80	1.80	3.00	0.15	0.24	0.42	0.17	0.23		0.93
Selenium	0.002	0.002	0.046	0.016	0.016	0.029	0.002	0.003	0.035	0.002	0.009		0.015
Zinc	0.40	0.46	7.60	4.51	3.83	5.83	0.33	0.67	8.30	0.81	0.43		3.02
Sample Date	Jan.4/23	Feb.1/23	Mar.7/23	Apr.5/23	May.3/23	Jun.7/23	Jul.5/23	Aug.2/23	Sept.6/23	Oct.4/23	Nov.1/23		
Work order	487423	489715	492559	494924	497717	501920	504933	508098	511653	514758	517802		



2023 Lively Wastewater Treatment Plant Performance

Month	Flows				BOD ₅	CBOD				Total Suspended Solids				Total Phosphorus				Total Ammonia				Un-Ionized	TKN		Nitrate	Nitrite	pH		Alkalinity		Sludge			Chlorine		E.Coli
	Total	Avg Day	Max Day	Diverted	Raw	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Ammonia	Raw	Effluent	Effluent	Effluent	Raw	Effluent	Raw	Effluent	Total m ³	Conc.	Total	Total	Residual	Geomean
	m ³	m ³ /d	m ³ /d	m ³	mg/L	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	µg/L	mg/L	mg/L	mg/L	mg/L	Raw	Effluent	mg/L	mg/L	Hauled	%	m ³	Kg	mg/L	# col./100mL
January	51548	1663	1836	1075	87	78	3.2	5.32	95.9%	134	11.6	19.29	92.2%	3.6	0.40	0.67	89.9%	22.70	21.80	36.25	13.0%	94.75	24.0	19.00	0.40	0.05	7.3	7.1	167	77	120		0.0	62.4	1.2	2
February	47532	1698	2473	896	150	130	17	28.86	86.9%	107	14.3	24.28	90.8%	3.5	0.49	0.83	90.4%	25.50	27.40	46.51	26.2%	146.36	26.0	25.00	0.16	0.11	7.7	7.3	165	109	160		0.0	41.4	0.6	2
March	59565	1921	2598	891	120	120	5.3	10.18	95.6%	143	9.9	19.02	94.9%	2.7	0.34	0.65	90.7%	24.10	23.70	45.54	27.3%	195.50	23.0	19.00	0.36	0.05	7.5	7.3	157	88	200		0.0	61.9	0.9	2
April	135128	4504	17000	20626	61	35	6.2	27.93	82.3%	70	8.9	40.09	96.6%	1.5	0.33	1.49	94.2%	10.60	15.80	71.17	60.5%	130.33	12.0	14.00	1.07	0.05	7.4	7.3	101	85	320		0.0	126.4	1.0	16
May	72442	2337	4827	11822	140	51	0.9	2.10	98.2%	88	3.8	8.88	97.9%	2.5	0.15	0.35	97.1%	9.14	4.64	10.84	75.4%	22.10	17.0	4.80	7.26	0.05	7.2	60.0	130	60	280		0.0	128.8	0.9	6
June	55091	1836	2379	3030	98	77	1.0	1.84	98.7%	60	3.8	6.98	95.1%	2.5	0.20	0.37	93.8%	23.40	0.63	1.16	97.9%	4.53	17.0	0.20	17.00	0.10	7.4	6.9	157	46	160		0.0	155.6	0.8	2
July	53252	1718	2221	5087	94	75	1.0	1.72	98.7%	72	5.1	8.76	94.5%	2.3	0.30	0.52	89.9%	20.00	0.55	0.94	97.9%	3.45	12.0	0.30	14.30	0.05	7.2	7.1	166	50	280		0.0	103.9	0.7	2
August	46644	1505	2227	4129	47	43	1.0	1.50	97.7%	82	4.2	6.32	96.5%	2.8	0.26	0.39	93.7%	19.60	0.51	0.77	98.2%	2.85	14.0	0.20	21.80	0.18	7.1	6.8	160	49	320		0.0	119.3	0.9	2
September	42253	1408	1706	3949	69	62	1.0	1.41	98.4%	133	3.6	5.07	97.8%	3.5	0.16	0.23	96.2%	26.00	0.24	0.34	99.2%	1.44	22.9	0.20	25.00	0.01	7.3	6.5	169	42	280		0.0	119.1	1.0	3
October	55142	1779	3460	5220	65	99	15.0	26.68	84.8%	612	23.7	42.16	98.0%	3.5	0.63	1.12	90.7%	21.90	12.90	22.95	69.7%	205.87	21.5	12.80	0.66	0.05	7.4	6.7	179	125	200		0.0	177.1	1.1	10
November	51416	1714	2364	4092	160	210	8.7	14.91	95.9%	664	8.5	14.57	99.1%	4.0	0.28	0.48	94.9%	15.00	12.00	20.57	42.0%	124.35	21.4	9.20	1.19	0.05	6.4	6.4	147	112	200		0.0	122.8	0.9	7
December	51015	1646	2014	201	373	68	1.0	1.65	98.5%	342	3.4	5.60	99.2%	7.4	0.15	0.25	98.3%	19.00	1.36	2.24	94.2%	0.46	49.2	1.20	16.00	0.05	6.4	6.5	242	15	200		0.0	109.1	1.1	2
Total	721028								93.6%				97.4%				93.9%				64.4%												0.0			
Average		1975			122	87	5.11	10.34	94.3%	209	8.40	16.75	96.1%	3.32	0.31	0.61	93.3%	19.75	10.13	21.6	66.8%	77.67	21.67	8.83	8.77	0.07	7.19	11.32	162	72		227			0.93	5



Plant Type: Extended Aeration
Design Capacity: 1600 m³/day
Population Served: 2,761

Compliance Parameters:

	Conc.	Loading	
BOD ₅	25 mg/L	40 kg/day	*
TSS	25 mg/L	40 kg/day	*
Total Phosphorus	1.0 mg/L	1.6 kg/day	Monthly Average
E.Coli	200 col/100 mL		Monthly Geometric Mean

* Annual average of any consecutive 12 month period.



2023 Lively Wastewater Treatment Plant Waste Sludge Analysis

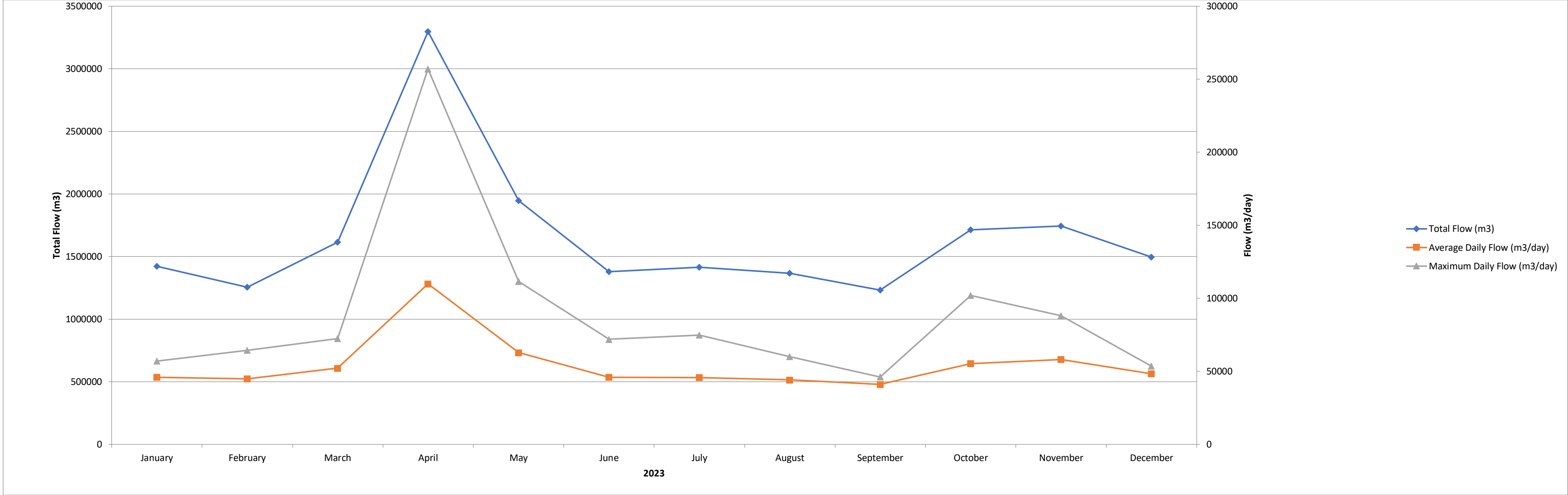
Parameter (mg/L)	January	February	March	April	May	June	July	August	September	October	November	December	Average
Ammonia (as N)	49.7	1.59	13.6	24.80	5.8	0.9	7.1	0.1	4.2	40.7	9.0	5.9	13.6
Nitrate (as N)	0.1	0.1	0.1	0.2	0.1	1.3	0.8	17.9	0.2	0.3	0.1	6.5	2.3
Nitrite (as N)	0.05	0.05	0.10	0.30	0.05	0.1	0.3	0.1	0.1	0.25	0.1	0.05	0.1
Potassium	21	29	26	97	37	34	67	22	51	138	35	46	50
TKN	81	233	383	1320	484	203	762	112	343	607	81	269	407
Total Phosphorus	17.2	71.6	7.69	367.0	52.9	97.6	312.0	65.4	14.2	336.00	84.8	55.3	123
Total Solids	1500	3450	8810	30100	12300	6260	17900	4340	11400	54800	23900	9390	15346
Arsenic	0.01	0.01	0.02	0.11	0.06	0.03	0.09	0.03	0.07	0.28	0.02	0.06	0.07
Cadmium	0.0015	0.0047	0.0068	0.0575	0.0188	0.0075	0.0324	0.0095	0.0184	0.0639	0.0026	0.0114	0.0196
Chromium	0.02	0.06	0.09	0.64	0.23	0.10	0.44	0.12	0.34	1.20	0.07	0.27	0.30
Cobalt	0.016	0.036	0.044	0.325	0.120	0.038	0.176	0.083	0.151	0.816	0.044	0.123	0.164
Copper	0.55	1.8	2.1	21.9	5.4	2.9	12.0	3.7	8.2	21.0	1.19	3.9	7.1
Lead	0.024	0.071	0.108	0.767	0.236	0.126	0.484	0.151	0.429	1.510	0.067	0.226	0.350
Mercury	0.001	0.002	0.002	0.027	0.005	0.001	0.013	0.002	0.012	0.036	0.001	0.004	0.009
Molybdenum	0.01	0.01	0.01	0.07	0.02	0.01	0.04	0.09	0.07	0.15	0.01	0.04	0.04
Nickel	0.13	0.39	0.62	5.60	2.50	0.70	3.30	1.00	1.90	8.30	0.53	1.30	2.189
Selenium	0.003	0.010	0.017	0.079	0.031	0.017	0.069	0.023	0.051	0.161	0.012	0.034	0.042
Zinc	0.46	1.90	2.82	15.50	5.23	1.79	9.00	2.65	5.36	21.20	1.08	3.55	5.88
Sample Date	Jan.10/23	Feb.14/23	Mar.7/23	Apr.4/23	May.9/23	Jun.12/23	Jul.11/23	Aug.1/23	Sept.12/23	Oct.11/23	Nov.1/23	Dec.5/23	#DIV/0!

Work Order	487890	490709	492360	494733	498359	502270	505514	507866	512281	515457	517797	520934
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2023 Sudbury Wastewater Treatment Plant Performance

Month	Flows			BOD ₅		CBOD								Total Suspended Solids								Total Phosphorus								Total Ammonia				Un-ionized		TKN		Nitrate	Nitrite	pH		Alkalinity		Sludge		Chlorine		Dechlorination		E.Coli
	Total	Avg Day	Max Day	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	Plant	Ammonia	Raw	Effluent	Effluent	Effluent	Raw	Effluent	Raw	Effluent	Total	Conc.	Total	Residual	Total	Loading	Geomean								
	m ³	m ³ /d	m ³ /d	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	Efficiency	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	m ³	%	Totg	mg/L	mg/L	Kg/day	# col./100mL									
January	1422300	45881	57100	137	141	5.0	229.4	6469	6240	96.5%	189	11.5	527.6	8671	8144	93.9%	4.1	0.63	28.9	188.11	159.21	84.6%	20.2	14.09	646.5	30.2%	98.7	24.0	13.6	0.11	0.12	6.9	6.6	182	154.7	48503		2326	0.6	0.004	0.18	6								
February	1256000	44857	64500	145	110	10.3	462.0	4934	4472	90.6%	192	13.1	587.6	8613	8025	93.2%	3.8	0.67	30.1	170.46	140.40	82.4%	19.4	19.03	853.6	1.9%	118.1	20.5	14.3	0.31	0.09	6.9	6.8	196	161.3	46480		1856	0.5	0.002	0.09	6								
March	1616400	52142	72400	195	162	8.3	432.8	8447	8014	94.9%	247	16.9	881.2	12879	11998	93.2%	3.4	0.74	38.6	177.28	138.70	78.2%	23.8	15.43	804.6	35.2%	75.3	32.5	11.0	0.32	0.08	7.1	6.7	161	146.9	54464		2653	0.4	0.003	0.16	1								
April	3297250	109908	257100	81	54	13.4	1472.8	5935	4462	75.2%	96	21.1	2319.1	10551	8232	78.0%	1.6	0.60	65.9	175.85	109.91	62.5%	9.6	7.67	843.0	20.1%	36.3	12.5	7.0	1.43	0.09	6.9	6.7	147	120.4	41193		5075	0.6	0.010	1.10	147								
May	1946931	62804	111600	60	74	8.3	521.3	4648	4126	88.8%	131	10.2	640.6	8227	7587	92.2%	2.4	0.45	28.3	150.73	122.47	81.3%	11.8	10.60	665.7	10.2%	42.2	16.7	8.4	0.93	0.11	7.0	6.8	166	144.8	43282		3281	0.7	0.008	0.50	9								
June	1379900	45997	71900	200	125	4.5	207.0	5750	5543	96.4%	208	12.3	565.8	9567	9002	94.1%	3.2	0.35	16.1	147.19	131.09	89.1%	18.1	104.10	4788.3	-475.1%	1239.5	18.0	12.8	0.53	0.48	7.0	6.6	201	146.4	54939		2184	0.6	0.002	0.09	10								
July	1415400	45658	74800	99	101	2.4	109.6	4611	4502	97.6%	228	11.4	520.5	10410	9890	95.0%	4.4	0.33	15.1	200.90	185.83	92.5%	19.6	15.90	726.0	18.9%	206.7	17.5	11.3	0.18	0.12	7.3	7.6	219	165.2	52441		2114	0.5	0.002	0.09	10								
August	1367200	44103	60000	120	80	3.6	158.8	3528	3369	95.5%	224	9.0	396.9	9879	9482	96.0%	3.8	0.34	15.0	167.59	152.60	91.1%	17.2	13.60	599.8	20.9%	223.0	7.0	9.9	0.50	0.35	7.6	7.8	212	159.0	54874		2066	0.5	0.001	0.04	16								
September	1232500	41083	46100	140	130	2.8	115.0	5341	5226	97.8%	251	7.5	308.1	10312	10004	97.0%	4.2	0.35	14.4	172.55	158.17	91.7%	23.3	20.30	834.0	12.9%	319.8	25.8	14.1	0.47	0.10	7.0	6.7	201	159.9	52352		1907	0.5	0.001	0.04	19								
October	1714000	55290	101900	95	100	3.8	210.1	5529	5319	96.2%	243	8.3	458.9	13436	12977	96.6%	2.8	0.43	23.8	154.81	131.04	84.6%	16.1	13.00	718.8	19.3%	230.59	22.7	11.5	0.38	0.25	7.0	6.6	199	156.7	59279		2221	0.5	0.000	0.00	6								
November	1745500	58183	88000	60	21	4.3	250.2	1222	972	79.5%	129	10.1	587.7	7506	6918	92.2%	2.8	0.50	29.1	162.91	133.82	82.1%	17.1	14.60	849.5	14.6%	77.68	22.8	12.3	0.32	0.08	6.9	6.4	194	170.4	52089		2058	0.6	0.002	0.12	73								
December	1496700	48281	53500	91	61	6.2	299.3	2945	2646	89.8%	161	10.9	526.3	7773	7247	93.2%	4.2	0.73	35.2	202.78	167.53	82.6%	19.0	16.60	801.5	12.6%	93.39	22.5	15.7	0.36	0.06	6.8	6.5	220	179.1	52304		2142	0.5	0.001	0.05	6								
Total	19890081							59359	54891	92.5%				117824	109504	92.9%				2071.17	1731	83.6%				-18.5%																								
Average		54493						97	6.08	372.35	4946.60	4574.2	92.47%	192	11.86	693.35	9819	9125	92.88%	3.39	0.51	28.37	172.60	144.23	83.56%	17.93	22.08	1094.26	-0.23	230.10	20.20	11.81	0.49	0.16	7.03	6.81		155.4	51017		2490	0.5	0.003	0.21	26					
May-Oct																																																		
Nov-Apr																																																		



Plant Type: High Rate
Design Capacity: 79625 m³/day
Population Served: 84609

Compliance Parameters:

	Conc.	Loading	
CBOD	25 mg/L	1990.6 kg/day	Annual Avg
TSS	25 mg/L	1990.6 kg/day	Annual Avg
Total P	1.0 mg/L	79.6 kg/day	Monthly Avg (Oct.-May)
Total P	0.5 mg/L	39.8 kg/day	Monthly Avg (June-Sept.)
E.Coli	200 col/100 mL		Monthly Geometric Mean
pH	6.0 to 9.5 inclusive, at all times		
Dechlorination	total chlorine residual 0.02 mg/L, 1.6 kg/L, Monthly Average		



2023 Sudbury Wastewater Treatment Plant Waste Sludge Analysis

Parameter (mg/L)	January	February	March	April	May	June	July	August	September	October	November	December	Average
Ammonia (as N)	398	309	327	45.6	22	18.1	408	382	439	275	354	9.64	249
Nitrate (as N)	2.30	0.50	0.50	0.50	3.10	0.50	0.80	1.00	2.70	1.80	1.30	0.05	1.25
Nitrite (as N)	21.60	5.20	3.80	4.20	0.50	20.9	10.80	1.00	8.30	15.10	2.30	0.05	7.81
Potassium	101	232	173	152	140	120	177	162	127	57	128	39	134
TKN	2560	3000	2440	2680	1930	2890	2930	3160	759	1920	656	406	2111
Total Phosphorus	479	577	27.8	580	23.3	617	457	595	193	126	0.923	48.2	310
Total Solids	33600	34700	31600	35100	35600	35700	37800	31300	27900	25800	27600	6350	30254
Arsenic	0.07	0.16	0.12	0.12	0.27	0.17	0.22	0.27	0.18	0.09	0.28	0.09	0.17
Cadmium	0.0120	0.0361	0.0269	0.0316	0.0577	0.0404	0.0421	0.0508	0.0303	0.0159	0.0327	0.0105	0.0323
Chromium	0.21	0.40	0.33	0.4	0.45	0.41	0.41	0.57	0.44	0.25	0.53	0.30	0.39
Cobalt	0.120	0.213	0.162	0.212	0.308	0.252	0.307	0.554	0.376	0.204	0.438	0.392	0.295
Copper	6.5	14.0	10.7	13.2	22.9	17.9	15.9	21.0	15.8	8.1	17.6	24	15.6
Lead	0.230	0.515	0.391	0.535	0.712	0.748	0.681	0.937	0.615	0.352	0.641	1.710	0.672
Mercury	0.003	0.006	0.004	0.007	0.008	0.009	0.011	0.004	0.004	0.004	0.009	0.006	0.006
Molybdenum	0.06	0.09	0.09	0.08	0.07	0.11	0.14	0.13	0.11	0.08	0.10	0.05	0.09
Nickel	2.3	4.0	2.9	4.2	8.0	6.3	4.9	14.0	6.2	2.7	10.3	16.9	6.9
Selenium	0.045	0.139	0.094	0.060	0.076	0.117	0.130	0.121	0.097	0.059	0.127	0.021	0.091
Zinc	5.15	13.60	9.70	9.20	15.00	13.70	16.70	17.40	12.60	7.70	12.60	15.30	12.39
Sample Date	Jan.3/23	Feb.6/23	Mar.6/23	Apr.3/23	May.3/23	June.5/23	July.4/23	Aug.8/23	Sept.5/23	Oct.4/23	Nov.6/23	Dec.4/23	

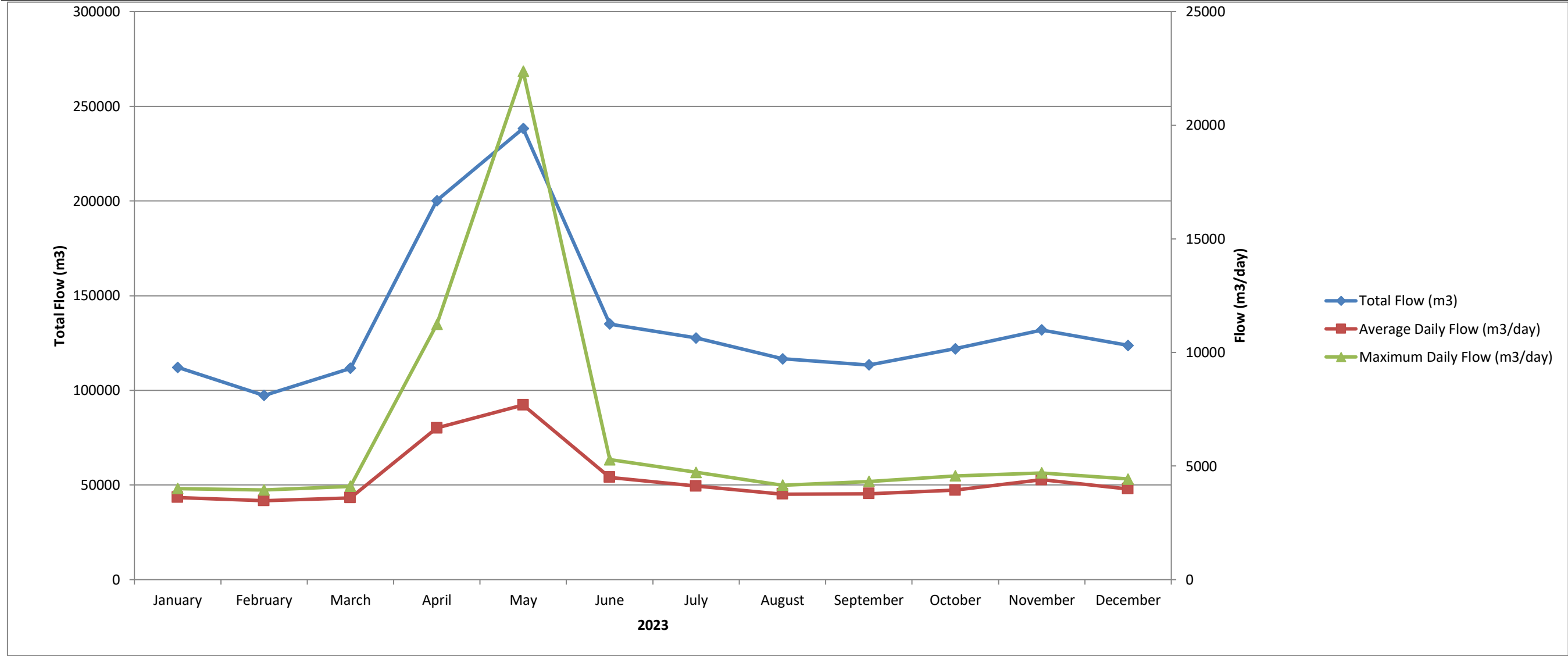
Work Order

487221 489985 492207 494545 497705 501456 504667 508475 511382 514759 518172 520793



2023 Valley East Wastewater Treatment Plant Performance

Month	Flows			BOD ₅	CBOD				Total Suspended Solids				Total Phosphorus				Total Ammonia				Un-Ionized	TKN		Nitrate	Nitrite	pH		Alkalinity		Sludge			Chlorine		E.Coli	
	Total	Avg Day	Max Day		Raw	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading		Plant	Raw			Effluent	Effluent	Effluent	Raw	Effluent	Raw	Effluent	Total m ³	Conc.		Total
	m ³	m ³ /d	m ³ /d	mg/L	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	µg/L	mg/L	mg/L	mg/L	mg/L	Raw	Effluent	mg/L	mg/L	Hauled	%	m ³	Kg	mg/L	# Col./100mL	
January	112139	3617	4013	230	200	6.9	24.96	96.6%	232	5.1	18.45	97.8%	4.9	0.74	2.68	84.9%	43.20	33.00	119.4	23.6%	347.6	37.0	26.8	4.70	0.06	7.3	7.1	279	202			0.0	210.8	1.0	3	
February	97287	3475	3948	260	150	4.8	16.68	96.8%	232	11.8	41.00	94.9%	4.9	0.77	2.68	84.3%	43.40	37.13	129.0	14.4%	383.6	43.0	28.8	1.82	0.06	7.4	7.1	275	229	1360		0.0	204.8	1.0	3	
March	111611	3600	4111	330	270	2.7	9.72	99.0%	246	6.0	21.60	97.6%	5.0	0.55	1.98	89.0%	47.90	39.62	142.6	17.3%	411.3	41.0	31.2	2.18	0.10	7.3	1.0	276	219	1760		0.0	213.5	1.0	2	
April	200183	6673	11236	260	170	10.6	70.73	93.8%	166	16.6	110.77	90.0%	3.2	0.71	4.74	77.8%	33.70	20.13	134.3	40.3%	193.8	36.0	18.0	2.44	0.05	7.1	7.0	257	169	1240	10.6	131.4	332.7	0.8	7	
May	238307	7687	22381	85	100	3.4	26.14	96.6%	153	9.6	73.80	93.7%	2.5	0.58	4.46	76.8%	14.50	13.60	104.5	6.2%	159.6	18.0	11.6	2.08	0.05	7.3	7.0	197	169	1200		0.0	405.9	0.9	8	
June	135004	4500	5281	220	170	3.6	16.20	97.9%	203	6.1	27.45	97.0%	4.1	0.61	2.75	85.1%	27.90	26.54	119.4	4.9%	496.3	26.0	18.3	2.47	1.17	7.1	7.0	248	189	1360		0.0	253.1	0.9	12	
July	127646	4118	4726	180	85	3.8	15.65	95.5%	201	10.8	44.47	94.6%	4.6	0.63	2.59	86.3%	26.90	10.84	44.63	59.7%	123.8	24.0	8.3	14.03	0.49	7.1	6.6	228	91	1320		0.0	286.0	0.8	21	
August	116669	3764	4155	230	190	5.0	18.82	97.4%	261	11.5	43.28	95.6%	5.1	0.68	2.56	86.7%	31.10	13.26	49.90	57.4%	170.0	26.0	12.5	11.52	0.39	7.1	6.7	254	121	1360		0.0	229.0	1.0	17	
September	113354	3778	4326	200	100	6.2	23.43	93.8%	241	6.8	25.69	97.2%	4.8	0.65	2.46	86.5%	34.10	12.56	47.46	63.2%	114.4	31.0	9.8	16.08	0.66	7.2	6.7	269	69	1640		0.0	137.6	0.7	68	
October	121987	3935	4572	170	170	5.7	22.43	96.6%	243	5.4	21.25	97.8%	5.1	0.43	1.69	91.6%	35.00	16.30	64.14	53.4%	179.7	36.6	14.4	12.86	1.07	7.1	6.7	246	98	1640		0.0	191.1	1.0	7	
November	131829	4394	4698	220	150	2.5	10.99	98.3%	225	3.9	17.14	98.3%	4.1	0.45	1.98	89.0%	29.70	15.86	69.69	46.6%	101.0	36.2	14.0	9.18	0.10	7.1	6.8	243	121	1440		0.0	258.1	0.8	11	
December	123738	3992	4431	388	140	2.5	9.98	98.2%	227	4.4	17.56	98.1%	4.5	0.58	2.32	87.1%	32.30	28.78	114.88	10.9%	257.8	50.6	27.8	4.56	0.06	7.1	6.8	256	174	1480		0.0	259.3	1.0	3	
Total	1629754							96.8%				95.9%				85.3%				32.8%										15800		131.4				
Average		4465			158	4.81	22.14	96.7%	219	8.17	38.54	96.0%	4.40	0.62	2.74	85.4%	33.31	22.30	95.0	0.3	244.91	33.78	18.44	6.99	0.36	7.18	6.38	252	154				248.49	0.91	14	



Plant Type: Extended Aeration
Design Capacity: 11,400 m³/day
Population Served: 17,365

Compliance Parameters:

	Conc.	Loading	
CBOD	25 mg/L	284 kg/day	Annual Average
TSS	25 mg/L	284 kg/day	Annual Average
Total Phosphorus	1.0 mg/L	11.4 kg/day	Monthly Average
pH	6.0 to 9.5 inclusive, at all times		
E.Coli	200 col/100 mL		Monthly Geometric Mean



2023 Valley East Wastewater Treatment Plant Waste Sludge Analysis

Parameter (mg/L)	January	February	March	April	May	June	July	August	September	October	November	December	Average
Ammonia (as N)	237	134	263	88	54.5	65.5	0.1	177	198	172	155	27	131
Nitrate (as N)	0.50	0.25	0.90	0.50	3.20	0.50	0.82	0.2	0.5	0.25	0.9	1.0	0.8
Nitrite (as N)	12.10	0.25	2.94	3.30	6.50	8.90	6.03	0.50	5.10	0.25	0.20	2.30	4.0
Potassium	80	70	65	102	71	68	83	78	75	22	72	68	71
TKN	1520	956	1140	953	1900	1320	1280	1230	513	730	414	1050	1084
Total Phosphorus	425	372	392	145	403	497	111	187	153	96.6	220	896	325
Total Solids	32900	27000	20100	33500	80300	40800	33300	30200	29800	27200	25000	27800	33992
Arsenic	0.06	0.06	0.05	0.05	0.17	0.09	0.05	0.13	0.02	0.05	0.07	0.08	0.07
Cadmium	0.0126	0.0114	0.0105	0.0128	0.0465	0.0210	0.0133	0.0161	0.0107	0.0095	0.0098	0.0157	0.0158
Chromium	0.20	0.20	0.16	0.25	0.88	0.30	0.14	0.18	0.21	0.16	0.15	0.25	0.26
Cobalt	0.121	0.077	0.065	0.128	0.348	0.110	0.062	0.127	0.148	0.075	0.063	0.088	0.1
Copper	8.6	7.3	5.5	6.7	16	11.1	6.1	8.1	7.5	1.0	6.0	8.8	7.7
Lead	0.269	0.176	0.126	0.173	0.648	0.250	0.133	0.164	0.428	0.157	0.120	0.198	0.237
Mercury	0.001	0.001	0.001	0.005	0.015	0.007	0.002	0.004	0.009	0.001	0.005	0.003	0.005
Molybdenum	0.05	0.05	0.03	0.03	0.06	0.05	0.03	0.05	0.04	0.04	0.04	0.06	0.04
Nickel	0.38	0.38	0.27	0.50	2.30	0.64	0.01	0.42	1.90	0.33	0.34	0.48	0.66
Selenium	0.031	0.030	0.022	0.017	0.067	0.040	0.023	0.036	0.029	0.017	0.022	0.036	0.031
Zinc	9.50	8.40	7.25	9.10	20.70	12.70	8.60	9.80	5.75	6.74	7.15	9.9	9.6
Sample Date	Jan.4/23	Feb.1/23	Mar.1/23	Apr.4/23	May.9/23	Jun.7/23	Jul.5/23	Aug.2/23	Sept.6/23	Oct.4/23	Nov.1/23	Dec.5/23	

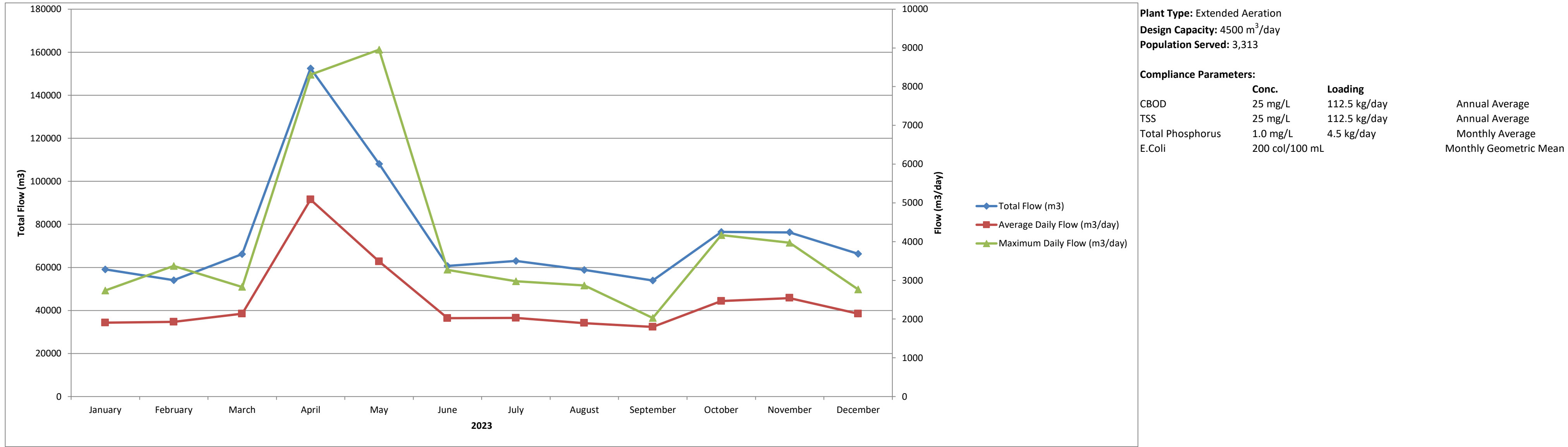
Work Order

487434 489819 491920 494765 498458 501764 504846 508096 511785 514760 517806 521032



2023 Walden Wastewater Treatment Plant Performance

Month	Flows			BOD ₅	CBOD							Total Suspended Solids				Total Phosphorus				Total Ammonia				Un-Ionized	TKN		Nitrate	Nitrite	pH		Alkalinity		Sludge			Chlorine		E.Coli
	Total	Avg Day	Max Day		Raw	Raw	Effluent	Loading	Raw Loading	Removed	Plant	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant		Raw	Effluent			Effluent	Effluent	Raw	Effluent	Raw	Effluent	Total m ³	Conc.	Total	
	m ³	m ³ /d	m ³ /d	mg/L	mg/L	mg/L	kg/d	kg/day	kg/day	Efficiency	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	mg/L	mg/L	kg/d	Efficiency	µg/L	mg/L	mg/L	mg/L	Raw	Effluent	mg/L	mg/L	Hauled	%	m ³	Kg	mg/L	# Col./100mL		
January	59061	1905	2740	110	240	2.3	4.38	457	453	99.0%	417	8.1	15.43	98.1%	4.7	0.36	0.69	92.3%	22.10	0.04	0.08	99.8%	0.08	39.00	2.00	21.40	0.05	7.3	6.7	185	73.67	440		0.0	279.5	0.7	2	
February	54046	1930	3372	230	130	2.9	5.60	251	245	97.8%	188	8.8	16.99	95.3%	3.9	0.43	0.83	89.0%	28.70	0.34	0.66	98.8%	0.78	35.00	1.00	24.10	0.20	7.8	6.9	207	75.67	400		0.0	265.5	0.8	2	
March	66218	2136	2830	1200	280	4.0	8.54	598	590	98.6%	291	8.7	18.58	97.0%	2.6	0.41	0.88	84.2%	20.70	0.14	0.30	99.3%	0.32	48.00	1.00	22.90	0.10	7.4	6.8	183	73.50	560		0.0	227.4	0.9	2	
April	152529	5084	8308	430	220	5.9	30.00	1119	1089	97.3%	187	10.6	53.89	94.3%	1.9	0.45	2.29	76.3%	11.50	0.12	0.61	99.0%	0.27	27.00	2.00	22.30	0.10	7.5	7.2	116	78.80	400		0.0	351.5	0.9	32	
May	108090	3487	8954	30	7	2.4	8.37	24	16	65.7%	122	9.4	32.78	92.3%	2.9	0.33	1.15	88.6%	6.60	0.34	1.19	94.8%	1.73	3.00	1.00	5.89	0.05	7.2	7.2	142	79	480		0.0	341.0	1.0	5	
June	60688	2023	3272	328	270	1.5	3.03	546	543	99.4%	191	4.9	9.91	97.4%	4.6	0.62	1.25	86.5%	27.90	0.19	0.38	99.3%	1.72	24.00	0.20	20.60	0.20	7.4	7.0	149	71	560		0.0	206.8	1.0	3	
July	63001	2032	2977	250	160	1.0	2.03	325	323	99.4%	171	4.9	9.96	97.1%	3.6	0.20	0.41	94.4%	19.20	0.13	0.26	99.3%	1.38	22.00	0.20	25.90	0.20	7.1	6.7	204	71	480		0.0	179.5	0.9	2	
August	58814	1897	2865	150	110	1.0	1.90	209	207	99.1%	185	6.2	11.76	96.6%	3.6	0.23	0.44	93.6%	27.40	0.14	0.27	99.5%	0.17	28.00	0.20	25.00	0.10	7.1	6.8	217	54	520		0.0	205.6	0.9	2	
September	53925	1798	2028	190	110	1.0	1.80	198	196	99.1%	173	7.1	12.76	95.9%	3.3	0.29	0.52	91.2%	37.30	0.19	0.34	99.5%	0.81	31.10	0.20	23.30	0.10	7.6	6.9	223	54	320		0.0	169.5	0.9	2	
October	76499	2468	4167	130	130	1.1	2.71	321	318	99.2%	336	7.2	17.77	97.9%	3.9	0.26	0.64	93.3%	25.70	0.07	0.17	99.7%	0.07	28.20	0.20	14.50	0.05	7.4	6.9	170	56	460		0.0	154.0	1.3	1	
November	76307	2544	3970	60	54	2.1	5.34	137	132	96.1%	112	6.4	16.28	94.3%	2.1	0.20	0.51	90.5%	17.50	9.46	24.06	45.9%	65.00	20.30	7.20	6.00	1.00	7.1	6.7	167	78	480		0.0	164.6	0.9	2	
December	66329	2140	2767	305	67	2.2	4.71	143	139	96.7%	153	8.6	18.40	94.4%	3.6	0.29	0.62	91.9%	18.80	0.27	0.58	98.6%	1.20	46.80	2.10	10.70	0.10	7.1	6.5	223	65	400		0.0	206.7	1.0	2	
Total	895507							4329	4250	98.2%				96.1%				89.1%				95.1%									5500		0.0					
Average		2453		284	148	2.28	6.53	361	354	95.6%	211	7.58	19.54	95.9%	3.39	0.34	0.85	89.3%	21.95	0.95	2.41	94.5%	6.13	29.37	1.44	18.55	0.19	7.33	6.87	182	69				0.94	5		





2023 Walden Wastewater Treatment Plant Waste Sludge Analysis

Parameter (mg/L)	January	February	March	April	May	June	July	August	September	October	November	December	Average
Ammonia (as N)	0.2	0.29	1.8	5.1	2.3	6.6	0.2	1.5	7.3	4.0	9.7	6.7	3.8
Nitrate (as N)	4.78	0.10	11.00	0.60	0.05	0.15	18.50	10.7	0.15	2.57	3.60	2.9	4.59
Nitrite (as N)	0.05	0.10	0.1	0.20	0.05	0.15	0.1	2.2	0.15	0.05	0.10	0.1	0.28
Potassium	26	46	31	46	54	90	22	30	47	34	11	31	39
TKN	74	485	216	573	585	793	133	242	419	366	35.6	266	349
Total Phosphorus	49.0	136.0	3.58	61.8	173.0	384.0	74.6	89.8	134.0	41.4	4.5	47.7	99.9
Total Solids	3830	7490	4820	12900	17200	20500	4550	6730	10300	9350	1460	6580	8809
Arsenic	0.02	0.04	0.03	0.07	0.12	0.19	0.04	0.07	0.08	0.08	0.01	0.04	0.07
Cadmium	0.0061	0.0123	0.0073	0.0227	0.0348	0.0434	0.0090	0.0125	0.0169	0.0097	0.0008	0.0080	0.0153
Chromium	0.09	0.18	0.10	0.29	0.40	0.55	0.09	0.14	0.41	0.28	0.02	0.13	0.22
Cobalt	0.069	0.231	0.146	0.660	0.472	0.550	0.223	0.431	0.659	0.370	0.057	0.279	0.346
Copper	1.7	3.9	1.6	6.9	10.0	9.6	1.8	2.6	4.0	2.2	0.29	1.9	3.9
Lead	0.098	0.238	1.131	0.360	0.486	0.523	0.088	0.141	0.185	0.157	0.014	0.130	0.296
Mercury	0.001	0.001	0.001	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Molybdenum	0.02	0.07	0.05	0.10	0.06	0.21	0.11	0.11	0.13	0.28	0.04	0.10	0.11
Nickel	1.9	3.3	1.4	5.8	14.0	9.1	1.6	2.5	3.0	1.8	0.3	1.2	3.8
Selenium	0.029	0.059	0.036	0.058	0.085	0.117	0.019	0.030	0.040	0.029	0.009	0.033	0.045
Zinc	1.13	2.39	1.63	4.25	8.80	8.70	1.82	2.72	6.37	3.35	0.48	3.17	3.73
Sample Date	Jan.10/23	Feb.14/23	Mar.7/23	Apr.04/23	May.4/23	Jun.12/23	Jul.4/23	Aug.1/23	Sep.12/23	Oct.11/23	Nov.1/23	Dec.5/23	

Work Order

487892 490707 492384 494729 497865 502268 504543 507862 512271 515462 517796 520933