2017

Annual Wastewater Report

Mar 30, 2017; v.1.0

Greater Grand Sudbury

2017 Annual Wastewater Report

v. 1.0

Reviewed by:

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Apr. 3 2018
Date

Approved by:

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03 APR 2018
Date

2017 Annual Wastewater Report

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INTRODUCTION TO THE ANNUAL WASTEWATER REPORT

Under Environmental Compliance Approval (ECA) agreements issued by the Ministry of Environment and Climate Change (MOECC), the City is required to report annually on the values/parameters indicated in the ECA and must make this report publicly available within 90 days of January 1st for the year preceding the current year. Specifically the annual report is to include:

(a) a summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in conditions described in the Approval, including an overview of the success and adequacy of the Works;

(b) a description of any operating problems encountered and corrective actions taken;

(c) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the Works;

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

(e) a summary of the calibration and maintenance carried out on all effluent monitoring equipment;

(f) a description of efforts made and results achieved in meeting the Effluent Objectives of the Approval;

(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;

(h) a summary of any complaints received during the reporting period and any steps taken to address the complaints;

(i) a summary of all By-pass, Plant Overflow, Overflow, spill or abnormal discharge events;

(j) any other information the Water Supervisor requires from time to time; and

(k) a copy of all Notices of Modification submitted to the Water Supervisor.

The following is an explanation of the various sections of this annual plant performance report;

1) A description of any operating issues encountered and corrective actions taken at each plant;
2) A summary of all major maintenance carried out, and a summary of any effluent quality assurance or control measures undertaken in the reporting period. This includes a summary of any modifications to the Works;
3) A summary of the calibration and maintenance carried out on all effluent monitoring equipment;
4) An outline of anticipated sludge over the next reporting period and an indication of the location where the sludge is to be disposed;
5) A summary of any complaints received during the reporting period and any steps taken to address the complaints;
6) A summary of all bypasses, overcapacities and spills/overflows;
7) A summary and interpretation of all monitoring data collected and a comparison to the parameters and limits given in the ECA, including the plant's performance efficiency, provides an introduction to the tabular report of data – a description of efforts made and results achieved in meeting the Effluent Objectives of the ECA; and
8) Tables showing all required reporting values and parameters for each wastewater treatment plant of which the City of Greater Sudbury is the owner, including a graphical representation of flows through the plant. A small section outlines the treatment method, plant design capacity, population served and ECA parameter limits as set out by the MOECC. The second (and/or third) page of each individual plant's data shows other data collected in the year – sludge and/or raw or effluent metals analyses. Included in the data is the total of the sludge removed from each plant in the year.

The *Summary of Effluent Quality and Control Measures* (Section 7) following this INTRODUCTION TO THE ANNUAL WASTEWATER REPORT includes these sections for each of CGS' plants:

1) Flows – these show the total flow by month, the average day flow and maximum day flow. These flows 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. The graphical representation in the lower left portion of the report shows the variation in flows over the course of the year;
2) Biological Oxygen Demand – a five day biochemical oxygen demand for the biological organisms in the material, measured in an unfiltered sample, including carbonaceous and nitrogenous oxygen demand;
3) $CBOD_5$ – Carbonaceous Biochemical Oxygen Demand 5 (refers to 5 days to conduct the test); a test that measures the oxygen demand of biological organisms in the material, without the impact of oxygen depletion by nitrogenous bacteria;
4) TSS – Total Suspended Solids; total amount of residual solid matter found in the effluent of the plant;
5) TP – Total Phosphorous; total amount of phosphorous found in the effluent;
6) T Amm – Total Ammonia measured in the effluent flow;
7) Un-ionized Amm – Total Un-ionized Ammonia, a calculated parameter, found in the effluent flow;
8) TKN – Total Kjeldahl Nitrogen; the total concentration of organic nitrogen and ammonia;
9) Nitrite – measured as an anion of nitrogen (NO2-);
10) Nitrate – measured as an anion of nitrogen (NO3-);
11) pH – potential of hydrogen, a scale of measure, 7 being neutral, acidity (low pH down to 0) or alkalinity (high pH up to 14);
12) Alkalinity – ability of water to neutralize acid by absorbing hydrogen ions;
13) Sludge – produced through the wastewater treatment process, all of the material removed from the wastewater and is the final product sent for biosolids treatment;
14) Chlorine – used to disinfect the wastewater effluent;
15) E.Coli – the indicator of bacteria left in the effluent, indicating the effectiveness of the disinfection process.

1 OPERATING ISSUES / CORRECTIVE ACTIONS

DATE	WWTP	PARAMETER	CORRECTIVE ACTIONS TAKEN
31-Jan-17	Capreol Lagoon	Total Phosphorus (TP)	Consultant hired to advise
31-Apr-17	Dowling WWTP	E.Coli	Increase cl2, clear out scum issue
12-Jun-17	Azilda Plant	Ammonia	Increase blower air, sludge haulage and wasting
13-jun-17	Levack Plant	E.Coli	Increase cl2 feed rate and monitor
15-Jun-17	Wahnapitae Lagoon	TSS	Plans are being made to dredge cells
30-Jun-17	Chelmsford WWTP	Total Phosphorus (TP)	Cleaned out chemical feed pump and lines
30-Jun-17	Coniston WWTP	E.Coli	Increase cl2 and more samples taken
30-Sept-17	Sudbury WWTP	TP	Increase ferric sulphate and test daily
30-Dec-17	Wahnapitae Lagoon	TSS	Excavation of cell #2 was done
30-Dec-17	Wahnapitae Lagoon	Discharge pass due date	Excavation of cell #2 was done, remove growth

2 MAJOR MAINTENANCE COMPLETED, BY PLANT

Azilda WWTP

- Capital upgrade including clarifier rebuild, Aeration tank rebuild with new isolation wall and diffusers, new piping and valves, new contact chamber feed and bypass valves, MCC upgrades.
- Safety railings and concrete step repair
- Removal of designed substance throughout plant.
- Rebuild comminutor

Dowling WWTP

- Contact chamber cleaning
- Clean out sludge holding tank and replace feed and circulation valves
- Blower #2 removal, rebuild and reinstalled

Capreol Lagoons

- No modifications
-

Chelmsford WPCP

- PLC upgrades including SCADA and automation
- Emergency generator rebuild and transfer switch
- Rebuild of C plant eastside clarifier and flights
- Repaired various valves on A & B plants
- Cleaned A plant aeration tank

- Repaired concrete and valves for sludge holding tank in A plant
- Ds removal as per inspection report
- Security camera installed

Chelmsford Lagoons

- No modifications

Coniston WPCP

- DSS report completed
- New spill kit
- Replaced railings around contact chamber and RAW inlet
- Improved guarding around diesel generator
- Removal and install new platform for grit area

Levack WWTP

- Designated substance inspection and sampling
- Clean west side aeration tank, replaced broken risers and diffusers
- Replaced ferric pump and piping
- Cleaned both contact chambers
- Head house door inspection and repair
-

Lively WWTP

- Install new platform in comminutor building
- Designated substance inspection
- New spill kit

Sudbury WWTP

- Clean and install new aerators in aeration tank #3
- New VFD for WAS #4
- Repair instrumentation equipment in new section
- Effluent pumps removed for inspection and repair
- Install new railings, repair falling bricks at head house walls and repair concrete around clarifiers
- Install additional piping in sludge building to direct sludge to lower holding tank
- Added additional piping and valves to direct supernatant to any aeration tank

Valley East Plant

- Ground water well pump replacement
- Secondary clarifier chain and gear repaired
- Primary clarifier one side chains and gear repaired
- Clean and paint floors in RAW/Effluent pump building
- Temporary fix on sludge holding tank mixing system
- Digester building trash removal and steam cleaning
- Various doors and stair replacement
- Security camera installed

Walden WWTP

- DSS report (designed substance survey)
- Repair of chlorine solution line and RAS pump #2
- Refurbish clarifier #2

Wahnapitae Lagoons

- Removal of growth from #2 discharge cell which was impeding flow

Lift Stations

- Mark LS new gas heater
- Various stations had their roofs shingled and DSS was done (designed substance survey)
- St. Charles LS new pump base and elbow installed
- St. Isadore LS new emergency generator
- Selkirk LS Sloping of concrete outside of building to stop inflow of rain water
- Riverside LS new electrical transfer panel
- Fourth LS new gas heater

3 CALIBRATIONS & MAINTENANCE, BY PLANT

All analyzers at all plants are calibrated as per manufacturer's recommendations, a minimum of once per year. Calibration Certificates are submitted and retained electronically for each unit.

All major plant equipment is maintained as per manufacturer's recommendations, with regular preventive maintenance checks completed as per established schedules.

4 SLUDGE DISPOSAL

Each plant report in the following pages shows the quantity of sludge removed in calendar year 2016. It is expected that a similar quantity will be produced and recycled in the coming calendar year.

All sludge produced and removed from all wastewater treatment plants in the City of Greater Sudbury are delivered to and recycled by the Biosolids facility on the grounds of the Sudbury Wastewater Treatment Plant.

5 CUSTOMER COMPLAINTS

DATE	LOCATION	ISSUE	RESOLUTION
16-Jan-2017	WALFORD EAST LIFT STATION, 285 WALFORD ROAD EAST	snow bank removal	Send an email to Richard Piazza, he is sending tate's for snow removal today
04-Apr-2017	2246 FLEMING STREET VAL CARON	Red indicator light active on a lift station	Work has been completed
28-Apr-2017	GARSON WASTEWATER LAGOON, HEINO ROAD, GARSON	Caller says about 200 feet of driveway is flooded over top. Water may be coming from Lagoon. Concerned all properties will flood	Not from lagoon
08-May-201	ANDERSON LIFT STATION, 247 ANDERSON DRIVE, LIVELY	Storm damaged roof at lift station	Call contractor to repair roof.
11-May-2017	Kelly Lake	shoreline is littered	Crew cleaned up shore line
24-May-2017	: MARCEL-BOUCHARD LIFT STATION, 1425 MARCEL STREET, SUDBURY	Wants the City to figure out what they are responsible when cutting the grass between lift station and caller's address next door at 1411 Marcel St. Resident suggest that perhaps some stakes could be put in place. Would like to speak with someone.	Had contractor cut grass
11-Jul-2017	HELEN'S POINT LIFT STATION, 425 HELEN'S POINT, SUDBURY	strong sewage smell coming from station	Checked site at 11 a.m. and again at 1:00 p.m. No smell from lift station. Contacted and visited caller next door and it was agreed that there was no smell. We will wash down lift station wet well to minimize any early morning odour.
08-Aug-2017	9999 YORKSHIRE DRIVE, VAL CARON, ON, CANADA	Received a call from a resident who wants to remain anonymous. Caller attended the site with a 40 foot rig this morning, expecting the station to be open for dumping. He drove down to the station only to be told it is closed for another hour or so while they complete work on it. Caller asks that we place a sign at the beginning of the road notifying patrons when the site is closed so that they do not have to turn and drive to the end of the road with a large rig where there is insufficient room to turn around. Caller asks that there be a sign posted with hours of operation and also suggests that the fence be moved back to allow additional room for large vehicles to maneuver and turn around. Please look into these concerns. Call was taken at ext 3600	Wastewater Services is installing signs indicating hours of operation on both the south and north bound lanes of MR 80 and at the start of Yorkshire Dr. We are also considering a full turn around at the end of Yorkshire Dr.
05-Sep-2017	HILLSDALE LIFT STATION, 3069 HILLSDALE COURT, VALCARON, VAL CARON, ON,	Resident calling to advise that whenever the water pump station goes off , the noise resonates throughout their home. Very loud. Asking that someone come and take a look at them again.	That one on Dundas did remind though that this one came in again.....normally its the air release valves located close to where the foreman would send a crew to clean them out..

5 CUSTOMER COMPLAINTS

DATE	LOCATION	ISSUE	RESOLUTION
05-Dec-2017	FOURTH LIFT STATION, 340 FOURTH AVENUE, SUDBURY, ON, CANADA	Caller approached Vactor Operator and advised that the lift station is quite noisy. Would like someone to look into too. I spoke to Richard Piazza, he will have someone investigate	Noisy whirly bird on roof when spinning in high winds. Stop unit from spinning.
18-Dec-2017	NORTH SHORE LIFT STATION, 1249 NORTH SHORE DRIVE, SUDBURY, ON, CANADA	Plowing Not Completed on road out to street and big area up top - where large vehicles wait Caller concerned because contractor did not plowed right last Winter - Vehicles currently would not be able to access station - CALLBACK to further discuss requested	Had contractor plow the driveway area properly

6 PLANT BYPASSES

DATE	TIME (24H clock)	DURA-TION	LOCATION	TYPE OF OCCURRENCE
23-Feb-17	4:00	3.5 hrs	Chelmsford WWTP	Broken RAW valve
23-Feb-17	5:00	14.3 hrs	Walden WWTP	Plant bypass: flow exceeds design capacity
23-Feb-17	9:00	3.5 hrs	Chelmsford WWTP	Plant bypass: flow exceeds design capacity
23-Feb-17	10:50	8.1 hrs	Lively WWTP	Plant bypass:
23-Feb-17	13:15	7 hrs	Sudbury WWTP	Plant bypass:
25-Feb-17	1:00	28 hrs	Coniston WWTP	Plant bypass:
25-Feb-17	3:00	17.5 hrs	Lively WWTP	Plant bypass: flow exceeds design capacity
25-Feb-17	3:30	14.5 hrs	Walden WWTP	Plant bypass: flow exceeds design capacity
25-Feb-17	10:30	11.75 hrs	Chelmsford WWTP	Plant bypass: flow exceeds design capacity
25-Feb-17	10:30	7.25 hrs	Azilda WWTP	Plant bypass: flow exceeds design capacity
25-Feb-17	13:00	8 hrs	Sudbury WWTP	Plant bypass: flow exceeds design capacity
7-Mar--17	8:30	36 hrs	Coniston WWTP	Plant bypass: flow exceeds design capacity
7-Mar--17	9:45	14 hrs	Lively WWTP	Plant bypass: flow exceeds design capacity
7-Mar--17	12;45	5.75 hrs	Walden WWTP	Plant bypass: flow exceeds design capacity
7-Mar--17	19:00	4.5 hrs	Sudbury WWTP	Plant bypass:
7-Mar--17	10:30	66 hrs	Azilda WWTP	Plant bypass:
8-Mar-17	10:40	7.2 hrs	Azilda WWTP	Plant bypass: flow exceeds design capacity
9-May-17	9:75	.5 hrs	Coniston WWTP	Plant bypass: flow exceeds design capacity
28-Mar-17	10:05	240	Lively WWTP	Plant bypass: flow exceeds design capacity
16-Apr-17	8:30	9hrs	Levack WWTP	Plant bypass: flow exceeds design capacity
4-Apr-17	6:15	31.5 hrs	Coniston WWTP	Plant bypass:
4-Apr-17	6:30	18 hrs	Walden WWTP	Plant bypass: flow exceeds design capacity
4-Apr-17	8:00	26 hrs	Lively WWTP	Plant bypass: flow exceeds design capacity
4-Apr-17	8:45	24 hrs	Sudbury WWTP	Plant bypass:
4-Apr-17	10:00	14.25 hrs	Laurier LS	Plant bypass:
4-Apr-17	10:30	48 hrs	Azilda WWTP	Plant bypass:
4-Apr-17	11:00	22 hrs	Landry LS	Plant bypass:
4-Apr-17	12:00	1.5 hrs	Lively WWTP	Plant bypass:
4-Apr-17	14:25	5 hrs	Government Road LS	Plant bypass:
13-Apr-17	7:00	126 hrs	Lively WWTP	Plant bypass: flow exceeds design capacity
16-Apr-17	12:25	4.6 hrs	Azilda WWTP	Plant bypass: flow exceeds design capacity
16-Apr-17	12:30	5 hrs	Walden WWTP	Plant bypass: flow exceeds design capacity
5-Apr-17	7:00	3.36 hrs	Valley East WWTP	Plant bypass: flow exceeds design capacity
10-Apr-17	13:37	33 hrs	Azilda WWTP	Plant bypass: flow exceeds design capacity
10-Apr-17	14:00	2 hrs	Walden WWTP	Plant bypass: flow exceeds design capacity
16-Apr-17	12:00	120 hrs	Lively WWTP	Plant bypass: flow exceeds design capacity
10-Apr-17	10:00	336 hrs	Wahnapitae Lagoon Cell	Plant bypass:
01-May-17	8:04	48 hrs	Valley East WWTP	Plant bypass: flow exceeds design capacity

6 PLANT BYPASSES

DATE	TIME (24H clock)	DURA-TION	LOCATION	TYPE OF OCCURRENCE
16-May-17	10:00	26.5 hrs	Coniston WWTP	Plant bypass: flow exceeds design capacity
13-July-17	7:30	5 hrs	Walden WWTP	Plant bypass: flow exceeds design capacity
24-July-17	3:00	16 hrs	Coniston WWTP	Plant bypass: flow exceeds design capacity
29-July-17	8:00	6 hrs	Coniston WWTP	Plant bypass
11-Aug-17	15:15	7.25 hrs	Walden WWTP	Plant bypass: flow exceeds design capacity
11-Aug-17	15:53	69.25 hrs	Coniston WWTP	Plant bypass: flow exceeds design capacity
18-Aug-17	0:00	12.5 hrs	Walden WWTP	Plant bypass: flow exceeds design capacity
18-Aug-17	00:15	24 hrs	Coniston WWTP	Plant bypass: flow exceeds design capacity
18-Aug-17	2:00	1.75 hrs	Walden WWTP	Plant bypass:
22-Aug-17	6:30	43 hrs	Azilda WWTP	Plant bypass:
25-Aug-17	10:30	66 hrs	Azilda WWTP	Plant bypass:
16-Nov-17	23:56	15.5 hrs	Chelmsford WWTP	Plant bypass: flow exceeds design capacity
5-Dec-17	12;00	5.25 hrs	Sudbury WWTP	Plant bypass:
5-Dec-17	7:20	11.16 hrs	Azilda WWTP	Plant bypass:
5-Dec-17	20:25	35 hrs	Sudbury WWTP	Plant bypass: flow exceeds design capacity
27-Dec-17	13:00	1246 hrs	Wahnapitae Lagoon Cell	Plant bypass

7 SUMMARY OF EFFLUENT QUALITY AND CONTROL MEASURES

Azilda Wastewater Treatment Plant

Flows - This plant experienced an average day flow of 1948 m^3/day with a design capacity of 3300 m^3/day.

This plant was shut down throughout the months of July and August. Flows were diverted to Chelmsford wastewater treatment plant. The rest of the year, the plant experienced normal average day flows to less than the design capacity of 3300 m^3/day during all month except April, where this average monthly flow was due to spring run-off and/or high amounts of precipitation.

CBOD5 - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of $CBOD_5$ to the environment is required to be less than 10 mg/l and the Annual Average Loading in the effluent has to be less than 33 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 274 kg/day of BOD;
2) The CBOD effluent monthly average concentration ranged from 1.1 mg/l to 3.4 mg/l with an average of 2.45 mg/l and annual average effluent loading was 5.97 kg/day; and
3) 272 kg/day was removed showing 99.2% plant efficiency of CBOD removal.

TSS - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of TSS to the environment is required to be less than 10 mg/l and the Annual Average Loading in the effluent has to be less than 33 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 327 kg/day of TSS;
2) The TSS effluent monthly average concentration ranged from 3.5 mg/l to 9.7 mg/l with an average of 7.06 mg/l and annual average effluent loading was 17.68 kg/day; and
3) 310 kg/day was removed showing 95% plant efficiency of TSS removal.

Total Phosphorous - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of Phosphorous to the environment is required to be less than 0.6 mg/l and the Annual Average Loading in the effluent has to be less than 2.0 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 6.78 kg/day of phosphorous;
2) The phosphorous effluent monthly average concentration ranged from 0.2 mg/l to 0.6 mg/l with an average of 0.33 mg/l and annual average effluent loading was 0.71 kg/day; and
3) 6.08 kg/day was removed showing 89.8% plant efficiency of Phosphorous removal.

Total Ammonia (as Nitrogen) - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of Total Ammonia (as Nitrogen) to the environment is required to be less than 5 mg/l and the Annual Average Loading in the effluent has to be less than 16.5 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming ammonia (as nitrogen) in the raw sewage from the community contained 34.18 kg/day;
2) The monthly average concentration of ammonia (as nitrogen) in the effluent ranged from 0.07 mg/l to 7.36 mg/l with an average of 1.6 mg/l and annual average effluent loading was 3.67 kg/day; and
3) 30.25 kg/day was removed showing 88.5% plant efficiency of ammonia (as nitrogen) removal.

pH

From the ECA the pH in the effluent is to be 6.0-9.5 at all times.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained a pH of 7.56;
2) The effluent pH ranged from 6.7 to 7.3 throughout the reporting period with an annual average of 6.88.

E.Coli - Monthly Geometric Mean

From the ECA the E.Coli, as a Monthly Geometric Mean, must be less than 200 colony-forming units/100 ml (CFU's) released to the environment.

Using the laboratory results and given the plant flows experienced throughout the reporting period the E.Coli ranged from 2 CFU's/100ml sample to 100 CFU's/100ml sample with an average annual E.Coli of 30 CFU's/100ml.

Capreol Lagoon Wastewater Treatment

Flows – The lagoon experienced normal average day flows when compared to the design capacity of 5500 m^3/day throughout the reporting year.

CBOD5 - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Annual Average Concentration for release of $CBOD_5$ to the environment is required to be less than 30 mg/l.

Using the laboratory results and given the flows experienced throughout the reporting period:

1) The average annual incoming raw loading sewage from the community contained 3894 kg/day of CBOD;
2) The CBOD effluent loading removal annual average was 3843 kg/day showing 98.6% treatment efficiency of CBOD removal.

TSS - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Annual Average Concentration for release of TSS to the environment is required to be less than 40 mg/l.

Using the laboratory results and given the flows experienced throughout the reporting period:

1) The average annual incoming raw loading sewage from the community contained 144 kg/day of TSS;
2) The TSS effluent annual loading removal average was 88 kg/day showing 46.1% treatment efficiency of TSS removal.

Total Phosphorous - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Annual Average Concentration for release of Phosphorous to the environment is required to be less than 1.38 mg/l.

Using the laboratory results and given the flows experienced throughout the reporting period:

1) The average annual incoming raw sewage loading from the community contained 3.9 kg/day of Phosphorous;
2) The Phosphorous effluent annual average loading removal was .30 kg/day.

Chelmsford Water Pollution Control Plant

Flows - This plant experienced an average day flow of 5286 m^3/day with a design capacity of 7100 m^3/day.

$CBOD_5$ - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of $CBOD_5$ to the environment has two seasonal reporting requirements.

From November 1 – April 30, the concentration of $CBOD_5$ is to be less than 15 mg/l and the Seasonal Average Loading in the effluent is to be less than 106.5 kg/day.

Using the laboratory results and given the plant flows experienced throughout this seasonal reporting period:

1) The average annual incoming raw sewage from the community contained 571kg/day of CBOD;
2) The CBOD effluent seasonal average concentration ranged from 1.2 mg/l to 10.3 mg/l with an average of 4.92 mg/l and seasonal average effluent loading was 23.07 kg/day; and
3) 551 kg/day was removed showing 96.5% plant efficiency of CBOD removal.

From May 1 – October 31, the concentration of $CBOD_5$ is to be less than 7 mg/l and the Seasonal Average Loading in the effluent is to be less than 49.7 kg/day.

Using the laboratory results and given the plant flows experienced throughout this seasonal reporting period:

1) The average annual incoming raw sewage from the community contained 216 kg/day of CBOD;
2) The CBOD effluent seasonal average concentration ranged from 1.2 mg/l to 7.2 mg/l with an average of 2.9 mg/l and seasonal average effluent loading was 15.84 kg/day; and
3) 212 kg/day was removed showing 98% plant efficiency of CBOD removal.

<u>TSS - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts</u>

From the ECA the Monthly Average Concentration for release of TSS to the environment is required to be less than 10 mg/l and the Annual Average Loading in the effluent has to be less than 33 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 234 kg/day of TSS;
2) The TSS effluent monthly average concentration ranged from 1.9 mg/l to 8.8 mg/l with an average of 4.43 mg/l and annual average effluent loading was 21.82 kg/day; and
3) 225 kg/day was removed showing 96.5% plant efficiency of TSS removal.

<u>Total Phosphorous - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts</u>

From the ECA the Monthly Average Concentration for release of Phosphorous to the environment is required to be less than 0.6 mg/l and the Annual Average Loading in the effluent has to be less than 2.0 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 13.3 kg/day of phosphorous;
2) The phosphorous effluent monthly average concentration ranged from 0.15 mg/l to 0.41 mg/l with an average of 0.21 mg/l and annual average effluent loading was 1.05 kg/day; and
3) 12 kg/day was removed showing 91.1% plant efficiency of Phosphorous removal.

<u>Total Ammonia (as Nitrogen) - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts</u>

From the ECA the Monthly Average Concentration for release of Total Ammonia (as Nitrogen) to the environment is required to be less than 5 mg/l and the Annual Average Loading in the effluent has to be less than 16.5 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming ammonia (as nitrogen) in the raw sewage from the community contained 70.78 kg/day;
2) The monthly average concentration of ammonia (as nitrogen) in the effluent ranged from 0.13 mg/l to 10.91 mg/l with an average of 3.09 mg/l and annual average effluent loading was 15.5 kg/day; and
3) 46.4 kg/day was removed showing 65.6% plant efficiency of ammonia (as nitrogen) removal.

pH

From the ECA the pH in the effluent is to be 6.0-9.5 at all times.

Using the laboratory results and given the plant flows experienced throughout the reporting period;

1) The average annual incoming raw sewage from the community contained a ph of 7.58;
2) The effluent pH ranged from 7.0 to 7.5 throughout the reporting period with an annual average of 7.21.

E.Coli - Monthly Geometric Mean

From the ECA the E.Coli, on a Monthly Geometric Mean, must be less than 200 colony forming units/100 ml (CFU's) released to the environment from May 1 – October 31.

Using the laboratory results and given the plant flows experienced throughout the reporting period the E.Coli ranged from 5 CFU's/100ml sample to 31 CFU's/100ml sample with an average annual E.Coli of 13.6 CFU's/100ml.

Coniston Wastewater Treatment Plant

Flows - This plant experienced an average day flow of 1,652 m^3/day and the design capacity is 3,000 m^3/day.

BOD_5 - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Annual Average Concentration for release of BOD_5 to the environment is required to be less than 20 mg/l and the Annual Average Loading in the effluent has to be less than 35 kg/day.

Using the laboratory results and given the plant flows experienced throughout this seasonal reporting period:

1) The average annual incoming raw sewage from the community contained 165.2 kg/day of BOD;
2) The BOD effluent monthly average concentration ranged from 1.0 mg/l to 26.0 mg/l with an average of 7.65 mg/l and average effluent loading was 14.6 kg/day; and
3) 149 kg/day was removed showing 90.2% plant efficiency of BOD removal.

TSS - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of TSS to the environment is required to be less than 20 mg/l and the Annual Average Loading in the effluent has to be less than 35 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 199.8 kg/day of TSS;
2) The TSS effluent monthly average concentration ranged from 5.3 mg/l to 25.3 mg/l with an average of 10.68 mg/l and annual average effluent loading was 20.19 kg/day; and
3) 177.7 kg/day was removed showing 88.9% plant efficiency of TSS removal.

pH

From the ECA the pH in the effluent is to be 6.0-9.5 at all times.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained a pH of 7.53;
2) The effluent pH ranged from 6.9 to 7.6 throughout the reporting period with an annual average of 7.21.

E.Coli - Monthly Geometric Mean

From the ECA the E.Coli, on a yearly Geometric Mean, must be less than 200 colony-forming units/100 ml (CFU's) released to the environment.

Using the laboratory results and given the plant flows experienced throughout the reporting period the E.Coli ranged from 2 CFU's/100ml sample to 106k CFU's/100ml sample with an average annual E.Coli of 133 CFU's/100ml.

Dowling Wastewater Treatment Plant

Flows - This plant experienced an average day flow of 2098 m^3/day and the design capacity is 3200 m^3/day.

$CBOD_5$ - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Annual Average Concentration for release of $CBOD_5$ to the environment is required to be less than 25 mg/l and the Annual Average Loading in the effluent has to be less than 80 kg/day.

Using the laboratory results and given the plant flows experienced throughout this seasonal reporting period;

1) The average annual incoming raw sewage from the community contained 62.9 kg/day of CBOD:
2) The CBOD effluent monthly average concentration ranged from 1.5 mg/l to 7.4 mg/l with an average of 4.43 mg/l and average effluent loading was 9.8 kg/day; and
3) 53.1 kg/day was removed showing 84.5 % plant efficiency of CBOD removal.

TSS - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of TSS to the environment is required to be less than 25 mg/l and the Annual Average Loading in the effluent has to be less than 80 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 75.5 kg/day of TSS;
2) The TSS effluent monthly average concentration ranged from 3.5 mg/l to 9.6 mg/l with an average of 5.33 mg/l and annual average effluent loading was 11.7 kg/day; and
3) 64 kg/day was removed showing 84.2 % plant efficiency of TSS removal.

Total Phosphorous - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of Phosphorous to the environment is required to be less than 1.0 mg/l and the Annual Average Loading in the effluent has to be less than 3.2 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 2.66 kg/day of phosphorous;
2) The phosphorous effluent monthly average concentration ranged from 0.43 mg/l to 0.69 mg/l with an average of 0.59 mg/l and annual average effluent loading was 1.24 kg/day; and
3) 1.4 kg/day was removed showing 52.8 % plant efficiency of Phosphorous removal.

pH

From the ECA the pH in the effluent is to be 6.0-9.5 at all times.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained a pH of 6.71;
2) The effluent pH ranged from 6.5 to 7.1 throughout the reporting period with an annual average of 6.71.

E.Coli - Monthly Geometric Mean

From the ECA the E.Coli, on a Monthly Geometric Mean, must be less than 200 colony-forming units/100 ml (CFU's) released to the environment.

Using the laboratory results and given the plant flows experienced throughout the reporting period the E.Coli ranged from 3 CFU's/100ml sample to 768 CFU's/100ml sample with an average annual E.Coli of 79 CFU's/100ml.

Falconbridge Wastewater Treatment Plant

Flows - This plant experienced an average day flow of 637 m^3/day and the design capacity is 909 m^3/day.

BOD_5 - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Annual Average Concentration for release of BOD_5 to the environment is required to be less than 15.0 mg/l and the Annual Average Loading in the effluent has to be less than 46 kg/day.

Using the laboratory results and given the plant flows experienced throughout this seasonal reporting period:

1) The average annual incoming raw sewage from the community contained 135.7 kg/day of BOD;
2) The BOD effluent monthly average concentration ranged from 0.5 mg/l to 3.0 mg/l with an average of 1.25 mg/l and average effluent loading was 0.8 kg/day; and
3) 134.9 kg/day was removed showing 99.4 % plant efficiency of BOD removal.

TSS - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of TSS to the environment is required to be less than 15.0 mg/l and the Annual Average Loading in the effluent has to be less than 46 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 63 kg/day of TSS;
2) The TSS effluent monthly average concentration ranged from 2.0 mg/l to 4.8 mg/l with an average of 3.10 mg/l and annual average effluent loading was 1.92 kg/day; and
3) 54.4 kg/day was removed showing 86.3 % plant efficiency of TSS removal.

Levack Wastewater Treatment Plant

Flows - This plant experienced an average day flow of 622 m^3/day and the design capacity is 2270 m^3/day.

$CBOD_5$ - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Annual Average Concentration for release of $CBOD_5$ to the environment is required to be less than 25 mg/l and the Annual Average Loading in the effluent has to be less than 56.75 kg/day.

Using the laboratory results and given the plant flows experienced throughout this seasonal reporting period:

1) The average annual incoming raw sewage from the community contained 73.3 kg/day of CBOD;
2) The CBOD effluent monthly average concentration ranged from 0.5 mg/l to 41 mg/l with an average of 5.13 mg/l and average effluent loading was 2.76 kg/day; and
3) 70.4 kg/day was removed showing 96.0 % plant efficiency of CBOD removal.

TSS - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of TSS to the environment is required to be less than 25 mg/l and the Annual Average Loading in the effluent has to be less than 56.75 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 105.7 kg/day of TSS;
2) The TSS effluent monthly average concentration ranged from 2.7 mg/l to 6.0 mg/l with an average of 4.28 mg/l and annual average effluent loading was 2.69 kg/day; and
3) 102.8 kg/day was removed showing 97.3 % plant efficiency of TSS removal.

Total Phosphorous - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of Phosphorous to the environment is required to be less than 1.0 mg/l and the Annual Average Loading in the effluent has to be less than 3.1 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 2.23 kg/day of phosphorous;
2) The phosphorous effluent monthly average concentration ranged from 0.28 mg/l to 0.41 mg/l with an average of 0.32 mg/l and annual average effluent loading was 0.20 kg/day; and
3) 2.01 kg/day was removed showing 90.4 % plant efficiency of Phosphorous removal.

pH

From the ECA the pH in the effluent is to be 6.0-9.5 at all times.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained a pH of 7.23;
2) The effluent pH ranged from 6.6 to 6.9 throughout the reporting period with an annual average of 6.73.

E.Coli - Monthly Geometric Mean

From the ECA the E.Coli, on a Monthly Geometric Mean, must be less than 200 colony-forming units/100 ml (CFU's) released to the environment.

Using the laboratory results and given the plant flows experienced throughout the reporting period the E.Coli ranged from 2 CFU's/100ml sample to 294 CFU's/100ml sample with an average annual E.Coli of 30 CFU's/100ml.

Lively Wastewater Treatment Plant

Flows - This plant experienced an average day flow of 1817 m^3/day and the design capacity is 1600 m^3/day.

$CBOD_5$ - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Annual Average Concentration for release of $CBOD_5$ to the environment is required to be less than 25 mg/l and the Annual Average Loading in the effluent has to be less than 40 kg/day.

Using the laboratory results and given the plant flows experienced throughout this seasonal reporting period:

1) The average annual incoming raw sewage from the community contained 170.8 kg/day of BOD;
2) The CBOD effluent monthly average concentration ranged from 0.6 mg/l to 4.0 mg/l with an average of 2.72 mg/l and average effluent loading was 5.06 kg/day; and
3) 165.5 kg/day was removed showing 96.9 % plant efficiency of CBOD removal.

TSS - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of TSS to the environment is required to be less than 25 mg/l and the Annual Average Loading in the effluent has to be less than 40 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 214.4 kg/day of TSS;
2) The TSS effluent monthly average concentration ranged from 3.5 mg/l to 14.5 mg/l with an average of 7.86 mg/l and annual average effluent loading was 13.64 kg/day
3) 204.7 kg/day was removed showing 95.5 % plant efficiency of TSS removal.

Total Phosphorous - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of Phosphorous to the environment is required to be less than 1.0 mg/l and the Annual Average Loading in the effluent has to be less than 1.6 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 5.67 kg/day of phosphorous;
2) The phosphorous effluent monthly average concentration ranged from 0.28 mg/l to 0.62 mg/l with an average of 0.43 mg/l and annual average effluent loading was 0.76 kg/day; and
3) 5.1 kg/day was removed showing 90.0 % plant efficiency of Phosphorous removal.

pH

From the ECA the pH in the effluent is to be 6.0-9.5 at all times.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained a pH of 7.33;
2) The effluent pH ranged from 6.9 to 7.4 throughout the reporting period with an annual average of 7.1.

E.Coli - Monthly Geometric Mean

From the ECA the E.Coli, on a Monthly Geometric Mean, must be less than 200 colony-forming units/100 ml (CFU's) released to the environment.

Using the laboratory results and given the plant flows experienced throughout the reporting period the E.Coli ranged from 4 CFU's/100ml sample to 88 CFU's/100ml sample with an average annual E.Coli of 35 CFU's/100ml.

Sudbury Wastewater Treatment Plant

Flows - This plant experienced an average day flow of 61,371 m^3/day and the design capacity is 79,625 m^3/day.

$CBOD_5$ - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Annual Average Concentration for release of $CBOD_5$ to the environment is required to be less than 25 mg/l and the Annual Average Loading in the effluent has to be less than 1,990.6 kg/day.

Using the laboratory results and given the plant flows experienced throughout this seasonal reporting period:

1) The average annual incoming raw sewage from the community contained 7364 kg/day of CBOD;
2) The CBOD effluent monthly average concentration ranged from 5.0 mg/l to 19.6 mg/l with an average of 8.60 mg/l and average effluent loading was 514.61 kg/day; and
3) 6827 kg/day was removed showing 92.7 % plant efficiency of CBOD removal.

TSS - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of TSS to the environment is required to be less than 25 mg/l and the Annual Average Loading in the effluent has to be less than 1,990.6 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 14913 kg/day of TSS;
2) The TSS effluent monthly average concentration ranged from 6.7 mg/l to 34.3 mg/l with an average of 12.8 mg/l and annual average effluent loading was 765.39 kg/day; and
3) 14018 kg/day was removed showing 94.0 % plant efficiency of TSS removal.

Total Phosphorous - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of Phosphorous to the environment has two seasonal reporting requirements.

From October 1 – May 31, the concentration of Phosphorous is to be less than 1.0 mg/l and the Seasonal Average Loading in the effluent is to be less than 79.6 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) From October 1 – May 31 the average incoming raw sewage from the community contained 527.8 kg/day of phosphorous;
2) The phosphorous effluent concentration ranged from 0.3 mg/l to 0.74 mg/l with an average of 0.58 mg/l and annual average effluent loading was 39.8 kg/day; and
3) An average of 450 kg/day was removed showing 85.4 % plant efficiency of Phosphorous removal.

From June 1 – September 30, the concentration of Phosphorous is to be less than 0.5 mg/l and the Seasonal Average Loading in the effluent is to be less than 49.7 kg/day.

Using the laboratory results and given the plant flows experienced throughout this seasonal reporting period:

1) From June 1 – September 30 the average incoming raw sewage from the community contained 189 kg/day of Phosphorous;
2) The phosphorous effluent concentration ranged from 0.21 mg/l to 0.68 mg/l with an average of 0.45 mg/l and seasonal average effluent loading was 17.0 kg/day; and
3) An average of 167 kg/day was removed showing 89.8% plant efficiency of Phosphorous removal.

pH

From the ECA the pH in the effluent is to be 6.0-9.5 at all times.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained a pH of 7.0;
2) The effluent pH ranged from 6.7 to 7.2 throughout the reporting period with an annual average of 6.9.

E.Coli - Monthly Geometric Mean

From the ECA the E.Coli, on a Monthly Geometric Mean, must be less than 200 colony-forming units/100 ml (CFU's) released to the environment.

Using the laboratory results and given the plant flows experienced throughout the reporting period the E.Coli ranged from 2 CFU's/100ml sample to 46 CFU's/100ml sample with an average annual E.Coli of 13 CFU's/100ml.

Chlorine Residual (after Dechlorination) - Monthly Average Concentration

From the ECA the Monthly Average Concentration for release of Chlorine Residual in the effluent (after Dechlorination) to the environment is required to be less than 0.02 mg/l and the Monthly Average Loading in the effluent has to be less than 1.6 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period the chlorine residual was 0.0 mg/l with an average annual of 0.0 kg/day.

Valley East Wastewater Treatment Plant

Flows - This plant experienced an average day flow of 6,062 m^3/day and the design capacity is 11,400 m^3/day.

$CBOD_5$ - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Annual Average Concentration for release of $CBOD_5$ to the environment is required to be less than 25 mg/l and the Annual Average Loading in the effluent has to be less than 284 kg/day.

Using the laboratory results and given the plant flows experienced throughout this seasonal reporting period;

1) The average annual incoming raw sewage from the community contained 588 kg/day of CBOD:
2) The CBOD effluent monthly average concentration ranged from 2.3 mg/l to 9.8 mg/l with an average of 5.51 mg/l and average effluent loading was 35.28 kg/day; and
3) 540 kg/day was removed showing 91.9 % plant efficiency of CBOD removal.

TSS - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of TSS to the environment is required to be less than 25 mg/l and the Annual Average Loading in the effluent has to be less than 284 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 860 kg/day of TSS;
2) The TSS effluent monthly average concentration ranged from 3.8 mg/l to 11.5 mg/l with an average of 6.23 mg/l and annual average effluent loading was 40.38 kg/day; and
3) 791 kg/day was removed showing 91.9 % plant efficiency of TSS removal.

Total Phosphorous - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of Phosphorous to the environment is required to be less than 1.0 mg/l and the Annual Average Loading in the effluent has to be less than 11.4 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 14.4 kg/day of phosphorous;
2) The phosphorous effluent monthly average concentration ranged from 0.50 mg/l to 0.58 mg/l with an average of 0.51 mg/l and annual average effluent loading was 3.06 kg/day; and
3) 11 kg/day was removed showing 75.8% plant efficiency of Phosphorous removal.

pH

From the ECA the pH in the effluent is to be 6.0-9.5 at all times.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained a pH of 7.46;
2) The effluent pH ranged from 6.6 to 7.6 throughout the reporting period with an annual average of 7.28.

E.Coli - Monthly Geometric Mean

From the ECA the E.Coli, on a Monthly Geometric Mean, must be less than 200 colony-forming units/100 ml (CFU's) released to the environment.

Using the laboratory results and given the plant flows experienced throughout the reporting period the E.Coli ranged from 15 CFU's/100ml sample to 96 CFU's/100ml sample with an average annual E.Coli of 37 CFU's/100ml.

Wahnapitae Lagoons

Flows - This plant experienced an average day flow of 835 m^3/day and the design capacity is 1246 m^3/day.

$CBOD_5$ - Seasonal Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Seasonal Average Concentration for release of $CBOD_5$ to the environment is required to be less than 30 mg/l.

Using the laboratory results and given the plant flows experienced throughout this seasonal reporting period:

1) The average annual incoming raw sewage from the community contained 52.6 kg/day of CBOD:
2) The CBOD effluent quarterly average concentration ranged from 3.4 mg/l to 16.2 mg/l with an average of 7.43 mg/l and average effluent loading was 7.02 kg/day; and
3) 51 kg/day was removed showing 97.0 % plant efficiency of CBOD removal.

TSS - Seasonal Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Seasonal Average Concentration for release of TSS to the environment is required to be less than 30 mg/l.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 376.5 kg/day of TSS:
2) The TSS effluent quarterly average concentration ranged from 21.7 mg/l to 87.9 mg/l with an average of 51.58 mg/l and annual average effluent loading was 49.93 kg/day; and
3) 341.5 kg/day was removed showing 90.7 % plant efficiency of TSS removal.

pH

From the ECA the pH in the effluent is to be 6.0-9.5 at all times.

Using the laboratory results and given the plant flows experienced throughout the reporting period the effluent ph ranged from 7.0 to 7.7 throughout the reporting period with an annual average of 7.3.

Walden Wastewater Treatment Plant

Flows - This plant experienced an average day flow of 2795 m^3/day and the design capacity is 4500 m^3/day.

$CBOD_5$ - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Annual Average Concentration for release of $CBOD_5$ to the environment is required to be less than 25 mg/l and the Annual Average Loading in the effluent has to be less than 112.5 kg/day.

Using the laboratory results and given the plant flows experienced throughout this seasonal reporting period:

1) The average annual incoming raw sewage from the community contained 410 kg/day of CBOD;
2) The CBOD effluent monthly average concentration ranged from 0.5 mg/l to 20 mg/l with an average of 4.38 mg/l and average effluent loading was 13.46 kg/day; and
3) 392 kg/day was removed showing 95.5 % plant efficiency of CBOD removal.

TSS - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of TSS to the environment is required to be less than 25 mg/l and the Annual Average Loading in the effluent has to be less than 112.5 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 595 kg/day of TSS;
2) The TSS effluent monthly average concentration ranged from 5.1 mg/l to 14.2 mg/l with an average of 8.58 mg/l and annual average effluent loading was 23.84kg/day; and
3) 568 kg/day was removed showing 95.5 % plant efficiency of TSS removal.

Total Phosphorous - Monthly Average Concentration, Annual Average Effluent Loading and Plant Removal Amounts

From the ECA the Monthly Average Concentration for release of Phosphorous to the environment is required to be less than 1.0 mg/l and the Annual Average Loading in the effluent has to be less than 4.5 kg/day.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained 8.8 kg/day of phosphorous;
2) The phosphorous effluent monthly average concentration ranged from 0.33 mg/l to 0.52 mg/l with an average of 0.40 mg/l and annual average effluent loading was 1.13 kg/day; and
3) 7.58 kg/day was removed showing 86.1 % plant efficiency of Phosphorous removal.

pH

From the ECA the pH in the effluent is to be 6.0-9.5 at all times.

Using the laboratory results and given the plant flows experienced throughout the reporting period:

1) The average annual incoming raw sewage from the community contained a pH of 7.22;
2) The effluent pH ranged from 6.7 to 7.2 throughout the reporting period with an annual average of 6.96.

E.Coli - Monthly Geometric Mean

From the ECA the E.Coli, on a Monthly Geometric Mean, must be less than 200 colony-forming units/100 ml (CFU's) released to the environment.

Using the laboratory results and given the plant flows experienced throughout the reporting period the E.Coli ranged from 5 CFU's/100ml sample to 66 CFU's/100ml sample with an average annual E.Coli of 24 CFU's/100ml.

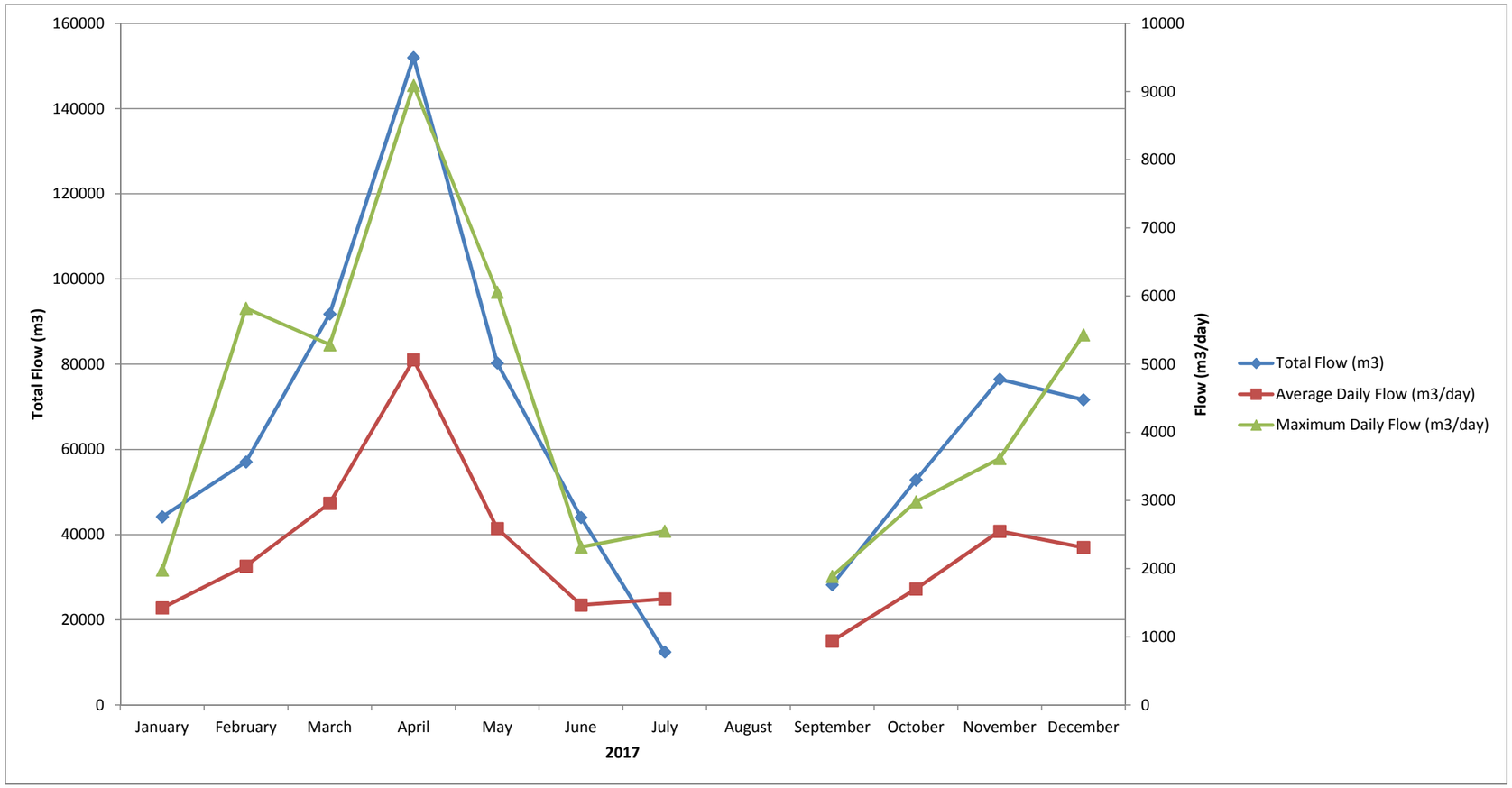
SECTION 8:

INDIVIDUAL PLANT ANNUAL DATA REPORTS

See previous section (7) for explanation of data following …

2017 Azilda Wastewater Treatment Plant Performance

Month	Flows			BOD_5	$CBOD_5$			Total Suspended Solids				Total Phosphorus				Total Ammonia				Un-Ionized	TKN		Nitrite	Nitrate	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 m^3	Conc.	Total	Total	Residual	Geomean
	m^3	m^3/d	m^3/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	%	m^3	Kg	mg/L	CFU/100mL
January	44191	1426	1981	135	1.1	1.57	99.2%	136	8.0	11.40	92.7%	4.9	0.31	0.44	93.7%	30.10	5.01	7.14	83.4%	3.91	35.7	5.73	0.03	19.0	7.2	6.7	233	78	200	2.4	4.8	93.3	0.81	2
February	57072	2038	5821	170	2.4	4.89	98.6%	148	9.5	19.36	93.6%	3.1	0.28	0.57	91.0%	22.58	0.25	0.51	98.9%	0.17	27.6	0.35	0.03	24.8	7.4	6.6	247	81	200	2.5	5.0	134.5	0.86	2
March	91786	2961	5287	88	2.7	7.99	96.9%	95	9.7	28.72	89.8%	2.0	0.36	1.07	82.0%	9.01	0.39	1.15	95.7%	0.47	9.5	1.08	0.03	12.6	7.4	6.9	234	166	200	2.0	4.0	229.4	0.91	51
April	151985	5066	9090	73	3.4	17.22	95.3%	114	9.2	46.61	91.9%	1.8	0.29	1.47	83.9%	5.02	1.19	6.03	76.3%	1.14	12.3	1.77	0.03	6.8	7.3	6.9	219	178	160	3.0	4.8	230.0	0.93	100
May	80281	2590	6058	163	2.2	5.70	98.7%	271	6.6	17.09	97.6%	3.6	0.20	0.52	94.4%	12.42	7.36	19.06	40.7%	27.67	17.9	8.06	0.10	4.6	7.6	7.0	269	200	200	2.1	4.2	154.3	0.82	14
June	44031	1468	2318	135	2.0	2.94	98.5%	131	3.5	5.14	97.3%	4.0	0.28	0.41	93.0%	19.23	1.45	2.13	92.5%	5.66	26.1	2.23	0.21	8.5	7.8	7.1	269	133	280	2.0	5.6	130.0	0.75	3
July	12456	1557	2552																							7.3						40.7	0.77	
August																																30.9	1.82	
September	28228	941	1889	180	3.4	3.20	98.1%	204	4.0	3.76	98.0%	5.5	0.60	0.56	89.1%	25.17	0.07	0.07	99.7%	0.14	28.3	0.20	0.15	22.9	7.7	6.8	275	85	N/A	0.8	N/A	82.1	0.81	25
October	52845	1705	2983	152	2.0	3.41	98.7%	154	5.1	8.69	96.7%	4.1	0.30	0.51	92.7%	21.83	0.12	0.20	99.5%	0.18	25.5	0.24	0.06	21.5	7.8	6.6	272	61	320	1.8	5.8	194.0	0.69	25
November	76494	2550	3618	97	2.3	5.86	97.6%	154	5.8	14.79	96.2%	2.7	0.26	0.66	90.4%	12.20	0.07	0.18	99.4%	0.16	18.5	0.46	2.66	9.9	7.7	7.0	277	156	200	2.6	5.2	247.4	0.73	20
December	71666	2312	5432	216	3.0	6.94	98.6%	270	9.2	21.27	96.6%	3.1	0.37	0.86	88.1%	17.95	0.11	0.25	99.4%	0.17	22.0	0.71	0.03	15.81	7.7	6.8	286	134	160	4.1	6.6	240.2	0.79	55
Total	711035																												1920		45.92			
Average		1948		141	2.45	5.97	98.0%	168	7.06	17.68	95.0%	3.48	0.33	0.71	89.8%	17.55	1.60	3.67	88.5%	4.0	22.34	2.08	0.33	14.63	7.56	6.88	258	127		2.33			0.89	30



Plant Type: Extended Aeration
Design Capacity: 3300 m^3/day
Population Served: 4,105

Compliance Parameters:

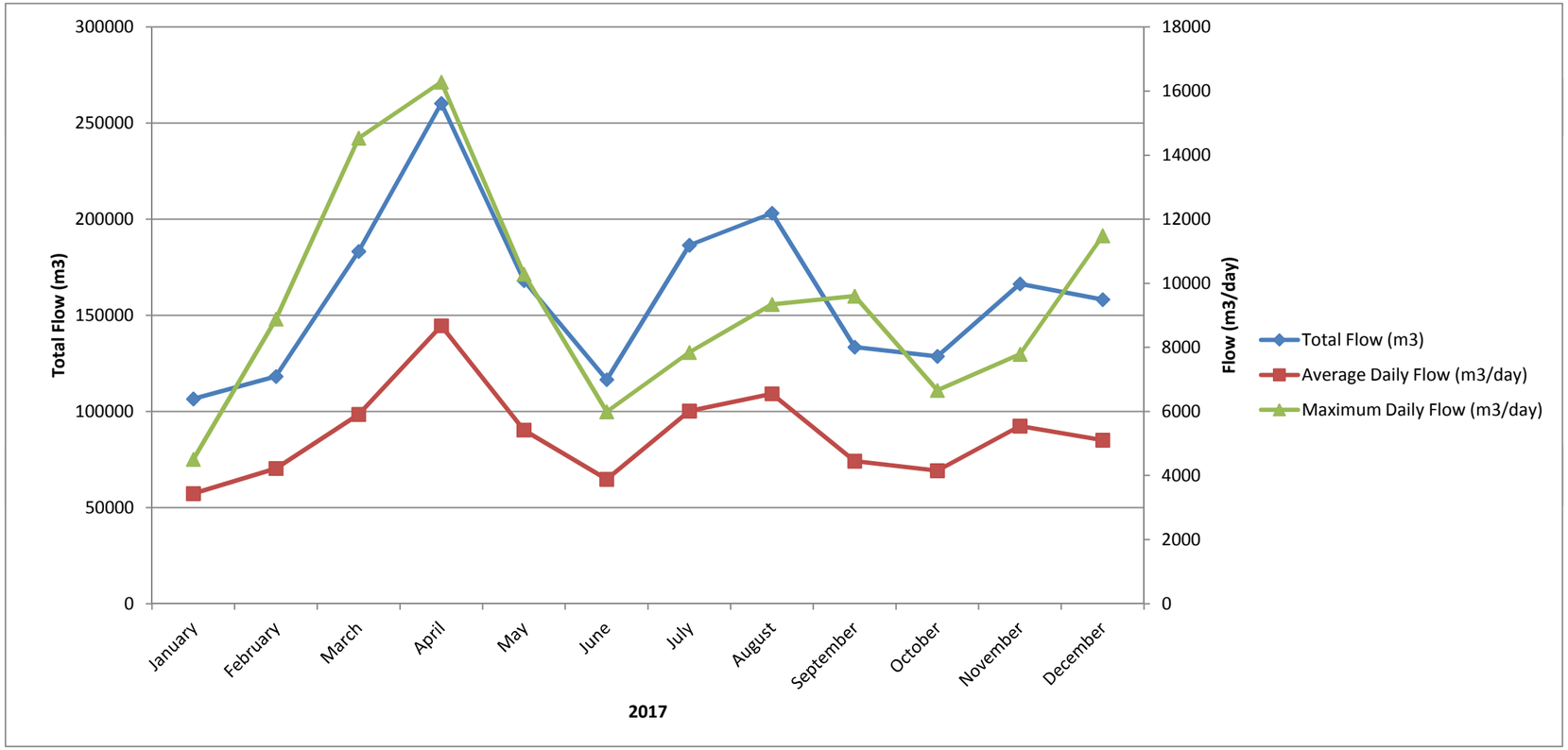
	Concentration	Loading	
$CBOD_5$	10 mg/L	33 kg/day	*Monthly Avg (Concentration)
TSS	10 mg/L	33 kg/day	
Total Phosphorus	0.6 mg/L	2.0 kg/day	*Annual Avg (Loading)
Total Ammonia (as N)	5 mg/L	16.5 kg/day	
pH	6.0 to 9.5 inclusive, at all times		
E.Coli	200 col/100 mL		Monthly Geometric Mean

2017 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)	191	87.3	92.4	54.9	84.4	93.3			29.4	23.5	228	6.19	89.04
Nitrate (as N)	0.31	0.2	0.2	0.2	0.2	0.2			0.1	0.1	0.1	2.4	0.40
Nitrite (as N)	0.03	0.03	0.03	0.26	0.41	0.03			0.03	0.099	1.75	0.823	0.35
Potassium	75	92	76	46.8	32	62			30.1	32	81	32.3	55.92
TKN	1290	1030	1150	480	373	1290			617	450	1550	441	867
Total Phosphorus	519	351	378	126	100	182			187	245	639	141	287
Total Solids	24300	20500	24300	9140	9730	21000			9030	10400	28000	6630	16303
Arsenic	0.0910	0.0840	0.1170	0.0590	0.0630	0.1180			0.0420	0.0350	0.1470	0.0500	0.0806
Cadmium	0.0230	0.0174	0.0174	0.0099	0.0081	0.0260			0.0155	0.0130	0.0289	0.0066	0.0166
Chromium	0.2570	0.2360	0.2600	0.1460	0.1550	0.3750			0.1460	0.1320	0.3410	0.1100	0.2158
Cobalt	0.2050	0.1850	0.2260	0.1240	0.0742	0.1100			0.0945	0.1130	0.5500	0.1820	0.1864
Copper	9.04	6.91	6.12	3.42	3.45	6.55			3.69	3.04	8.83	3.28	5.43
Lead	0.2000	0.1640	0.1640	0.0870	0.0770	0.2130			0.1310	0.1080	0.2070	0.0710	0.1422
Mercury	0.0043	0.0030	0.0064	0.0010	0.0010	0.0087			0.0011	0.0011	0.0068	0.0010	0.0034
Molybdenum	0.0770	0.0650	0.0600	0.0350	0.0300	0.0700			0.0460	0.0480	0.1030	0.0190	0.0553
Nickel	0.804	0.789	1.260	0.734	0.895	1.400			0.505	0.437	1.320	0.449	0.859
Selenium	0.0600	0.0510	0.0500	0.0300	0.0260	0.0740			0.0350	0.0160	0.0960	0.0270	0.0465
Zinc	7.32	5.97	5.48	2.92	2.52	5.21			4.62	4.07	8.20	3.06	4.94
Sample Date	Jan.10/17	Feb.8/16	Mar.8/17	Apr.5/17	May 2/17	Jun.7/17	N/A	N/A	Sep.27/17	Oct.4/17	Nov.22/17	Dec.20/17	

2017 Chelmsford Wastewater Treatment Plant Performance

Month	Flows			CBOD5				Total Suspended Solids				Total Phosphorus				Total Ammonia				Un-Ionized	TKN		Nitrite	Nitrate	pH		Alkalinity		Sludge			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 m^3	Conc.	Total	Geomean
	m^3	m^3/d	m^3/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	%	m^3	CFU/100mL
January	106535	3437	4505	140	10.3	35.40	92.6%	213	6.3	21.65	97.0%	3.2	0.41	1.41	87.2%	21.40	10.91	37.49	49.0%	74.35	24.90	13.35	0.03	9.0	7.4	7.1	197	126	880	2.0	17.6	68680
February	118234	4223	8884	110	6.5	27.45	94.1%	122	8.8	37.16	92.8%	3.3	0.24	1.01	92.7%	22.40	2.55	10.77	88.6%	17.03	23.50	3.15	0.07	12.5	8.0	7.1	222	84	720	2.1	15.1	23393
March	183261	5912	14530	50	2.9	17.14	94.2%	79	2.9	17.14	96.3%	1.8	0.17	1.00	90.6%	8.73	3.57	21.10	59.1%	26.19	8.90	4.38	0.07	5.0	7.8	7.5	203	156	680	2.2	15.0	19034
April	260268	8676	16284	20	1.9	16.48	90.5%	44	1.9	16.48	95.7%	1.1	0.14	1.21	87.3%	3.49	3.43	29.76	1.7%	27.04	3.84	3.82	0.31	3.9	7.8	7.4	178	164	680	1.7	11.6	21150
May	168066	5421	10287	50	2.3	12.47	95.4%	194	4.9	26.57	97.5%	2.6	0.17	0.92	93.5%	10.30	4.26	23.10	58.6%	50.91	12.30	4.34	0.10	5.0	7.6	7.3	224	160	1080	1.5	16.2	31
June	116548	3885	5990	2.9	2.9	11.27	0.0%	121	4.4	17.09	96.4%	2.5	0.36	1.40	85.6%	11.70	0.30	1.17	97.4%	1.87	15.10	1.14	0.08	10.5	7.5	7.0	251	141	1200	1.5	18.0	8
July	186477	6015	7844	49	1.6	9.62	96.7%	237	3.8	22.86	98.4%	3.0	0.15	0.90	95.0%	11.50	0.15	0.90	98.7%	0.97	28.20	0.64	0.03	10.5	7.2	7.0	244	139	920	1.9	17.5	13
August	203161	6554	9343	50	7.2	47.19	85.6%	170	3.0	19.66	98.2%	3.3	0.20	1.31	93.9%	15.50	0.26	1.70	98.3%	1.68	15.90	0.84	0.05	10.4	7.5	7.2	272	151	920	1.4	12.9	5
September	133437	4448	9600	54	1.2	5.34	97.8%	134	4.2	18.68	96.9%	2.7	0.19	0.85	93.0%	15.00	0.13	0.58	99.1%	2.25	17.40	0.20	0.04	11.3	7.5	7.1	261	133	840	2.1	17.6	11
October	128671	4151	6659	270	2.2	9.13	99.2%	156	3.5	14.53	97.8%	2.8	0.17	0.71	93.9%	22.10	0.37	1.54	98.3%	1.11	47.60	0.97	0.34	9.1	7.4	7.0	240	93	1040	2.0	20.8	13
November	166354	5545	7785	120	3.7	20.52	96.9%	111	4.7	26.06	95.8%	2.0	0.15	0.83	92.5%	12.20	1.68	9.32	86.2%	30.73	17.10	2.27	1.10	7.4	7.6	7.4	261	170	1040	1.5	15.6	4821
December	158227	5104	11485	51	4.2	21.44	91.8%	102	4.7	23.99	95.4%	1.8	0.21	1.07	88.3%	6.37	9.43	48.13	-48.0%	73.28	8.60	7.31	0.69	3.38	7.6	7.4	230	185	920	2.7	24.8	36365
Total	1929239						94.9%				96.9%				91.7%				76.2%										10920		202.7	
Average		5286		81	3.91	19.45	86.2%	140	4.43	21.82	96.5%	2.51	0.21	1.05	91.1%	13.39	3.09	15.5	65.6%	25.6	18.61	3.53	0.24	8.15	7.58	7.21	232	142		1.88		14460
Summer					2.90	15.84	95.8%		3.97	19.90	97.7%		0.21	1.01	93.0%	#####	0.91	4.83	93.3%													
Winter					4.92	23.07	94.1%		4.88	23.75	95.6%		0.22	1.09	90.0%	#####	5.26	26.10	55.3%													



Plant Type: Extended Aeration w/modified activated sludge for denitrification
Design Capacity: 7100 m^3/day
Population Served: 7,147 (Plant & Lagoon)
Compliance Parameters:

Summer - May 1 to October 31

	Conc.	Loading	
$CBOD_5$	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	
$CBOD_5$	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

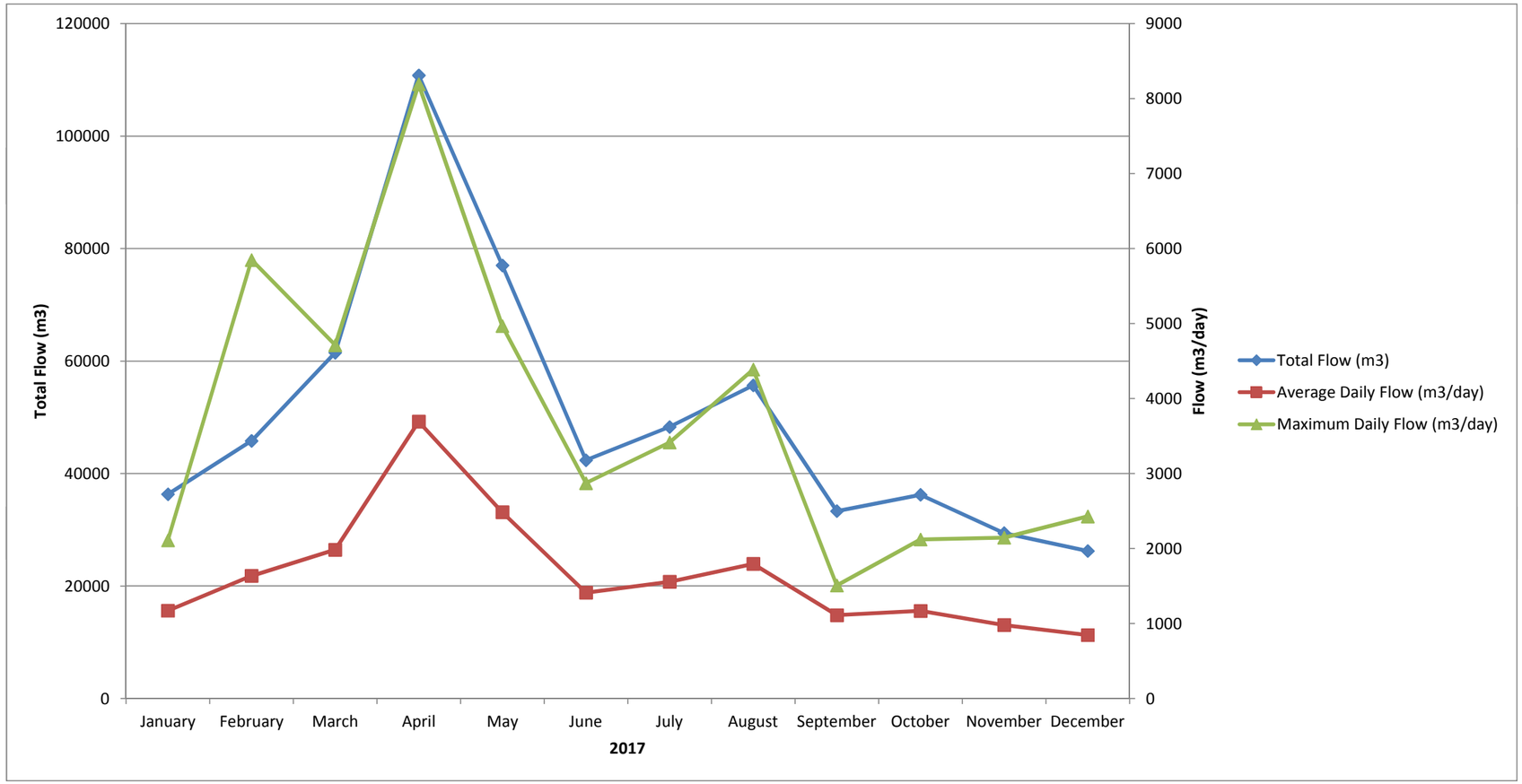
UV Disinfection turned off.

2017 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)	34.7	159.0	61.4	2.8	28.6	16.5	11.2	74.8	62.7	79.4	15.4	50.1	49.7
Nitrate (as N)	0.1	0.3	0.1	0.1	0.1	0.1	0.54	0.1	0.16	0.4	0.1	0.1	0.18
Nitrite (as N)	0.03	0.24	0.03	0.03	0.03	0.03	0.2	0.03	0.03	0.03	0.03	1.30	0.17
Potassium	63.0	117.0	79.0	18.1	51.0	42.0	13.9	51.0	69.0	58.0	39.1	78.0	56.6
TKN	781	1160	1390	139	651	646	75.6	1250	1020	486	554	317	706
Total Phosphorus	147	430	351	44	15	82	15.1	264	440	319	164	200	206
Total Solids	17700	24100	21100	4460	16500	12300	1850	21000	20100	20100	9760	15400	15364
Arsenic	0.0510	0.0960	0.1030	0.0300	0.0680	0.0490	0.01	0.0920	0.0920	0.0450	0.0500	0.0750	0.0634
Cadmium	0.0104	0.0159	0.0155	0.0035	0.0115	0.0079	0.0010	0.0168	0.0212	0.0068	0.0067	0.0148	0.0110
Chromium	0.173	0.304	0.318	0.102	0.213	0.166	0.018	0.273	0.255	0.153	0.140	0.237	0.196
Cobalt	0.077	0.213	0.115	0.039	0.083	0.105	0.027	0.310	0.217	0.165	0.103	0.097	0.129
Copper	4.72	7.52	6.23	1.68	4.07	2.57	0.565	4.49	4.930	2.08	3.54	7.33	4.14
Lead	0.1150	0.2130	0.2210	0.0620	0.1100	0.0960	0.0200	0.1860	0.1730	0.1080	0.1010	0.1980	0.1336
Mercury	0.0118	0.0136	0.0098	0.0054	0.0074	0.0068	0.0010	0.0093	0.0074	0.0014	0.0010	0.0063	0.0068
Molybdenum	0.0400	0.0690	0.0740	0.0100	0.0330	0.0350	0.0100	0.0660	0.0600	0.0270	0.0330	0.0390	0.0413
Nickel	0.63	1.36	1.60	1.06	1.33	0.84	0.14	1.09	1.28	0.59	0.78	1.64	1.03
Selenium	0.0200	0.0450	0.0350	0.0100	0.0320	0.0280	0.0100	0.0460	0.0530	0.0150	0.0220	0.0350	0.0293
Zinc	3.88	5.86	5.74	1.31	3.36	2.60	0.40	5.52	5.74	4.97	2.73	4.74	3.90
Sample Date	Jan.3/17	Feb.7/17	Mar.7/17	Apr.5/17	May 10/17	Jun.7/17	Jul.5/17	Aug.9/17	Sep.6/17	Oct.11/17	Nov.8/17	Dec.6/17	

2017 Coniston Wastewater Treatment Plant Performance

Month	Flows			BOD5				Total Suspended Solids				Total Phosphorus				Total Ammonia				Un-Ionized	TKN	Nitrite	Nitrate	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	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	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	Hauled	%	m^3	Kg	mg/L	CFU/100mL
January	36342	1172	2110	99	3.6	4.22	96.4%	133	7.9	9.26	94.1%	5.4	1.35	1.58	75.0%	28.90	9.24	10.83	68.0%	31.13	10.40	0.03	4.20	7.6	7.3	161	97	280	1.2	3.4	34.6	0.65	2
February	45811	1636	5849	120	2.3	3.76	98.1%	100	10.7	17.51	89.3%	3.5	1.01	1.65	71.1%	23.30	11.90	19.47	48.9%	19.00	12.00	0.03	1.49	7.7	7.1	151	102	240	1.8	4.3	58.3	0.89	2
March	61507	1984	4713	120	17.0	33.73	85.8%	80	16.3	32.34	79.6%	4.0	1.44	2.86	64.0%	17.60	7.69	15.26	56.3%	18.69	7.92	0.03	0.83	7.3	7.2	152	117	160	0.9	1.4	74.6	0.73	42
April	110812	3694	8193	50	8.0	29.55	84.0%	68	15.1	55.78	77.8%	1.8	0.88	3.25	51.1%	5.32	2.25	8.31	57.7%	2.25	3.62	0.23	2.46	7.3	7.2	97	84	N/A	N/A	N/A	104.6	1.00	13300
May	77025	2485	4968	30	26.0	64.60	13.3%	93	25.3	62.86	72.8%	1.0	0.45	1.12	55.0%	3.26	3.11	7.73	4.6%	20.70	6.40	0.03	2.63	7.9	7.4	95	89	40	N/A	N/A	87.3	0.75	106000
June	42374	1412	2873	87	9.0	12.71	89.7%	113	8.8	12.43	92.2%	1.6	0.98	1.38	38.8%	7.48	7.76	10.96	-3.7%	19.32	9.12	0.12	1.49	7.5	6.9	133	121	360	1.9	6.8	56.5	0.61	430
July	48291	1558	3416	79	1.7	2.65	97.8%	114	6.9	10.75	93.9%	2.9	1.29	2.01	55.5%	12.20	0.79	1.23	93.5%	2.47	2.00	0.03	5.05	7.5	7.0	153	91	240	1.4	3.4	85.1	0.51	130
August	55692	1797	4388	130	1.4	2.52	98.9%	113	6.1	10.96	94.6%	4.2	1.22	2.19	71.0%	21.10	0.23	0.41	98.9%	0.70	1.30	0.03	5.17	7.5	7.1	191	84	240	0.8	1.9	106.3	0.59	10
September	33331	1111	1508	150	1.0	1.11	99.3%	189	5.5	6.11	97.1%	5.5	1.22	1.36	77.8%	25.90	0.12	0.13	99.5%	0.47	0.51	0.03	6.93	7.5	7.1	203	76	200	0.9	1.8	76.7	0.56	8
October	36228	1169	2121	110	1.8	2.10	98.4%	216	5.3	6.19	97.5%	4.5	1.28	1.50	71.6%	27.20	0.09	0.11	99.7%	0.53	0.29	0.03	8.80	7.5	7.2	206	60	240	1.0	2.4	73.5	0.59	32
November	29423	981	2146	140	10.0	9.81	92.9%	127	6.7	6.57	94.7%	4.8	1.07	1.05	77.5%	27.70	9.09	8.92	67.2%	7.33	9.83	0.03	1.78	7.3	7.4	214	153	160	1.0	1.6	51.7	0.77	58
December	26233	846	2429	82	10.0	8.46	87.8%	108	13.6	11.51	87.4%	2.0	0.92	0.78	54.0%	8.31	5.65	4.78	32.0%	115.71	6.15	1.25	0.80	7.7	7.6	153	135	200	0.8	1.6	44.2	0.63	15673
Total	603069																											2360		28.6			
Average		1652		100	7.65	14.60	90.2%	121	10.68	20.19	88.9%	3.43	1.09	1.73	66.1%	17.4	4.83	7.34	0.60	19.86	5.80	0.16	3.47	7.53	7.21	159	101		1.17			0.69	133



Plant Type: Extended Aeration
Design Capacity: 3000 m^3/day
Population Served: 2,090

Compliance Parameters:

	Conc.	Loading	
BOD_5	20 mg/L	35 kg/day	*
TSS	20 mg/L	35 kg/day	*
E.coli	200 CFU/100mL	Annual Geomean	

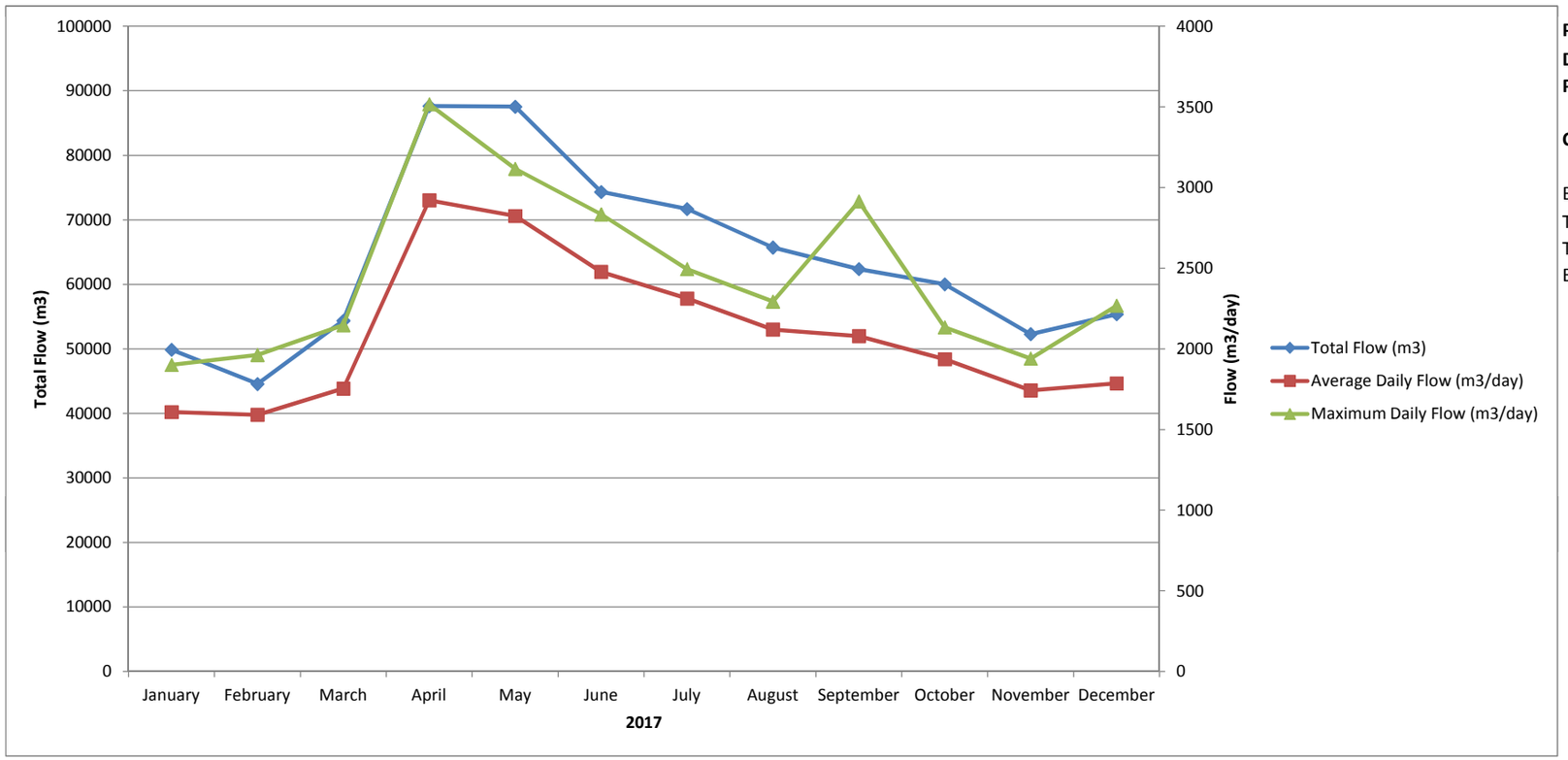
* Average of any 12 consecutive month period.

2017 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)	43.8	61.7	21.4	366		24.2	8.91	16.8	5.9	8.8	13.2	13	53.1
Nitrate (as N)	0.1	0.1	0.1	0.49		0.1	0.14	0.1	0.3	0.1	0.1	0.1	0.16
Nitrite (as N)	0.84	0.55	0.03	7		0.03	0.03	0.04	0.03	0.03	0.03	0.17	0.80
Potassium	75	98	8.9	100		44	34.8	46.1	36	41.3	15.2	7.7	46.1
TKN	1290	766	35.6	621		279	390	743	347	304	38.8	13.6	439
Total Phosphorus	179	253	8.48	156		8.19	96.3	172	122	89.2	16.7	3.14	100.4
Total Solids	15800	18500	750	9990		1110	9990	10300	9130	7280	920	350	7647
Arsenic	0.038	0.03	0.01	0.038		0.022	0.032	0.053	0.041	0.022	0.0028	0.01	0.0272
Cadmium	0.0171	0.0144	0.0010	0.0094		0.0108	0.0171	0.0216	0.0157	0.0100	0.0003	0.0010	0.0108
Chromium	0.1740	0.1630	0.0100	0.1190		0.0990	0.1470	0.2170	0.1900	0.1070	0.0066	0.0100	0.1130
Cobalt	0.1740	0.4030	0.0080	0.3610		0.1430	0.1510	0.2130	0.2390	0.1130	0.0131	0.0237	0.1674
Copper	8.28	5.97	0.195	2.98		2.64	5.02	6.48	4.98	3.96	0.115	0.027	3.695
Lead	0.2320	0.1950	0.0100	0.1260		0.1540	0.2270	0.2790	0.2310	0.1530	0.0043	0.0100	0.1474
Mercury	0.0010	0.0010	0.0010	0.0010		0.0020	0.0028	0.0010	0.0010	0.0010	0.0001	0.0010	0.0012
Molybdenum	0.0590	0.0350	0.0100	0.0100		0.0170	0.0330	0.0370	0.0270	0.0200	0.0012	0.0100	0.0236
Nickel	3.20	3.39	0.28	3.74		2.49	3.27	4.10	3.92	1.73	0.19	0.30	2.42
Selenium	0.0430	0.0430	0.0100	0.0200		0.0330	0.0460	0.0700	0.0490	0.0250	0.0019	0.0100	0.0319
Zinc	5.79	5.72	0.17	2.52		2.74	4.57	5.06	3.96	3.16	0.10	0.04	3.08
Sample Date	Jan.5/17	Feb.13/17	Mar.13/17	Apr.21/17		Jun.6/17	Jul.13/17	Aug.2/17	Sep.8/17	Oct.3/17	Nov.8/17	Dec.6/17	

2017 Dowling Wastewater Treatment Plant Performance

Month	Flows			BOD_5				Total Suspended Solids				Total Phosphorus				Total Ammonia				Un-Ionized	TKN	Nitrite	Nitrate	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	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	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	Hauled	%	m^3	Kg	mg/L	CFU/100mL
January	49861	1608	1901	20	1.5	2.41	92.5%	37	3.5	5.63	90.5%	1.3	0.54	0.87	58.5%	4.30	0.06	0.10	98.6%	0.06	0.86	0.03	6.43	7.1	6.7	67	35	120	1.7	2.0	127.0	0.49	9
February	44557	1591	1962	40	2.7	4.30	93.3%	33	4.3	6.84	87.0%	1.0	0.43	0.68	57.0%	3.50	0.12	0.19	96.6%	0.07	0.20	0.03	3.22	6.5	6.6	64	35	120	1.4	1.7	100.0	0.45	39
March	54375	1754	2147	30	2.5	4.39	91.7%	32	3.5	6.14	89.1%	1.4	0.55	0.96	60.7%	3.50	1.80	3.16	48.6%	1.85	1.80	0.60	2.47	6.7	6.6	70	54	120	1.3	1.6	118.2	0.65	40
April	87633	2921	3517	20	4.9	14.31	75.5%	33	7.1	20.74	78.5%	1.0	0.53	1.55	47.0%	3.14	1.38	4.03	56.1%	0.65	1.90	0.35	3.38	6.5	6.5	63	45	120	2.1	2.5	115.5	0.42	768
May	87534	2824	3116	30	7.4	20.90	75.3%	31	8.6	24.28	72.3%	0.9	0.61	1.72	32.2%	3.23	1.82	5.14	43.7%	1.56	2.51	0.03	2.35	6.6	6.6	55	0.47	80	1.6	1.3	169.0	0.79	15
June	74323	2477	2834	52	7.1	17.59	86.3%	24	6.0	14.86	75.0%	1.3	0.61	1.51	53.1%	5.15	2.94	7.28	42.9%	3.22	3.60	0.16	2.02	6.6	6.7	74	60	80	1.7	1.4	153.3	0.84	12
July	71681	2312	2495	32	3.5	8.09	89.1%	35	6.2	14.34	82.3%	1.5	0.67	1.55	55.3%	3.99	0.96	2.22	75.9%	0.96	2.04	0.07	3.60	6.6	6.6	72	51	80	1.6	1.3	139.0	0.58	6
August	65715	2120	2293	42	4.8	10.18	88.6%	52	3.6	7.63	93.1%	1.2	0.59	1.25	50.8%	3.60	0.57	1.21	84.2%	0.33	0.98	0.03	5.11	6.6	6.5	75	44	200	0.9	1.8	140.5	0.55	5
September	62373	2079	2914	20	5.5	11.44	72.5%	45	6.0	12.47	86.7%	1.5	0.67	1.39	55.3%	3.73	0.82	1.70	78.0%	0.65	1.60	0.03	4.61	6.6	6.7	74	46	120	1.4	1.7	135.0	0.61	5
October	60017	1936	2134	24	4.1	7.94	82.9%	42	4.7	9.10	88.8%	1.1	0.60	1.16	45.9%	3.60	1.77	3.43	50.8%	2.94	2.65	2.09	3.37	7.0	6.8	75	58	160	1.1	1.8	147.9	0.65	10
November	52284	1743	1940	30	4.4	7.67	85.3%	34	6.0	10.46	82.4%	1.5	0.69	1.20	54.0%	3.98	0.41	0.72	89.6%	0.45	1.00	0.03	5.21	6.9	6.7	79	47	120	1.1	1.3	155.3	0.80	3
December	55372	1786	2268	20	4.7	8.40	76.5%	29	4.4	7.86	84.8%	1.5	0.54	0.96	64.0%	3.54	1.60	2.86	54.8%	2.29	2.16	0.39	3.85	6.8	6.8	75	52	120	1.3	1.6	132.4	0.73	30
Total	765725																											1440		19.8			
Average		2098		30	4.43	9.80	84.5%	36	5.33	11.70	84.2%	1.27	0.59	1.24	52.8%	3.77	1.19	2.67	68.3%	1.25	1.78	0.32	3.80	6.71	6.65	70	44		1.43			0.63	79



Plant Type: Extended Aeration
Design Capacity: 3200 m^3/day
Population Served: 1,857

Compliance Parameters:

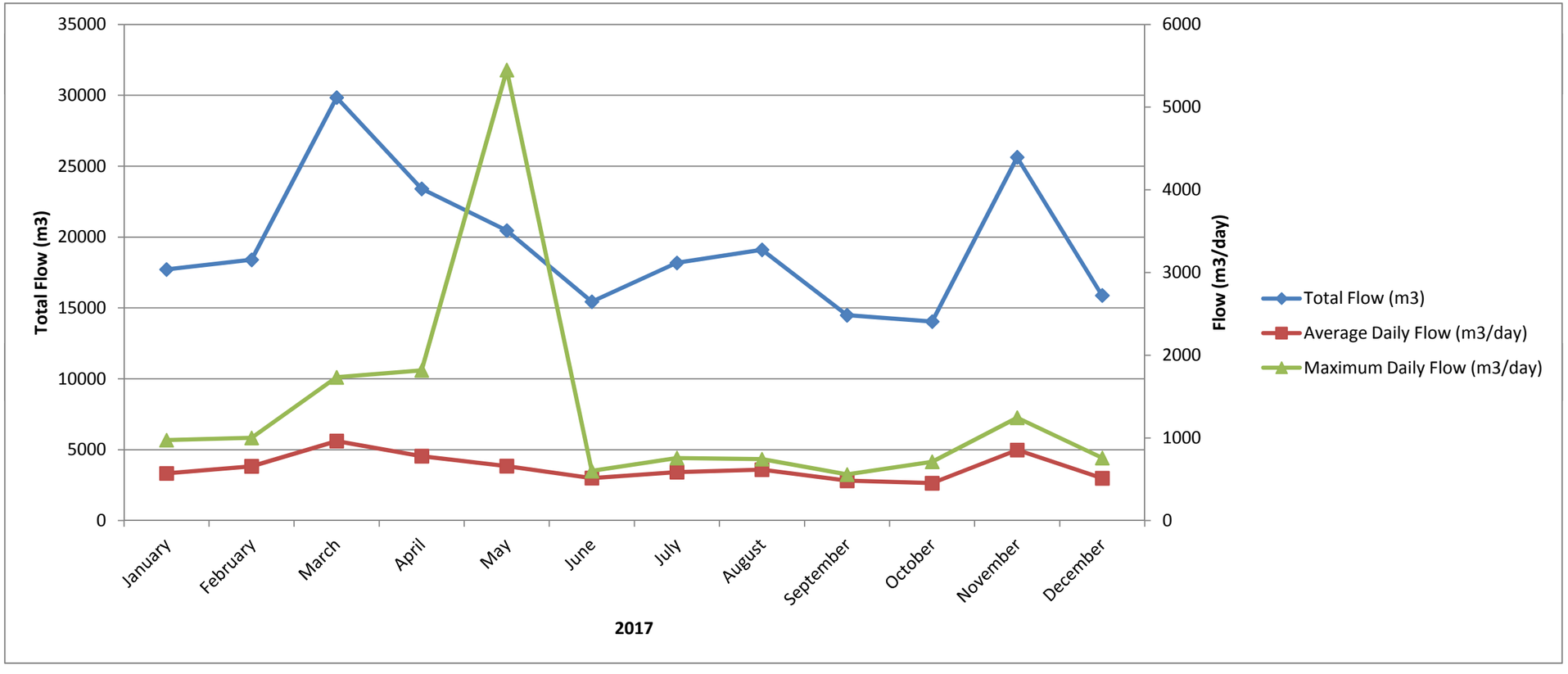
	Conc.	Loading	
BOD_5	25 mg/L	80 kg/day	Annual Average
TSS	25 mg/L	80 kg/day	Annual Average
Total Phosphorus	1.0 mg/L	3.2 kg/day	Annual Average
E.Coli	200 col/100 mL		Monthly Geometric Mean

2017 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)	0.715	232	2.29	2.87	3.07	188	3.59	0.716	0.44	2	0.98	1.97	36.6
Nitrate (as N)	3.53	0.57	0.1	0.75	0.2	0.35	1.48	3.32	2.02	4.84	2.77	1.68	1.80
Nitrite (as N)	0.03	4.87	0.03	0.17	0.03	5.51	0.14	0.16	0.11	0.031	0.569	0.533	1.02
Potassium	16.2	87	7.6	10.5	10	77	12.1	10.7	9.38	10.5	8	13.1	22.67
TKN	267	1050	41.4	102	65.1	1180	119	80.5	136	52.1	64.8	105	271.91
Total Phosphorus	20.4	234	8.36	13.8	18.4	16.8	2.33	14.8	17.4	15.7	13.8	24.2	33.33
Total Solids	2470	18300	740	1580	1860	15800	1720	1300	1460	1360	1200	1590	4115.00
Arsenic	0.01	0.02	0.01	0.01	0.01	0.022	0.01	0.01	0.0021	0.0017	0.0053	0.01	0.01
Cadmium	0.0010	0.0080	0.0010	0.0010	0.0014	0.0102	0.0011	0.0010	0.0008	0.0008	0.0020	0.0014	0.00
Chromium	0.0200	0.2730	0.0100	0.0200	0.0260	0.2940	0.0310	0.0270	0.0215	0.0164	0.0600	0.0400	0.07
Cobalt	0.0030	0.0268	0.0020	0.0030	0.0033	0.0352	0.0044	0.0028	0.0027	0.0021	0.0077	0.0046	0.01
Copper	1.5	13.5	0.584	0.9	1.17	12.3	1.49	1.35	0.991	0.894	2.96	2.79	3.37
Lead	0.0200	0.2040	0.0100	0.0100	0.0720	0.2480	0.0210	0.0140	0.0187	0.0122	0.1380	0.0290	0.07
Mercury	0.0010	0.0035	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0002	0.0001	0.0004	0.0010	0.00
Molybdenum	0.0100	0.0610	0.0100	0.0100	0.0100	0.0690	0.0100	0.0100	0.0046	0.0041	0.0139	0.0100	0.02
Nickel	0.0620	0.6040	0.0300	0.0500	0.0780	0.8600	0.1050	0.0610	0.0599	0.0432	0.1600	0.0985	0.18
Selenium	0.0100	0.0470	0.0100	0.0100	0.0100	0.0660	0.0100	0.0100	0.0047	0.0021	0.0126	0.0150	0.02
Zinc	0.43	4.06	0.22	0.30	0.44	4.64	0.45	0.36	0.29	0.30	0.92	0.61	1.09
Sample Date	Jan.4/17	Jan.31/17	Mar.8/17	Apr.5/17	May 3/17	Jun.8/17	Jul.5/17	Aug.2/17	Sep.6/17	Oct.4/17	Nov.8/17	Dec.6/17	

2017 Falconbridge Wastewater Treatment Plant Performance

Month	Flows			BOD5				Total Suspended Solids				Total Phosphorus				Total Ammonia				Un-Ionized	TKN	Nitrite	Nitrate	pH		E.Coli
	Total	Avg Day	Max Day	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Raw	Effluent	Loading	Plant	Ammonia	Effluent	Effluent	Effluent	Raw	Effluent	Average
	m^3	m^3/d	m^3/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			CFU/100mL
January	17719	572	974	170	0.5	0.29	99.7%	72	2.2	1.26	82.0%	6.7	0.02	0.01	99.7%	44.9	0.26	0.15	99.4%	0.23	0.84	0.03	0.50	7.8	7.1	260
February	18403	657	1001	220	0.8	0.53	99.6%	91	2.1	1.38	89.5%	7.2	0.02	0.01	99.7%	47.5	0.29	0.19	99.4%	0.51	0.30	0.03	0.20	8.0	7.0	122
March	29847	963	1734	150	0.9	0.87	99.4%	99	2.4	2.31	83.7%	8.1	0.03	0.03	99.6%	62.2	0.24	0.23	99.6%	0.43	0.20	0.03	0.58	8.1	7.1	40
April	23405	780	1818	190	1.6	1.25	99.2%	121	2.7	2.11	88.2%	7.6	0.02	0.02	99.7%	50.1	0.06	0.04	99.9%	0.13	0.64	0.03	0.45	8.1	7.2	262
May	20463	660	5450	170	1.7	1.12	99.0%	94	3.1	2.05	80.4%	6.4	0.03	0.02	99.5%	34.7	0.01	0.01	100.0%	0.04	0.50	0.03	0.10	8.1	7.1	4
June	15445	515	601	240	1.1	0.57	99.5%	70	4.1	2.11	75.5%	7.1	0.01	0.01	99.9%	41.5	0.11	0.06	99.7%	0.38	0.20	0.03	0.10	7.6	6.9	12
July	18184	587	757	180	1.0	0.59	99.4%	71	4.8	2.82	62.2%	5.4	0.02	0.01	99.6%	36.2	0.08	0.05	99.8%	0.30	0.55	0.03	0.40	7.4	6.8	30
August	19104	616	744	120	3.0	1.85	97.5%	83	3.2	1.97	67.0%	5.6	0.03	0.02	99.5%	36.9	0.09	0.06	99.8%	0.27	0.44	0.03	0.10	7.2	6.9	52
September	14493	483	558	140	0.6	0.29	99.6%	92	4.0	1.93	68.8%	8.0	0.03	0.01	99.6%	55.3	0.16	0.07	99.7%	0.42	0.20	0.03	0.10	7.4	7.0	230
October	14041	453	712	384	1.6	0.72	99.6%	126	3.9	1.77	91.9%	9.5	0.06	0.03	99.4%	57.0	0.23	0.10	99.6%	0.85	0.40	0.30	1.00	7.6	7.1	2170
November	25635	855	1245	300	1.1	0.94	99.6%	149	2.7	2.31	93.9%	10.3	0.03	0.03	99.7%	59.7	0.01	0.01	100.0%	0.04	0.48	0.03	0.24	7.9	7.2	8
December	15888	513	758	290	1.1	0.56	99.6%	116	2.0	1.03	94.0%	10.0	0.03	0.02	99.7%	67.2	0.48	0.25	99.3%	0.42	0.74	0.42	0.77	7.7	6.9	60
Total	232627																									
Average		637		213	1.25	0.80	99.4%	99	3.10	1.92	86.3%	7.66	0.03	0.02	99.6%	49.43	0.17	0.10	99.7%	0.34	0.46	0.09	0.38	7.74	7.03	271



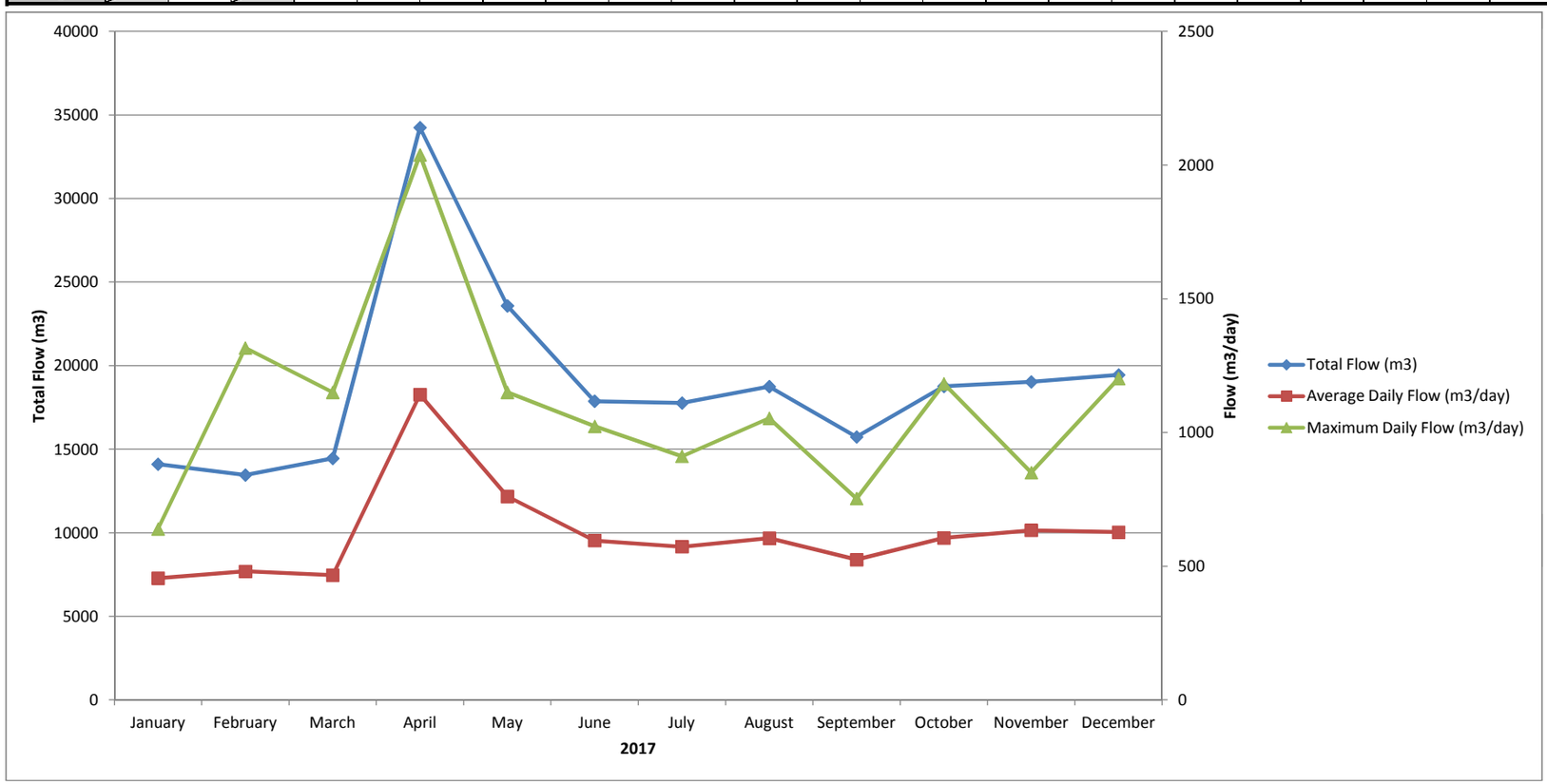
Plant Type: Trickling Filter
Design Capacity: 909 m^3/day
Population Served: 754

Compliance Parameters:

	Conc.	Loading	
BOD_5	15 mg/L	46 kg/day	Annual Avg.
TSS	15 mg/L	46 kg/day	Annual Avg.

2017 Levack Wastewater Treatment Plant Performance

Month	Flows			CBOD5				Total Suspended Solids				Total Phosphorus				Total Ammonia				Un-Ionized	TKN		Nitrite	Nitrate	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 m^3	Conc.	Total	Total	Residual	Geomean
	m^3	m^3/d	m^3/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	%	m^3	Kg	mg/L	CFU/100mL
January	14107	455	639	160	0.5	0.23	99.7%	211	3.8	1.73	98.2%	4.8	0.29	0.13	94.0%	31.60	0.22	0.10	99.3%	0.13	35.0	0.30	0.03	31.0	7.4	6.7	171	23	160	1.7	2.7	41.8	0.74	9
February	13459	481	1316	210	41.9	20.14	80.0%	199	3.9	1.87	98.0%	5.4	0.31	0.15	94.3%	33.60	2.29	1.10	93.2%	2.77	36.5	2.34	0.03	23.2	7.5	6.6	81	42	200	1.7	3.4	15.0	0.69	12
March	14456	466	1150	78	3.1	1.45	96.0%	185	2.7	1.26	98.5%	4.0	0.24	0.11	94.0%	11.60	1.49	0.69	87.2%	1.28	13.3	3.17	0.04	17.2	7.2	6.6	85	47	160	1.9	3.0	25.1	0.67	11
April	34249	1142	2038	30	1.9	2.17	93.7%	86	4.7	5.37	94.5%	2.0	0.32	0.37	84.0%	4.42	1.70	1.94	61.5%	69.21	4.8	2.43	0.03	7.4	7.0	6.9	54	50	80	2.3	1.8	41.4	0.74	2
May	23582	761	1150	74	3.0	2.28	95.9%	154	3.7	2.81	97.6%	2.9	0.36	0.27	87.6%	12.50	1.39	1.06	88.9%	2.76	14.6	1.80	0.03	12.6	7.3	6.9	91	38	200	1.9	3.8	42.8	0.42	294
June	17874	596	1023	140	2.3	1.37	98.4%	203	4.6	2.74	97.7%	3.4	0.40	0.24	88.2%	20.80	0.14	0.08	99.3%	0.25	30.4	0.20	0.03	19.6	7.4	6.6	148	33	400	2.4	9.6	58.7	0.55	7
July	17761	573	911	92	0.5	0.29	99.5%	162	3.8	2.18	97.7%	3.0	0.32	0.18	89.3%	17.00	0.07	0.04	99.6%	0.08	20.2	1.00	0.03	14.5	7.1	6.7	136	36	160	2.4	3.8	69.1	0.65	2
August	18743	605	1053	150	1.9	1.15	98.7%	186	4.0	2.42	97.8%	3.9	0.34	0.21	91.3%	24.90	0.38	0.23	98.5%	0.75	29.9	0.53	0.08	18.0	7.2	6.7	172	48	200	1.5	3.0	50.9	2.80	3
September	15730	524	753	97	0.5	0.26	99.5%	181	6.0	3.15	96.7%	3.4	0.33	0.17	90.3%	20.00	0.43	0.23	97.9%	0.77	23.9	0.90	0.10	15.5	7.1	6.8	157	65	160	2.5	4.0	54.8	0.58	3
October	18770	605	1182	140	1.1	0.67	99.2%	207	4.9	2.97	97.6%	4.1	0.28	0.17	93.2%	26.50	0.22	0.13	99.2%	0.20	32.2	2.03	0.07	20.6	7.2	6.7	179	42	160	1.7	2.7	51.1	0.47	8
November	19027	634	850	170	2.3	1.46	98.6%	135	3.7	2.35	97.3%	2.7	0.32	0.20	88.1%	21.90	1.19	0.75	94.6%	0.38	24.7	0.20	0.03	17.0	7.2	6.7	163	51	160	1.8	2.9	47.0	0.66	6
December	19448	627	1202	79	2.6	1.63	96.7%	130	5.5	3.45	95.8%	3.3	0.35	0.22	89.4%	13.60	4.48	2.81	67.1%	5.52	16.0	4.82	0.69	9.1	7.2	6.9	115	75	160	2.5	4.0	27.7	0.79	5
Total	227206																												2200		44.8			
Average		622		118	5.13	2.76	96.0%	170	4.28	2.69	97.3%	3.58	0.32	0.20	90.4%	19.87	1.17	0.76	93.3%	7.01	23.46	1.64	0.10	17.14	7.23	6.73	129	46		2.03			0.81	30



Plant Type: Extended Aeration
Design Capacity: 2270 m^3/day
Population Served: 2,320

Compliance Parameters:

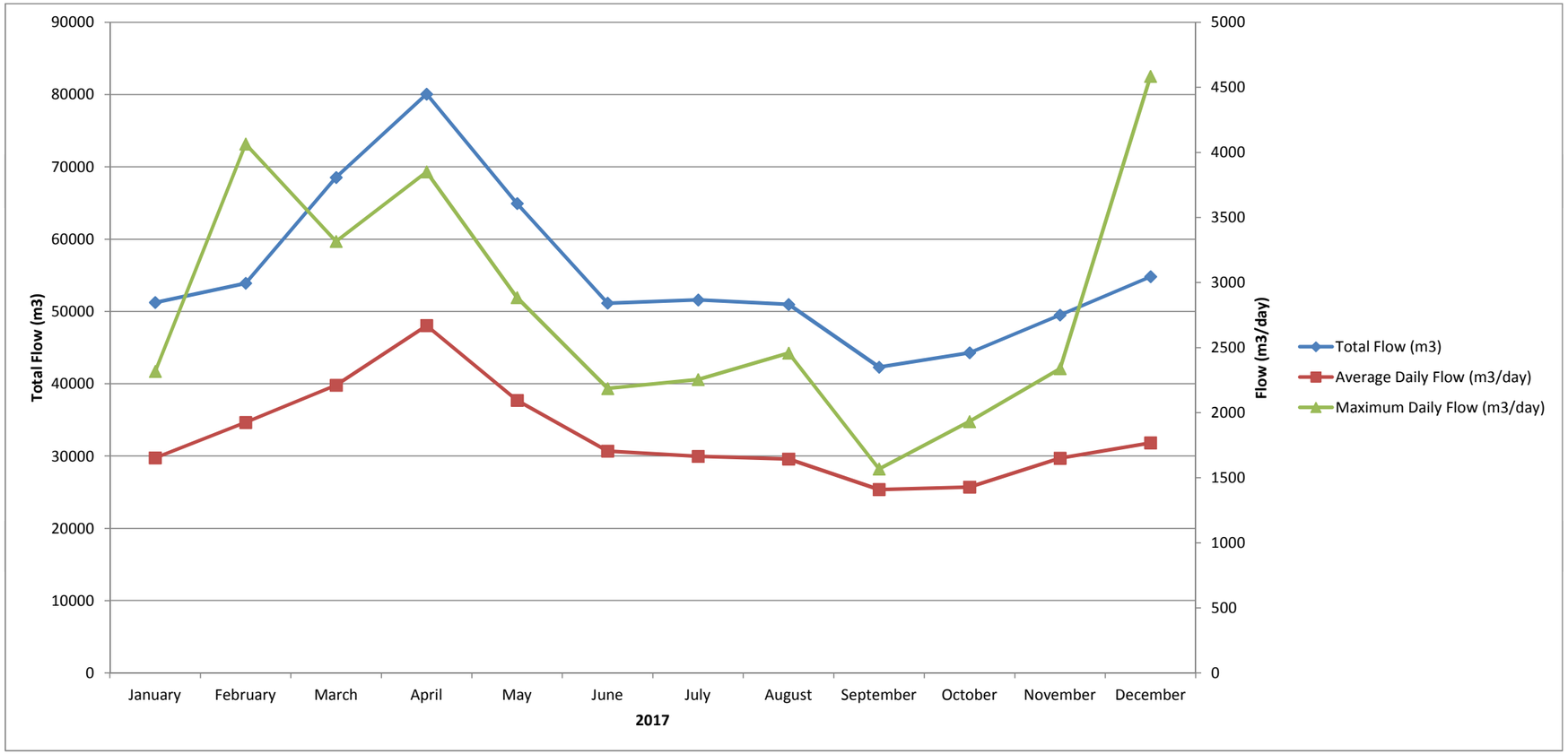
	Conc.	Loading	
$CBOD_5$	25 mg/L	56.75 kg/day	Annual Average
TSS	25 mg/L	56.75 kg/day	Annual Average
Total Phosphorus	1.0 mg/L	3.1 kg/day	Monthly Average
pH	6.0 to 9.5 inclusive, at all times		
E.Coli	200 col/100 mL		Monthly Geometric Mean

2017 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)	35.7	30	64.8	36.5	29.3	91.9	13.7	13.4	87.3	90.4	3.08	101	49.8
Nitrate (as N)	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.25	4.91	0.1	0.53
Nitrite (as N)	0.03	0.25	0.03	0.03	0.03	0.06	0.03	0.03	0.03	0.1	0.807	1.33	0.23
Potassium	51	88	71	66	25	98	25.2	22.3	79	49	18.5	127	60.0
TKN	851	1040	570	557	384	1300	70.8	238	972	487	126	1360	663.0
Total Phosphorus	185	376	412	288	175	209	59.2	9.27	493	516	37.5	520	273.3
Total Solids	16500	21400	16100	15000	7120	20400	5090	4590	25300	22900	2100	21500	14833
Arsenic	0.03	0.038	0.03	0.03	0.017	0.052	0.01	0.01	0.048	0.042	0.0039	0.042	0.0294
Cadmium	0.0136	0.0178	0.0125	0.0122	0.0099	0.0405	0.0013	0.0047	0.0399	0.0302	0.0021	0.0267	0.0176
Chromium	0.2160	0.2460	0.1820	0.2020	0.1350	0.3680	0.0100	0.0670	0.3820	0.3540	0.0300	0.3300	0.2102
Cobalt	0.0756	0.1530	0.0630	0.0708	0.0843	0.3150	0.0147	0.0382	0.2310	0.1760	0.0218	0.2350	0.1232
Copper	8.2	10.7	5.91	5.83	5.19	12.9	0.505	2.54	13.5	12	1.15	15.6	7.84
Lead	0.5070	0.5080	0.3210	0.3410	0.2410	0.7990	0.0340	0.1650	0.9130	1.4700	0.0642	0.7360	0.5083
Mercury	0.0086	0.0161	0.0062	0.0098	0.0010	0.0179	0.0010	0.0013	0.0229	0.0170	0.0008	0.0152	0.0098
Molybdenum	0.0670	0.0620	0.0340	0.0370	0.0190	0.0680	0.0100	0.0160	0.0630	0.0920	0.0135	0.0580	0.0450
Nickel	1.56	1.98	1.41	1.69	1.65	3.45	0.22	0.77	3.72	3.81	0.36	4.18	2.07
Selenium	0.0310	0.0440	0.0200	0.0300	0.0140	0.0580	0.0100	0.0100	0.0590	0.0500	0.0041	0.0550	0.0321
Zinc	5.37	6.41	3.95	4.29	3.21	7.83	0.56	1.84	8.56	8.01	0.78	11.20	5.17
Sample Date	Jan.3/17	Feb.2/17	Mar.7/17	Apr.4/17	May 3/17	Jun.6/17	Jul.5/17	Aug.1/17	Sep.6/17	Oct.4/17	Nov.8/17	Dec.6/17	

2017 Lively Wastewater Treatment Plant Performance

Month	Flows				BOD_5	$CBOD_5$			Total Suspended Solids				Total Phosphorus				Total Ammonia				Un-Ionized	TKN		Nitrite	Nitrate	pH		Alkalinity		Sludge			Chlorine		E.Coli
	Total	Avg Day	Max Day	Diverted	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	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	CFU/100mL
January	51236	1653	2318	5082	200	0.6	0.99	99.8%	119	6.6	10.91	96.0%	3.8	0.44	0.73	91.7%	35.90	4.00	6.61	92.1%	9.60	46.7	4.72	0.03	15.50	7.6	7.0	190	14	160	2.5	4.0	73.8	0.76	5
February	53902	1925	4065	6164	80	3.1	5.97	98.2%	120	6.2	11.94	97.6%	3.3	0.28	0.54	96.0%	22.10	7.57	14.57	83.8%	16.29	22.1	8.05	0.03	13.00	7.6	7.0	131	34	160	2.4	3.8	53.8	0.49	88
March	68545	2211	3316	4505	30	4.0	8.84	91.1%	93	3.5	7.74	97.5%	2.7	0.39	0.86	90.4%	4.59	1.76	3.89	74.4%	3.22	5.0	2.00	0.03	9.05	7.4	7.2	64	35	120	2.5	3.0	79.3	0.65	88
April	80078	2669	3851	10425	50	2.7	7.21	96.3%	94	5.6	14.95	95.9%	1.2	0.25	0.67	85.6%	7.34	5.60	14.95	47.1%	32.33	9.3	6.45	0.03	3.81	7.4	7.2	85	57	120	2.7	3.2	92.3	0.89	15
May	64932	2095	2885	7673	20	2.5	5.24	90.9%	63	5.0	10.47	94.2%	2.2	0.42	0.88	86.1%	8.28	7.68	16.09	32.7%	40.65	9.4	8.52	0.03	2.39	7.1	7.1	100	60	160	2.2	3.5	64.4	0.58	21
June	51149	1705	2186	6728	65	3.0	5.11	96.4%	171	9.1	15.52	95.8%	2.9	0.62	1.06	83.3%	16.20	7.86	13.40	62.2%	29.15	18.4	8.80	2.52	4.01	7.0	7.1	144	103	240	2.7	6.5	64.6	0.68	28
July	51602	1665	2255	8203	27	1.0	1.66	97.3%	124	3.5	5.83	97.9%	3.4	0.36	0.60	92.2%	13.10	0.39	0.65	97.8%	1.49	16.2	0.65	0.03	13.80	7.1	6.9	142	55	80	1.3	1.0	74.8	1.50	4
August	50968	1644	2458	10497	101	0.8	1.32	99.5%	100	3.9	6.41	97.4%	2.6	0.36	0.59	90.7%	16.00	0.22	0.36	99.1%	0.71	20.6	0.63	0.05	16.60	7.2	7.2	125	9	40	3.1	1.2	90.8	1.80	17
September	42295	1410	1568	6458	130	1.6	2.26	98.9%	149	10.7	15.09	93.5%	4.3	0.43	0.61	91.0%	35.20	0.72	1.02	98.2%	1.68	39.8	0.76	0.03	17.20	7.2	6.9	217	4	160	2.1	3.4	134.7	0.59	54
October	44284	1429	1932	4985	140	1.2	1.71	99.4%	106	13.4	19.14	90.7%	3.7	0.54	0.77	89.2%	38.80	3.37	4.81	93.6%	6.64	44.7	3.35	0.06	19.00	7.5	7.0	222	5	120	2.3	2.8	98.6	0.78	39
November	49509	1650	2339	4125	160	7.9	13.04	96.5%	157	14.5	23.93	93.5%	4.0	0.62	1.02	89.1%	37.80	18.20	30.04	66.0%	104.39	44.8	18.20	0.09	1.13	7.3	7.2	267	94	N/A	1.2	N/A	49.3	0.70	20
December	54807	1768	4585	2400	120	4.2	7.43	98.7%	122	12.3	21.75	96.1%	3.3	0.44	0.78	94.9%	28.70	12.10	21.39	83.7%	55.93	36.0	12.30	0.52	1.77	7.5	7.4	175	95	N/A	4.2	N/A	44.2	0.75	44
Total	663307																													1360		32.5			
Average		1817			94	2.72	5.06	96.9%	118	7.86	13.64	95.5%	3.12	0.43	0.76	90.0%	22.00	5.79	10.6	77.5%	25.17	26.08	6.20	0.29	9.77	7.33	7.10	155	47		2.44			0.85	35



Plant Type: Extended Aeration
Design Capacity: 1600 m^3/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

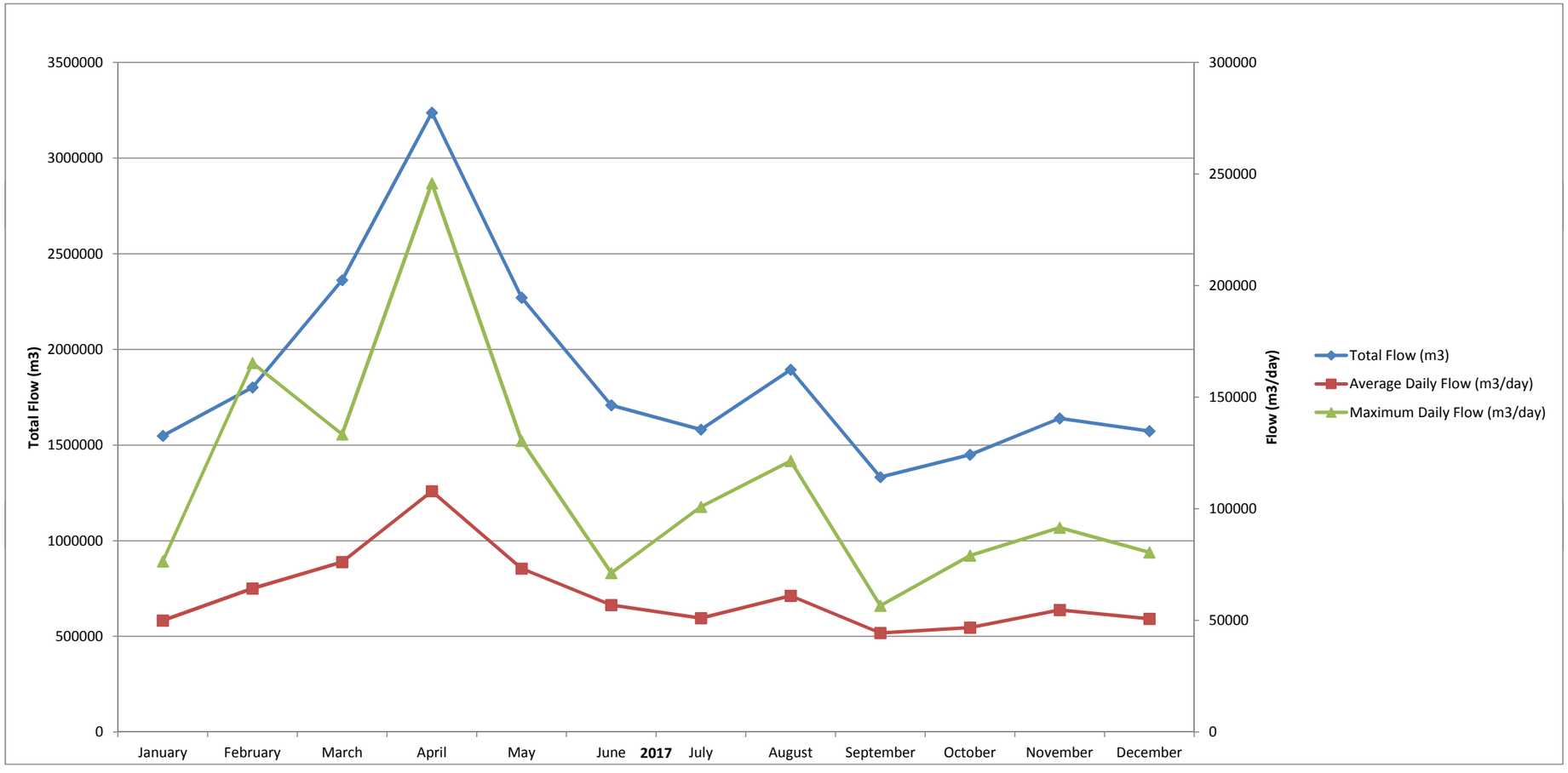
* Annual average of any consecutive 12 month period.

2017 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)	22.6	38.2	57.3	19.2	41.5	35.6	64.2	25.7	111	2.91	45.5	64.7	44.0
Nitrate (as N)	0.1	0.1	0.2	0.1	0.1	0.1	0.16	0.1	0.14	17.7	0.1	0.1	1.58
Nitrite (as N)	0.03	0.03	0.18	0.03	0.48	0.03	0.3	0.03	0.06	1.87	0.327	3.76	0.59
Potassium	113	127	96	56	73	91	78	89	89	14.2	138	293	104.8
TKN	1560	1040	1100	674	1810	1550	1470	1600	1330	49.3	1160	2280	1301.9
Total Phosphorus	210	384	405	16	296	191	460	32.9	546	17.6	444	693	308.0
Total Solids	23100	24400	17900	17900	27600	23600	32100	29800	32900	1470	24500	56600	25989
Arsenic	0.124	0.077	0.107	0.147	0.18	0.12	0.102	0.208	0.227	0.01	0.204	0.158	0.1387
Cadmium	0.0332	0.0258	0.0284	0.0387	0.0672	0.0503	0.0371	0.0551	0.0654	0.0010	0.0644	0.0572	0.0437
Chromium	0.5320	0.3090	0.3910	0.4680	0.7190	0.5080	0.3880	0.8250	0.8690	0.0140	0.8240	0.6190	0.5388
Cobalt	0.1560	0.2950	0.3360	0.5740	0.6680	0.3300	0.2730	0.2950	0.3470	0.0068	0.3580	0.3230	0.3302
Copper	16.2	8.81	9.06	8.93	16.3	11.3	10	21.1	17.3	0.507	24	23.1	13.88
Lead	0.8730	0.4480	0.4790	0.3730	0.5690	0.5410	0.4850	1.0800	1.1400	0.0270	1.0700	0.7840	0.6558
Mercury	0.0291	0.0127	0.0136	0.0122	0.0207	0.0226	0.0346	0.0911	0.0898	0.0010	0.0674	0.0599	0.0379
Molybdenum	0.0930	0.0530	0.0480	0.0380	0.0540	0.0570	0.0550	0.1060	0.1030	0.0100	0.0910	0.0640	0.0643
Nickel	2.68	2.74	3.26	4.86	7.49	3.34	3.55	5.15	4.13	0.11	6.73	7.11	4.26
Selenium	0.1100	0.0670	0.0500	0.0570	0.0950	0.0970	0.0770	0.2000	0.1880	0.0100	0.1700	0.1280	0.1041
Zinc	7.62	5.98	6.26	6.31	12.30	8.10	6.40	11.80	8.93	0.30	16.50	19.60	9.18
Sample Date	Jan.3/17	Feb.9/17	Mar.7/17	Apr.12/17	May 3/17	Jun.7/17	Jul.5/17	Aug.10/17	Sep.7/17	Oct.4/17	Nov.1/17	Dec.6/17	

2017 Sudbury Wastewater Treatment Plant Performance

Month	Flows			CBOD5				Total Suspended Solids				Total Phosphorus				Total Ammonia				Un-Ionized	TKN		Nitrite	Nitrate	pH		Alkalinity		Sludge		Chlorine		Dechlorination		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	Conc.	Total	Residual	Total	Loading	Geomean
	m^3	m^3/d	m^3/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	m^3	%	Kg	mg/L	mg/L	Kg/day	CFU/100mL
January	1548400	49948	76500	160	6.8	339.6	95.8%	195	14.4	719.3	92.6%	4.8	0.74	37.0	84.6%	21.7	0.74	37.0	96.6%	38.03	25.7	16.7	0.08	0.28	7.2	7.0	143	120	N/A	N/A	2406	0.50	0.000	0.00	3
February	1801700	64346	165400	150	5.5	353.9	96.3%	243	9.0	579.1	96.3%	3.8	0.30	19.3	92.1%	20.6	15.97	1027.6	22.5%	25.42	22.8	16.7	0.38	0.42	7.1	6.9	145	116	N/A	N/A	2030	0.57	0.000	0.00	2
March	2362300	76203	133400	61	8.7	663.0	85.7%	153	10.8	823.0	92.9%	2.5	0.63	48.0	74.8%	10.9	11.38	867.2	-4.4%	18.99	12.6	12.1	0.23	0.64	7.1	6.9	120	125	N/A	3.37	2743	0.69	0.000	0.00	19
April	3237800	107927	245900	75	7.4	798.7	90.1%	106	10.0	1079.3	90.6%	2.1	0.55	59.4	73.8%	7.7	8.34	900.1	-8.3%	12.43	13.2	8.9	0.20	0.84	7.1	6.8	125	119	N/A	3.53	3569	0.58	0.000	0.00	14
May	2270800	73252	130500	101	5.7	417.5	94.4%	217	10.5	769.1	95.2%	3.7	0.68	49.8	81.6%	19.0	12.66	927.4	33.4%	28.56	27.7	13.5	0.22	0.42	7.0	6.9	168	133	N/A	3.34	2972	0.65	0.000	0.00	3
June	1708279	56943	71276	125	6.1	347.4	95.1%	156	10.9	620.7	93.0%	3.2	0.35	19.9	89.1%	23.7	15.03	855.8	36.6%	43.77	40.5	15.3	0.39	0.37	7.1	7.0	188	137	N/A	3.06	2440	0.63	0.000	0.00	2
July	1581575	51019	100900	123	5.0	255.1	95.9%	162	7.0	357.1	95.7%	2.8	0.21	10.7	92.5%	15.5	11.68	595.9	24.6%	36.90	23.1	13.0	1.18	0.43	7.0	6.9	171	136	N/A	3.82	2552	0.57	0.000	0.00	9
August	1894107	61100	121500	110	5.4	329.9	95.1%	159	6.7	409.4	95.8%	3.1	0.41	25.1	86.8%	19.0	7.95	485.7	58.2%	23.57	26.2	8.9	1.50	0.95	7.0	6.9	192	132	N/A	3.29	3103	0.60	0.000	0.00	10
September	1332400	44413	56600	130	7.6	337.5	94.2%	487	7.3	324.2	98.5%	3.7	0.58	25.8	84.3%	16.6	5.97	265.1	64.0%	14.32	20.8	6.5	2.35	3.42	6.9	6.7	163	91	N/A	3.43	2982	0.76	0.000	0.00	13
October	1450000	46774	79100	135	6.4	299.4	95.3%	448	7.8	364.8	98.3%	3.3	0.46	21.5	86.1%	22.2	10.39	486.0	53.2%	19.39	30.1	11.0	2.09	1.46	6.8	6.7	187	108	N/A	4.52	2172	0.73	0.000	0.00	9
November	1640000	54667	91600	140	19.0	1038.7	86.4%	250	34.3	1875.1	86.3%	3.5	0.68	37.2	80.6%	15.8	12.35	675.1	21.8%	22.97	20.7	13.9	1.07	0.62	7.0	6.8	172	142	N/A	3.39	2920	0.70	0.000	0.00	21
December	1573200	50748	80500	132	19.6	994.7	85.2%	342	24.9	1263.6	92.7%	3.2	0.72	36.5	77.5%	19.0	16.83	854.1	11.4%	21.92	25.6	18.3	0.23	0.57	6.9	6.7	166	145	N/A	3.28	2758	0.75	0.000	0.00	46
Total	22400561																																		
Average		61371		120	8.60	514.61	92.7%	243	12.80	765.39	94.0%	3.31	0.53	32.51	83.5%	17.64	10.77	664.76	0.34	25.52	24.08	12.89	0.83	0.87	7	7		125.33		3.50	2721	0.64	0.00	0.00	13



Plant Type: High Rate
Design Capacity: 79625 m^3/day
Population Served: 84609

Compliance Parameters:

	Conc.	Loading	
$CBOD_5$	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 Avera

2017 Sudbury Wastewater Treatment Plant Waste Sludge Analysis

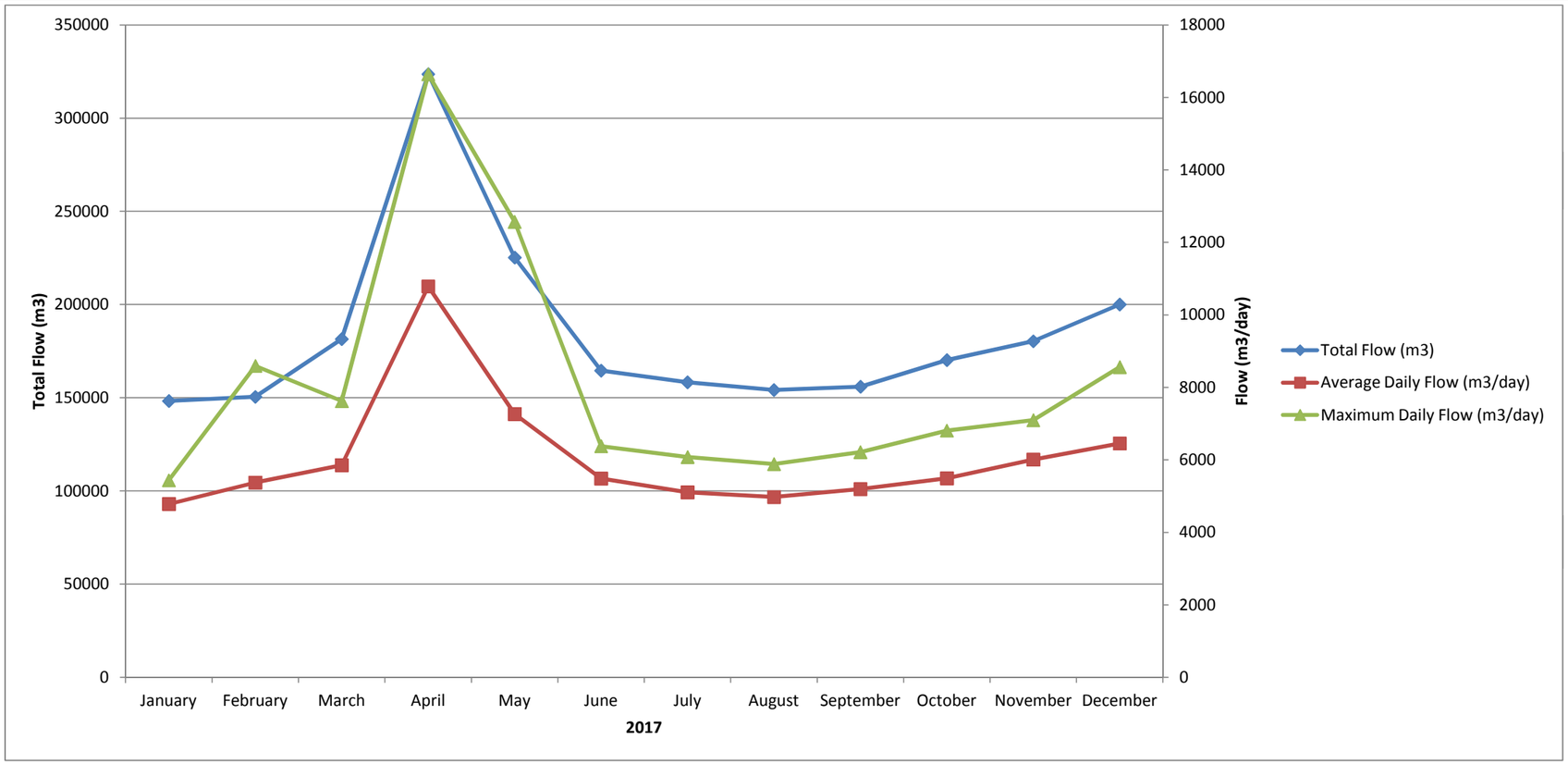
Parameter (mg/L)	January	February	March	April	May	June	July	August	September	October	November	December	Average
Ammonia (as N)	380	136	409	331	344	317	283	365	440	284	408	416	342.8
Nitrate (as N)	0.87	0.47	1	1	0.48	0.64	0.65	0.1	0.79	1	1.3	0.1	0.70
Nitrite (as N)	5.65	1.56	6.93	8.12	6.71	7.93	3.57	0.24	4.43	7.46	13.1	1.58	5.61
Potassium	105	84	128	149	124	122	95	130	140	113	106	92	115.7
TKN	1390	1280	1630	1840	1780	2090	1940	1260	1830	1740	2110	1070	1663
Total Phosphorus	211	437	858	685	489	215	467	601	833	608	731	395	544
Total Solids	25500	23600	28900	34800	31100	29200	27600	29700	35200	30100	30600	20500	28900
Arsenic	0.102	0.11	0.184	0.21	0.129	0.147	0.189	0.27	0.302	0.182	0.222	0.111	0.1798
Cadmium	0.0220	0.0265	0.0357	0.0497	0.0432	0.0387	0.0429	0.0472	0.0834	0.0498	0.0446	0.0332	0.0431
Chromium	0.2500	0.3250	0.4510	0.6070	0.4200	0.3500	0.4200	0.5230	0.5800	0.4010	0.4830	0.2870	0.4248
Cobalt	0.1900	0.1970	0.2900	0.3510	0.2330	0.5940	0.3810	0.5480	0.6840	0.3470	0.3870	0.1860	0.3657
Copper	10.6	9.26	11.6	16.5	16.5	12.2	16.1	19.9	21.7	15.5	18.4	7.38	14.64
Lead	0.4430	0.4850	0.6020	0.7540	0.5730	0.5820	0.7810	0.9120	0.9400	0.7960	0.8980	0.4530	0.6849
Mercury	0.0041	0.0103	0.0054	0.0099	0.0010	0.0151	0.0131	0.0082	0.0155	0.0188	0.0095	0.0045	0.0096
Molybdenum	0.0680	0.0680	0.0800	0.0980	0.0890	0.0840	0.1010	0.1120	0.1260	0.1340	0.1160	0.0760	0.0960
Nickel	4.25	3.34	4.89	6.43	5.10	16.10	6.30	7.20	10.30	4.71	6.36	2.33	6.44
Selenium	0.0580	0.0590	0.0790	0.0990	0.0800	0.1150	0.0900	0.1220	0.1280	0.0860	0.1040	0.0730	0.0911
Zinc	7.10	7.01	7.73	11.60	10.80	7.37	15.40	15.80	14.20	12.30	13.30	6.13	10.73
Sample Date	Jan.3/17	Jan.30/17	Mar.8/17	Apr.3/17	May 1/17	Jun.5/17	Jul.5/17	Jul.31/17	Sep.5/17	Oct.2/17	Nov.6/14	Dec.4/17	

2017 Sudbury Wastewater Treatment Plant - Raw & Effluent Metals Analysis

Parameter (mg/L)	Location	January	February	March	April	May	June	July	August	September	October	November	December	Average
Arsenic	Raw	0.0030	0.0020	0.0020	0.0020	0.0024	0.0022	0.0010	0.0024	0.0015	0.0016	0.0014	0.0013	0.0019
	Effluent	0.0020	0.0020	0.0020	0.0020	0.0016	0.0011	0.0010	0.0026	0.0015	0.0010	0.0017	0.0012	0.0016
Cadmium	Raw	0.0001	0.0001	0.0002	0.0002	0.0002	0.0001	0.0001	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
	Effluent	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Chromium	Raw	0.0030	0.0020	0.0020	0.0010	0.0014	0.0016	0.0010	0.0018	0.0014	0.0032	0.0010	0.0010	0.0017
	Effluent	0.0020	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0014	0.0010	0.0010	0.0011
Cobalt	Raw	0.0018	0.0022	0.0032	0.0040	0.0030	0.0025	0.0021	0.0021	0.0023	0.0025	0.0017	0.0021	0.0025
	Effluent	0.0016	0.0026	0.0034	0.0025	0.0027	0.0022	0.0024	0.0012	0.0016	0.0016	0.0018	0.0017	0.0021
Copper	Raw	0.0327	0.0284	0.0379	0.0454	0.0574	0.0516	0.0134	0.0350	0.0312	0.0299	0.0067	0.0141	0.0320
	Effluent	0.0117	0.0075	0.0208	0.0150	0.0188	0.0099	0.0070	0.0128	0.0113	0.0091	0.0170	0.0136	0.0129
Lead	Raw	0.0019	0.0013	0.0046	0.0013	0.0021	0.0017	0.0016	0.0025	0.0028	0.0004	0.0006	0.0006	0.0018
	Effluent	0.0002	0.0003	0.0007	0.0003	0.0005	0.0003	0.0004	0.0003	0.0002	0.0001	0.0010	0.0004	0.0004
Mercury	Raw	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	Effluent	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Molybdenum	Raw	0.0020	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0037	0.0010	0.0013
	Effluent	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0012	0.0010	0.0010	0.0010	0.0023	0.0010	0.0011
Nickel	Raw	0.0478	0.0528	0.0714	0.0926	0.0735	0.0690	0.0478	0.0500	0.0552	0.0349	0.0335	0.0395	0.0557
	Effluent	0.0347	0.0522	0.0549	0.0835	0.0608	0.0531	0.0509	0.0476	0.0447	0.0367	0.0348	0.0397	0.0495
Selenium	Raw	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0023	0.0010	0.0010	0.0012	0.0010	0.0011
	Effluent	0.0010	0.0010	0.0010	0.0010	0.0010	0.0012	0.0010	0.0010	0.0013	0.0012	0.0011	0.0010	0.0011
Zinc	Raw	0.0692	0.0571	0.0685	0.0427	0.0609	0.0529	0.0538	0.0814	0.0901	0.0108	0.0209	0.0453	0.0545
	Effluent	0.0281	0.0283	0.0262	0.0262	0.0290	0.0208	0.0247	0.0234	0.0242	0.0216	0.0265	0.0256	0.0254

2017 Valley East Wastewater Treatment Plant Performance

Month	Flows			CBOD5				Total Suspended Solids				Total Phosphorus				Total Ammonia				Un-Ionized	TKN		Nitrite	Nitrate	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 m^3	Conc.	Total	Total	Residual	Geomean
	m^3	m^3/d	m^3/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	%	m^3	Kg	mg/L	CFU/100mL
January	148266	4783	5437	120	2.3	11.00	98.1%	138	5.0	23.91	96.4%	3.3	0.55	2.63	83.3%	34.90	2.62	12.53	92.5%	27.0	38.9	3.1	0.03	20.50	7.4	7.3	188	23	1040	1.9	19.8	342.5	0.76	76
February	150490	5375	8595	120	5.4	29.02	95.5%	209	4.9	26.34	97.7%	1.9	0.35	1.88	81.6%	32.40	23.60	126.84	27.2%	433.5	34.4	25.3	0.18	7.57	7.4	7.6	210	106	N/A	2.8	N/A	132.9	0.60	15
March	181475	5854	7624	37	6.5	38.05	82.4%	78	6.9	40.39	91.2%	3.8	0.51	2.99	86.6%	22.20	23.20	135.81	-4.5%	471.2	23.6	25.4	0.42	2.23	7.5	7.7	159	151	N/A	3.0	N/A	167.5	0.52	17
April	323627	10788	16640	66	7.7	83.06	88.3%	109	10.4	112.19	90.5%	2.1	0.50	5.39	76.2%	6.90	10.70	115.43	-55.1%	90.4	7.0	11.1	1.90	2.91	7.7	7.6	123	114	N/A	3.8	N/A	248.6	0.55	96
May	225243	7266	12569	60	6.8	49.41	88.7%	96	7.0	50.86	92.7%	1.9	0.46	3.34	75.8%	11.40	17.60	127.88	-54.4%	221.2	11.9	18.7	0.50	2.60	7.5	7.6	146	127	N/A	2.3	N/A	298.9	0.75	9
June	164570	5486	6379	160	5.3	29.07	96.7%	168	5.8	31.82	96.5%	1.9	0.53	2.91	72.1%	28.80	17.80	97.64	38.2%	301.8	32.5	23.0	0.90	2.90	7.7	7.7	209	150	N/A	2.9	N/A	165.0	0.70	13
July	158295	5106	6080	89	3.4	17.36	96.2%	136	3.8	19.40	97.2%	2.2	0.54	2.76	75.5%	20.10	17.00	86.81	15.4%	79.4	26.3	17.7	0.90	4.90	7.5	7.2	194	137	N/A	2.5	N/A	150.2	0.53	73
August	154209	4974	5885	120	4.7	23.38	96.1%	107	5.2	25.87	95.1%	1.5	0.58	2.89	61.3%	23.10	8.20	40.79	64.5%	9.9	28.7	9.2	0.76	13.20	7.3	6.6	203	65	N/A	2.7	N/A	307.6	0.71	15
September	155915	5197	6215	150	3.9	20.27	97.4%	133	4.2	21.83	96.8%	3.6	0.53	2.75	85.3%	25.60	15.20	79.00	40.6%	7.9	33.3	7.9	0.90	13.30	7.2	6.8	221	124	N/A	2.2	N/A	235.2	0.63	35
October	170264	5492	6809	82	4.8	26.36	94.1%	93	4.6	25.26	95.1%	2.6	0.53	2.91	79.6%	30.80	6.78	37.24	78.0%	28.6	32.2	7.1	2.21	13.90	7.4	6.7	217	113	N/A	2.2	N/A	241.8	0.55	33
November	180323	6011	7097	120	5.5	33.06	95.4%	144	5.4	32.46	96.3%	2.8	0.44	2.64	84.3%	26.80	17.20	103.39	35.8%	106.0	35.5	18.0	2.00	6.16	7.4	7.2	228	145	N/A	1.7	N/A	245.9	0.74	15
December	200093	6455	8561	38	9.8	63.26	74.2%	290	11.5	74.23	96.0%	1.1	0.57	3.68	48.2%	15.70	23.38	150.91	-48.9%	153.7	17.6	24.0	0.82	3.81	7.5	7.3	188	160	N/A	1.9	N/A	239.7	0.69	51
Total	2212770																												1040		19.8			
Average		6062		97	5.51	35.28	91.9%	142	6.23	40.38	95.1%	2.39	0.51	3.06	75.8%	23.23	15.27	92.9	0.2	160.88	26.83	15.88	0.96	7.83	7.46	7.28	191	118		2.49		231.32	0.64	37



Plant Type: Extended Aeration
Design Capacity: 11,400 m^3/day
Population Served: 17,365

Compliance Parameters:

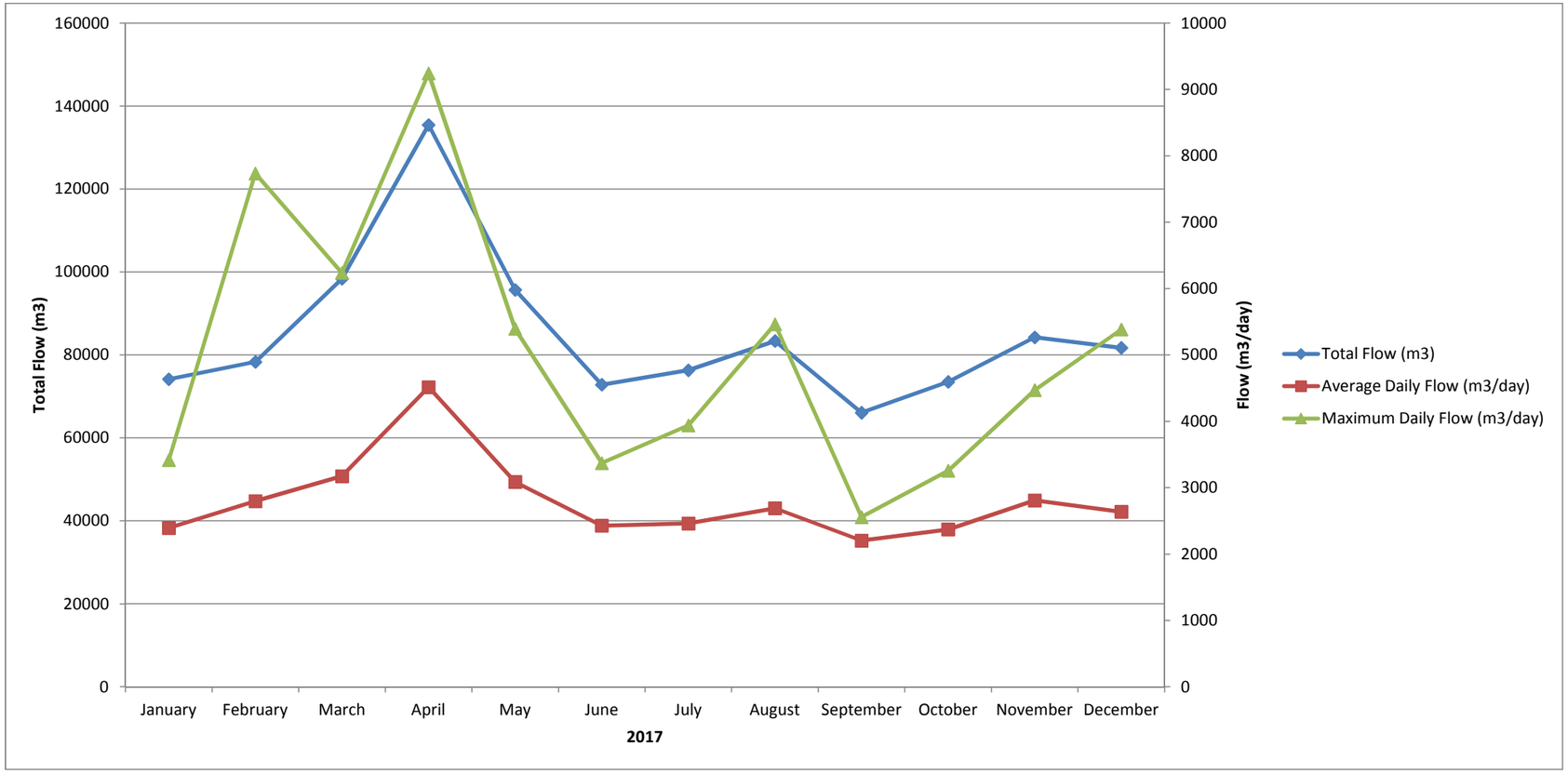
	Conc.	Loading	
$CBOD_5$	25 mg/L	284 kg/day	Annual Average
TSS	25 mg/L	284 kg/day	Annual Average
Total Phosphorus	1.0 mg/L	11.4 kg/day	Monthly Average
pH	6.0 to 9.5 inclusive, at all times		
E.Coli	200 col/100 mL		Monthly Geometric Mean

2017 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)	114	42.6	136	55.1	64.2	207	64.9	62.8	104	77.2	174	97.9	100.0
Nitrate (as N)	0.2	0.1	0.1	0.1	0.1	0.48	0.1	0.1	0.1	0.1	0.1	0.1	0.14
Nitrite (as N)	0.03	0.03	0.2	1.18	0.06	4.28	3.99	2.37	4.77	6.66	5.08	1.41	2.51
Potassium	56	50	84	47	90	61	70	58	55	31	107	101	67.5
TKN	1110	169	1220	464	1390	1330	1190	630	1100	265	1540	1400	984.0
Total Phosphorus	632	43.8	505	256	542	837	280	262	281	345	738	485	433.9
Total Solids	21000	32600	21800	55300	20100	38600	48100	41200	34600	37800	26100	23500	33392
Arsenic	0.084	0.045	0.089	0.09	0.106	0.115	0.078	0.09	0.069	0.077	0.029	0.097	0.0808
Cadmium	0.0187	0.0110	0.0202	0.0235	0.0309	0.0387	0.0220	0.0237	0.0212	0.0203	0.0065	0.0176	0.0212
Chromium	0.2750	0.2130	0.2690	0.5360	0.3670	0.4420	0.3840	0.4660	0.3070	0.3150	0.0710	0.3380	0.3319
Cobalt	0.0774	0.0581	0.0808	0.1540	0.0758	0.1590	0.1110	0.1120	0.0795	0.0959	0.0620	0.1080	0.0978
Copper	11.5	5.27	8.14	10.4	8.53	9.66	8.78	7.7	6.19	9.56	3.05	12.7	8.46
Lead	0.2180	0.2270	0.1750	0.5240	0.1600	0.3340	0.3540	0.3450	0.2850	0.2600	0.0760	0.2460	0.2670
Mercury	0.0010	0.0074	0.0020	0.0928	0.0010	0.0139	0.0208	0.0227	0.0167	0.0199	0.0010	0.0094	0.0174
Molybdenum	0.0880	0.0300	0.0500	0.0670	0.0450	0.0750	0.0690	0.0760	0.0550	0.0770	0.0100	0.0560	0.0582
Nickel	0.373	0.59	0.45	2.56	0.76	1.16	1.75	1.67	0.91	1.23	0.25	0.85	1.05
Selenium	0.0530	0.0300	0.0380	0.0480	0.0440	0.0650	0.0520	0.0680	0.0440	0.0510	0.0100	0.0530	0.0463
Zinc	6.20	8.25	5.51	13.30	7.02	10.70	11.70	11.90	8.05	11.90	5.11	8.99	9.05
Sample Date	Jan.4/17	Feb.15/17	Mar.8/17	Apr.5/17	May 3/17	Jun.14/17	Jul.5/17	Aug.9/17	Sep.6/17	Oct.4/17	Nov.15/17	Dec.6/17	

2017 Walden Wastewater Treatment Plant Performance

Month	Flows			BOD_5	$CBOD_5$			Total Suspended Solids				Total Phosphorus				Total Ammonia				Un-Ionized	TKN		Nitrite	Nitrate	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 m^3	Conc.	Total	Total	Residual	Geomean
	m^3	m^3/d	m^3/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	%	m^3	Kg	mg/L	CFU/100mL
January	74159	2392	3416	407	2.8	6.70	99.3%	325	14.2	33.97	95.6%	4.9	0.51	1.22	89.6%	21.90	15.30	36.60	30.1%	29.16	35.90	15.60	0.03	7.09	7.6	6.9	132	82	160	1.6	2.6	203.0	0.71	33
February	78336	2798	7734	384	2.0	5.60	99.5%	443	10.6	29.66	97.6%	5.5	0.26	0.73	95.3%	20.50	6.11	17.09	70.2%	3.49	46.10	6.18	0.03	15.20	7.1	6.7	133	43	280	1.1	3.1	135.0	0.74	48
March	98380	3174	6237	83	2.5	7.93	97.0%	170	4.4	13.96	97.4%	2.6	0.34	1.08	86.9%	5.99	2.29	7.27	61.8%	1.31	9.07	2.60	0.03	9.74	7.2	6.9	83	52	440	1.0	4.4	135.0	0.63	17
April	135442	4515	9243	89	11.0	49.66	87.6%	123	9.5	42.89	92.3%	1.9	0.43	1.94	77.4%	6.90	5.47	24.70	20.7%	13.87	9.85	5.72	0.03	4.10	7.2	7.1	97	71	320	1.3	4.2	190.9	0.75	66
May	95685	3087	5394	94	3.2	9.88	96.6%	314	5.1	15.74	98.4%	3.6	0.52	1.61	85.6%	9.88	1.88	5.80	81.0%	4.03	16.20	2.67	0.03	7.18	7.0	7.0	113	61	520	2.0	10.4	177.8	0.57	11
June	72843	2428	3371	130	1.9	4.61	98.5%	234	8.1	19.67	96.5%	3.4	0.47	1.14	86.2%	16.90	0.04	0.10	99.8%	0.18	23.60	0.20	0.03	17.90	7.0	7.0	166	43	520	1.5	7.8	198.8	0.60	12
July	76310	2462	3939	24	1.3	3.20	94.6%	132	8.1	19.94	93.9%	2.9	0.40	0.98	86.2%	14.90	0.03	0.07	99.8%	0.08	16.60	0.20	0.03	15.00	7.1	6.9	174	37	480	1.9	9.1	153.6	0.57	5
August	83376	2690	5463	57	0.9	2.42	98.4%	136	8.8	23.67	93.5%	2.4	0.33	0.89	86.3%	21.00	11.65	31.33	44.5%	47.81	21.70	15.79	0.11	7.45	7.1	7.0	182	109	160	1.9	3.0	113.8	0.97	11
September	66075	2203	2557	200	0.5	1.10	99.8%	124	6.4	14.10	94.8%	2.8	0.28	0.62	90.0%	21.50	9.37	20.64	56.4%	27.39	24.30	9.37	0.16	7.03	7.2	6.9	182	102	400	2.1	8.4	111.2	0.46	42
October	73520	2372	3257	92	1.4	3.32	98.5%	152	9.2	21.82	93.9%	2.5	0.44	1.04	82.4%	22.50	0.13	0.31	99.4%	0.17	24.90	0.97	0.11	19.70	7.4	6.9	185	11	520	2.9	15.1	164.5	0.48	24
November	84231	2808	4470	99	5.1	14.32	94.8%	130	9.4	26.39	92.8%	2.6	0.48	1.35	81.5%	18.60	5.87	16.48	68.4%	32.16	17.50	6.17	0.66	12.00	7.3	7.2	185	81	N/A	1.7	N/A	164.9	0.47	8
December	81732	2637	5383	110	20.0	52.73	81.8%	269	9.2	24.26	96.6%	2.7	0.37	0.98	86.3%	8.52	1.50	3.95	82.4%	5.14	19.40	2.45	0.48	7.99	7.4	7	113	54	N/A	2.8	N/A	158.5	0.77	9
Total	1020089																												3800		68.0			
Average		2795		147	4.38	13.46	95.5%	213	8.58	23.84	95.3%	3.15	0.40	1.13	86.1%	15.76	4.97	13.7	67.9%	13.73	22.09	5.66	0.14	10.87	7.22	6.96	145	62		1.82			0.64	24



Plant Type: Extended Aeration
Design Capacity: 4500 m^3/day
Population Served: 3,313

Compliance Parameters:

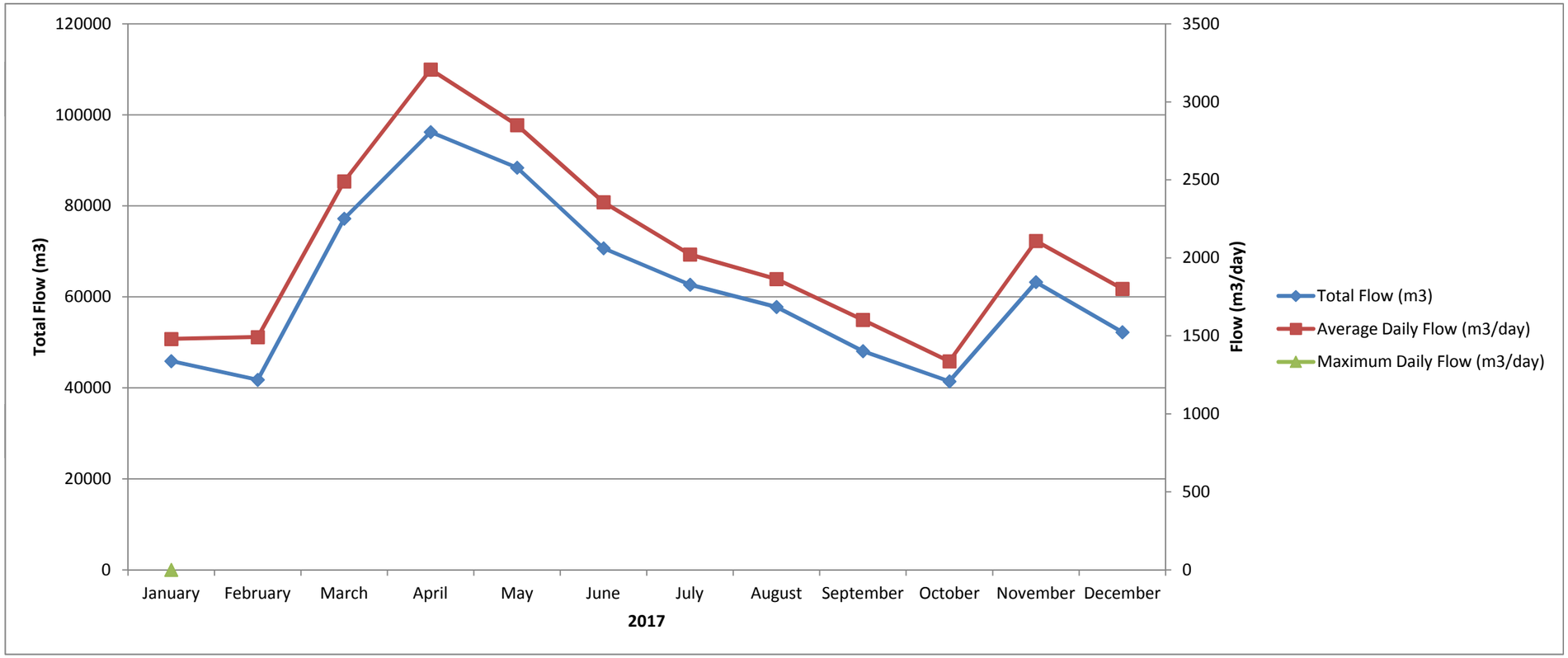
	Conc.	Loading	
$CBOD_5$	25 mg/L	112.5 kg/day	Annual Average
TSS	25 mg/L	112.5 kg/day	Annual Average
Total Phosphorus	1.0 mg/L	4.5 kg/day	Monthly Average
E.Coli	200 col/100 mL		Monthly Geometric Mean

2017 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)	68.3	71.9	38.6	33.4	24.8	101	65.9	28.4	91.9	56.9	62.6	66.7	59.2
Nitrate (as N)	0.1	0.1	0.1	0.1	0.1	0.1	0.16	0.1	0.18	0.21	0.1	0.1	0.12
Nitrite (as N)	0.03	0.17	0.11	0.18	0.03	0.08	0.65	0.03	0.05	0.13	0.25	1.47	0.27
Potassium	62	108	40.9	44	51	94	111	43.9	63	57	64	121	71.7
TKN	577	1640	304	204	444	1540	1900	848	1120	1220	564	1540	991.8
Total Phosphorus	160	432	133	111	101	187	453	219	343	486	380	513	293.2
Total Solids	17300	24200	7600	13800	12600	21300	29200	11800	19000	24100	16800	25700	18617
Arsenic	0.075	0.118	0.055	0.088	0.072	0.123	0.169	0.082	0.117	0.041	0.103	0.206	0.1041
Cadmium	0.0349	0.0549	0.0203	0.0373	0.0248	0.0617	0.1090	0.0367	0.0509	0.0215	0.0448	0.0774	0.0479
Chromium	0.2400	0.4080	0.1510	0.3010	0.2470	0.4660	0.5170	0.2190	0.3920	0.1280	0.3320	0.5960	0.3331
Cobalt	0.4300	0.5280	0.2410	0.5330	0.2940	0.4590	0.7360	0.6240	0.7510	0.2050	0.8160	1.8800	0.6248
Copper	7.42	9.81	3.61	5.75	6.58	10.6	15.9	5.84	8.94	3.02	9.78	19.7	8.91
Lead	2.9100	2.7000	0.7950	1.4700	1.0700	1.8900	2.1800	0.6710	0.9690	0.3540	1.6700	2.5200	1.5999
Mercury	0.0010	0.0037	0.0010	0.0010	0.0010	0.0046	0.0103	0.0010	0.0038	0.0010	0.0023	0.0075	0.0032
Molybdenum	0.0660	0.1110	0.0410	0.0670	0.0570	0.1240	0.1910	0.0980	0.1010	0.0500	0.0950	0.1860	0.0989
Nickel	3.26	3.78	2.16	3.17	3.25	3.87	6.34	3.67	4.57	1.53	4.21	8.33	4.01
Selenium	0.5660	0.6320	0.1790	0.2670	0.2030	0.3720	0.4500	0.2260	0.3290	0.0730	0.2120	0.4750	0.3320
Zinc	7.23	7.95	3.45	5.66	4.70	8.12	12.40	5.69	8.87	3.60	8.55	15.30	7.63
Sample Date	Jan.11/17	Feb.13/17	Mar.8/17	Apr.12/17	May 3/17	Jun.7/17	Jul.5/17	Aug.2/17	Sep.7/17	Oct.4/17	Nov.1/17	Dec.6/17	

2017 Capreol Wastewater Treatment Lagoon Performance

Month	Flows		CBOD5						Total Suspended Solids						Total Phosphorus						Total Ammonia						Un-ionized	TKN	
	Total	Avg Day	Raw	Effluent	Loading	Raw Loading	Removed	Plant	Raw	Effluent	Loading	Raw Loading	Removed	Plant	Raw	Effluent	Loading	Raw Loading	Removed	Plant	Raw	Effluent	Loading	Raw Loading	Removed	Plant	Ammonia	Raw	Effluent
	m^3	m^3/d	mg/L	mg/L	kg/d	kg/day	kg/day	Efficiency	mg/L	mg/L	kg/d	kg/day	kg/day	Efficiency	mg/L	mg/L	kg/d	kg/day	kg/day	Efficiency	mg/L	mg/L	kg/d	kg/day	kg/day	Efficiency	µg/L	mg/L	mg/L
January	45886	1480	205	44.6	66.02	9407	9341	99.3%	252	14.7	21.76	373	351	92.7%	5.36	2.39	3.54	7.93	4.40	55.4%	25.10	16.70	24.72	37.15	12.43	33.5%	29.87	37.0	17.9
February	41778	1492	110	37.8	56.40	4596	4539	98.8%	106	16.3	24.32	158	134	84.6%	2.93	2.52	3.76	4.37	0.61	14.0%	N/A	18.80	28.05	N/A	N/A	N/A	96.28	21.1	18.9
March	77207	2491	60	58.0	144.45	4632	4488	96.9%	51.3	19.3	48.07	128	80	62.4%	1.70	2.53	6.30	4.23	-2.07	-48.8%	N/A	17.30	43.09	N/A	N/A	N/A	41.17	10.2	17.8
April	96228	3208	50	41.2	132.15	4811	4679	97.3%	25	36.0	115.47	80	-35	-44.0%	0.80	1.99	6.38	2.56	-3.83	-149.7%	N/A	14.20	45.55	N/A	N/A	N/A	31.96	5.7	14.7
May	88386	2851	40	9.0	25.66	3535	3510	99.3%	35	12.0	34.21	100	66	65.7%	0.84	0.93	2.65	2.40	-0.25	-10.3%	N/A	6.44	18.36	N/A	N/A	N/A	16.92	6.3	7.5
June	70690	2356	65	18.0	42.41	4595	4552	99.1%	64	61.0	143.74	151	7	4.7%	2.34	1.45	3.42	5.51	2.10	38.0%	7.97	0.64	1.50	18.78	17.28	92.0%	21.83	12.6	6.6
July	62663	2021	40	9.5	19.20	2507	2487	99.2%	65.3	23.7	47.91	132	84	63.7%	1.48	0.87	1.76	2.99	1.23	41.2%	10.90	4.24	8.57	22.03	13.46	61.1%	16.52	15.2	8.2
August	57798	1864	35	17.0	31.70	2023	1991	98.4%	50.7	34.7	64.70	95	30	31.6%	1.91	1.33	2.48	3.56	1.08	30.4%	13.30	3.99	7.44	24.80	17.36	70.0%	14.64	15.7	6.8
September	48077	1603	20	19.0	30.45	962	931	96.8%	36.7	43.3	69.39	59	-11	-18.0%	1.79	1.82	2.92	2.87	-0.05	-1.7%	11.40	5.19	8.32	18.27	9.95	54.5%	25.81	11.5	8.1
October	41432	1337	50	10.0	13.37	2072	2058	99.4%	79	46.0	61.48	106	44	41.8%	2.94	1.93	2.58	3.93	1.35	34.4%	19.50	7.08	9.46	26.06	16.60	63.7%	19.04	22.5	9.8
November	63252	2108	73	7.7	16.23	4617	4601	99.6%	117	13.3	28.04	247	219	88.6%	1.73	1.83	3.86	3.65	-0.21	-5.8%	8.62	11.40	24.04	18.17	-5.86	-32.3%	32.78	12.7	12.1
December	52236	1801	57	20.0	36.02	2977	2941	98.8%	58	11.7	21.07	104	83	79.8%	1.58	2.02	3.64	2.85	-0.79	-27.8%	7.83	12.90	23.24	14.10	-9.13	-64.8%	26.37	10.0	14.8
Total	745633																												
Average		2043	67	24.32	51.17	3894	3843	98.6%	78	27.67	56.68	144	88	46.1%	2.12	1.80	3.61	3.90	0.30	-2.6%	13.08	9.91	20.19	22.42	9.01	34.7%	31.10	15.0	11.9



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

Compliance Parameters:

	Concentration	
$CBOD_5$	30 mg/L	Annual Avg
TSS	40 mg/L	Annual Avg
Total Phosphorus	1.38 mg/L	Annual Avg

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

2017 Capreol Lagoon Groundwater Monitoring Wells

Parameter (mg/L)	OW #2		OW #3		OW #5		OW #8		OW #12a		OW #15		OW #16	
	June	October	June	October	June	October	June	October	June	October	June	October	June	October
E.Coli (CFU/100 mL)	2	0	2	0	2	8	2	0	2	4	2	0	2	0
Alkalinity	78.0	133.0	170.0	170.0	13.3	20.1	90.2	100.0	106.0	75.7	7.8	22.8	12.8	18.0
Ammonia (as N)	3.52	4.71	11.80	15.10	0.03	0.01	4.44	3.99	0.19	0.08	0.01	0.03	0.01	0.01
Nitrate (as N)	0.10	<0.1	0.10	3.37	0.10	0.10	0.68	0.26	0.10	0.30	0.10	0.10	0.10	0.10
Nitrite (as N)	0.03	<0.03	0.2	0.03	0.03	0.03	0.1	0.23	0.03	0.03	0.03	0.03	0.03	0.03
$CBOD_5$	0.7	1.4	1.2	2.5	0.5	1.0	1.3	2.3	4.2	6.3	0.7	1.9	0.5	1.0
D.O.C.	2.90	4.68	3.80	3.50	0.51	1.60	2.70	6.66	3.70	3.70	0.59	1.30	0.54	1.00
Hardness (as $CaCO_3$)	89.9	79.6	88.4	93.0	10.1	10.4	114.0	62.8	86.1	111.0	12.0	21.0	9.9	18.7
Aluminum	0.0011	0.0108	0.0014	0.0193	0.0309	0.7150	0.0012	0.5940	0.0049	1.3800	0.0091	0.5670	0.0133	3.2600
Antimony	0.0005	0.0005	0.0012	0.0005	0.0005	0.0005	0.0005	0.0008	0.0005	0.0006	0.0005	0.0005	0.0005	0.0005
Arsenic	0.0016	0.0036	0.0014	0.0065	0.0010	0.0010	0.0058	0.0163	0.0011	0.0723	0.0010	0.001	0.001	0.001
Barium	0.0447	0.0616	0.0972	0.1150	0.0064	0.0150	0.0204	0.0411	0.0426	0.3620	0.0055	0.0202	0.0050	0.0328
Beryllium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Cadmium	0.0001	0.0002	0.0001	0.0009	0.0003	0.0002	0.0002	0.0007	0.0001	0.0020	0.0001	0.0003	0.0001	0.0002
Calcium	25.20	22.80	24.30	26.00	2.69	2.66	33.90	17.90	24.80	34.50	3.21	5.29	2.72	3.94
Chromium	0.0010	0.0010	0.0010	0.0010	0.0010	0.0023	0.0010	0.0045	0.0010	0.0073	0.0010	0.0029	0.0010	0.0133
Cobalt	0.0023	0.0021	0.0149	0.0144	0.0001	0.0019	0.0079	0.0124	0.0018	0.0613	0.0001	0.0010	0.0001	0.0143
Copper	0.0010	0.0021	0.0010	0.0023	0.0012	0.0115	0.0113	0.2340	0.0029	0.0523	0.0010	0.0116	0.0010	0.0355
Iron	1.40	6.43	0.66	9.27	0.02	0.98	0.02	2.11	0.02	0.02	0.02	1.80	0.02	5.06
Lead	0.0001	0.0003	0.0001	0.0089	0.0001	0.0012	0.0001	0.0009	0.0001	0.0046	0.0001	0.0014	0.0001	0.0042
Magnesium	6.53	5.47	6.75	6.87	0.83	0.92	7.21	4.39	5.86	6.09	0.97	1.88	0.76	2.19
Manganese	0.607	0.590	0.977	1.030	0.002	0.037	0.938	0.410	1.360	12.600	0.002	0.039	0.001	0.338
Mercury	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Molybdenum	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0016	0.0010	0.0064	0.0010	0.001	0.001	0.001
Nickel	0.0024	0.0033	0.0062	0.0075	0.0027	0.0053	0.0135	0.0188	0.0063	0.0490	0.0010	0.0037	0.0010	0.0102
Potassium	4.24	4.79	5.91	5.99	0.59	0.72	4.05	4.14	4.56	4.53	0.56	0.99	0.58	1.05
Selenium	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Silver	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002
Sodium	47.80	57.80	50.40	52.30	5.45	7.33	46.50	62.70	47.50	45.00	1.92	3.35	4.91	5.08
Tellurium	0.0010	0.001	0.0010	0.001	0.0010	0.001	0.0010	0.001	0.0010	0.001	0.0010	0.001	0.001	0.001
Tin	0.0010	0.001	0.0010	0.001	0.0010	0.001	0.0010	0.001	0.0010	0.001	0.0010	0.001	0.0010	0.001
Zinc	0.0020	0.0048	0.0039	0.0279	0.0028	0.0105	0.0025	0.0140	0.0018	0.0481	0.0028	0.0141	0.0025	0.0124
pH	7.38	7.19	7.63	7.18	6.82	6.82	7.47	7.06	7.58	6.48	6.69	6.71	6.70	6.84
T.K.N.	3.73	4.87	11.90	19.50	0.47	0.30	4.38	4.58	1.40	17.80	0.22	0.49	0.25	0.39
Total Phosphorus	0.3980	0.7800	0.0900	0.2380	0.0020	0.0310	2.2900	5.3700	0.0083	0.9840	0.0020	0.0711	0.0020	0.1670

2017 Vermillion River Sampling

Parameter (mg/L)	June		October		Annual Average	
	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
Alkalinity	15.1	14.2	23.2	22.4	19.2	18.3
Ammonia (as N)	0.01	0.01	0.01	0.01	0.01	0.01
Chloride	0.68	0.99	0.75	0.99	0.72	0.99
Sulphate	5.10	5.10	6.20	6.20	5.65	5.65
$CBOD_5$	0.50	0.50	1.90	1.00	1.20	0.75
Aluminum	0.0348	0.0329	0.0481	0.0357	0.0415	0.0343
Antimony	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Arsenic	0.001	0.001	0.001	0.001	0.001	0.001
Barium	0.0126	0.0124	0.0105	0.0117	0.0116	0.0121
Beryllium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Cadmium	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Calcium	5.72	5.79	6.96	8.30	6.34	7.05
Chromium	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001
Copper	0.0018	0.0017	0.0016	0.0015	0.0017	0.0016
Iron	0.20	0.19	0.51	0.31	0.36	0.25
Lead	0.0001	0.0001	0.0002	0.0002	0.0002	0.0001
Magnesium	1.35	1.35	1.67	1.91	1.51	1.63
Manganese	0.0357	0.0353	0.0367	0.0190	0.0362	0.0272
Mercury	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Molybdenum	0.001	0.001	0.001	0.001	0.001	0.001
Nickel	0.0028	0.0027	0.0026	0.0026	0.0027	0.0027
Potassium	0.55	0.56	0.68	0.85	0.62	0.71
Selenium	0.001	0.001	0.001	0.001	0.001	0.001
Silver	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Sodium	1.29	1.51	1.33	1.66	1.31	1.59
Tellurium	0.001	0.001	0.001	0.001	0.001	0.001
Tin	0.001	0.001	0.001	0.001	0.001	0.001
Zinc	0.0022	0.0022	0.0035	0.0016	0.0029	0.0019
pH	6.83	6.86	6.74	6.87	6.79	6.87
T.D.S.	30	60	80	40	55	50
T.K.N.	0.34	0.40	0.38	0.32	0.36	0.36
Total Phosphorus	0.0020	0.0020	0.0100	0.0099	0.0060	0.0060

Monthly Phosphorus Sampling		
Sample Date	Upstream	Downstream
May 3/17	0.0150	0.0150
June 20/17	0.0020	0.0020
July 5/17	0.0020	0.0020
Aug. 9/17	0.0038	0.0034
Sep. 6/17	0.0029	0.0078
Oct.4/17	0.0110	0.0150
Nov.15/17	0.0084	0.0083
Dec.6/17	0.0120	0.0100
Annual Average	0.0071	0.0079

Compliance Parameters:

Downstream

Total Phosphorus, 0.03 mg/L Annual average.

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

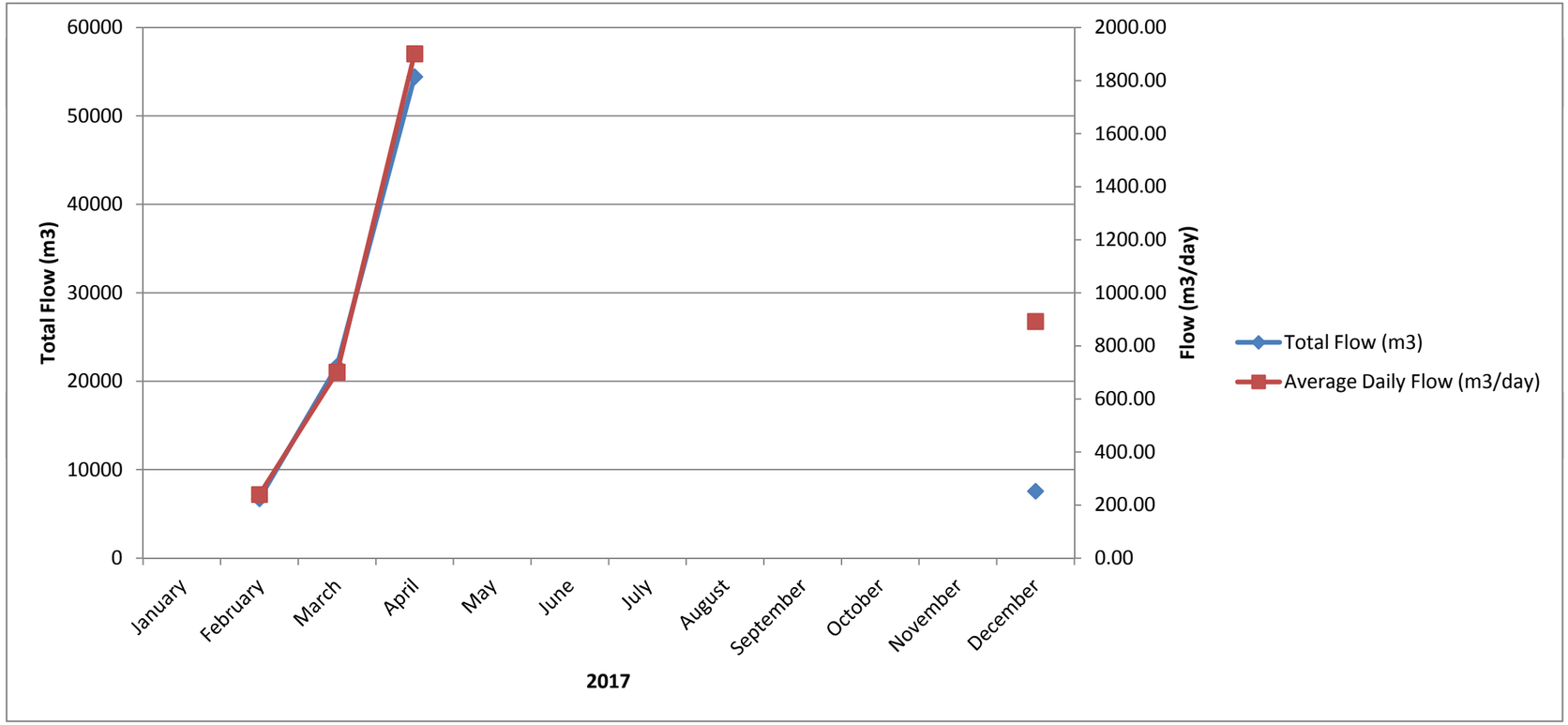
2017 Capreol Lagoon Ground/Surface Water Levels

* Depth in metres from top of casing to water

Well I.D.	Water Level (m)*	Measure Date	Water Level (m)*	Measure Date
OW#1	3.42	June 13, 2017	2.10	Nov. 8, 2017
OW#2	3.05	June 13, 2017	3.05	Nov. 8, 2017
OW#3	3.41	June 13, 2017	3.62	Nov. 8, 2017
OW#5	Dry	June 13, 2017	6.62	Nov. 8, 2017
OW#7	Deeper than measuring device	June 13, 2017	Deeper than measuring device	Nov. 8, 2017
OW#8	5.00	June 13, 2017	6.10	Nov. 8, 2017
OW#10a	6.71	June 13, 2017	6.71	Nov. 8, 2017
OW#10b	6.71	June 13, 2017	6.71	Nov. 8, 2017
OW#11	5.22	June 13, 2017	5.71	Nov. 8, 2017
OW#12	Capped	June 13, 2017	Capped	Nov. 8, 2017
OW#12a	1.52	June 13, 2017	1.75	Nov. 8, 2017
OW#13a	5.41	June 13, 2017	6.50	Nov. 8, 2017
OW#13b	5.41	June 13, 2017	6.00	Nov. 8, 2017
OW#14	2.22	June 13, 2017	2.42	Nov. 8, 2017
OW#15	Dry	June 13, 2017	7.05	Nov. 8, 2017
OW#16	Dry	June 13, 2017	8.52	Nov. 8, 2017
OW#21	4.91	June 13, 2017	6.05	Nov. 8, 2017
OW#22	5.10	June 13, 2017	Dry	Nov. 8, 2017
OW#23	6.42	June 13, 2017	6.31	Nov. 8, 2017
OW#24	4.71	June 13, 2017	5.62	Nov. 8, 2017
OW#25	6.51	June 13, 2017	Dry	Nov. 8, 2017
OW#26	Dry	June 13, 2017	7.00	Nov. 8, 2017
OW#28	2.92	June 13, 2017	3.11	Nov. 8, 2017
OW#30	2.31	June 13, 2017	2.42	Nov. 8, 2017
River at Bridge	0.50	June 13, 2017	0.25	Nov. 8, 2017

2017 Chelmsford Wastewater Treatment Lagoon Performance

Month	Flows		$CBOD_5$			Total Suspended Solids			Total Phosphorus			Total Ammonia		TKN	
	Total	Avg Day	Raw	Effluent	Loading	Raw	Effluent	Loading	Raw	Effluent	Loading	Effluent	Loading	Raw	Effluent
	m^3	m^3/d	mg/L	mg/L	kg/d	mg/L	mg/L	kg/d	mg/L	mg/L	kg/d	mg/L	kg/d	mg/L	mg/L
January					0.00			0.00			0.00		0.00		
February	6716	240	230		0.00	1820		0.00	1.94		0.00		0.00	11.0	
March	21719	701	40		0.00	33.7		0.00	0.96		0.00		0.00	9.56	
April	54435	1901	20		0.00	17		0.00	0.75		0.00		0.00	5.25	
May					0.00			0.00			0.00		0.00		
June					0.00			0.00			0.00		0.00		
July					0.00			0.00			0.00		0.00		
August					0.00			0.00			0.00		0.00		
September					0.00			0.00			0.00		0.00		
October					0.00			0.00			0.00		0.00		
November					0.00			0.00			0.00		0.00		
December	7577	892	29		0.00	65.3		0.00	1.1		0.00		0.00		
Total	90447														
Average		248	80	#DIV/0!	0.00	484	#DIV/0!	0.00	1.18	#DIV/0!	0.00	#DIV/0!	0.00	8.6	#DIV/0!



Lagoon Type: Seasonal Retentional

Design Capacity: 824 m^3/day

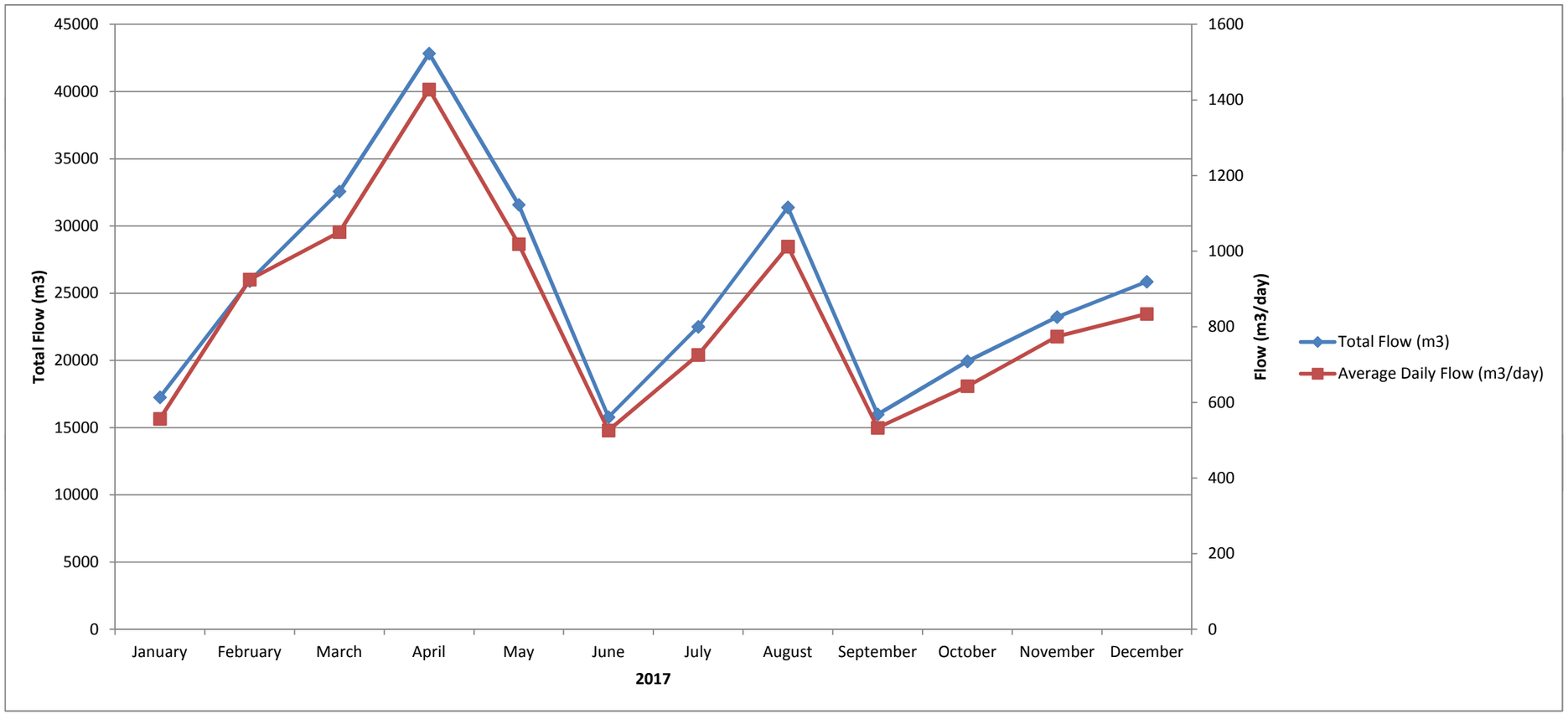
Population Served: Delivery to Chelmsford WWTP

Compliance Parameters:

	Concentration	
BOD_5	30 mg/L	Annual Average
TSS	40 mg/L	Annual Average

2017 Wahnapitae Wastewater Treatment Lagoon Performance

Month	Flows		BOD_5	$CBOD_5$					Total Suspended Solids						Total Phosphorus						Total Ammonia						Un-Ionized	TKN	pH	H_2S	E.Coli
	Total	Avg Day	Raw	Effluent	Loading	Raw Loading	Removed	Plant	Raw	Effluent	Loading	Raw Loading	Removed	Plant	Raw	Effluent	Loading	Raw Loading	Removed	Plant	Raw	Effluent	Loading	Raw Loading	Removed	Plant	Ammonia	Raw	Effluent	Pre-Discharge	Average
	m^3	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	kg/day	kg/day	Efficiency	mg/L	mg/L	kg/d	kg/day	kg/day	Efficiency	µg/L	mg/L		mg/L	CFU/100mL
January	17259	557	93						578						2.5						8.50										
February	25904	925																													
March	32573	1051																													
April	42838	1428	50	5.0	7.14	2142	2135	99.7%	290	27.1	38.65	414	375	90.7%	2.0	0.07	0.10	2.87	2.77	96.5%	4.88	5.53	7.90	6.97	-0.93	-13.3%	43.64	14.2	7.5	0.02	5
May	31584	1019		3.4	3.46					69.7	70.96					0.48	0.49					3.52	3.59				78.34		7.7	0.02	45
June	15782	526																													
July	22504	726	88						908						1.8						20.30										
August	31385	1012																													
September	15991	533																													
October	19939	643	20						27.3						0.1						16.10							17.1			
November	23230	774		5.1	3.95					21.7	16.78					0.10	0.08					0.42	0.33				0.28		6.9	0.02	8
December	25858	834		16.2	13.51					87.9	73.33					0.56	0.47					4.97	4.15				45.56		7.0	0.02	13
Total	304847					2142	2135	99.7%				414	375	90.7%				3	3	96.5%				7	-1	-13.3%					
Average		835	63	7.43	7.02	2142	2135	99.7%	451	51.58	49.93	414	375	90.7%	1.62	0.30	0.28	2.87	2.77	96.5%	12.4	3.61	3.99	6.97	-0.93	-13.3%	41.95	15.7	7.3	0.02	18



Lagoon Type: Seasonal Retention
Design Capacity: 1246 m^3/day
Population Served: 1,136

Compliance Parameters:

	Concentration	
$CBOD_5$	30 mg/L	Seasonal Average
TSS	40 mg/L	Seasonal Average
pH	6.0 to 9.5 inclusive at all times	

Spring Discharge:
Cell #1 Pre-Discharge sampled May 4/17.
Cell #2 Pre-Discharge sampled Apr.13/17.
Cell #3 Pre-Discharge sampled Apr.20/17.
Cell #1 Discharged May 11 to May 30/17.
Cell #2 Discharged April 20 to May 4, 2017.
Cell #3 Discharged April 27 to May 11/17.
Total amount discharged approximately 90,000 m^3.

Fall Discharge:
Cell #1 Pre-Discharge sampled Dec.7/17.
Cell #2 Pre-Discharge sampled Nov.14/17.
Cell #3 Pre-Discharge sampled Nov.1/17.
Cell #1 Discharged Dec.14 to Dec.27/17.
Cell #2 Discharged Nov.22 to Dec.7/17.
Cell #3 Discharged Nov.8 to Nov.22/17.
Total amount discharged approximately 90,000 m^3.