EGANVILLE SEWAGE SYSTEM

2017 PERFORMANCE REPORT

Township of Bonnechere Valley
Water and Sewage Department
February 2018

Table of Contents

Executive Summary 3
Introduction 4
Report Availability 5
Eganville Sewage System 5
Operations 6
By-pass / Upsets / Abnormal Discharge Events 6
Maintenance 6
Calibration 6
Complaints 6
Effluent Quality Assessment 7
Capacity Assessment 8
Sludge Management 9

Attachments

- Sewage & Sludge Monitoring Summary Report
- Annual Verifications & Calibrations Report

Executive Summary

The Eganville Sewage System continues to operate in a manner that provides for the collection, transmission and treatment of sewage that meets all Municipal, Provincial and Federal standards.

The Eganville Sewage Treatment Plant processed 293,153 cubic metres of sewage in 2017 and the treated effluent discharged to the Bonnechere River met the Provincial and Federal Effluent Limits 100% of the time. The average daily flow was 803 cubic metres.

The Biosolids Dewatering Facility processed 890 cubic metres of digested sludge in 2017 and 76 cubic metres of dewatered sludge was transported to the Sand Road Landfill Site for utilization as a soil amendment to the final cover.

All reports required by applicable Acts, Regulations and Certificate of Approval have been prepared and submitted.

All operational and process monitoring has been conducted in accordance with the Certificate of Approval.

Introduction

The collection, transmission, treatment and disposal of sewage in Ontario is regulated by the Ministry of the Environment (MOE) under the Ontario Water Resources Act (OWRA) and associated Regulations, Policy and Guidelines.

The current Certificate of Approval for the Eganville Sewage Works issued under Section 53 of the OWRA prescribes specific operational 'Terms and Conditions'.

Condition 10 requires the Owner to prepare and submit to the MOE District Manager a performance report, on an annual basis. The report must contain, but shall not be limited to, the following information:

- A summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Condition 7, including an overview of the success and adequacy of the Works;
- A description of any operating problems encountered, and corrective actions taken;
- A summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the Works;
- A summary of any effluent quality assurance or control measures undertaken in the reporting period;
- A summary of the calibration and maintenance carried out on all effluent monitoring equipment;
- A description of efforts made, and results achieved in meeting Effluent Objectives of Condition 6;
- 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 an outline of the proposed sludge handling methods;
- A summary of any complaints received during the reporting period and any steps taken to address the complaints;
- A summary of all By-pass, spill or abnormal discharge events; and
- Any other information the District Manager requires from time to time.

Report Availability

A copy of this report shall be given, without charge, to every person who requests a copy from the Township of Bonnechere Valley Municipal Office at 49 Bonnechere St. E., Eganville, Ontario.

The report shall also be available on the Township of Bonnechere Valley website at www.bonnecherevalleytwp.com

Eganville Sewage System

The Eganville Sewage System is owned and operated by the Township of Bonnechere Valley and provides for the collection and treatment of sewage for the residents and businesses of the Village of Eganville. The system generally consists of a piped collection system, four sewage pumping stations and a sewage treatment plant including a Biosolids dewatering facility. The treated effluent is discharged into the Bonnechere River adjacent to the Eganville Sewage Treatment Plant located at 131 John Street, Eganville.

The Eganville Sewage System operates under an 'Amended Certificate of Approval issued on June 1, 2010, Number: 9566-85BHJK.

The Sewage Treatment Plant (STP) is an extended aeration secondary treatment process consisting of two circular package treatment units with a Rated Capacity of 1,080 cubic metres per day and a Peak Flow Rate of 2,700 cubic metres per day.

The Biosolids Dewatering Facility utilizes Geotubes to dewater, stabilize and store the sludge generated by the STP. The resultant Biosolids are removed and transported to one of the waste disposal sites within the Township of Bonnechere Valley to be utilized as a soil amendment to the final cover.

Operations

By-pass / Upsets / Abnormal Discharge Events

During 2017 the Eganville Sewage System did not have any by-passes, upsets or operating problems.

During April and May, the abnormally high rainfall events resulted in higher than normal flows through the Sewage Treatment Plant. The 'Peak Flow Rate' exceeded the plants design of 2,700 m^3/d for three days in May but did not significantly affect the treatment process. The effluent stayed well within the prescribed limits at all times. The exceedance was reported to the MOECC.

Maintenance

Ongoing maintenance included the following:

- 6 sewer manhole improvements to reduce infiltration including replacing riser rings and paving.

Calibration

All flow meters and lab instruments were calibrated, including any required maintenance, by qualified and manufacturer approved technicians. The following reports are attached:

- Annual Verifications & Calibrations Report – September / October 2017
- Certificates of Instrument Performance – April 2017

Complaints

No complaints were received regarding the operation of the Eganville Sewage System.

Effluent Quality Assessment

The following table outlines the effluent objectives and limits as listed in the Certificate of Approval for the Eganville Sewage Treatment Plant:

Effluent Parameter	Effluent Objectives		Effluent Limits	
	Concentration mg/l	Loading kg/day	Concentration mg/l	Loading kg/day
$CBOD_5$	15	16.2	25	27
Total Suspended Solids	15	16.2	25	27
Total Phosphorus	1.0	1.1	1.0	1.1
Total Ammonia Nitrogen	5.0	5.4	5.0	5.4
E. coli	200 counts/100ml		200 counts/100ml	
pH	6.5 to 8.5 at all times		6.0 to 8.5 at all times	

The following table provides an overview of the monitoring results for the effluent parameters.

Effluent Parameter	Concentration mg/l	Loading kg/day
$CBOD_5$	3.0 – 6.0	1.15 – 9.34
Total Suspended Solids	4 - 8	2 – 13
Total Phosphorus	0.04 - 0.57	0.03 – 0.92
Total Ammonia Nitrogen	0.00 – 1.22	0.00 – 0.59
Un-ionized Ammonia	0.02 – 1.42 ug/l	
E. coli	2 – 20 counts/100ml	
pH	6.73 - 7.59	

- A detailed 'Monitoring Summary Report' is appended and provides all the compliance related effluent records.
- During 2017 all effluent 'Limits' and 'Objectives' were achieved 100% of the time.

The efficiency of the sewage treatment process can be shown by the % removal of the following indicator parameters:

PARAMETER	AVERAGE % REMOVAL
BIOCHEMICAL OXYGEN DEMAND	94
TOTAL SUSPENDED SOLIDS	92
TOTAL PHOSPHORUS	88

Capacity Assessment

The Eganville Sewage Treatment Plant has an approved 'Rated Capacity' of 1,080 m^3/day which is calculated as the 'Average Daily Flow' (total sewage flow for year / 365). During 2017 the 'Average Daily Flow' was 803 m^3/day.

The Eganville Sewage Treatment Plant has a 'Peak Flow Rate' of 2,700 m^3/day which is the maximum rate of sewage flow for which the plant was designed. During 2017 the 'Peak Flow Rate' was exceeded on May 5, 6 & 7th with a sewage flow of 2,951 m^3/day.

The higher than normal 'Average Daily Flow" and the exceedance of the 'Peak Flow Rate' were the result of the abnormal rainfall events that occurred in the area during April and early May.

SEWAGE FLOWS 2017			
MONTH	TOTAL	AVERAGE DAY	MAX DAY
	X1000m^3	X1000m^3	X1000m^3
JAN.	15.102	0.487	0.569
FEB.	17.607	0.629	1.266
MAR.	29.703	0.958	1.563
APR.	46.696	1.557	2.347
MAY	50.021	1.614	2.951
JUN.	26.465	0.882	1.210
JUL.	30.921	0.997	1.247
AUG.	18.563	0.599	0.714
SEP.	14.324	0.477	0.599
OCT.	11.894	0.384	0.63
NOV.	15.711	0.524	0.659
DEC.	16.146	0.521	0.846
TOTAL	293.153		
AVERAGE	24.429	0.802	1.207
MAX	50.021	1.614	2.951
LIMITS		**1.080**	**2.700**

Sludge Management

Aerobically digested sludge is transferred from the digester to the Biosolids Dewatering Facility on a regular basis for processing. The sludge is mixed with a polymer and pumped into Geotubes for dewatering. The resultant filtrate is returned to the inlet of the Sewage Treatment Plant. Once the solids capacity of a Geotube is reached it is allowed to sit for several months before the contents are removed and transported to one of the waste disposal sites within the Township of Bonnechere Valley to be utilized as a soil amendment for final cover. The waste disposal sites have been approved for the receipt and utilization of dewatered sludge (Biosolids) as a final cover soil amendment.

The attached 'Sewage & Sludge Monitoring Report' for 2017 provides the volumes, analysis and disposition of the material.

It is anticipated that sludge generation and processing operations will be similar in 2018.