



Ministry of the Environment, Conservation and Parks

WW TWEED LAGOON

Inspection Report

Site Number:	120000952
Inspection Number:	1-KXUHT
Date of Inspection:	Apr 10, 2019
Inspected By:	Monica Howlett

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OWNER INFORMATION:

Company Name:	TWEED, THE CORPORATION OF THE MUNICIPALITY OF	Unit Identifier:	
Street Number:	255		
Street Name:	METCALF St		
City:	TWEED		
Province:	ON	Postal Code:	K0K 3J0

CONTACT INFORMATION

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Title:	CAO/Clerk-Treasurer		

Type:	Owner	Name:	Allan Broek
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Title: Chief Administrative Officer, Quinte Conservation

INSPECTION DETAILS:

Site Name: WW TWEED LAGOON
Site Address:
County/District: TWEED
MECP District/Area Office: Belleville Area Office
Health Unit: HASTINGS AND PRINCE EDWARD COUNTIES HEALTH UNIT
Conservation Authority:
MNR Office:
Site Number: 120000952
Inspection Type: Announced
Inspection Number: 1-KXUHT
Date of Inspection: Apr 10, 2019
Date of Previous Inspection: Sep 16, 2014

COMPONENTS DESCRIPTION

Site (Name): Tweed Lagoons
Type: Lagoon Sewage Treatment System **Sub Type:** Facultative
Comments:

The Tweed sewage lagoon system consists of a two cell, 30 acre, seasonal waste stabilization ponds, with an estimated capacity of 180,000M3, located in Part of Lots 12 & 13, Concession 10, Township of Hungerford. The treatment system includes continuous phosphorus control, flow measurement and two sewage pumping stations. The lagoon contents are discharged seasonally, spring and fall, to the receiver known as Moira River, ultimately feeding Stoco Lake. The works also includes two pumping stations, identified as the the Jamieson and River Street sewage pumping stations (SPS). The River St. SPS is identified as a prefabricated pumping station and associated wet well equipped with a back-up natural gas generator, coagulant storage, chemical feed pumps, to be equipped with two 750 imperial gallon per minute centrifugal pumps, high level alarms, Outpost & disconnent panels. The Jamieson SPS is also to be equipped with two 175 imperial gallon per minute centrifugal pumps, operating in a "lead/lag" mode, complete with Outpost panel, hi level alarms and engineering overflow to the Moira River. Wastewater (WW) flows are measured via a pair of Endress & Hauser magnetic flow meters. The WW is dosed with aluminum sulfate for purposes of phosphorus control and then delivered to the two facultative lagoon cells. Outside of the building is a single, wooden stave bulk (18,180 L) alum tank, with PVC liner and heat tracing and was observed to be equipped within a secondary concrete containment area. The lagoons are discharged seasonally via gravity.

INSPECTION SUMMARY:

Introduction

- **The primary focus of this inspection is to confirm compliance with Ministry of the Environment, Conservation and Parks (MECP) legislation as well as evaluating conformance with ministry policies and guidelines during the inspection period.**

This wastewater treatment and collection system is subject to the legislative requirements of the Ontario Water Resources Act (OWRA) and the Environmental Protection Act (EPA) and regulations made therein. This inspection has been conducted pursuant to Section 15 of the OWRA and Section 156 of the EPA.

This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

On April 10, 2019 Ministry of the Environment, Conservation and Parks (MECP) Water Inspector Monica Howlett was on-site at the WW Tweed Lagoon to conduct an announced compliance inspection of the sewage treatment facility against MECP control documents and policies. The Corporation of the Municipality of Tweed is the owner of the sewage works and the Ontario Clean Water Agency (OCWA) is designated as the operating authority. Amber Coupland, Senior Operations Manager (OCWA) and Derek Chapman (OCWA) identified as the Operator-in-Charge (OIC) for the treatment plant were on-site for the inspection. A return visit was made on May 15, 2019 in which the undersigned met with Wesley Henneberry, Safety, Process and Compliance Manager, OCWA, Derek Chapman, OIC, OCWA, Allan Broek, Public Works Manager and Betty Gallagher, CAO/Clerk-Treasurer both with the Corporation of the Municipality of Tweed.

The field inspection included a physical inspection of the works including the two individual treatment cells, the two pumping stations: Jamieson Street pumping station and the River Street pumping station (point of chemical addition for phosphorous control and flow metering) and documentation/records on-site were reviewed. The inspection period covered by this report is January 1, 2017 to April 10, 2019.

The previous MECP compliance inspection was conducted on September 16, 2014, it cited one (1) issue of non-compliance and two (2) Recommendation and Best Practice Issues.

Authorizing/Control Documents

- **The owner had a valid Environmental Compliance Approval for the sewage works.**

Environmental Compliance Approval (ECA) number 9608-9ZLJ2E, issued September 22, 2015 is the primary ECA for the sewage works identifying the components of the municipal sewage works as well as seasonal discharge conditions, operation and maintenance requirements, monitoring requirements, effluent objectives and limits and reporting requirements.

Four ECAs have been issued for sewers in the collection system:

ECA number 2147-4TASH4, issued January 25, 2001
ECA number 2937-5ARKNR, issued June 21, 2002
ECA number 8151-6RPTUF, issued July 25, 2006
ECA number 1632-7G6LTH, issued July 3, 2008

- **The facility has Orders or other control documents that have requirements outside of the ECA.**

Condition 8(1) of the ECA requires that the spring discharge commence not earlier than March 15th after the liquid

Authorizing/Control Documents

surface in the lagoon has become substantially free of ice cover and terminate not later than May 7th and using reasonable efforts to maximize the discharge rate to coincide with the spring freshet and elevated flows in the receiver.

Hydraulic overloading occurred in the spring of 2017 and Provincial Officer's Order (P.O.O) number 1-EYMK2 was issued by the undersigned on March 9, 2017 allowing premature discharge to avoid a potential spill/overflow of the lagoon. The discharge commenced on March 9, 2017 under the cover of ice. Enhanced sampling was required weekly by the P.O.O while the lagoon cells remained substantially under the cover of ice. P.O.O # 1-EYMK2 was amended on May 4, 2017 for an extension of the discharge period to allow the lagoon to empty completely. The spring 2017 discharge ended on May 19, 2017.

P.O.O number 1-KUJ16 was issued by the undersigned on March 25, 2019 to allow the 2019 spring discharge to occur while the lagoon cells were still substantially ice covered. Enhanced sampling was required weekly while the lagoon cells remained under the cover of ice.

Capacity Assessment

- **The annual average daily flow was approaching the rated capacity of the sewage works.**

The ECA provides a rated capacity of the Tweed Lagoon as 1209 m³/day (average daily flow). Records reviewed for the inspection period show that the annual average daily flow into the sewage works was as follows:

Average daily flow for the 2017 calendar year was 1149.30 m³/day or 95% of the rated capacity.

Average daily flow for the 2018 calendar year was 903.66 m³/day or 75% of the rated capacity.

The Municipality of Tweed initiated a Municipal Class Environmental Assessment in 2011 for expansion of its sewage system to construct a third lagoon on a 20 acre parcel of land. The Environmental Assessment is in the process of being completed in 2019.

- **The owner was in conformance with the designed rated capacity for average daily flow into the sewage works.**

The ECA provides a rated capacity of the Tweed Lagoon as 1209 m³/day (average daily flow). Records reviewed for the inspection period show that the annual average daily flow into the sewage works was as follows:

Average daily flow for the 2017 calendar year was 1149.30 m³/day.

Average daily flow for the 2018 calendar year was 903.66 m³/day.

- **Flow rates were recorded at a frequency prescribed by the Environmental Compliance Approval.**

Influent flow is measured at the River Street pumping station by an Endress & Hauser, Prosonic 91 flowmeter and chart recorder. Influent flow is recorded daily as required by Condition 9(8) of the ECA.

- **Flow measuring devices were installed, calibrated and maintained.**

Influent flow is measured at the River Street and Jamieson pumping stations by Endress & Hauser flow meters, model - Prosonic 91. The River Street pumping station also has a chart recorder for measuring influent flow. All units were last verified/calibrated by Flowmetrix Technical Services Inc. on May 30, 2018.

Treatment Processes

- **All monitoring equipment other than flow monitoring devices were installed, calibrated and maintained in**

Treatment Processes

accordance with any Environmental Compliance Approval.

pH/conductivity and dissolved oxygen meters are verified weekly by OCWA staff at the Deloro Arsenic Treatment Plant.

- **The owner had ensured that all equipment/components associated with the works was installed in accordance with the Environmental Compliance Approval.**

The 60 kW diesel generator set at the River Street pumping station was replaced with a 80 kW natural gas generator in 2018, the replacement met exemption criteria as per O. Reg. 524/98 thus not requiring an approval from the ministry.

- **The works, related equipment and appurtenances were being operated and maintained to achieve compliance prescribed by the Environmental Compliance Approval.**

Conditions 9(2) and 9(3) of the ECA requires that five (5) times during a discharge period that grab samples of effluent be collected and analysed for CBOD5, Total Suspended Solids (TSS), Total Phosphorus, Total Ammonia Nitrogen, Hydrogen Sulphide, pH, temperature, and E. coli. Effluent limits for the parameters CBOD5, TSS, total phosphorus and pH are provided in Conditions 6(1) and 6(3) of the ECA. Records reviewed for the inspection period showed that the operating authority collected five or more effluent samples during discharge periods and analytical results did not exceed effluent concentration limits.

OCWA has a standard operating procedure (SOP) to biannually assess the structure and integrity of the lagoons including the assessment for sludge or cat-tail removal from the cells.

During the site visit cat-tails and other vegetative growth was not observed to be in need of maintenance. The lagoon cell levee and berm conditions were not observed to have been impacted by rodent activity or erosion.

- **The operator-in-charge had ensured that all equipment used in the processes was monitored, maintained, inspected, tested and evaluated.**

It was discussed with the operating authority that the operator in charge will do on-site checks at the pumping stations three times per week and that remote checks of the pumping stations are conducted daily. Records were reviewed that showed that monthly preventative maintenance was conducted on the alum metering pumps. During a discharge period the operator in charge will attend the lagoon cells at least three times per week and weekly outside of the discharge periods.

- **The owner/operating authority was able to demonstrate that best efforts were used to achieve the objectives listed in the Environmental Compliance Approval conditions.**

Condition 5(1) The owner shall use best efforts to design, construct, and operate the Works with the objective that the concentrations of the materials named below (Table 1) as effluent parameters are not exceeded in the effluent from the Works.

Sample results for samples collected during discharge events for CBOD5, TSS and total phosphorus were below objectives listed in Table 1, Condition 5(1) of the ECA. Best efforts of the operator to meet effluent objectives included: visually inspecting lagoon cell contents/effluent during rounds and during spring/fall discharge. Ensuring that alum was correctly dosed for phosphorus removal, calibrations of pH/dissolved oxygen probes and flow meters. Collection of lagoon cell pH, temperature, dissolved oxygen and conductivity during discharges.

The operating authority maintained the pH effluent within the objective range of 6.5-8.5 at all times during the inspection period and the works was operated within its rated capacity of 1,209 m³/day (average day flow).

OCWA on behalf of the owner did proclaim that best efforts were used to ensure that the effluent from the Works was essentially free of floating and settleable solids and that it did not contain oil or any other substance in amounts

Treatment Processes

sufficient to create a visible film, sheen, foam or discolouration on the receiving waters (Moirra River) in accordance with the objective in condition 5(2)(c) of the ECA.

- **The sewage works effluent was essentially free of foreign substances on the day of the inspection.**

Effluent Quality and Quantity

- **The sewage works effluent limits were prescribed by the Environmental Compliance Approval.**

Condition 6 of the ECA provides effluent limits in Table 2 as a seasonal average concentration as follows:

CBOD5 - 25 mg/L
Total Suspended Solids - 25 mg/L
Total Phosphorus - 1.0 mg/L

pH of the effluent shall be maintained within the range of 6.0 - 9.5 inclusive, at all times.

- **The sewage works effluent sample results demonstrated compliance with BOD5 or CBOD5 limits prescribed by the Environmental Compliance Approval.**

The ECA in Condition 6 provides an effluent limit for CBOD5 of 25.0 mg/L as a seasonal average concentration:

Records reviewed for the inspection period showed that the seasonal average concentration of CBOD5 was reported as:

Spring 2017 - 4.6 mg/L
Fall 2017 - 3.0 mg/L

Spring 2018 - 9.5 mg/L
Fall 2018 - 2.0 mg/L

- **The sewage works effluent sample results demonstrated compliance with total suspended solids limits prescribed by the Environmental Compliance Approval.**

The ECA in Condition 6 provides an effluent limit for total suspended solids (TSS) of 25.0 mg/L as a seasonal average concentration:

Records reviewed for the inspection period showed that the seasonal average concentration of TSS was reported as:

Spring 2017 - 6.7 mg/L
Fall 2017 - 2.0 mg/L

Spring 2018 - 11.1 mg/L
Fall 2018 - 2.0 mg/L

- **The sewage works effluent sample results demonstrated compliance with total phosphorous limits prescribed by the Environmental Compliance Approval.**

The ECA in Condition 6 provides an effluent limit for total phosphorus of 1.0 mg/L as a seasonal average concentration:

Records reviewed for the inspection period showed that the seasonal average concentration of total phosphorus was reported as:

Effluent Quality and Quantity

Spring 2017 - 0.08 mg/L
Fall 2017 - 0.04 mg/L

Spring 2018 - 0.09 mg/L
Fall 2018 - 0.04 mg/L

- **The sewage works effluent sample results demonstrated compliance with pH limits prescribed by the Environmental Compliance Approval.**

Condition 6 of the ECA states that the Owner shall operate and maintain the Works such that the pH of the effluent is maintained within the range of 6.0 to 9.5 inclusive at all time.

Records reviewed for the inspection period showed that the pH was reported as:

Spring 2017: 7.08 - 8.16
Fall 2017: 7.10 - 7.90

Spring 2018: 7.20 - 7.60
Fall 2018: 7.20 - 7.90

- **The sewage works effluent sample results met the effluent objectives stated in the Environmental Compliance Approval.**

Condition 5 of the ECA provides the following effluent objectives:

CBOD5 - 20.0 mg/L
TSS - 20.0 mg/L
Total Phosphorus - 0.8 mg/L

pH of effluent maintained within the range of 6.5 - 8.5

Sample results reviewed for the inspection period showed that results were below the objectives listed above.

- **The sewage works effluent was not discharged in accordance with Environmental Compliance Approval.**

The ECA prescribes in Condition 8 Special Operations - Seasonal Discharge

(1) The Owner shall operate the Works such that discharge is conducted on a semi-annual discharge basis with the effluent being discharged in the spring and the fall as follows:

Spring: discharge commencing not earlier than March 15 after the liquid surface in the lagoon has become substantially free of ice cover and terminating not later than May 7 and using reasonable efforts to maximize the discharge rate to coincide with the spring freshet and elevated flows in the receivers and

Fall: discharge commencing not earlier than November 1 and terminating not later than December 7.

For the spring 2017 discharge Provincial Officer's Order (P.O.O) # 1-EYMK2 was served to the Municipality of Tweed on March 9, 2017 to allow for the premature discharge of the lagoon under the cover of ice to coincide with the elevated flows in the Moira River. Enhanced sampling was conducted weekly while under the cover of ice for the parameters dissolved oxygen, 4N, un-ionized ammonia, conductivity and fecal coliforms by grab sampling, in addition to monitoring requirements already stipulated in the ECA. The lagoons cells were no longer under ice cover by April 5, 2017.

For the spring 2018 discharge, OCWA provided notice that the discharge needed to commence on March 20, 2018

Effluent Quality and Quantity

under the cover of ice due to being at capacity and to coincide with the spring freshet. The undersigned instructed OCWA to conduct enhanced sampling as per P.O.O # 1-EYMK2 while under the cover of ice. OCWA advised that the lagoon cells were no longer under the cover of ice by April 11, 2018.

For the spring 2019 discharge Provincial Officer's Order # 1-KUJ16 was served on March 25, 2019 to the Municipality of Tweed to allow the discharge of the lagoon under the cover of ice to coincide with the elevated flows in the Moira River. Weekly enhanced sampling was conducted while under the cover of ice for dissolved oxygen, 4N, un-ionized ammonia, conductivity and fecal coliforms by grab sampling, in addition to monitoring requirements already stipulated in the ECA. The lagoons cells were no longer under ice cover by April 15, 2019.

- **The sewage works effluent was not discharged during the prescribed period.**

The ECA prescribes in Condition 8 Special Operations - Seasonal Discharge

(1) The Owner shall operate the Works such that discharge is conducted on a semi-annual discharge basis with the effluent being discharged in the spring and the fall as follows:

Spring: discharge commencing not earlier than March 15 after the liquid surface in the lagoon has become substantially free of ice cover and terminating not later than May 7 and using reasonable efforts to maximize the discharge rate to coincide with the spring freshet and elevated flows in the receivers and

Fall: discharge commencing not earlier than November 1 and terminating not later than December 7.

For the spring 2017 discharge OCWA requested approval to discharge the lagoon prematurely to avoid a potential spill/overflow of the lagoons and to coincide with the spring freshet. Provincial Officer's Order (POO) # 1-EYMK2 was served to the Municipality of Tweed on March 9, 2017 to allow for the premature discharge of the lagoon under the cover of ice and to coincide with the elevated flows in the Moira River. An extension of the spring discharge period was requested by OCWA, due to high levels of precipitation that added significant volume to the lagoons and to avoid an early discharge of the lagoons in the fall due to limited capacity. POO 1-EYMK2 was amended for an extension of the discharge period to May 22, 2017.

For the fall 2017 discharge OCWA requested approval from MECP to discharge the lagoon prematurely and the request was not approved. The lagoon had a spill/overflow by means of the engineered overflow with discharge to the outfall ditch/sewer discharging to the Moira River. The overflow/spill commenced September 9, 2017 and ended on November 1st (start of fall discharge in the ECA). The fall discharge ended on December 4, 2017

In 2018, the spring discharge commenced on March 20th and ended May 2nd. The fall 2018 discharge commenced November 1st and terminated November 28th. The 2019 spring discharge commenced March 26, 2019. For 2018 and 2019 the discharges periods were in compliance with the ECA.

- **The inspector collected audit samples during the inspection.**
- **The results of audit samples collected by the Inspector met the effluent limits or operational guidelines.**

Monitoring Requirements

- **The sampling requirements were prescribed by the Environmental Compliance Approval.**

Condition 9 Monitoring and Recording of the ECA prescribes the following requirements:

Influent Monitoring - quarterly by grab sampling for BOD5, TSS, total phosphorus, total kjeldahl nitrogen

Monitoring Requirements

Lagoon Content Monitoring - one sample from each cell at least seven days prior to scheduled seasonal discharge by grab sampling for CBOD5, TSS, total phosphorus, hydrogen sulphide

Effluent Monitoring - five times during the discharge period meaning beginning of the discharge, at 25%, at 50% and at 75% drawdown and at the end of the discharge by grab sampling for the parameters: CBOD5, TSS, total phosphorus, total ammonia nitrogen (TAN), hydrogen sulphide, pH, temperature, E. coli. A grab sample once at the start of each discharge period is required for acute lethality to Rainbow Trout and Daphnia magna.

- **All sewage works effluent sampling requirements prescribed by the Environmental Compliance Approval were met.**

Condition 9 Monitoring and Recording of the ECA prescribes the following effluent monitoring requirement:

Effluent Monitoring - five times during the discharge period meaning beginning of the discharge, at 25%, at 50% and at 75% drawdown and at the end of the discharge by grab sampling for the parameters: CBOD5, TSS, total phosphorus, total ammonia nitrogen (TAN), hydrogen sulphide, pH, temperature, E. coli. A grab sample once at the start of each discharge period is required for acute lethality to Rainbow Trout and Daphnia magna.

Records were reviewed for the inspection period that showed that effluent samples were collected as required.

- **All sewage works influent (raw sewage) sampling requirements prescribed by the Environmental Compliance Approval were met.**

Condition 9 Monitoring and Recording of the ECA prescribes the following influent monitoring requirement:

Influent Monitoring - quarterly by grab sampling for BOD5, TSS, total phosphorus, total kjeldahl nitrogen from the influent chamber.

A review of records for the inspection period showed that influent samples were generally collected monthly.

- **All additional monitoring requirements prescribed by the Environmental Compliance Approval were met.**

Condition 9 Monitoring and Recording of the ECA prescribes the following additional monitoring requirement:

Lagoon Content Monitoring - one sample from each cell at least seven days prior to scheduled seasonal discharge by grab sampling for CBOD5, TSS, total phosphorus, hydrogen sulphide.

A review of records for the inspection period showed that lagoon content monitoring was completed as required.

- **The owner had maintained the monitoring records for the period prescribed by the Environmental Compliance Approval.**

Condition 9(9) of the ECA states that the Owner shall retain for a minimum of five (5) years from the date of their creation, all records and information related to or resulting from the monitoring activities required by this Approval.

OCWA had indicated that monitoring records for the Tweed Lagoon dating back to at least 2009 were located in the office space at the Rollins Street Pumpouse for the Madoc Drinking Water System.

- **The owner had maintained the monitoring records since the date of the last inspection.**

OCWA had indicated that records dating back to at least 2009 for the Tweed Lagoon were located in the office space at the Rollins Street Pumpouse for the Madoc Drinking Water System. Records include: sample results, pump hours, flow data, logbooks and round sheets. The last inspection of the Tweed Lagoon was conducted on September 16, 2014.

Reporting Requirements

- **The reporting requirements were prescribed by an Environmental Compliance Approval.**
Reporting requirements are in Condition 10. Reporting in the ECA.
- **The annual performance reports met the submission and contents requirements of the Environmental Compliance Approval.**
The annual performance reports for 2017 and 2018 met the submission and content requirements of Condition 10(5) of the ECA.
- **All other reporting requirements prescribed by the Environmental Compliance Approval were met.**
- **The owner/operator maintained a logbook and/or records of all bypasses/overflows which occurred from any portion of the sewage works in accordance with the Environmental Compliance Approval.**
Records of bypass and overflow events for the inspection period were recorded in the Tweed Wastewater Logbook kept at the River Street Pumping Station and in an incident log for each event.

Bypasses and Overflows

- **Bypasses/overflows had occurred at the sewage works during the inspection period.**
The following by-pass or overflow events occurred during the inspection period:

May 1st, 2017 at River Street Pumping Station, duration 4 hours and 25 minutes, total volume 113 m3, due to heavy rainfall.

May 5th to May 9th 2017 at Jamieson Street Pumping Station, duration 92 hours and 5 minutes, total volume 920 m3, due to heavy rainfall

May 5th to May 12th 2017 at River Street Pumping Station, duration 165 hours and 40 minutes, 4142 m3 total volume, due to heavy rainfall.

September 8th to October 31, 2017 at Tweed Lagoon Cells, duration 54 days, 29, 441 m3 total volume, due to prolonged rainfall throughout the season.

April 16th to April 20th 2018 at Jamieson Street Pumping Station, duration of 91 hours and 45 minutes, total volume of 917 m3, due to heavy rainfall

April 16th to April 21, 2018 at River Street Pumping Station, duration of 107 hours and 25 minutes, 2917 m3 total volume, due to heavy rainfall
- **For all bypasses/overflows which occurred from the sewage treatment plant, samples were collected and analyzed in accordance with the Environmental Compliance Approval.**
- **Notices and written reports of all bypasses/overflows were provided to the Ministry in accordance with the Environmental Compliance Approval.**
- **All required verbal notifications of spills were provided forthwith as per O. Reg. 675/98 section 13.**

Biosolids Management

- **The owner was maintaining records of the amount of biosolids generated and the locations where**

Biosolids Management

biosolids were sent.

In 2008, the north cell of the Tweed Lagoon was cleaned out to remove accumulated solids. According to the last inspection report, approximately 12,880 m³ of solids were removed and the biosolids were land applied to 8 farms on 239.7 acres.

- **The owner had a program for the routine removal of sludge from the lagoon system.**

SOP #19 Lagoon Maintenance and Cleaning for the Tweed Wastewater Facility states that the structure and integrity of the lagoons are assessed biannually. The biannual assessment includes observations to assess if sludge loadings are increasing. Additional steps are outlined for sludge removal, if it is determined that it is required.

Certification and Training

- **The classification certificates of the subsystems were conspicuously displayed at the workplace or at premises from which the subsystem was managed.**

The classification certificates for the Tweed Lagoon were observed during the site inspection that are posted at the River Street Pumping Station. The Tweed Lagoon is classified as Wastewater Treatment Subsystem - Class 1 and Wastewater Collection Subsystem - Class 2.

- **Operator licences were displayed in a conspicuous location at the workplace or at the premises from which the subsystem was managed.**
- **The overall responsible operator had been designated for the wastewater treatment and collection works.**
Justin Cassidy has been designated as the overall responsible operator (ORO) for the wastewater treatment and collection facilities since January 16th 2017. Prior to January 16, 2017 Jim Rodgers was the ORO.
- **All operators had the appropriate level of licences for the wastewater treatment and collection works.**
- **Only licenced operators made adjustments to the treatment equipment.**
- **Operators-in-charge were designated for the wastewater treatment plant and all associated collection works.**
Derek Chapman has been designated as the operator in charge (OIC) for the wastewater treatment and collection systems.
- **The operator-in-charge ensured that records were maintained of all adjustments made to the processes within his or her responsibility.**

Logbooks

- **The logs and other record keeping mechanisms complied with the record keeping requirements.**
- **Logs and other record keeping mechanisms were available for at least two (2) years.**

Logbook and roundsheets are kept for at least the past two years. Records are maintained in the office space at the Rollins Street Pumphouse of the Madoc Drinking Water System.

Operations Manuals

Operations Manuals

- **The operations and maintenance manuals met the requirements of the Environmental Compliance Approval.**

OCWA's operations and maintenance manuals for the Tweed Lagoon consists of the Facility Emergency Plan containing operating procedures, the Contingency Plan, Sampling Binder, equipment manuals and Safety Data Sheets.

It is recommended that OCWA prepare additional Standard Operating Procedures for maintenance and operation activities for the collection system.

- **Operators and maintenance personnel had ready access to operations and maintenance manuals.**
Operators have access to the Operations Manual both electronically and a physical copy.
- **The operations and maintenance manuals contained up-to-date plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.**

As constructed diagrams from 1973 by Oliver Lloyd and Associates Limited, project # 2-0274-69 for the lagoon cells, pumping stations, storm sewers and collection system were provided for review.

The Municipality of Tweed had indicated that later in 2019, as part of their Asset Management Plan, that a detailed map of infrastructure in the collection system will be prepared by Greenview Environmental.

Contingency/Emergency Planning

- **For Lagoon Systems, the owner is conforming with the freeboard and berm conditions in the MECP Design Guidelines for Sewage Works.**
- **Spill containment was provided for the process chemicals and/or standby power generator fuel.**
- **The owner had provided security measures for the facility.**

During the field inspection, access to the Tweed Lagoon cells and the Jamieson and River Street pumping stations were observed to be secured with locked gates with no trespassing signage. The building at the River Street Pumping Station is secured with an intrusion alarm system.

Other Inspection Findings

- **The owner had complied with all Orders or other control documents issued since the date of the previous inspection.**

Hydraulic overloading occurred in spring 2017, Provincial Officer's Order (P.O.O) number 1-EYMK2 was issued on March 9, 2017 allowing premature discharge to avoid a potential spill/overflow of the lagoon. The discharge commenced on March 9, 2017 under the cover of ice. Enhanced sampling was required weekly by the P.O.O while the lagoon cells remained substantially under the cover of ice. The cells were free of ice cover by April 5, 2017. P.O.O # 1-EYMK2 was amended on May 4, 2017 for an extension of the discharge period to allow the lagoon to empty completely. The spring 2017 discharge ended on May 19, 2017.

P.O.O number 1-KUJ16 was issued on March 25, 2019 to allow the 2019 spring discharge to occur while the lagoon cells were still substantially ice covered. Enhanced sampling was required weekly while the lagoon cells remained under the cover of ice. The lagoon cells were substantially free of ice cover by April 15, 2019.

The owner complied with all Orders, with the exception that monitoring for fecal coliforms was missed from samples collected March 9th and 15th 2017.

Other Inspection Findings

NON-COMPLIANCE WITH REGULATORY REQUIREMENTS AND ACTIONS REQUIRED

This section provides a summary of all non-compliance with regulatory requirements identified during the inspection period, as well as actions required to address these issues. Further details pertaining to these items can be found in the body of the inspection report.

1. The sewage works effluent was not discharged in accordance with Environmental Compliance Approval.

For the spring discharge in 2017, 2018 and 2019 the lagoon had to discharge under the cover of ice due to capacity constraints and to coincide with the spring freshet.

The ECA prescribes in Condition 8 Special Operations - Seasonal Discharge

(1) The Owner shall operate the Works such that discharge is conducted on a semi-annual discharge basis with the effluent being discharged in the spring and the fall as follows:

Spring: discharge commencing not earlier than March 15 after the liquid surface in the lagoon has become substantially free of ice cover and terminating not later than May 7 and using reasonable efforts to maximize the discharge rate to coincide with the spring freshet and elevated flows in the receivers and

Fall: discharge commencing not earlier than November 1 and terminating not later than December 7.

Action(s) Required:

P.O.O # 1-EYMK2 was served in 2017 with enhanced sampling, required weekly while under the cover of ice. For the spring 2018 discharge, enhanced sampling as per P.O.O # 1-EYMK2 was instructed to be conducted while under the cover of ice and P.O.O # 1-KUJ16 was served in 2019 for enhanced sampling while under the cover of ice.

Enhanced sampling and requirements as outlined in P.O.O # 1-EYMK2 and P.O.O # 1-KUJ16 were conducted as required. No further actions required.

2. The sewage works effluent was not discharged during the prescribed period.

For the spring 2017 discharge OCWA requested approval to discharge the lagoon prematurely to avoid a potential spill/overflow of the lagoons and to coincide with the spring freshet. An extension of the spring discharge period was requested by OCWA, due to high levels of precipitation that added significant volume to the lagoons and to avoid discharge of the lagoons in the fall due to limited capacity.

For the fall 2017 discharge OCWA requested approval from MECP to discharge the lagoon prematurely and the request was not approved.

The ECA prescribes in Condition 8 Special Operations - Seasonal Discharge

(1) The Owner shall operate the Works such that discharge is conducted on a semi-annual discharge basis with the effluent being discharged in the spring and the fall as follows:

Spring: discharge commencing not earlier than March 15 after the liquid surface in the lagoon has become substantially free of ice cover and terminating not later than May 7 and using reasonable efforts to maximize the discharge rate to coincide with the spring freshet and elevated flows in the receivers and

Fall: discharge commencing not earlier than November 1 and terminating not later than December 7.

Action(s) Required:

Provincial Officer's Order (P.O.O) # 1-EYMK2 was served to the Municipality of Tweed on March 9, 2017 to allow for the premature discharge of the lagoon under the cover of ice and to coincide with the elevated flows in the Moira River.

P.O.O # 1-EYMK2 was amended for an extension of the discharge period to May 22, 2017.

An overflow/spill commenced September 9, 2017 and ended on November 1st (start of fall discharge in the ECA).

Requirements as outlined in P.O.O # 1-EYMK2 and condition 4 of the ECA By-Passes were conducted as required. No further actions required.

SUMMARY OF RECOMMENDATIONS AND BEST PRACTICE ISSUES

This section provides a summary of all recommendations and best practice issues identified during the inspection period. Details pertaining to these items can be found in the body of the inspection report. In the interest of continuous improvement in the interim, it is recommended that owners and operators develop an awareness of the following issues and consider measures to address them.

Not Applicable

SIGNATURES

Inspected By:

Monica Howlett

Signature: (Provincial Officer)



Reviewed & Approved By:

James Mahoney

Signature: (Supervisor)



Review & Approval Date: 06/06/2019

Note: This inspection does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they apply or may apply to this facility. It is, and remains, the responsibility of the owner and/or operating authority to ensure compliance with all applicable legislative and regulatory requirements.