Ministry of the Environment

WW DRAYTON LAGOON

Inspection Report

Site Number:	120001782
Inspection Number:	1-BH00D
Date of Inspection:	Feb 26, 2015
Inspected By:	Martha Weber

Drayton Wastewater Treatment Plant
WW# 120001782
2014/15 Inspection Report

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OWNER INFORMATION:

Company Name: MAPLETON, TOWNSHIP OF
Street Number: 7275 **Unit Identifier:**
Street Name: SIDE ROAD 16
City: DRAYTON
Province: ON **Postal Code:** N0G 1P0

CONTACT INFORMATION

Type: Owner **Name:** Brad McRoberts
Phone: (519) 638-3313 x41 **Fax:** (519) 638-5113
Email: bmcroberts@mapleton.ca
Title: Director of Public Works

Type: Operating Authority **Name:** Scott Craggs
Phone: (519) 941-1938 **Fax:** (519) 941-1794
Email: scraggs@ocwa.com
Title: West Highlands Hub Manager

Type: Operating Authority **Name:** Lisa Benoit
Phone: (519) 941-1938 x225 **Fax:** (519) 941-1794
Email: lbenoit@ocwa.com
Title: Process & Compliance Technician

INSPECTION DETAILS:

Site Name: WW DRAYTON LAGOON
Site Address: 7101 SIDEROAD 15 MAPLETON ON N0G 1P0
County/District: Mapleton
MOE District/Area Office: Guelph District
Health Unit: WELLINGTON-DUFFERIN-GUELPH HEALTH UNIT
Conservation Authority N/A
MNR Office: N/A
Site Number: 120001782
Inspection Type: Announced
Inspection Number: 1-BH00D
Date of Inspection: Feb 26, 2015
Date of Previous Inspection: Nov 23, 2010

COMPONENTS DESCRIPTION

Site (Name): Drayton Lagoon
Type: Plant Classification **Sub Type:** Class I

Comments:

Certificate #1768 was issued on July 23, 1991 for Level 1 Drayton Lagoon Wastewater Treatment System.

Certificate #5344 was issued on March 3, 2008, for Level 1 Moorefield and Drayton Wastewater Collection System.

Site (Name): Drayton and Moorefield

Type: Sewage Collection System **Sub Type:** Nominally separated sewers

Comments:

Wastewater in Drayton flows via a gravity collection system to the Drayton Sewage Pumping Station. Moorefield wastewater is directed to the Moorefield Sewage Pumping Station via a low pressure collection system. The estimated total serviced population is 2,450, with approximately 2,000 people in the community of Drayton and approximately 450 people in the community of Moorefield.

Site (Name): Drayton Sewage Pumping Station

Type: Collection System Component **Sub Type:** Pumping station

Comments:

The Drayton Sewage Pumping Station is on the north side of Mill Street in Drayton. This station consists of a wet well with two submersible pumps rated at 22.2 L/s at a 34.2 m TDH. There is a magnetic flowmeter, an emergency station overflow, and an emergency bypass connection on the discharge forcemain. Raw sewage is pumped through a forcemain to the influent flow splitter box at the wastewater treatment plant.

Site (Name): Moorefield Sewage Pumping Station

Type: Collection System Component **Sub Type:** Pumping station

Comments:

The Moorefield Sewage Pumping Station is located on Booth Street in Moorefield. This station includes a wet well equipped with two submersible pumps having a rated capacity of 14.14 L/s at 47 m TDH and an emergency overflow outlet. Raw sewage is pumped through a forcemain to the influent flow splitter box at the wastewater treatment plant.

Site (Name): Drayton Lagoon

Type: Lagoon Sewage Treatment System **Sub Type:** Treatment Facility

Comments:

The Drayton Lagoon system consists of 5 lagoon cells: Cell #2 is the aerated treatment cell and receives raw sewage from the pumping stations. Cell #1 is a facultative treatment cell, after which the effluent enters flow control structure A with valved inlet/outlet pipes to storage Cells #3, 4A, or 4B. A secondary gravity flow control structure B has valved inlet/outlet pipes to Cells #4A and 4B. Cells #4A and 4B were commissioned in late summer of 2012. The plant has alum addition for phosphorus removal, typically dosed in flow control structure A. During the discharge period, flow from a discharge cell (#3, 4A, or 4B) is directed to a magnetic flow meter, then to a filter system consisting of five continuous backwash, upflow sand filters. Reject water from the filters is directed into Cell #2. It is noted that in 2010, a fine bubble aeration system was installed in Cell #2, which was the step required to increase the approved influent capacity from 650 m^3/day to 750 m^3/day.

Site (Name): Drayton Lagoon

Type: Method of Disinfection **Sub Type:** Ultraviolet

Comments:

The filtered effluent passes through two banks of Trojan UV3000B ultraviolet irradiation system for disinfection. Each bank contains four modules of four lamps each, with the ability to treat flows up to 2,000 m³/day.

Site (Name): Drayton Lagoon

Type: Effluent Discharge Frequency **Sub Type:** Seasonal

Comments:

Following disinfection, treated effluent passes through a V-notch weir to a cascade aeration system.

Site (Name): Drayton Lagoon

Type: Effluent Discharge Receiver **Sub Type:** Surface Water

Comments:

Final effluent is discharged on a season basis into the Conestogo River, which is part of the Upper Grand River watershed. The approved discharge season is March 1 to April 13, and October 1 to December 31.

Site (Name): Sewage Pumping Stations

Type: Stand-by Power Generation **Sub Type:** Pumping Station Generator(s)

Comments:

The Drayton Sewage Pumping Station is equipped with a 60 kW standby diesel generator. The Moorefield Sewage Pumping Station is equipped with a 50 kW outdoor diesel generator set.

INSPECTION SUMMARY

INTRODUCTION

* **The primary focus of this inspection is to confirm compliance with Ministry of the Environment legislation and control documents, as well as conformance with Ministry related policies for the inspection period.**

This wastewater treatment and collection system is subject to the legislative requirements of the Ontario Water Resources Act (OWRA), the Environmental Protection Act (EPA), and the Nutrient Management Act, 2002 (NMA) and regulations made therein. This inspection has been conducted pursuant to Section 15 of the OWRA, Section 156 of the EPA and Section 13 of the NMA.

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

The Drayton Lagoons (Mapleton Wastewater Treatment Plant) is a seasonal discharge lagoon system with one aerated treatment cell, one facultative cell, and three storage cells. The plant has alum addition for phosphorus removal, tertiary filters and UV disinfection. The facility has a nominal design flow of 750 m^3/d, services a population of approximately 2,450 and discharges to Conestogo River, a tributary of the Grand River.

This system is owned by the Township of Mapleton and operated by the Ontario Clean Water Agency (OCWA). The review period for this inspection is from January 1, 2011 to December 31, 2014. The sewage pumping stations in Moorefield and Drayton, as well as the lagoon treatment system were included in this inspection.

AUTHORIZING/CONTROL DOCUMENTS

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

The Environmental Compliance Approval (ECA) in place for the Mapleton Wastewater Pollution Control Plant (Drayton Wastewater Plant) at the time of inspection is #7875-95DQSC, issued April 3, 2013. Previous Approvals documents for this system include #4844-8L8GBU, issued on September 6, 2011, and #4150-7JDP55, issued on September 24, 2008. Certificate of Approval (CofA) #1440-5JFU5R was issued on February 6, 2003 for the Moorefield collection system and pumping station.

At the time of inspection, work was in progress to submit an application for amending ECA #7875-95DQSC with respect to improving the discharge program.

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

Although outside of the inspection review period, it is important to note that on March 11, 2015, Provincial Officer's Order 1-BXVN3 was issued to the Township of Mapleton to utilize an amended spring discharge period to alleviate a potential overcapacity condition at the lagoon. The Order adjusts the spring 2015 effluent discharge from a set daily maximum discharge volume to a river flow-paced discharge. The Order also contains requirements for river sampling and conditions on reporting. At the time of issuance of this inspection report, the Order was still in effect with the spring discharge period in progress.

CAPACITY ASSESSMENT

CAPACITY ASSESSMENT

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

The approved capacity of the sewage works is 750 m³/day. Annual average daily flows were reported as follows, with 2011, 2013, and 2014 inflows quite close to the designed capacity:

YEAR	Annual Average Flow	Percent of Rated Capacity
2014	686 m³/day	91.5 %
2013	714 m³/day	95.2 %
2012	587 m/day	78.3 %
2011	680 m³/day	90.7 %

In 2010, the Township had conducted a Municipal Class Environmental Assessment (EA) for Effluent Management at the Drayton Lagoons. This EA resulted in a recommended solution to expand the effluent storage, which brought about the installation of Cells #4A and #4B.

The Township is currently in the process of undergoing another Municipal Class EA, to address wastewater servicing capacity in order to manage the estimated future growth in Drayton and Moorefield.

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

The designed rated capacity for the Drayton Lagoon system was 750 m³/day for the entire inspection review period. Annual average daily flows were as follows:

2014	684 m³/day
2013	714 m³/day
2012	587 m³/day
2011	680 m³/day

* **Flow measuring devices were installed, calibrated and maintained in accordance with the requirements of the Environmental Compliance Approval.**

In the Monitoring and Recording section of the ECA, Section 9(6) requires the owner to install and maintain (a) continuous flow measuring device(s), to measure the flowrate of the influent to or effluent from the sewage works with an accuracy to within +/- 15% of the actual flow rate for the entire design range of the flow measuring device, and record the flowrate at a daily frequency.

There is no influent flowmeter at the lagoons site, thus inflow is monitored via flow meters installed at the Moorefield and Drayton Sewage Pumping Stations. Measurements from these flow meters are combined to create a total inflow for the plant. For effluent monitoring, the discharge volume is calculated on a daily basis during discharge periods by taking the totalized readings from the flow meter upstream of the filters, and subtracting the calculated filter reject, which is based on filter runtime and flowrate.

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

As stated in the section above, Section 9(6) of the ECA requires the flowrate to be recorded at a daily frequency. A review of Drayton Sewage Pumping Station records showed daily flows were recorded. Effluent flows from the lagoons were recorded daily during discharge periods. A review of Moorefield Sewage Pumping Station flowmeter records showed that during 2011 to 2013, one to two days per month were often not recorded. However, record keeping for the Moorefield Sewage Pumping Station improved in 2014, as flows were recorded virtually every day that year.

RECOMMENDATION: It is recommended that efforts be made to ensure daily records are continued to be maintained of inflow to and effluent from the sewage works.

TREATMENT PROCESSES

* **The owner had ensured that all equipment was installed in accordance with the Environmental Compliance Approval.**

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

  Although treatment performance appears to be fulfilling the requirements of the ECA, it is important to note that the HSI turbo blowers are reported to have experienced long-term breakdowns and they appear to be a chronic maintenance issue at the plant. A backup blower has been used to provide aeration to Cell 2, however it is not intended to be providing long term aeration for this cell. It was also reported that for quite some time, one of the UV sensor readouts does not display the intensity, and displays a readout of zero instead, even after cleaning of the system and lamp replacement has been completed.

  RECOMMENDATION: It is recommended that the Township of Mapleton take steps to ensure properly functioning treatment equipment is in place at the Drayton Lagoon as per the ECA, including the blowers and the UV intensity readout.

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

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

EFFLUENT QUALITY AND QUANTITY

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

  Section 6 of the ECA prescribes effluent limits for the Drayton Lagoon as follows:

Effluent Parameter	Average Concentration (mean of all daily concentrations during a calendar month)
CBOD5	7.5 mg/L (Apr & Oct), 10.0 mg/L (Mar, Nov, & Dec)
Total Ammonia Nitrogen	5.0 mg/L
Total Phosphorus	0.5 mg/L
E.Coli	200 org/100mL, as a monthly Geometric Mean Density

  pH of the effluent is to be maintained between 6.0 to 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 CBOD5 limit is 7.5 mg/L for April and October, and 10 mg/L for March, November, and December.

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

  The Total Phosphorus limit is 0.5 mg/L.

* **The sewage works effluent sample results demonstrated compliance with total ammonia/total ammonia nitrogen/unionized ammonia limits prescribed by the Environmental Compliance Approval.**

  The Total Ammonia Nitrogen limit is 5.0 mg/L.

EFFLUENT QUALITY AND QUANTITY

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

  Section 6 (Effluent Limits), subsection (3), requires the effluent to be disinfected so that the monthly Geometric Mean Density of E.coli does not exceed 200 organisms per 100 mL of effluent. Records from the inspection review period show results are consistently well below the limit.

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

  In Table 2 of Section 6 (Effluent Limits), the ECA states the pH of the final effluent is to be maintained between 6.0 to 9.5, inclusive, at all times. A review of field pH results showed that the levels were maintained within the required range.

* **The sewage works effluent sample results did not meet the effluent objectives stated in the Environmental Compliance Approval.**

  Section 5 of the ECA prescribes effluent objectives for the Drayton Lagoon as follows:

Effluent Parameter	Average Concentration (mean of all daily concentrations during a calendar month)
CBOD5	5.0 mg/L
Total Ammonia Nitrogen	3.0 mg/L
Total Phosphorus	0.3 mg/L

  pH of the effluent is to be maintained, using best efforts, between 6.5 to 8.5, inclusive, at all times

  E.Coli 100 org/100mL, expressed as monthly Geometric Mean Density

  The TAN objective was exceeded in March and April of 2011, March 2012, and March 2013.

  The CBOD5 objective was exceeded in March and April 2012.

  The pH objective maximum of 8.5 was exceeded for a number of samples taken in October and November 2011, April and November 2012, October 2013, and December 2014.

  It is noted that all effluent compliance limits set by the ECA were met during the inspection review period. This section is addressing objective limits, which were exceeded.

  RECOMMENDATION: It is recommended that best efforts be made to meet the effluent objectives listed in the ECA.

* **The sewage works effluent sample results met the effluent guideline.**

  The ECA does not include limits for Total Suspended Solids (TSS). Procedure F-5-1 "Determination of Treatment Requirements for Municipal and Private Sewage Treatment Works Discharging to Surface Waters" indicates a recommended objective of 30 mg/L, and a guideline of 40 mg/L. TSS levels at the effluent from the Drayton Lagoon were consistently well below these levels.

* **The sewage works effluent was discharged in accordance with Environmental Compliance Approval.**

  The Drayton Lagoon operates under a seasonal discharge schedule, with the following permitted rates:

Month (Day)	m^3/day	m^3/month
March	1,581	49,015
April (1-13)	3,154	40,997
October	233	7,232

EFFLUENT QUALITY AND QUANTITY

November	1,754	52,618
December	4,000	124,010

Annual Total = 273,872 m³

The discharge volume is calculated on a daily basis by taking the totalized meter readings and subtracting the calculated filter reject, which is based on filter runtime and flowrate. It is noted that as of August 2013, the filter reject pump rating was determined to be inaccurate, and the pump flow rate had to be revised from flow testing.

As part of Provincial Officer's Order 4336-8LHKDD, which was issued in 2011 to address overcapacity issues, permission was given to temporarily increase the discharges in October and November of that year. The increase was allowed as long as a minimum ratio of daily stream flow to daily discharge rate was maintained at 10:1, and that the maximum discharge did not exceed 4,000 m³/day. A monitoring report submitted in January 2012, confirmed that the Order conditions were met with respect to discharge volumes.

Another item of note is that although the operator visits the site on a daily basis during the discharge period, the time between visits can vary significantly. Due to the method of calculating discharge volume, if greater than 24 hours pass between visits, the recorded daily discharge volume could appear to exceed the maximum permitted daily discharge volume. This inflated maximum daily volume is not representative of what was discharged over a 24 hour duration. Staff at OCWA have committed to completing adjustment calculations so that the reported daily discharge flows represent a 24 hour period.

RECOMMENDATION: It is recommended that OCWA staff follow through with the commitment to take steps to improve the accuracy of the reporting of daily maximum discharge volumes, as the current practice indicates the maximum daily values are being exceeded during every month of discharge.

* **The sewage works effluent was discharged during the prescribed period.**

The approved discharge periods are March 1 to April 13, and October 1 to December 31.

* **The inspector did not collect audit samples during the inspection.**

MONITORING REQUIREMENTS

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

Section 9 of ECA 7875-95DQSC outlines the following effluent monitoring requirements, based on a required weekly frequency:

Parameter	Type of Sample
CBOD5	Composite
Total Suspended Solids	Composite
Total Phosphorus	Composite
Total Ammonia Nitrogen	Composite
E. Coli	Grab
pH	Grab (field pH at time of sampling for Total Ammonia Nitrogen)
Temperature	Grab (field temp at time of sampling for Total Ammonia Nitrogen)
Unionized Ammonia	Calculated

MONITORING REQUIREMENTS

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

* **All sewage works influent (raw sewage) sampling requirements prescribed by the Environmental Compliance Approval were not met.**

  (a) The ECA requires composite sampling for raw sewage on a monthly basis. Rather than composite sampling, the method used for influent monitoring has been monthly grab sampling from the influent flow splitter box.

  (b) The September 6, 2011 CofA contained a change in the sampling requirement for influent sampling from CBOD5 to BOD5 (TBOD5). From September 2011 to May 2013, CBOD5 was still sampled and analyzed for instead of BOD5. The adjustment to BOD5 was made in May 2013, and BOD5 has been analyzed for from then on as required.

  REQUIRED ACTIONS:

  (a) The Township of Mapleton shall take steps to either initiate composite sampling for the raw sewage monitoring as stipulated in the ECA or submit an application to have this portion of the ECA amended. If submitted, the ECA amendment application shall contain justification of why composite influent sampling is not feasible and include proposed sampling alternatives.

  (b) No further action is required with respect to BOD5 sampling of the influent, as the adjustment has already been made.

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

  Section 9(5) of the ECA requires field pH and temperature readings to be determined at the time of (weekly) sampling for Total Ammonia Nitrogen. Records for the inspection review period indicate this monitoring was conducted as required.

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

REPORTING REQUIREMENTS

* **The reporting requirements were prescribed by an Environmental Compliance Approval.**

  Section 10 of the current ECA (7875-95DQSC) outlines reporting requirements for this system. A summary of these requirements is as follows:

  - Condition 10(1) requires reporting of planned and unplanned bypass incidents to the District Manager (now the Safe Drinking Water Branch Supervisor) in writing within the specified timeframes.

  - Condition 10(2) requires reporting of effluent exceedances to the District Manager (Safe Drinking Water Branch Supervisor) verbally and in writing within the specified timeframes.

  - Condition 10(3) requires reporting of spills and clean-up of spillage in addition to Part X of the Environmental Protection Act.

  - Condition 10(5) requires submission of annual performance reports within the specified timeframe.

  The previous CofA (4844-8L8GBU) covered the same reporting requirements in Section 11, with the additional section of 11(1) "One week prior to the start up of the operation of the Proposed Works, the Owner shall notify the District Manager (in writing) of the pending start up date." Proposed Works at the time included cells 4A, 4B, and the alum building.

REPORTING REQUIREMENTS

* **All annual performance reports did not meet the submission and contents requirements of the Environmental Compliance Approval.**

  The Annual Reports generally contain the information required by Section 10(5) of the ECA, however some specific items listed in 10(5) were found to not be included in reports from 2011 to 2013. Section 10(5)(f) requires a description of efforts made and results achieved in meeting the Effluent Objectives of Condition 5. Most objectives were addressed, however the objective for pH was not always included, and there was no identification of the sample results where the pH levels exceeded the objective. The pH objective was exceeded for all years of the inspection review period, with the majority occurring in 2011 and 2012. Section 10(5)(g) describes which information should be included regarding sludge; it is noted that the 2011 and 2012 Annual Reports did not address sludge production.

  In addition to the minimum required information, it would be beneficial to include information in the reports with respect to equipment being commissioned and/or decommissioned. Examples include the Drayton Sewage Pumping Station flow meter being replaced with a new meter in 2012, and when the filter reject flow was corrected in 2013, which impacted calculations for effluent discharge flows. It is noted that the 2014 Annual Report contains the required information.

  REQUIRED ACTIONS: No further action, as the most recent report, being the 2014 Annual Report, has been submitted with the information required by the ECA.

* **All reports were submitted in accordance with Ministry recommendations.**

  This item is with respect to the submission of quarterly and/or monthly reports.

BYPASSES AND OVERFLOWS

* **Bypasses/overflows had not occurred at the sewage works during the inspection period.**

BIOSOLIDS MANAGEMENT

* **The owner did not have a program for the routine removal of sludge from the lagoon system.**

  Over time, wastewater lagoons will build-up sludge and require clean-out (desludging). The frequency of desludging depends on the amount of sludge accumulation in the system, which should be monitored on a routine basis. The recommended best practice is to measure sludge depths annually (Federation of Canadian Municipalities and National Research Council, 2004). The current O&M manual recommends measuring the sludge depths once every three years. The work order system used by OCWA schedules the monitoring and recording of sludge levels on a semi-annual basis, however these checks are not completed at that frequency. OCWA representatives advised that sludge levels in Cell #2 were checked in 2010 at the time of installation of the fine diffusers, and that Cell #3 was checked in 2012 at the time of connection between Cells #3, 4A, and 4B. Very minimal sludge accumulation was observed at this time.

  RECOMMENDATION: It is recommended that the Township of Mapleton consider the establishment of a program for assessing sludge accumulation and budgeting for desludging work to be conducted sometime in the future.

CERTIFICATION AND TRAINING

CERTIFICATION AND TRAINING

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

  Certificate #1768 was issued on July 23, 1991 for Level 1 Drayton Lagoon wastewater treatment system.

  Certificate #5344 was issued on March 3, 2008, for Level 1 Moorefield and Drayton Wastewater Collection System.

* **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.**

* **An adequately licensed operator was designated to act in place of the overall responsible operator when the overall responsible operator was unable to act.**

* **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.**

* **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.**

OPERATIONS MANUALS

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

  The Operation and Maintenance Manual in place at the time of inspection was created by R.J. Burnside & Associates and is dated August 2013. Regarding operations and maintenance activities, there are also Standard Operating Procedures and a preventative maintenance work order system utilized by OCWA staff.

* **Operators and maintenance personnel had ready access to operations and maintenance manuals.**

OPERATIONS MANUALS

* **The operations and maintenance manuals contained up-to-date plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.**

CONTINGENCY/EMERGENCY PLANNING

* **Spill containment was provided for the process chemicals and/or standby power generator fuel.**

* **The owner had provided security measures for the facility.**

  Security measures include locked building doors, a locked gate at the road entrance, and daily site visits by the operator during the discharge periods.

OTHER INSPECTION FINDINGS

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

  Order #4336-8LHKDD was issued on September 14, 2011 to address overcapacity issues at the plant. A number of amendments to the Order were issued, including the establishment of an enhanced discharge plan permitted for the October and November 2011 discharge months. Records reviewed indicate that compliance was achieved with respect to the requirements of the Order.

  As noted earlier in this report, Order #1-BXVN3 was in place at the time of inspection report writing, with respect to adjusting the discharge program for the spring 2015 discharge period.

* **The following issues were also noted during the inspection:**

  A number of recommendations have been made throughout this inspection report. Please refer to the section titled "Summary of Recommendations and Best Practice Issues" for a review of these recommendations.

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. **All sewage works influent (raw sewage) sampling requirements prescribed by the Environmental Compliance Approval were not met.**

   (a) The ECA requires composite sampling for raw sewage on a monthly basis. Rather than composite sampling, the method used for influent monitoring has been grab sampling from the influent flow splitter box.

   (b) The September 6, 2011 CofA contained a change in the sampling requirement for influent sampling from CBOD5 to BOD5 (TBOD5). From September 2011 to May 2013, CBOD5 was still sampled and analyzed for instead of BOD5. The adjustment to BOD5 was made in May 2013, and BOD5 has been analyzed for from then on as required.

   Action(s) Required:
   (a) The Township of Mapleton shall take steps to either initiate composite sampling for the raw sewage monitoring as stipulated in the ECA or submit an application to have this portion of the ECA amended. If submitted, the ECA amendment application shall contain justification of why composite influent sampling is not feasible and include proposed sampling alternatives.

   (b) No further action is required with respect to BOD5 sampling of the influent, as the adjustment has already been made.

2. **All annual performance reports did not meet the submission and contents requirements of the Environmental Compliance Approval.**

   The Annual Reports generally contain the information required by Section 10(5) of the ECA, however some specific items listed in 10(5) were found to not be included in reports from 2011 to 2013. Section 10(5)(f) requires a description of efforts made and results achieved in meeting the Effluent Objectives of Condition 5. Most objectives were addressed, however the objective for pH was not always included, and there was no identification of the sample results where the pH levels exceeded the objective. The pH objective was exceeded for all years of the inspection review period, with the majority occurring in 2011 and 2012. Section 10(5)(g) describes which information should be included regarding sludge; it is noted that the 2011 and 2012 Annual Reports did not address sludge production.

   In addition to the minimum required information, it would be beneficial to include information in the reports with respect to equipment being commissioned and/or decommissioned. Examples include the Drayton Sewage Pumping Station flow meter being replaced with a new meter in 2012, and when the filter reject flow was corrected in 2013, which impacted calculations for effluent discharge flows. It is noted that the 2014 Annual Report contains the required information.

   Action(s) Required:
   No further action is required, as the 2014 Annual Report has been submitted with the information required by the Environmental Compliance Approval.

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.

1. **The sewage works effluent sample results did not meet the effluent objectives stated in the Environmental Compliance Approval.**

   The TAN objective of 3.0 mg/L was exceeded in March and April of 2011, March 2012, and March 2013.

   The CBOD5 objective of 5.0 mg/L was exceeded in March and April 2012.

   The pH objective maximum of 8.5 was exceeded for a number of samples taken in October and November 2011, April and November 2012, October 2013, and December 2014.

   It is noted that all effluent compliance limits set by the ECA were met during the inspection review period. This section is addressing objective limits, which were exceeded.

   Recommendation:
   It is recommended that best efforts be made to meet the effluent objectives listed in the ECA.

2. **The owner did not have a program for the routine removal of sludge from the lagoon system.**

   Over time, wastewater lagoons will build-up sludge and require clean-out (desludging). The frequency of desludging depends on the amount of sludge accumulation in the system, which should be monitored on a routine basis. The recommended best practice is to measure sludge depths annually (Federation of Canadian Municipalities and National Research Council, 2004). The current O&M manual recommends measuring the sludge depths once every three years. The work order system used by OCWA schedules the monitoring and recording of sludge levels on a semi-annual basis, however these checks are not completed at that frequency. OCWA representatives advised that sludge levels in Cell #2 were checked in 2010 at the time of installation of the fine diffusers, and that Cell #3 was checked in 2012 at the time of connection between Cells #3, 4A, and 4B. Very minimal sludge accumulation was observed at this time.

   Recommendation:
   It is recommended that the Township of Mapleton consider the establishment of a program for assessing sludge accumulation and budgeting for desludging work to be conducted sometime in the future.

3. **The following issues were also noted during the inspection:**

   1. It was identified earlier in the inspection report that although the operator visits the site on a daily basis, the time between visits can vary significantly. If more than than 24 hours pass between visits, the calculated discharge volume could appear to exceed the maximum permitted daily discharge volume. In fact, the maximum day discharge volumes as reported all appear to exceed the allowed volume for each discharge month of the inspection review period.

   2. A review of Moorefield Sewage Pumping Station flowmeter records showed that during 2011 to 2013, one to two days per month were often not recorded. However, record keeping for the Moorefield Sewage Pumping Station improved in 2014, as flows were recorded virtually every day that year.

   3. The HSI turbo blowers are reported to have experienced long-term breakdowns and they appear to be a chronic maintenance issue at the plant. A backup blower has been used to provide aeration to Cell 2, however it is not intended to be providing long term aeration for this cell. It was also reported that for quite some time, one of the UV sensor readouts does not display the intensity, and displays a readout of zero instead, even after cleaning of the system and lamp replacement has been completed.

   Recommendation:
   1. It is recommended that the Township of Mapleton take steps to improve the accuracy of the reporting of daily maximum effluent discharge volumes, as the current practice indicates the maximum approved daily values are being exceeded for every month of discharge.

2. It is recommended that efforts be made to ensure daily records are continued to be maintained of inflow to and effluent from the sewage works.

3. It is recommended that the Township of Mapleton take steps to ensure properly functioning treatment equipment is in place at the Drayton Lagoon as per the ECA, including the blowers and the UV intensity readout.

SIGNATURES

Inspected By:	Signature: (Provincial Officer):
Martha Weber	
Reviewed & Approved By:	Signature: (Supervisor):
Lisa Williamson	
Review & Approval Date:	30 MAR 2015

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.