THE TOWN OF DEEP RIVER
ONTARIO, CANADA

DEEP RIVER SEWAGE TREATMENT PLANT
2017 ANNUAL REPORT

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Ontario Clean Water Agency
Agence Ontarienne Des Eaux

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Ontario Clean Water Agency
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Facility Overview:

The Deep River Sewage Treatment Plant (STP) accepts and treats the Town of Deep River's domestic sewage. The goal is to treat the sewage to produce an effluent that meets the guidelines as outlined in the Environmental Compliance Approval (ECA) # 1655-7P8SPE. The treated effluent is returned into the Ottawa River.

Inlet Works

The sewage from the collection system accumulates into a wet well. The wet well is equipped with two variable speed pumps that pump the influent into the plant. These pumps operate alternately as duty and stand-by.

The force main enters the plant in the basement. The flow is then split between two sewage grinders. These units are equipped with by-pass piping and isolation valves for maintenance purposes.

Grit Removal

The flow is piped from the sewage grinders to a pressurized vortex grit removal unit (Tea Cup). The grit is collected into the conical section of the vortex creating a slurry. This slurry is pumped upstairs to a dewatering unit. The dewatered grit is disposed into a covered dumpster and is then disposed to a local landfill site. The water from the unit is drained by gravity to a process sump pump located in the basement. There are isolation valves and valve by-pass for maintenance purposes.

The raw sewage flow continues on to the inlet header of the Sequencing Batch Reactors (SBR's).

Plant By-pass

There is an elevated plant by-pass pipe connected upstream of the sewage grinder and re-connecting at the SBR inlet header. The by-pass pipe rises to an elevation greater than the maximum expected head loss across the sewage grinders, before returning the raw sewage to the SBR. This by-pass is designed to relieve high pressures in the force main.

The inlet header also has an elevated overflow into the SBR tank. Overflow ports above the maximum expected water level interconnect all tanks. The last tank is connected to the decant equalization/chlorine contact tanks by an overflow.

In the event that the sewage grinder becomes plugged, or any of the SBR inlet valves fail, plant flow is directed through the elevated overflow into the first SBR and proceeds in series to the decant tank/UV disinfection, and out of the plant. This provides the minimum of primary treatment plus disinfection, adequate in emergency situations. Emergency overflow from the pumping station would go directly to the bypass channel where sodium hypochlorite is added for disinfection and then to the sewer outfall.

Sequencing Batch Reactors (SBR)

There are three SBR basins. The aeration system is a jet aeration system with dry-pit mixing pumps located in the basement level of the main building. This system is positively aspirated by using positive displacement blowers. There are four blowers

provided for SBR aeration, one for each of the three SBR tanks and one for stand-by use. The SBR's are set on a cycle that ensures that no more than two tanks are in the aeration mode at the same time.

The decant system incorporates a floating, solids-excluding decanter. When decanting, a decant butterfly valve is opened and supernatant off of the SBR is able to flow through the decanter. When the decanting process is completed, the valve closes prohibiting flow. The supernatant flows by gravity to the effluent equalization tank.

Disinfection
SBR by-pass disinfection is provided by UV, since the by-pass travels to the decant equalization tank the flow is constant enabling proper disinfection.

Hypochlorite is used when the raw sewage pumping station is forced to by-pass. The flows are directed into a contact chamber. The hypochlorite is injected directly into the by-pass channel. The chlorine pump is a simple, single-speed metering pump.

Effluent from the SBR decant, flows by gravity to the UV disinfection chamber. This facility uses a Trojan 3000+ system, which incorporates high intensity UV lamps. The lamps are placed in a specially designed chamber. The lamps are cleaned automatically using a proprietary wiper and acid injection system. The UV radiation from the bulbs, ensure the desired effluent criteria.

Coagulant Addition
Aluminum sulfate is added to the plant in the raw sewage line leaving the teacup and before the SBR's, to assist in the removal of phosphorus. The aluminum sulfate is pumped using positive displacement, diaphragm-type pumps. The chemical feed rates are based on flow.

Sludge
The Deep River Sewage Treatment Plant uses the aerobic sludge digestion process. There are two blowers (one duty/one stand-by) located in the basement of the main building to provide air to the digester. The sludge is pumped to a sludge holding tank where the sludge can be mixed, aerated, settled, decanted and then loaded for disposal.

Monitoring Data:

As per Section 9 & 10.6(a) of ECA #1655-7P8SPE

The Deep River STP followed the stipulations set out in ECA #3675-68YL58, issued on February 7, 2005. An amended ECA #1655-7P8SPE, was issued on February 26, 2009.

Attached is the Ontario Clean Water Agency (OCWA) Performance Assessment Report. This report summarizes flow data as well as CBOD5, Suspended Solids, Phosphorus and Ammonia Nitrogen (Appendix A). There is also a customized report outlining all of the required parameters set out in the Environmental Compliance Approval (ECA) for 2017 (Appendix B).

It should also be noted that the annual sampling requirement for Acute Lethality was completed and passed. These tests include both Rainbow trout and Daphnia magna and were completed on April 21, 2017 with 0 % mortality for both.

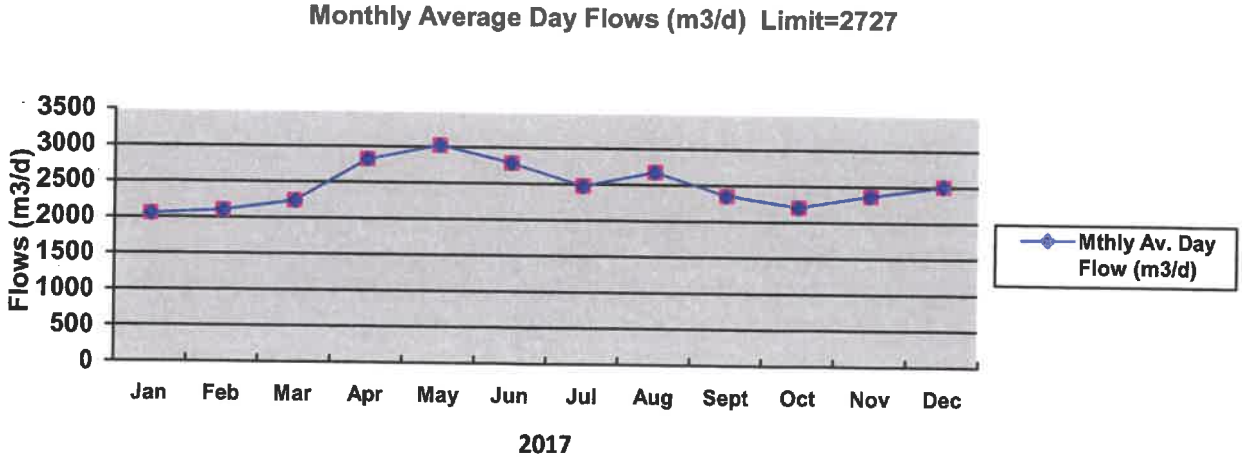
Below find tables and line graphs to demonstrate the Capacity Assessment from 2012 to 2017. Also, effluent $CBOD_5$, Total Suspended Solids, Total Phosphorus, Total Ammonia Nitrogen, pH, and E. Coli concentrations and loadings are reported for monthly and/or annual comparisons, as per the STP Environmental Compliance Approval (ECA).

Capacity Assessment of the Deep River STP:

Year	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Average Day Flow (m3/d)	2 173	2 549	3 027	2 624	2 266	2 467
Design Capacity (m3/d)	2 727	2 727	2 727	2 727	2 727	2 727
% of Capacity/Over Capacity (based on average daily flows)	**79.7**	**93.5**	**111.0**	**96.2**	**83.1**	**90.5**
Maximum Day Flow (m3/d)	3 380	4 685	4 566	3 730	3 886	3 926
% Over Capacity (based on max. day flows)	**124.0**	**171.8**	**167.4**	**136.8**	**142.5**	**144.0**

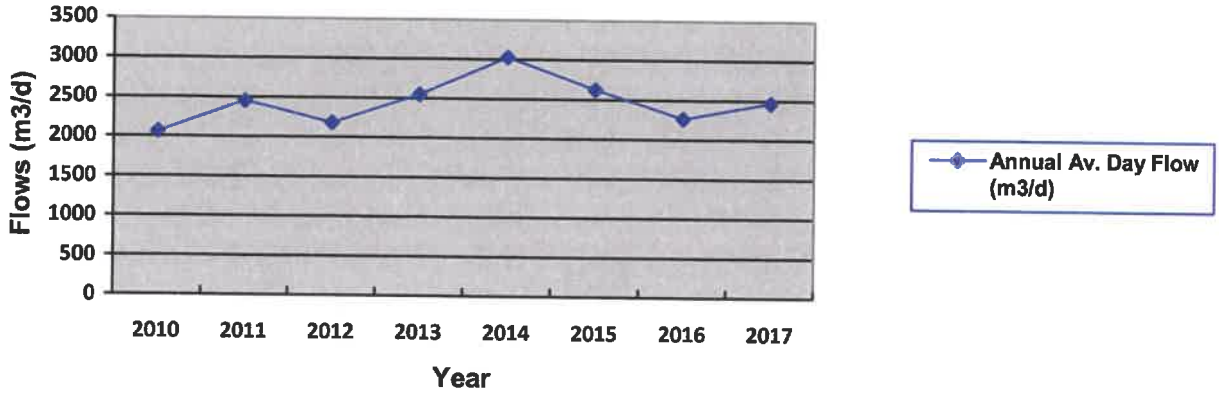
In 2017, the average day flow was at approximately 90.5 % the current design plant capacity, and the maximum day flow was approximately **144.0 % over** the plant design capacity of 2 727 m^3/d. Note that all the percentages, based on maximum day flows for 2012 to 2017, are all **over capacity** percentages.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2017 Monthly Av. Day Flow (m3/d)	2048.18	2104.15	2241.36	2821.18	3020.08	2787.99	2473.51	2676.78	2355.74	2203.83	2363.74	2505.40



	2010	2011	2012	2013	2014	2015	2016	2017
Annual Av. Day Flows (m3/d)	2061	2456	2179	2549	3027	2624	2266	2467

Annual Average Day Flows (m3/d) Limit=2727



In 2017, the average day flow was at approximately 90.5 % of the current plant design. This increased by 7.4 % from 2016. Flows into the plant were high in November and December due to snow in the winter months, and due to summer rains in April to June and in August.

Operational Problems and Corrective Actions:

As per Section 8 & 10.6(b) of ECA #1655-7P8SPE

In 2017, the average day flow was at approximately 90.5 % of the current design plant capacity, and the maximum day flow was approximately **144.0 % over** the plant design capacity of 2 727 m^3/d. OCWA and the Town of Deep River are well aware of the infiltration and inflow problems of the collection system and are continuing to work to alleviate this problem. OCWA took on the maintenance and operation of the collection system in 2017 for the Town of Deep River.

Two Notifications of Non-Compliance were sent to the MOECC in 2017. The first one was the result of total phosphorus exceeding the ECA monthly average limit for the month of April 2017. The other notice was missed sampling in November 2017, as result of lab error. These can be viewed in Appendix C of this report.

The annual Acute Lethality testing (samples taken on September 5th) for 2017 passed with 0 % mortality, as reported under the Monitoring Data section above.

Compliance Inspection by MOECC:

The last Communal Sewage Inspection for the Deep River STP was held on October 28, 2015. The final report was received on January 25th, 2016. There was three Required Actions and one Recommendation cited in the report. They are as follows:

- RA #1 – "A written report is required to be submitted to the inspector by June 30/16, outlining the results of the inspection program, including flushing and camera work, outlining the problem areas found, and written plans to reduce or eliminate the inflow/infiltration within the collection system". (Completed)
- RA #2 – "The owner shall ensure that the statement of substantial completion has been prepared and certified by a Professional Engineer". (Completed)
- RA #3 – "If there is continued failure of the acute lethality testing in 2016, OCWA shall ensure that an investigation is completed to determine what control measures, if any, are appropriate to achieve non-acutely effluent. If control measures are not appropriate, a written explanation of the reasons why control measures are not necessary shall be completed as required under Condition 9(6). No action is required at this time". (Completed)
- REC #1 – "Best efforts shall be made to operate within the rated capacity and operate such that the effluent is non-lethal. These objectives were not met and have been discussed in the report. No specific action is required at this time. Best efforts shall be used to operate within all objectives".

2017 Effluent Objectives and Limits:

As per Section 6 & 7 &10.6 (a) & (f) of ECA #1655-7P8SPE

Effluent Parameter		EFFLUENT OBJECTIVES		
		Concentration Objective (mg/L)	**Concentration Objective Achieved in 2017 (mg/L)**	**Was Effluent Concentration Objective Met?**
Annual average of $CBOD_5$ (mg/L)		15	< 4.778	Yes
Annual average of Total Suspended Solids (mg/L)		15	< 23.056	**No**
Monthly Average of Total Phosphorus (mg/L)	JAN	0.8	0.692	Yes
	FEB		0.193	Yes
	MAR		0.400	Yes
	APR		1.093	**No**
	MAY		0.793	Yes
	JUN		0.485	Yes
	JUL		0.435	Yes
	AUG		0.456	Yes
	SEPT		0.313	Yes
	OCT		0.362	Yes
	NOV		0.337	Yes
	DEC		0.150	Yes
Monthly	JUN	5.0	1.710	Yes

Average of Total Ammonia Nitrogen (mg/L)	JUL		3.453	Yes
	AUG		4.062	Yes
	SEPT		0.980	Yes
	OCT		1.166	Yes
	NOV	10.0	6.887	Yes
	DEC		6.750	Yes
	JAN		0.342	Yes
	FEB		3.155	Yes
	MAR		1.968	Yes
	APR		4.060	Yes
	MAY		3.937	Yes
Monthly Geometric Mean Density of E. Coli equals or < 150 cfu/100 ml	JAN	< 150 cfu/100ml	10.000	Yes
	FEB		23.784	Yes
	MAR		21.147	Yes
	APR		17.783	Yes
	MAY		31.477	Yes
	JUN		38.687	Yes
	JUL		119.511	Yes
	AUG		11.487	Yes
	SEPT		17.321	Yes
	OCT		10.000	Yes
	NOV		10.000	Yes
	DEC		10.000	Yes

Effluent Parameter		EFFLUENT LIMITS		
		Average Concentration Limit (mg/L)	**Average Concentration Limit Achieved in 2017 (mg/L)**	**Was Effluent Limit Met?**
Annual average of $CBOD_5$ (mg/L)		25	< 4.778	Yes
Annual average of Total Suspended Solids		25	< 23.056	Yes
Monthly Average of Total Phosphorus (mg/L)	JAN	1.0	0.692	Yes
	FEB		0.193	Yes
	MAR		0.400	Yes
	APR		1.093	**No**
	MAY		0.793	Yes
	JUN		0.485	Yes
	JUL		0.435	Yes
	AUG		0.456	Yes
	SEPT		0.313	Yes
	OCT		0.362	Yes
	NOV		0.337	Yes
	DEC		0.150	Yes
Monthly Average of Total Ammonia Nitrogen (mg/L)	JUN	15.0	1.710	Yes
	JUL	10.0	3.453	Yes
	AUG	10.0	4.062	Yes
	SEPT	10.0	0.980	Yes
	OCT	15.0	1.166	Yes
	NOV	25.0	6.887	Yes

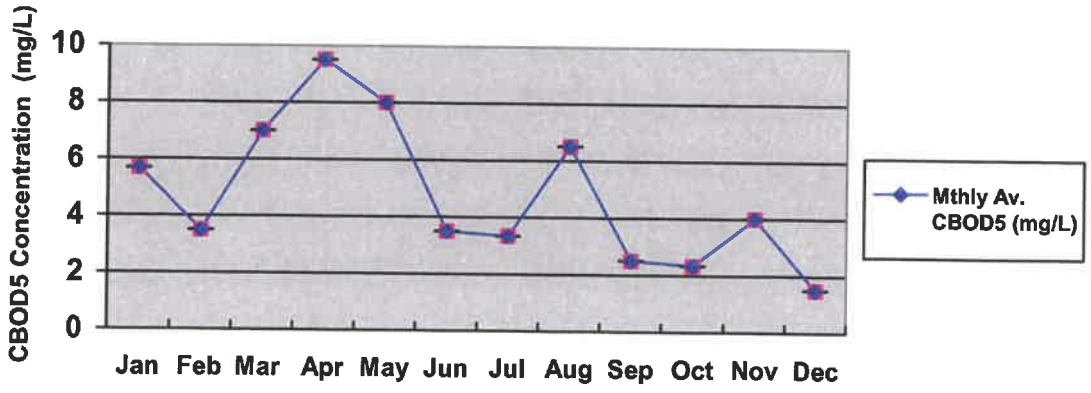
	DEC	25.0	6.750	Yes
	JAN	25.0	0.342	Yes
	FEB	25.0	3.155	Yes
	MAR	25.0	1.968	Yes
	APR	25.0	4.060	Yes
	MAY	20.0	3.937	Yes
Monthly Geometric Mean Density of E. Coli equals or < 200 cfu/100 ml	JAN	< 200 cfu/100ml	10.000	Yes
	FEB		23.784	Yes
	MAR		21.147	Yes
	APR		17.783	Yes
	MAY		31.477	Yes
	JUN		38.687	Yes
	JUL		119.511	Yes
	AUG		11.487	Yes
	SEPT		17.321	Yes
	OCT		10.000	Yes
	NOV		10.000	Yes
	DEC		10.000	Yes

pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times (ANNUAL MIN-MAX RANGE)	6.83 – 7.78	**LIMITS MET?** Yes

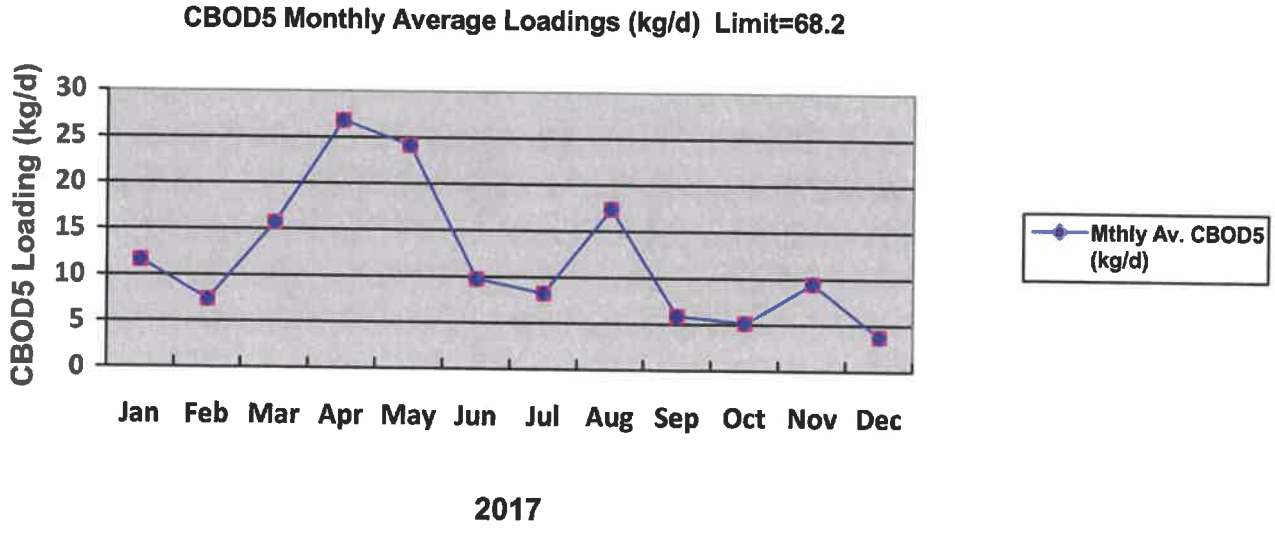
Effluent Biochemical Oxygen Demand (CBOD5):

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2017 CBOD5 Mthly Av. Concentrations (mg/L)	5.667	3.500	7.000	9.500	8.000	3.500	3.333	6.500	2.500	2.333	4.000	1.500

2017 CBOD5 Monthly Average Concentrations (mg/L) Limit=25

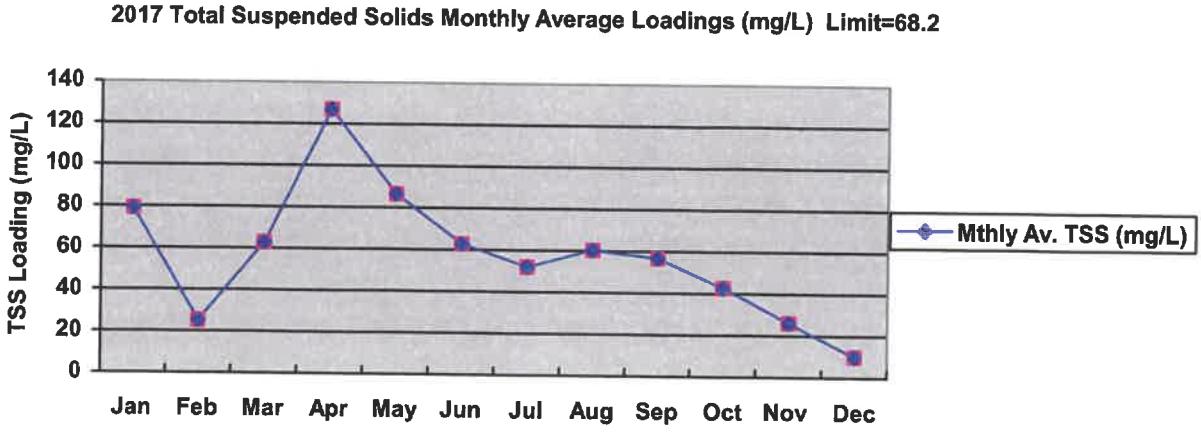


	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2017 CBOD5 Mthly Av. Loadings (kg/d)	11.606	7.365	15.690	26.801	24.161	9.758	8.245	17.399	5.889	5.142	9.455	3.758



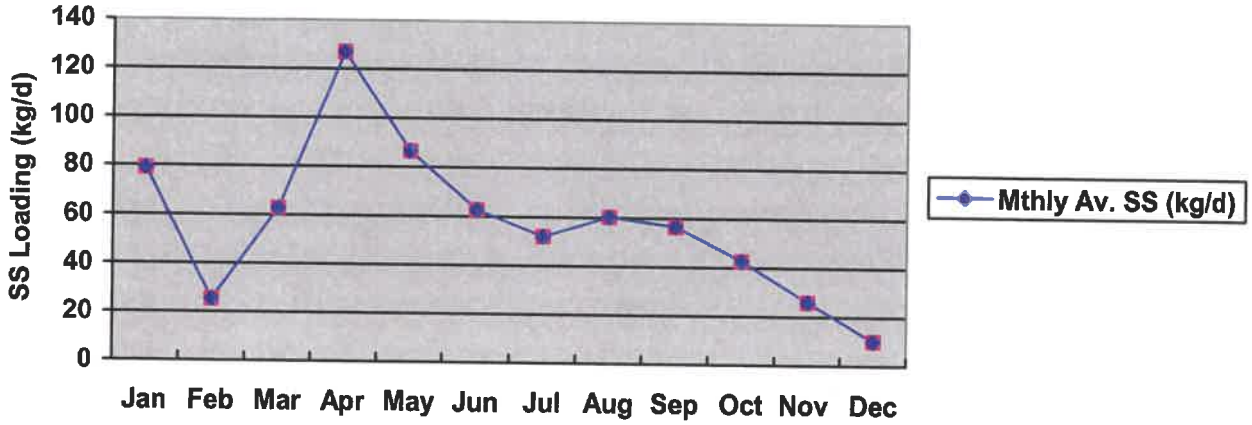
Effluent Total Suspended Solids:

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2017 TSS Mthly Av. Concentrations (mg/L)	38.667	12.000	28.000	45.000	28.667	22.500	21.000	22.500	24.000	19.333	11.000	< 4.000



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2017 TSS Mthly Av. Loadings (kg/d)	79.196	25.250	62.758	126.953	86.576	62.730	51.944	60.228	56.538	42.607	26.001	< 10.022

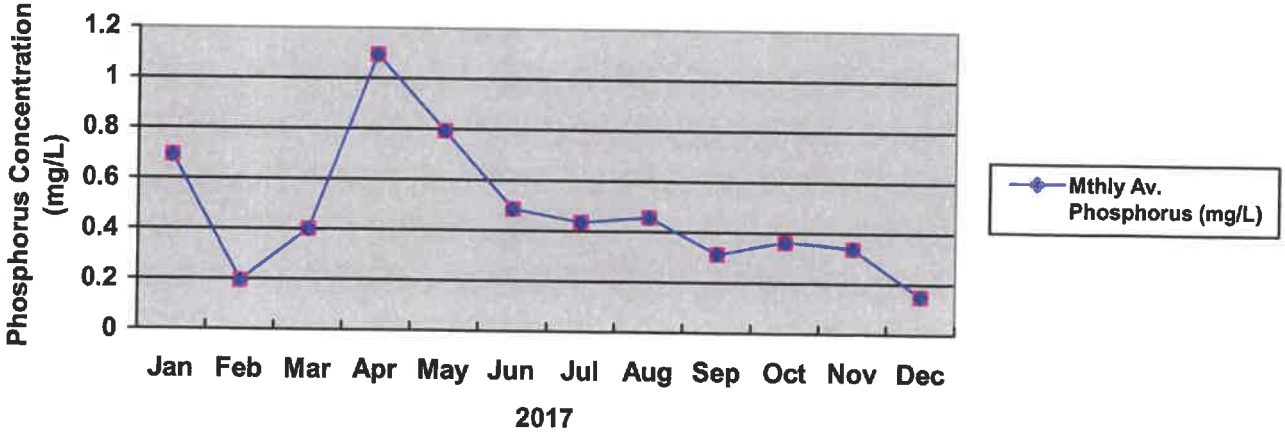
2017 Total Suspended Solids Monthly Average Loadings (kg/d) Limit=68.2



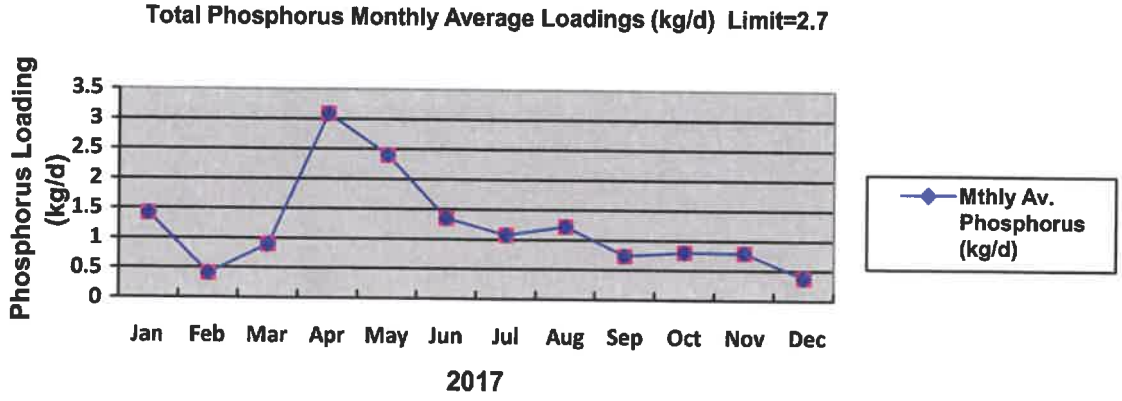
Effluent Total Phosphorus:

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2017 TP Mthly Av. Concentrations (mg/L)	0.692	0.193	0.400	1.093	0.793	0.485	0.435	0.456	0.313	0.362	0.337	0.150

Total Phosphorus Monthly Average Concentrations (mg/L) Limit=1.0

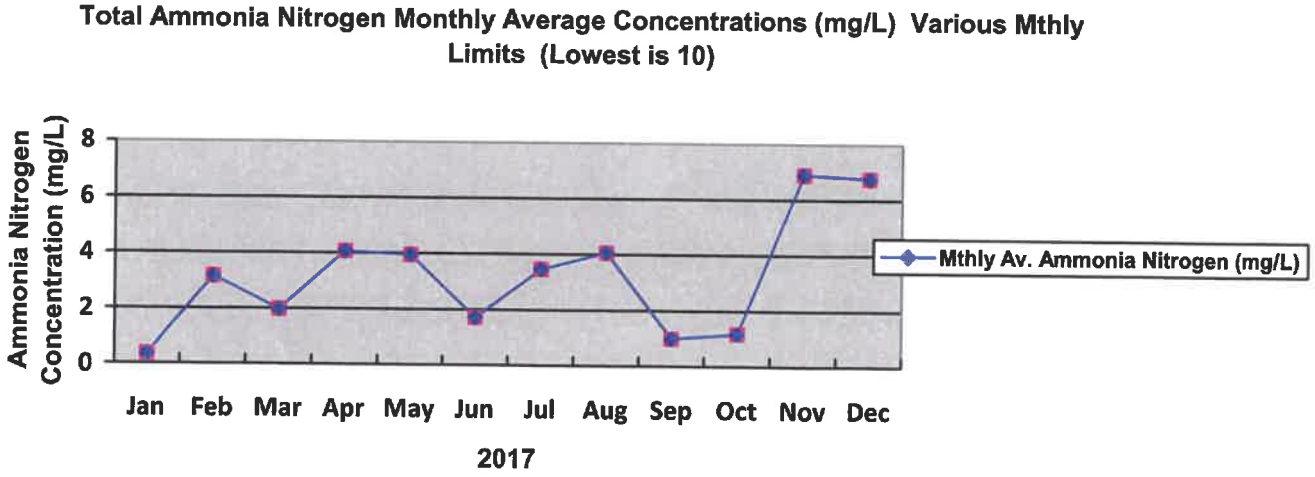


	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2017 TP Mthly Av. Loadings (kg/d)	1.417	0.405	0.897	3.082	2.396	1.352	1.076	1.221	0.736	0.798	0.796	0.376



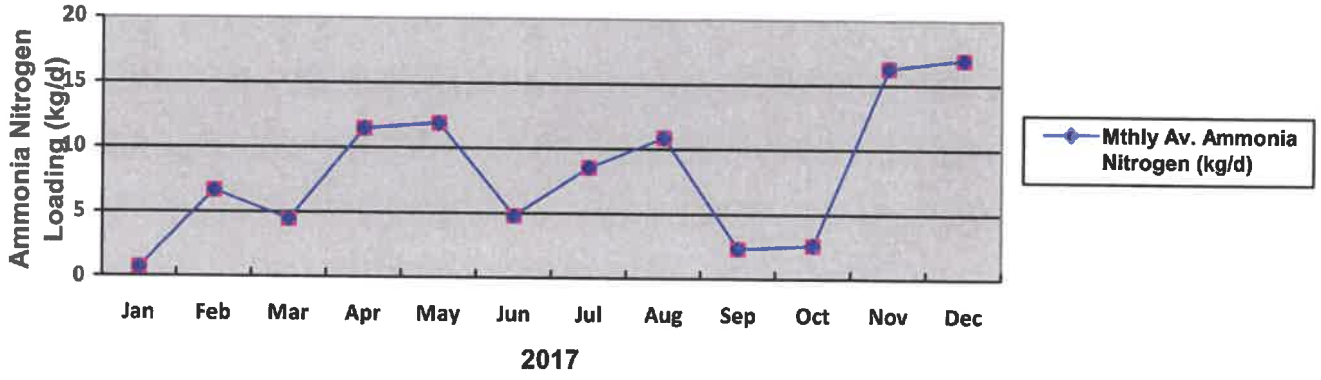
Effluent Total Ammonia Nitrogen:

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2017 TAN Mthly Av. Concentrations (mg/L)	0.342	3.155	1.968	4.060	3.937	1.710	3.453	4.062	0.980	1.166	6.887	6.750



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2017 TAN Mthly Av. Loadings (kg/d)	0.700	6.639	4.410	11.454	11.889	4.767	8.540	10.873	2.309	2.570	16.278	16.911

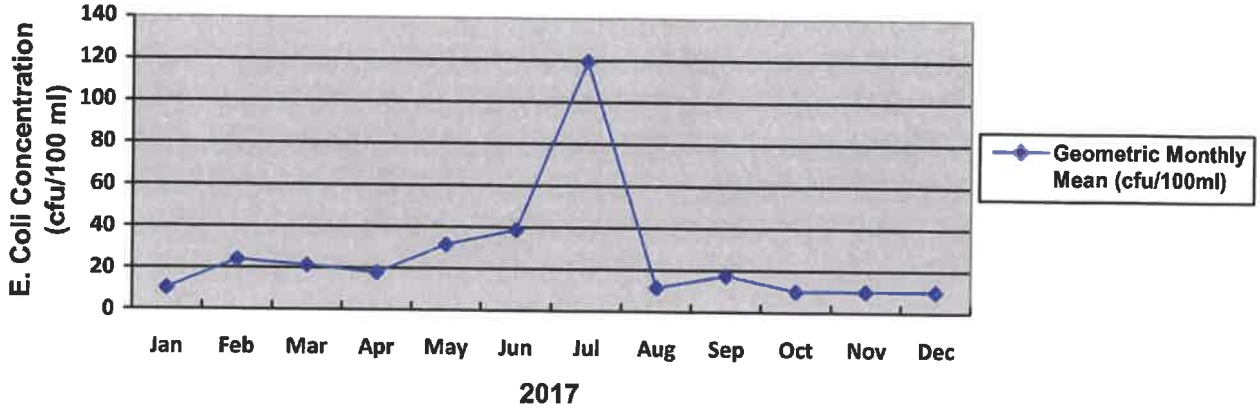
Total Ammonia Nitrogen Monthly Average Loadings (kg/d) Various Mthly Limits (Lowest is 27.3)



Effluent E. Coli:

Monthly Geometric Mean Density of E. Coli	**JAN**	10.000
	FEB	23.784
	MAR	21.147
	APR	17.783
	MAY	31.477
	JUN	38.687
	JUL	119.511
	AUG	11.487
	SEP	17.321
	OCT	10.000
	NOV	10.000
	DEC	10.000

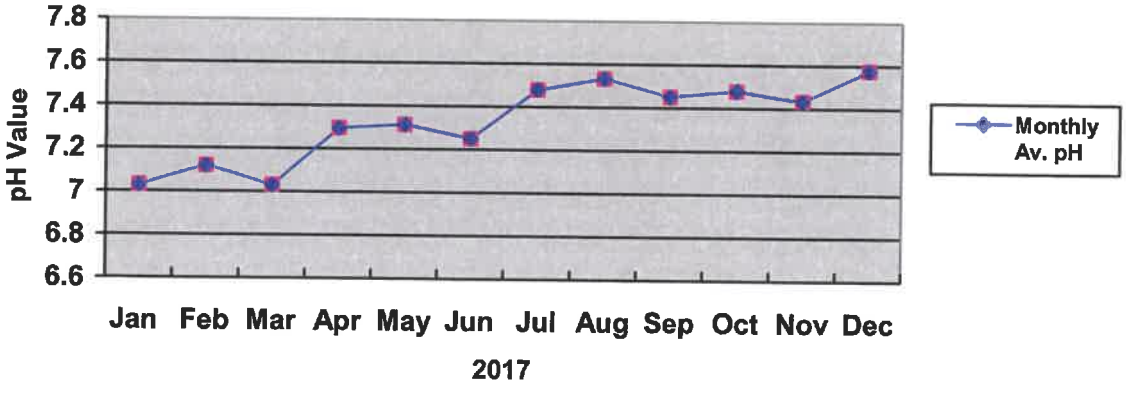
E. Coli Geometric Monthly Mean (cfu/100 ml) Limit=200



Effluent pH:

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Av. FE pH	7.028	7.118	7.03	7.295	7.313	7.25	7.478	7.532	7.45	7.478	7.433	7.575

pH Monthly Averages Limit=6.0 to 9.5



Effluent Quality Assurance or Control Measures:

As per Section 10.6(d) of ECA #1655-7P8SPE

Ontario Clean Water Agency (OCWA) uses internal compliance auditing techniques by professionals from within the organization. OCWA operates the Deep River Sewage Treatment Plant in accordance with the ECA #1655-7P8SPE, issued on February 26, 2009 and all related provincial regulations and guidelines, as follows:

- **Use of Accrediated Labs** - Analytical tests to monitor required parameters are conducted by a laboratory audited by the Canadian Association for Environmental Analytical Laboratories (CAEAL) and accredited by the Standards Council of Canada (SCC). Accreditation ensures that the laboratory has acceptable laboratory protocols and test methods in place. It also requires the laboratory to provide evidence and assurances of the proficiency of the analysts performing the test methods. The laboratory used for the Deep River STP is Eurofins (Exova) laboratories in Ottawa.

- **Operated by Licensed Operators** - The wastewater treatment plant is operated and maintained by the Ontario Clean Water Agency's competent and licensed staff. The mandatory licensing program for operators of sewage treatment systems is regulated under Ontario Regulation 129/04. Licensing means that an individual meets the education and experience requirements and has successfully passed the certification exam.

- **Sampling and Analytical Requirements** - OCWA follows a sampling and analysis schedule established based on current approvals and legislation. Sample calendars are developed at the beginning of the calendar year and are followed to ensure that required samples are taken. In March 2006, OCWA started receiving uploaded laboratory results directly from the laboratory into OCWA's Process Data Collection (PDC) system, and now since May 2014, into OCWA's Process Data Management (PDM) system.

- **Adherence to Ministry Guidelines and Procedures** - To ensure the protection of the Public's health and operational excellence, OCWA adheres to the guidelines and procedures developed by the Ministry of the Environment & Climate Change.

Maintenance:

As per Section 8 & 10.6(e) of ECA #1655-7P8SPE

The Deep River STP uses a Workplace Management System (WMS - Maximo). This is a comprehensive computerized maintenance tracking system. The system creates work orders for scheduled maintenance on an annual, semi-annual, quarterly, monthly and weekly basis. The service work is recorded in the work order history. This ensures routine and preventative maintenance is performed. Emergency and capital repair maintenance is completed and added to the system.

During the 2017 calendar year, a total of 85 Work Orders were completed at the Deep River Sewage Treatment Plant. A breakdown of this total is listed below:

- Corrective 4
- Preventative 38
- Emergency 0
- Operational 41
- Capital 1
- Call Backs 1

Maintenance Summary for 2017:

Brief Description – Summary of Expenses Incurred for Installation, Repairs or Replacements:

- Miscellaneous capital items required for the maintenance and repair of equipment at the Deep River STP.
- Costs associated with the equalization tank clean-out.
- Corrective repair for the cracked baffle in the blower unit.
- Replacement of blower unit bearing spun on shaft.
- Fabrication of lifting arm for the SBR valve.
- Replacement of SBR #3 decant valve.

Calibration and Maintenance of Monitoring Equipment:

As per Section 10.6(e) of ECA #1655-7P8SPE

Ontario Clean Water Agency has on staff an Instrumentation Technician / Field Service Representative. This staff member is responsible for performing annual calibrations on the flow meters throughout the plant. These work orders calibrations are attached in Appendix D.

Sludge Generation:

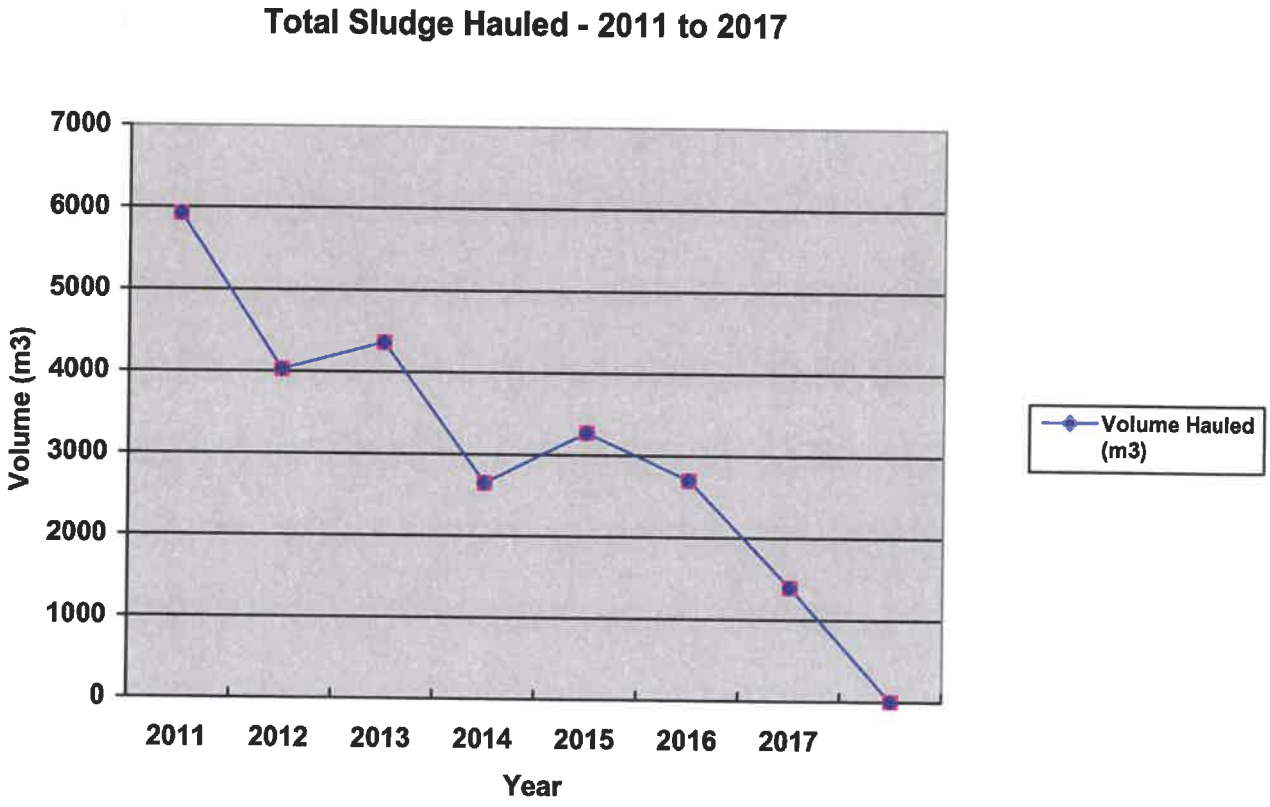
As per Section 10.6(g) of ECA #1655-7P8SPE

In Appendix E, there are summary reports entitled "Biosolids Quality Report - Liquid", and Bio-Ag's Land Application Report (LAR). The first report summarizes nutrient and heavy metal amounts determined through laboratory testing. The hauling volumes by Bio-Ag are displayed in the LAR report for the 2017 season.

The sludge from this facility is usually spread on agricultural land. This year, OCWA contracted Bio-Ag to remove the sludge from the plant to NASM fields certified under their NASM Plan Developer(s). The total amount of sludge hauled from the plant for 2017 was 1 391 cubic meters. Similar volumes should be taken out in the 2018 hauling season, or slightly higher than the 2017 season.

Sludge is spread in accordance with the Nutrient Management Act, O. Reg. 267/03 and all of the regulations affiliated with the Act, as well as, all the Ministry of the Environment & Climate Change (MOECC) guidelines.

	2011	2012	2013	2014	2015	2016	2017
Volume of sludge hauled (m3/yr)	5923	4025	4360	2651	3272	2695	1391



Community Complaints:

As per Section 10.6(h) of ECA #1655-7P8SPE

There were no community complaints for the reporting period of January 1, 2017 to December 31, 2017 for the Deep River STP.

Bypasses / Spills / Abnormal Discharges:

As per Section 10.6 (i) of ECA #1655-7P8SPE

There were no bypasses, spills or abnormal discharges events reported in 2017.

Proposed Alterations, Extensions, or Replacement to Works:

There were no proposed alternations, extensions or replacement to Works at the Deep River Sewage Treatment Plant during 2017.

The Town of Deep River conducted flushing and camera work in 2014 & 2015, as part of an inspection program of the collection system to identify problem areas contributing to the infiltration and inflow (I & I) problems within the town. This will continue to be an ongoing project in the coming years. Results of the inspection program are being used to identify areas that contribute the most to the I & I problem, and received the most attention in 2017, and will again in 2018.

Also, nearly all manholes were mapped and inspected in 2016. The Town will be working on the manhole levels on an ongoing basis and the rest will default to the Strategic Infrastructure Planning (SIP) contract that they have entered into with OCWA's Engineering Group. This will be the process to develop a long-term strategy to deal with infiltration issues, along with the sub drain to try and deal with ongoing water table issues, which is another one of the major causes of the infiltration.

APPENDIX A

Performance Assessment Report (PAR)

Ontario Clean Water Agency
Performance Assessment Report Wastewater/Lagoon

Report extracted 03/05/2018 09:48

From: 01/01/2017 to 31/12/2017

Facility: [5853] DEEP RIVER WASTEWATER TREATMENT FACILITY

Works: [120000612]

	01/2017	02/2017	03/2017	04/2017	05/2017	06/2017	07/2017	08/2017	09/2017	10/2017	11/2017	12/2017	<--Total-->	<--Avg.-->	<--Max-->	<--Criteria-->
Flows:																
Raw Flow: Total - Raw Sewage (m^3)	63493.49	58916.14	69482.29	84635.42	93622.49	83639.66	76678.85	82980.16	70672.16	68318.69	70912.07	77667.31	901018.73			
Raw Flow: Avg - Raw Sewage (m^3/d)	2048.18	2104.15	2241.36	2821.18	3020.08	2787.99	2473.51	2676.78	2355.74	2203.83	2363.74	2505.40		2466.83		
Raw Flow: Max - Raw Sewage (m^3/d)	2475.80	3331.50	2830.62	3412.76	3926.36	3562.62	2865.84	3398.44	3158.22	3427.58	3433.86	3427.24			3926.36	
Eff. Flow: Total - Final Effluent (m^3)	63493.49	58916.14	69482.29	84635.42	93622.49	83639.66	76678.85	82980.16	70672.16	68318.69	70912.07	77667.31	901018.73			
Eff. Flow: Avg - Final Effluent (m^3/d)	2048.18	2104.15	2241.36	2821.18	3020.08	2787.99	2473.51	2676.78	2355.74	2203.83	2363.74	2505.40		2466.83		
Eff. Flow: Max - Final Effluent (m^3/d)	2475.80	3331.50	2830.62	3412.76	3926.36	3562.62	2865.84	3398.44	3158.22	3427.58	3433.86	3427.24			3926.36	
Carbonaceous Biochemical Oxygen Demand: CBOD:																
Raw: Avg cBOD5 - Raw Sewage (mg/L)	62.333	98.500	84.000	28.500	28.667	37.500	37.333	58.000	67.000	78.000	31.000	104.500		59.611	104.500	
Raw: # of samples of cBOD5 - Raw Sewage (mg/L)	3	2	2	2	3	2	3	2	2	3	2	2	28			
Eff: Avg cBOD5 - Final Effluent (mg/L)	5.667	3.500	7.000	9.500	8.000	3.500	3.333	6.500	2.500	2.333	4.000	1.500		4.778	9.500	25.0
Eff: # of samples of cBOD5 - Final Effluent (mg/L)	3	2	2	2	3	2	3	2	2	3	2	2	28			
Loading: cBOD5 - Final Effluent (kg/d)	11.606	7.365	15.690	26.801	24.161	9.758	8.245	17.399	5.889	5.142	9.455	3.758		12.106	26.801	
Biochemical Oxygen Demand: BOD5:																
Total Suspended Solids: TSS:																
Raw: Avg TSS - Raw Sewage (mg/L)	92.333	210.500	118.000	36.000	108.333	89.000	122.333	140.000	196.000	152.333	102.000	337.500		142.028	337.500	
Raw: # of samples of TSS - Raw Sewage (mg/L)	3	2	2	2	3	2	3	2	2	3	2	2	28			
Eff: Avg TSS - Final Effluent (mg/L)	38.667	12.000	28.000	45.000	28.667	22.500	21.000	22.500	24.000	19.333	11.000	< 4.000		< 23.056	45.000	25.0
Eff: # of samples of TSS - Final Effluent (mg/L)	3	2	2	2	3	2	3	2	2	3	2	2	28			
Loading: TSS - Final Effluent (kg/d)	79.196	25.250	62.758	126.953	86.576	62.730	51.944	60.228	56.538	42.607	26.001	< 10.022		< 57.567	126.953	
Percent Removal: TSS - Raw Sewage (mg/L)	58.123	94.299	76.271	-25.000	73.538	74.719	82.834	83.929	87.755	87.309	89.216	98.815			98.815	
Total Phosphorus: TP:																

Raw: Avg TP - Raw Sewage (mg/L)	3.208	2.705	3.815	1.505	2.044	2.255	2.603	2.626	2.915	3.596	3.163	4.245		2.890	4.245	
Raw: # of samples of TP - Raw Sewage (mg/L)	5	4	4	4	5	4	4	5	4	5	3	4	51			
Eff: Avg TP - Final Effluent (mg/L)	0.692	0.193	0.400	1.093	0.793	0.485	0.435	0.456	0.313	0.362	0.337	0.150		0.476	1.093	1.0
Eff: # of samples of TP - Final Effluent (mg/L)	5	4	4	4	6	4	4	5	4	5	3	4	52			
Loading: TP - Final Effluent (kg/d)	1.417	0.405	0.897	3.082	2.396	1.352	1.076	1.221	0.736	0.798	0.796	0.376		1.213	3.082	
Percent Removal: TP - Raw Sewage (mg/L)	78.429	92.884	89.515	27.409	61.187	78.492	83.285	82.635	89.280	89.933	89.357	96.466			96.466	
Nitrogen Series:																
Raw: Avg TKN - Raw Sewage (mg/L)	34.320	25.600	29.900	14.700	17.420	19.525	19.725	23.900	24.325	23.500	28.533	29.950		24.283	34.320	
Raw: # of samples of TKN - Raw Sewage (mg/L)	5	4	4	4	5	4	4	5	4	5	3	4	51			
Eff: Avg TAN - Final Effluent (mg/L)	0.342	3.155	1.968	4.060	3.937	1.710	3.453	4.062	0.980	1.166	6.887	6.750		3.206	6.887	8.0
Eff: # of samples of TAN - Final Effluent (mg/L)	5	4	4	4	6	4	4	5	4	5	3	4	52			
Loading: TAN - Final Effluent (kg/d)	0.700	6.639	4.410	11.454	11.889	4.767	8.540	10.873	2.309	2.570	16.278	16.911		8.112	16.911	
Disinfection:																
Eff: GMD E. Coli - Final Effluent (cfu/100mL)	10.000	23.784	21.147	17.783	31.477	38.687	119.511	11.487	17.321	10.000	10.000	10.000		26.766	119.511	200.0
Eff: # of samples of E. Coli - Final Effluent (cfu/100mL)	5	4	4	4	5	4	4	5	4	5	4	4	52			

APPENDIX B

PDM Monthly Summary

Ontario Clean Water Agency
Time Series Info Report

Report extracted 03/05/2018 10:01

From: **01/01/2017 to 31/12/2017**

Facility Org Number: 5853

Facility Works Number: 120000612

Facility Name: DEEP RIVER WASTEWATER TREATMENT FACILITY

Facility Owner: Municipality: TOWN OF DEEP RIVER

Facility Classification: Class 2 Wastewater Treatment

Receiver: OTTAWA RIVER

Service Population: 4109.0

Total Design Capacity: 2727.0 m3/day

	01/2017	02/2017	03/2017	04/2017	05/2017	06/2017	07/2017	08/2017	09/2017	10/2017	11/2017	12/2017	Total	Avg	Max	Min
Final Effluent / Carbonaceous Biochemical Oxygen Demand: CBOD5 - mg/L																
Max Lab	11	4	10	12	15	4	5	9	3	3	4	2			15	
Mean Lab	5.667	3.5	7	9.5	8	3.5	3.333	6.5	2.5	2.333	4	1.5		4.786		
Min Lab	1	3	4	7	2	3	2	4	2	2	4	1				1
Final Effluent / E. Coli: EC - cfu/100mL																
Max Lab	< 10	< 80	100	< 100	1030	140	< 2400	20	< 90	< 10	< 10	< 10			< 2400	
Mean Lab	< 10	< 32.5	< 35	< 32.5	< 218	62.5	< 657.5	< 12	< 30	< 10	< 10	< 10		< 90.962		
Min Lab	< 10	< 10	< 10	< 10	< 10	10	< 10	< 10	< 10	< 10	< 10	< 10				< 10
Final Effluent / Total Ammonia Nitrogen: NH3 + NH4+ as N - mg/L																
Max Lab	0.57	6.09	2.98	4.98	6.29	2.04	4.32	4.93	1.72	2.14	7.83	7.65			7.83	
Mean Lab	0.342	3.155	1.968	4.06	3.937	1.71	3.453	4.062	0.98	1.166	6.887	6.75		3.085		
Min Lab	0.2	0.74	1.22	3.09	1.65	1.55	1.32	3.46	0.4	0.21	6.23	5.33				0.2
Final Effluent / Total Phosphorus: TP - mg/L																

Max Lab	1.03	0.26	0.75	1.43	1.87	0.57	0.47	0.8	0.57	0.54	0.38	0.24				1.87	
Mean Lab	0.692	0.193	0.4	1.093	0.793	0.485	0.435	0.456	0.313	0.362	0.337	0.15			0.492		
Min Lab	0.04	0.11	0.21	0.8	0.19	0.37	0.4	0.17	0.05	0.19	0.25	0.05					0.04
Final Effluent / Total Suspended Solids: TSS - mg/L																	
Max Lab	45	16	53	51	50	27	28	37	26	28	13	6				53	
Mean Lab	38.667	12	28	45	28.667	22.5	21	22.5	24	19.333	11	< 4		<	23.607		
Min Lab	27	8	3	39	10	18	17	8	22	10	9	< 2					< 2
Final Effluent / pH - ---																	
Max Lab	7.34	7.39	7.19	7.43	7.78	7.42	7.61	7.73	7.5	7.75	7.51	7.73				7.78	
Mean Lab	7.028	7.118	7.03	7.295	7.313	7.25	7.478	7.532	7.45	7.478	7.433	7.575			7.33		
Min Lab	6.83	6.88	6.83	7.17	7.06	7.17	7.42	7.4	7.38	7.39	7.38	7.51					6.83
Raw Sewage / Carbonaceous Biochemical Oxygen Demand: CBOD5 - mg/L																	
Max Lab	74	100	95	31	37	44	51	79	67	122	33	135				135	
Mean Lab	62.333	98.5	84	28.5	28.667	37.5	37.333	58	67	78	31	104.5			58.464		
Min Lab	54	97	73	26	21	31	22	37	67	30	29	74					21
Raw Sewage / Total Kjeldahl Nitrogen: TKN - mg/L																	
Max Lab	45.9	30.6	38.1	15.9	36.1	31	22.4	40	29.3	29	36.6	53.4				53.4	
Mean Lab	34.32	25.6	29.9	14.7	17.42	19.525	19.725	23.9	24.325	23.5	28.533	29.95			24.239		
Min Lab	26.9	21.5	22.5	13.3	9.4	14.8	17.2	15.3	17.1	17.5	19.2	16.6					9.4
Raw Sewage / Total Phosphorus: TP - mg/L																	
Max Lab	5.21	3.51	4.13	1.75	3.92	3.76	3.92	4.26	3.72	5.33	3.94	7.56				7.56	
Mean Lab	3.208	2.705	3.815	1.505	2.044	2.255	2.603	2.626	2.915	3.596	3.163	4.245			2.883		
Min Lab	2.52	1.65	3.42	1.08	1.26	1.33	1.97	1.84	1.94	1.98	2.42	1.47					1.08
Raw Sewage / Total Suspended Solids: TSS - mg/L																	
Max Lab	121	270	146	53	178	93	206	157	209	310	106	479				479	
Mean Lab	92.333	210.5	118	36	108.33	89	122.33	140	196	152.333	102	337.5			138.71		
Min Lab	45	151	90	19	45	85	66	123	183	70	98	196					19

APPENDIX C

Non-Compliance Notification(s)

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

NOTIFICATION OF NON-COMPLIANCE

Phone: **(613) 584-9006**
Fax: **(613) 584-9680**

Date: May 19, 2017

Ministry of Environment
Ottawa District Office
2430 Don Reid Drive,
Ottawa, Ontario
K1H 1E1

Re: Notification of Non-compliance with STP Effluent Limit

This is a notification of non-compliance with an effluent limit for the Deep River Sewage Treatment Plant submitted in accordance with terms and conditions of Certificate of Approval 1655-7P8SPE and provisions of the Ontario Water Resources Act and Environmental Protection Act. This written notice confirms notification provided on May 19, 2017 to Jen Bitten, Water Inspector for the Deep River STP.

The following effluent parameter(s) were exceeded:

Parameter	Sample Date Month/Year	Type of Limit	Type of Sample	Result (mg/L) or Specify Units	C of A or Guideline Limit
Total Phosphorus	April 2017	Monthly Avg.	Composite	1.093 (mg/L)	1 (mg/L)

Comments/Actions Taken:

Total Phosphorus was high for the month of April due to higher than normal raw sewage flows, and SBR3 decant valves are leaking. During aeration, sludge is being pulled into the decant line. After the settle cycle, the SBR tank decants with the sludge that leaked into the line during aeration, and goes into the EQ tank.

A new butterfly valve for the decant line has been ordered, in addition to 13 new plunger valves for the SBR tank decant lines. We are pumping the EQ tank with a water (trash) pump to try and help mitigate the problem, until the new equipment is installed.

If you have any questions or concerns, please contact me at 613-584-9006.

Sincerely,

Chris Murphy

Christopher Murphy
Operator/Mechanic
Ontario Clean Water Agency

ec: Jen Bitten, Water Inspector, MOECC
Sean Patterson, Director of Public Works, Town of Deep River
Ric McGee, CAO/Clerk, Town of Deep River
Brad Sweet, Senior Operations Manager, OCWA
Andrew Trader, Regional Manager, OCWA
Vanessa Greatrix, Manager, Safety, Process & Compliance, OCWA
Brenda Royce, Process & Compliance Technician, OCWA

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

NOTIFICATION OF NON-COMPLIANCE

Phone: **(613) 584-9006**
Fax: **(613) 584-9680**

Date: December 21, 2017

Ministry of the Environment & Climate Change
Ottawa District Office
2430 Don Reid Drive,
Ottawa, Ontario
K1H 1E1

Attention: Jen Bitten

Re: **Notification of Non-Compliance with STP RS and FE Weekly Samples**

This is a notification of non-compliance with the number of weekly samples tested for raw sewage and final effluent for the Deep River Sewage Treatment Plant submitted in accordance with terms and conditions of ECA, 1655-7P8SPE and provisions of the Ontario Water Resources Act and Environmental Protection Act.

The following effluent parameter(s) were missed (by lab error):

Parameter	Sample Date Month/Year	Type of Limit	Type of Sample	Result (mg/L) or Specify Units	C of A or Guideline Limit
CBOD5, TSS, TP, TAN, TKN, NH3	Nov. 7, 2017		composite		weekly

Comments/Actions Taken:

The parameters of CBOD5, TSS, TP, TAN, TKN, and NH3 were sampled, as per regular weekly sampling on November 7, 2017 and sent to the lab for analysis by the Deep River operators of the sewage treatment plant. However, the lab only took the final effluent bacti sample and analyzed it, but, then sent back the filled raw and final chemical bottle samples to the plant. The operators could not take any re-samples that same week, because they did not find out about the lab error until the following week. I have attached the letter received from Scott Clark from Eurofins regarding this lab error.

If you have any further questions, please contact Christopher Murphy at 613-584-9006 (DR STP) or 613-584-3141 (DR DWS).

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Sincerely,

Brenda Royce

for Chris Murphy
Operator/Mechanic
Ontario Clean Water Agency
Deep River STP

ec: Jen Bitten, Water Inspector, MOECC
Sean Patterson, Director of Public Works, Town of Deep River
Ric McGee, CAO/Clerk, Town of Deep River
Brad Sweet, Senior Operations Manager, OCWA
Andrew Trader, Regional Manager, OCWA
Vanessa Greatrix, Manager, Safety, Process & Compliance, OCWA

eurofins | Environment Testing

November 24, 2017

To whom it may concern,

Please note that due to a lab error the Deep River Raw Sewage and Final Effluent samples from November 7, 2017 are not available. The microbiological samples were removed from the cooler due to the fact they are time sensitive and the chemical sets were inadvertently returned to the Deep River site instead of being removed and tested.

Please accept our apologies for the oversight.

Regards,

Scott Clark
Project Manger

Eurofins Environment Testing Canada, Inc.
8-146 Colonnade Road
Ottawa, ON K2E 7Y1
Canada
T | 613-727-5692
F | 613-727-5222
www.Eurofins.ca

APPENDIX D

Calibrations

KROHNE
Altometer

KROHNE Altometer
Production facility
of Krohne AG, Basel

Kerkeplaat 12, 3313 LC Dordrecht
P.O. Box 110, 3300 AC Dordrecht
The Netherlands

Phone : (31) (0)78 - 63 06 331
Fax : (31) (0)78 - 63 06 394
E-mail : Helpdesk@Krohne-altometer.nl
Website : http://Krohne.com

FLOWMETER VERIFICATION CHECK CERTIFICATE

Measurement:

Operator:	AJV
Date of verification:	30-06-2017
Flowmeter:	DEEP RIVER RAWS

Flowmeter:

Converter type:	IFC010
Number:	00069441
Order number:	
Full scale range:	175 l/s
Current output:	4 - 20
Frequency output:	0-1000 Hz
Diameter:	250 mm / 10 inch
PC:	4.372
Field frequency:	1/6
Empty pipe:	No

MagCheck Info

MagCheck Serial No.:	00300428
MagCheck date of Calibration:	09-10-2016

Results:

Field current	O.K.
Field frequency	O.K.
ADC 25%	O.K.
ADC 50%	O.K.
ADC 75%	O.K.
ADC 100%	O.K.
Current output 4mA	O.K.
Current output 20mA	O.K.
Pulse output	O.K.
Coil resistance	O.K.
Resistance electrode 1 with filled pipe	O.K.
Resistance electrode 1 with empty pipe	Not measured
Resistance electrode 2 with filled pipe	O.K.
Resistance electrode 2 with empty pipe	Not measured
Isolation	O.K.

Based on the verification results stated above, this certificate confirms that the accuracy of this electromagnetic flowmeter is within +/- 1% of the original factory calibration values

KROHNE Altometer
is certified according to
ISO 9001

Flowmeter: DEEP RIVER RAWS

Trends

Date: 30-06-2017

Device identification:	DEEP RIVER RAWS	Full scale range:	175 l/s
Medium:	RAW SEWAGE	Current output:	4 - 20
Converter type:	IFC010	Frequency output:	0-1000 Hz
Number:	00069441	Diameter:	250 mm / 10 inch
Order number:		PC:	4.372
		Field frequency:	1/6
		Empty pipe:	No

Field current
Nullvalue: 133.233 mA Lower limit: 132.833 mA (-0.3%) Upper limit: 133.633 mA (+0.3%)
30-08-2013: 133.638 mA (+0.3%)

Field frequency
Nullvalue: 9.167 Hz Lower limit: 7.792 Hz (-15%) Upper limit: 10.542 Hz (+15%)
30-08-2013: 10 Hz (-8.33%)

ADC 25%
Nullvalue: 25 % Lower limit: 24.894 % (-0.4244%) Upper limit: 25.106 % (+0.4244%)
30-08-2013: 25.055 % (+0.21%)

ADC 50%
Nullvalue: 50 % Lower limit: 49.8 % (-0.4%) Upper limit: 50.2 % (+0.4%)
30-08-2013: 50.043 % (+0.08%)

ADC 75%
Nullvalue: 75 % Lower limit: 74.7 % (-0.4%) Upper limit: 75.3 % (+0.4%)
30-08-2013: 75.119 % (+0.15%)

ADC 100%
Nullvalue: 100 % Lower limit: 99.6 % (-0.4%) Upper limit: 100.4 % (+0.4%)
30-08-2013: 100.197 % (+0.19%)

Current output 4mA
Nullvalue: 4 mA Lower limit: 3.968 mA (-0.3% - 0.02 mA) Upper limit: 4.032 mA (+0.3% + 0.02 mA)
30-08-2013: 4 mA (-0.01%)

Current output 20mA
Nullvalue: 20 mA Lower limit: 19.92 mA (-0.3% - 0.02 mA) Upper limit: 20.08 mA (+0.3% + 0.02 mA)
30-08-2013: 20.001 mA (0%)

Pulse output
Nullvalue: 500 Hz Lower limit: 499 Hz (-0.2%) Upper limit: 501 Hz (+0.2%)
30-08-2013: 499.944 Hz (-0.02%)

Coil resistance
Lower limit: 30 Ohm Upper limit: 250 Ohm
30-08-2013: 101.47 Ohm

Resistance electrode 1 with filled pipe
Lower limit: 0.15 kOhm Upper limit: 250 kOhm
30-08-2013: 3.297 kOhm

Resistance electrode 1 with empty pipe
30-08-2013: Not measured

Resistance electrode 2 with filled pipe
Lower limit: 0.15 kOhm Upper limit: 250 kOhm
30-08-2013: 2.723 kOhm

Resistance electrode 2 with empty pipe
30-08-2013: Not measured

Isolation
Lower limit: 2 MOhm
30-08-2013: 21 MOhm

KROHNE
Altometer

KROHNE Altometer
Production facility
of Krohne AG, Basel

Kerkeplaat 12, 3313 LC Dordrecht
P.O. Box 110, 3300 AC Dordrecht
The Netherlands

Phone : (31) (0)78 - 63 06 331
Fax : (31) (0)78 - 63 06 394
E-mail : Helpdesk@Krohne-altometer.nl
Website : http://Krohne.com

FLOWMETER VERIFICATION CHECK CERTIFICATE

Measurement:

Operator:	AJV
Date of verification:	30-06-2017
Flowmeter:	DEEP RIVER WAS

Flowmeter:

Converter type:	IFC010
Number:	00069498
Order number:	
Full scale range:	60 l/s
Current output:	4 - 20
Frequency output:	0-1000 Hz
Diameter:	80 mm / 3 inch
PC:	2.5
Field frequency:	1/6
Empty pipe:	No

MagCheck info

MagCheck Serial No.:	00300428
MagCheck date of Calibration:	09-10-2016

Results:

Field current	O.K.
Field frequency	O.K.
ADC 25%	O.K.
ADC 50%	O.K.
ADC 75%	O.K.
ADC 100%	O.K.
Current output 4mA	O.K.
Current output 20mA	O.K.
Pulse output	O.K.
Coil resistance	O.K.
Resistance electrode 1 with filled pipe	O.K.
Resistance electrode 1 with empty pipe	Not measured
Resistance electrode 2 with filled pipe	O.K.
Resistance electrode 2 with empty pipe	Not measured
Isolation	O.K.

Based on the verification results stated above, this certificate confirms that the accuracy of this electromagnetic flowmeter is within +/- 1% of the original factory calibration values

KROHNE Altometer
is certified according to
ISO 9001

Flowmeter: DEEP RIVER WAS

Trends

Device identification: DEEP RIVER WAS
Medium: WAS
Converter type: IFC010
Number: 00069498
Order number:

Full scale range: 60 l/s
Current output: 4 - 20
Frequency output: 0-1000 Hz
Diameter: 80 mm / 3 inch
PC: 2.5
Field frequency: 1/6
Empty pipe: No

Field current
Nullvalue: 133.237 mA Lower limit: 132.837 mA (-0.3%) Upper limit: 133.637 mA (+0.3%)
29-08-2014: 133.179 mA (-0.05%)

Field frequency
Nullvalue: 9.167 Hz Lower limit: 7.792 Hz (-15%) Upper limit: 10.542 Hz (+15%)
29-08-2014: 9.999 Hz (-8.32%)

ADC 25%
Nullvalue: 25 % Lower limit: 24.9 % (-0.4%) Upper limit: 25.1 % (+0.4%)
29-08-2014: 24.981 % (-0.08%)

ADC 50%
Nullvalue: 50 % Lower limit: 49.8 % (-0.4%) Upper limit: 50.2 % (+0.4%)
29-08-2014: 49.964 % (-0.08%)

ADC 75%
Nullvalue: 75 % Lower limit: 74.7 % (-0.4%) Upper limit: 75.3 % (+0.4%)
29-08-2014: 74.95 % (-0.07%)

ADC 100%
Nullvalue: 100 % Lower limit: 99.6 % (-0.4%) Upper limit: 100.4 % (+0.4%)
29-08-2014: 99.941 % (-0.06%)

Current output 4mA
Nullvalue: 4 mA Lower limit: 3.968 mA (-0.3% - 0.02 mA) Upper limit: 4.032 mA (+0.3% + 0.02 mA)
29-08-2014: 3.998 mA (-0.06%)

Current output 20mA
Nullvalue: 20 mA Lower limit: 19.92 mA (-0.3% - 0.02 mA) Upper limit: 20.08 mA (+0.3% + 0.02 mA)
29-08-2014: 19.991 mA (-0.05%)

Pulse output
Nullvalue: 500 Hz Lower limit: 499 Hz (-0.2%) Upper limit: 501 Hz (+0.2%)
29-08-2014: 499.975 Hz (-0.01%)

Coil resistance
Lower limit: 30 Ohm Upper limit: 250 Ohm
29-08-2014: 104.108 Ohm

Resistance electrode 1 with filled pipe
Lower limit: 0.15 kOhm Upper limit: 250 kOhm
Electrode interruption
29-08-2014: > 21 MOhm

Resistance electrode 1 with empty pipe
29-08-2014: Not measured

Resistance electrode 2 with filled pipe
Lower limit: 0.15 kOhm Upper limit: 250 kOhm
Electrode interruption
29-08-2014: > 21 MOhm

Resistance electrode 2 with empty pipe
29-08-2014: Not measured

Isolation
Lower limit: 2 MOhm
29-08-2014: 21 MOhm

APPENDIX E

Biosolids Summary Reports from PDM & Bio-Ag Land Application Report (LAR)

Ontario Clean Water Agency
Biosolids Quality Report - Liquid
Digestor Type: AEROBIC
Solids and Nutrients

Facility: DEEP RIVER WASTEWATER TREATMENT FACILITY
Works: 5853
Period: 01/01/2017 to 12/01/2017

Facility Works Number:
Facility Name: *DEEP RIVER WASTEWATER TREATMENT FACILITY*
Facility Owner: *Municipality: TOWN OF DEEP RIVER*
Facility Classification: *Class 2 Wastewater Treatment*
Receiver: *OTTAWA RIVER*
Service Population: *4109.0*
Total Design Capacity: *2727.0 m3/day*
Period Being Reported: 01/01/2017 12/01/2017

Note: all parameters in this report will be derived from the Bslq Station

Month	Total Sludge Hauled (m3)	Avg. Total Solids (mg/L)	Avg. Volatile Solids (mg/L)	Avg. Total Phosphorus (mg/L)	Ammonia (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia + Nitrate (mg/L)	Potassium (mg/L)
Site	Site Name									
Station	Bslq Station only									
Parameter Short Name	HauledVol	TS	VS	TP	NH3p_NH4p_N	NO3-N	NO2-N	TKN	calculation in report - no T/S	K
T/s	IH Month.Total	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean		Lab Published Month Mean
Jan										
Feb										
Mar		14,350.000	10,500.000	390.500	3.900	16.200	10.000	810.000	10.050	53.200
Apr		15,450.000	11,300.000	444.000	13.265	46.700	5.050	717.500	29.983	43.900
May		15,766.667	11,200.000	375.333	7.990	39.900	10.000	668.667	23.945	59.800
Jun		14,700.000	10,095.000	83.250	1.355	10.000	10.000	652.000	5.678	48.850
Jul		9,553.333	6,426.667	188.467	23.227	33.500	10.000	458.667	28.363	42.100
Aug		14,266.667	9,396.667	366.733	14.723	84.950	10.000	659.667	49.837	47.900
Sep		21,250.000	14,100.000	7.625	3.085	44.700	10.000	945.000	23.893	48.200
Oct	1,391.000	19,500.000	12,800.000	725.000	39.300	10.000	10.000	168.000	24.650	50.500
Nov										
Dec										
Average	1,391.000	15,604.583	10,727.292	322.614	13.356	35.744	9.381	634.938	24.550	49.306
Total	1,391.000	124,836.667	85,818.333	2,580.908	106.845	285.950	75.050	5,079.500	196.398	394.450

Ontario Clean Water Agency
Biosolids Quality Report - Liquid
Digestor Type: AEROBIC
Metals and Criteria

Facility: DEEP RIVER WASTEWATER TREATMENT FACILITY
Works: 5853
Period: 01/01/2017 to 12/01/2017

Note: all parameters in this report will be derived from the Bslq Station

Month	Arsenic (mg/L)	Cadmium (mg/L)	Cobalt (mg/L)	Chromium (mg/L)	Copper (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Lead (mg/L)	Selenium (mg/L)	Zinc (mg/L)
Site	Site Name										
Station	Bslq Station only										
Parameter Short Name	As	Cd	Co	Cr	Cu	Hg	Mo	Ni	Pb	Se	Zn
T/s	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean
Jan											
Feb											
Mar	0.035	0.012	0.030	0.255	5.605	0.050	0.085	0.205	0.225	0.035	3.930
Apr	0.040	0.013	0.030	0.260	5.975	0.025	0.085	0.205	0.235	0.040	4.205
May	0.043	0.021	0.030	0.287	6.640	0.050	0.097	0.227	0.273	0.050	4.890
Jun	0.045	0.017	0.030	0.270	5.810	0.050	0.090	0.195	0.255	0.055	4.495
Jul	0.033	0.014	0.030	0.220	4.580	0.036	0.070	0.170	0.190	0.040	5.393
Aug	0.043	0.019	0.037	0.297	6.483	0.050	0.087	0.223	0.280	0.053	5.117
Sep	0.065	0.024	0.045	0.435	9.125	0.050	0.130	0.295	0.430	0.065	8.600
Oct	0.060	0.021	0.040	0.400	8.370	0.042	0.120	0.280	0.390	0.070	7.440
Nov											
Dec											
Average	0.046	0.018	0.034	0.303	6.574	0.044	0.095	0.225	0.285	0.051	5.509
Max. Permissible Metal Concentrations (mg/kg of Solids)	170.000	34.000	340.000	2,800.000	1,700.000	11.000	94.000	420.000	1,100.000	34.000	4,200.000
Metal Concentrations in Sludge (mg/kg)	2.924	1.127	2.176	19.412	421.257	2.827	6.115	14.419	18.251	3.271	353.021

Ontario Clean Water Agency

Biosolids Quality Report - Liquid - Based on Last 4 Samples

Digestor Type: AEROBIC

Facility: DEEP RIVER WASTEWATER TREATMENT FACILITY

Works: 5853

Period: 01/01/2017 to 12/01/2017

Parameter Short Name	Time Series	08/15/2017	09/12/2017	09/26/2017	10/12/2017	Average	Metal Concentrations in Sludge [mg/kg]:	Max. Permissible Metal Concentrations (mg/kg of Solids):
As (mg/L)	Lab Published	0.050	0.060	0.070	0.060	0.060	3.081	170
Cd (mg/L)	Lab Published	0.023	0.022	0.026	0.021	0.023	1.181	34
Co (mg/L)	Lab Published	0.040	0.040	0.050	0.040	0.042	2.157	340
Cr (mg/L)	Lab Published	0.340	0.400	0.470	0.400	0.403	20.693	2800
Cu (mg/L)	Lab Published	6.730	8.350	9.900	8.370	8.337	428.087	1700
Hg (mg/L)	Lab Published	0.050	0.050	0.050	0.042	0.048	2.465	11
Mo (mg/L)	Lab Published	0.100	0.120	0.140	0.120	0.120	6.162	94
Ni (mg/L)	Lab Published	0.230	0.270	0.320	0.280	0.275	14.121	420
Pb (mg/L)	Lab Published	0.320	0.380	0.480	0.390	0.393	20.180	1100
Se (mg/L)	Lab Published	0.070	0.060	0.070	0.070	0.068	3.492	34
Zn (mg/L)	Lab Published	5.370	9.830	7.370	7.440	7.503	385.263	4200

E. Coli: Dry Wt (cfu/g)	Lab Published	20,000.000	18,500.000	27,000.000	74,000.000	29,322.386	E.Coli average is the GMD
TS (mg/L)	Lab Published	15,900.000	19,700.000	22,800.000	19,500.000	19,475.000	
VS (mg/L)	Lab Published	10,600.000	13,100.000	15,100.000	12,800.000	12,900.000	
TP (mg/L)	Lab Published	607.000	14.200	1.050	725.000	336.813	
NO2-N (mg/L)	Lab Published	10.000	10.000	10.000	10.000	10.000	
TKN (mg/L)	Lab Published	754.000	830.000	1,060.000	168.000	703.000	
K (mg/L)	Lab Published	44.300	53.600	42.800	50.500	47.800	
NH3p_NH4p_N (mg/L)	Lab Published	9.170	3.130	3.040	39.300	13.660	
NO3-N (mg/L)	Lab Published	83.300	79.400	10.000	10.000	45.675	

DEEP RIVER WWTP
LAND APPLICATION REPORT
2017

Bio-Ag

DATE	M3	NASM PLAN#	SITE NAME	SITE ADDRESS
10/10/17	97.00	22328	Sunny Hillcrest - Moore Farm	County of Renfrew, Twp of Laurentian Valley, Lot 17-19, 23, Con 14
10/11/17	212.00	22328	Sunny Hillcrest - Moore Farm	County of Renfrew, Twp of Laurentian Valley, Lot 17-19, 23, Con 14
10/12/17	225.00	22328	Sunny Hillcrest - Moore Farm	County of Renfrew, Twp of Laurentian Valley, Lot 17-19, 23, Con 14
10/13/17	48.00	22328	Sunny Hillcrest - Moore Farm	County of Renfrew, Twp of Laurentian Valley, Lot 17-19, 23, Con 14
10/13/17	135.00	23184	Scott Tabbert - Biggs Farm	County of Renfrew, Twp of Laurentian Valley, ALICE, Lot 15, Con 26,27
10/14/17	226.00	23184	Scott Tabbert - Biggs Farm	County of Renfrew, Twp of Laurentian Valley, ALICE, Lot 15, Con 26,27
10/18/17	270.00	23184	Scott Tabbert - Biggs Farm	County of Renfrew, Twp of Laurentian Valley, ALICE, Lot 15, Con 26,27
10/19/17	178.00	23184	Scott Tabbert - Biggs Farm	County of Renfrew, Twp of Laurentian Valley, ALICE, Lot 15, Con 26,27
TOTAL	**1391.00**			
TOTAL 2017	1391.00			