

THE TOWN OF DEEP RIVER
ONTARIO, CANADA

***DEEP RIVER SEWAGE TREATMENT
PLANT
2015 ANNUAL REPORT***



Prepared by:

Brenda Royce

Process and Compliance Technician

Ottawa Valley Hub

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**Ontario Clean Water Agency
Agence Ontarienne Des Eaux**

Deep River Sewage Treatment Plant - 2015 Annual Report

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Deep River Sewage Treatment Plant 2015 Annual Report

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 Certificate of Approval. 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 Certificate of Approval #1655-7P8SPE

The Deep River STP followed the stipulations set out in Certificate of Approval #3675-68YL58, issued on February 7, 2005. An Amended Certificate of Approval #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 Certificate of Approval or ECA for 2015 (Appendix B).

It should also be noted that the annual sampling requirement for Acute Lethality was completed but, was not met in 2015 on two occasions (all passes for testing of Rainbow

trout under WSER, but not *Daphnia magna*). Final effluent acute lethality tests done on Oct. 20th, 2015 and the re-sample done on Oct. 26th, 2015 at the Deep River STP failed for the *Daphnia magna* lethality testing. Another re-sample was done on Nov. 5th, 2015 and the results came back good (0 % mortality rate). Since all parameters analyzed in-house and samples sent to the regular lab were all good, and the plant was running well at the time of the original sample failure, and the Rainbow trout results always came back with 0 % mortality rate, we have no explanation to what may have been contributing to these testing failures. Our local MOECC inspector was called and provided with all results.

Below find tables and line graphs to demonstrate the Capacity Assessment from 2010 to 2015. Also, effluent CBOD₅, 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).

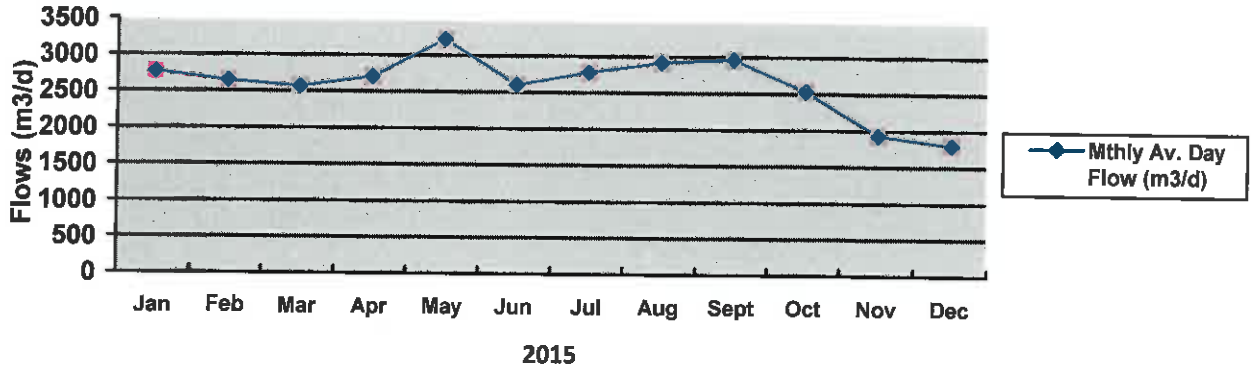
Capacity Assessment of the Deep River STP:

Year	2010	2011	2012	2013	2014	2015
Average Day Flow (m ³ /d)	2 061	2 456	2 179	2 549	3 027	2 624
Design Capacity (m ³ /d)	2 727	2 727	2 727	2 727	2 727	2 727
% of Capacity (based on average daily flows)	75.6	90.1	79.9	93.5	111.0	96.2
Maximum Day Flow (m ³ /d)	2 839	3 879	3 380	4 685	4 566	3 730
% Over Capacity (based on max. day flows)	104.11	142.2	124.0	171.8	167.4	136.8

In 2015, the average day flow was at approximately 96.2 % the current design plant capacity, and the maximum day flow was approximately **136.8 % over** the plant design capacity of 2 727 m³/d. Note that all the percentages, based on maximum day flows for 2010 to 2014, are all **over capacity** percentages.

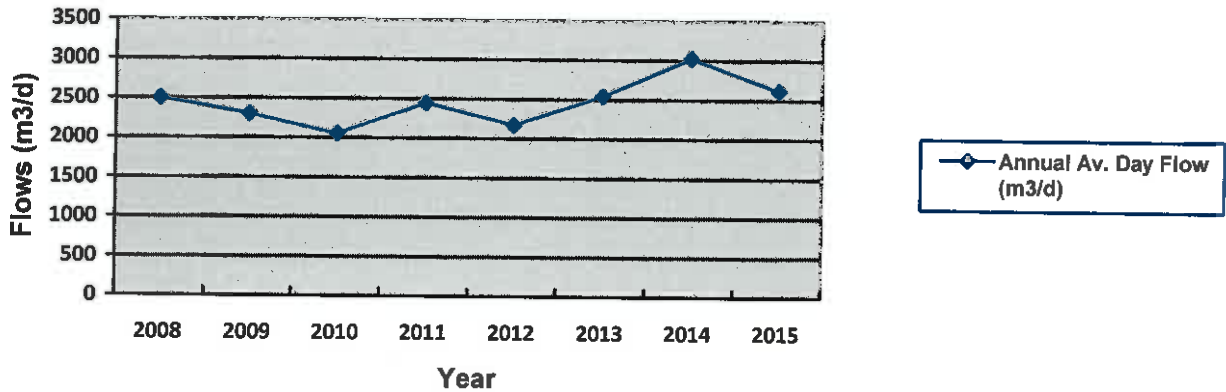
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2015 Monthly Av. Day Flow (m3/d)	2769.2	2650.44	2573.8	2707.6	3221.3	2605.91	2782.88	2920.85	2962.84	2537.5	1941.76	1808.82

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



	2008	2009	2010	2011	2012	2013	2014	2015
Annual Av. Day Flows (m3/d)	2505	2309	2061	2456	2179	2549	3027	2624

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



In 2015, the average day flow was at approximately 96.2 % of the current plant design. This decreased by 13.8 % from 2014. Flows into the plant continued to be high in Jan. to Sept., due to snow in the winter months and for the spring/summer rains for most of 2015.

Operational Problems and Corrective Actions:

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

In 2015, the average day flow was at approximately 96.2 % of the current design plant capacity, and the maximum day flow was approximately **136.8 % over** the plant design capacity of 2 727 m³/d. The Town of Deep River is responsible for the collection system. They are well aware of the infiltration and inflow problems of the system and are continuing to work to alleviate this problem.

The annual Acute Lethality Testing for 2015 failed on October 20th, 2015 with a 10 % mortality rate, and again the re-sample failed with a 100 % mortality rate on Oct. 26th, 2015, as reported under the Monitoring Data section above. The Notices of Non-Compliances can be found in Appendix C.

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”. (In Progress)
- 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”.

2015 Effluent Objectives and Limits:

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

Effluent Parameter	EFFLUENT OBJECTIVES					
	Concentration Objective (mg/L)	Concentration Objective Achieved in 2015 (mg/L)	Was Effluent Concentration Objective Met?			
Annual average of CBOD ₅ (mg/L)	15	< 3.361	Yes			
Annual average of Total Suspended Solids (mg/L)	15	12.764	Yes			
Monthly Average of Total Phosphorus (mg/L)	JAN	0.8	0.280	Yes		
	FEB		0.235	Yes		
	MAR		0.406	Yes		
	APR		0.540	Yes		
	MAY		0.835	No		
	JUN		0.492	Yes		
	JUL		0.413	Yes		
	AUG		0.350	Yes		
	SEPT		0.228	Yes		
	OCT		0.255	Yes		
	NOV		0.383	Yes		
	DEC		0.335	Yes		
Monthly Average of Total Ammonia Nitrogen (mg/L)	JUN	5.0	3.074	Yes		
	JUL		3.120	Yes		
	AUG		3.673	Yes		
	SEPT		1.764	Yes		
	OCT		1.237	Yes		
	NOV		1.678	Yes		
	DEC	10.0	< 2.610	Yes		
	JAN		5.602	Yes		
	FEB		4.375	Yes		
	MAR		4.458	Yes		
	APR		6.993	Yes		
	MAY		4.960	Yes		
	Monthly Geometric Mean Density of E. Coli equals or < 150 cfu/100 ml		JAN	< 150 cfu/100ml	1.78	Yes
			FEB		10.00	Yes
			MAR		10.00	Yes
APR		10.00	Yes			
MAY		11.89	Yes			
JUN		10.00	Yes			
JUL		10.00	Yes			
AUG		19.68	Yes			
SEPT		10.00	Yes			
OCT		10.00	Yes			
NOV		11.49	Yes			
DEC		13.16	Yes			

Effluent Parameter	EFFLUENT LIMITS			
	Average Concentration Limit (mg/L)	Average Concentration Limit Achieved in 2015 (mg/L)	Was Effluent Limit Met?	
Annual average of CBOD ₅ (mg/L)	25	< 3.361	Yes	
Annual average of Total Suspended Solids	25	12.764	Yes	
Monthly Average of Total Phosphorus (mg/L)	JAN	1.0	0.280	Yes
	FEB		0.235	Yes
	MAR		0.406	Yes
	APR		0.540	Yes
	MAY		0.835	Yes
	JUN		0.492	Yes
	JUL		0.413	Yes
	AUG		0.350	Yes
	SEPT		0.228	Yes
	OCT		0.255	Yes
	NOV		0.383	Yes
	DEC		0.335	Yes
Monthly Average of Total Ammonia Nitrogen (mg/L)	JUN	15.0	3.074	Yes
	JUL	10.0	3.120	Yes
	AUG	10.0	3.673	Yes
	SEPT	10.0	1.764	Yes
	OCT	15.0	1.237	Yes
	NOV	25.0	1.678	Yes
	DEC	25.0	< 2.610	Yes
	JAN	25.0	5.602	Yes
	FEB	25.0	4.375	Yes
	MAR	25.0	4.458	Yes
	APR	25.0	6.993	Yes
	MAY	20.0	4.960	Yes
Monthly Geometric Mean Density of E. Coli equals or < 200 cfu/100 ml	JAN	< 200 cfu/100ml	1.78	Yes
	FEB		10.00	Yes
	MAR		10.00	Yes
	APR		10.00	Yes
	MAY		11.89	Yes
	JUN		10.00	Yes
	JUL		10.00	Yes
	AUG		19.68	Yes
	SEPT		10.00	Yes
	OCT		10.00	Yes
	NOV		11.49	Yes
	DEC		13.16	Yes

pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times (ANNUAL MIN-MAX RANGE)

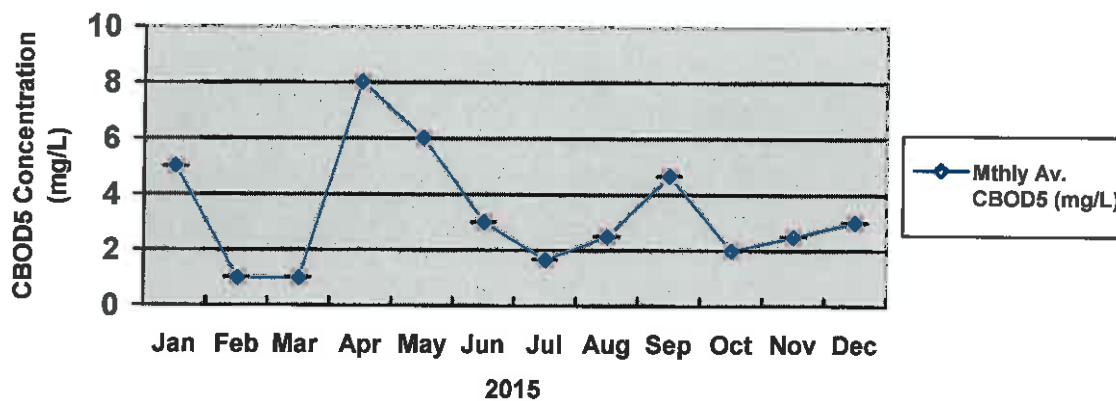
6.90 – 7.78

LIMITS MET? YES

Effluent Biochemical Oxygen Demand (CBOD5):

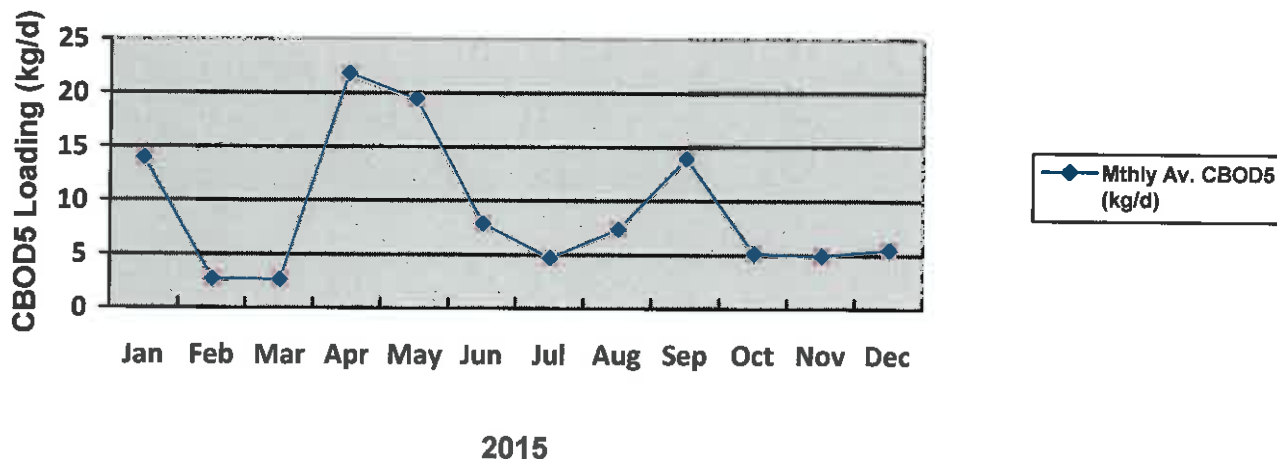
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2015 CBOD5 Mthly Av. Concentrations (mg/L)	5	1	1	8	6	<3	1.667	2.5	4.667	2	2.5	3

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



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2015 CBOD5 Mthly Av. Loadings (kg/d)	13.846	2.65	2.574	21.661	19.328	<7.811	4.638	7.302	13.827	5.075	4.854	5.426

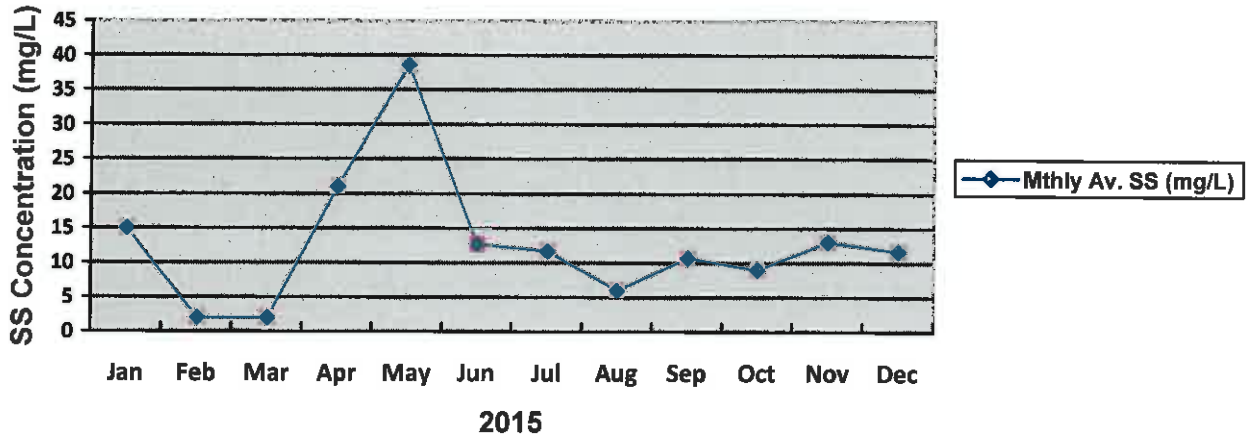
CBOD5 Monthly Average Loadings (kg/d) Limit=68.2



Effluent Total Suspended Solids:

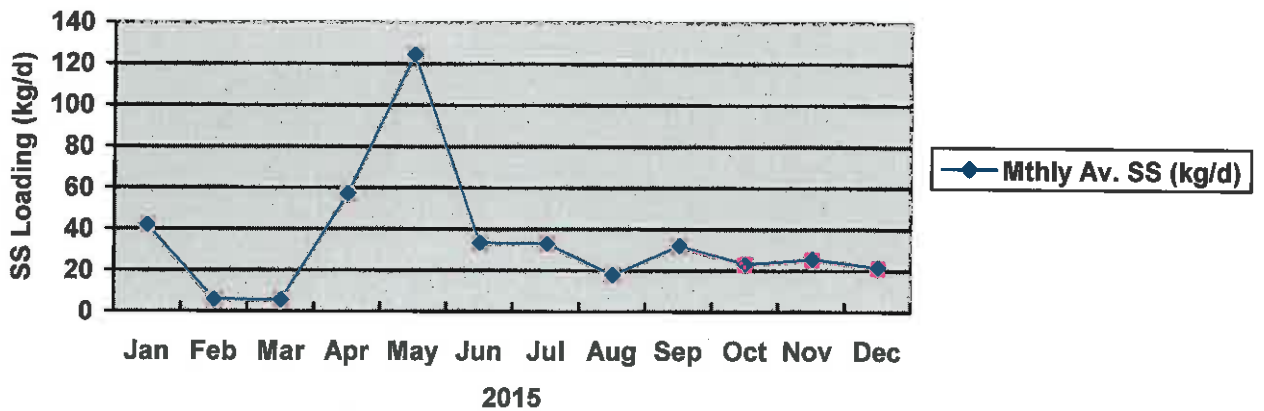
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2015 TSS Mthly Av. Concentrations (mg/L)	15	2	2	21	38.5	12.667	11.667	6	10.667	9	13	11.667

Total Suspended Solids Monthly Average Concentrations (mg/L)
Limit=25



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2015 TSS Mthly Av. Loadings (kg/d)	41.537	5.301	5.148	56.86	124.02	32.979	32.467	17.525	31.604	22.838	25.243	21.103

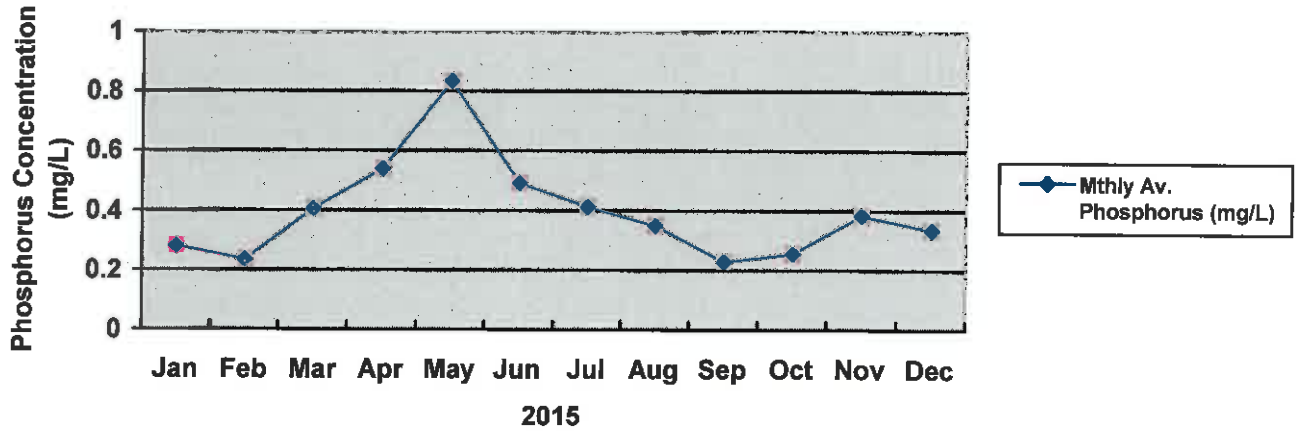
Total Suspended Solids Monthly Average Loadings (kg/d) Limit=68.2



Effluent Total Phosphorus:

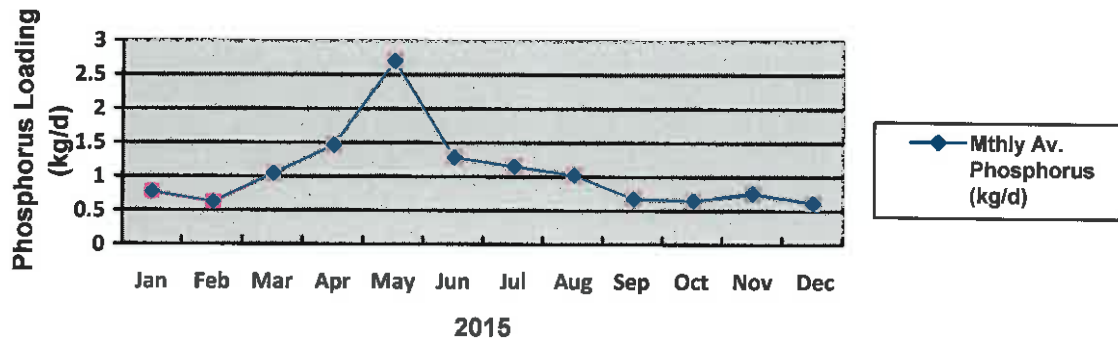
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2015 TP Mthly Av. Concentrations (mg/L)	0.28	0.235	0.406	0.54	0.835	0.492	0.413	0.35	0.228	0.255	0.383	0.335

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



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2015 TP Mthly Av. Loadings (kg/d)	0.775	0.623	1.045	1.462	2.69	1.281	1.148	1.022	0.676	0.647	0.744	0.606

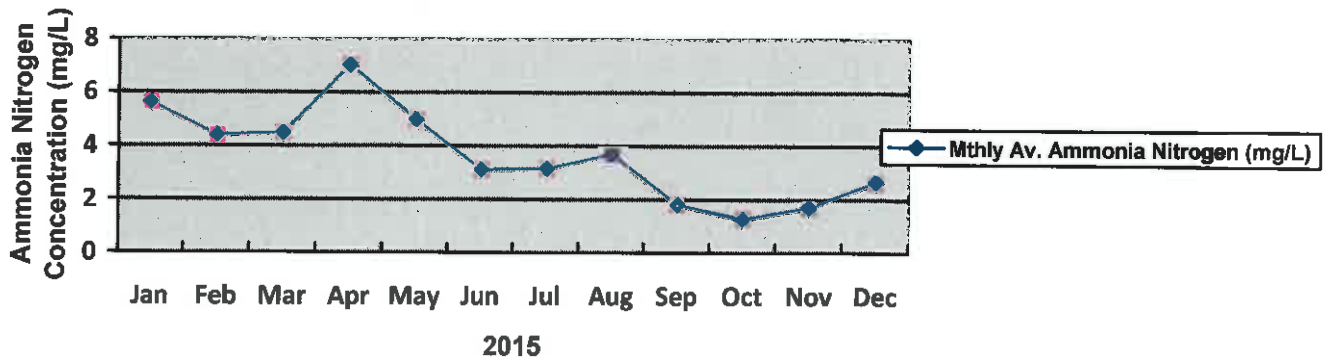
Total Phosphorus Monthly Average Loadings (kg/d) Limit=2.7



Effluent Total Ammonia Nitrogen:

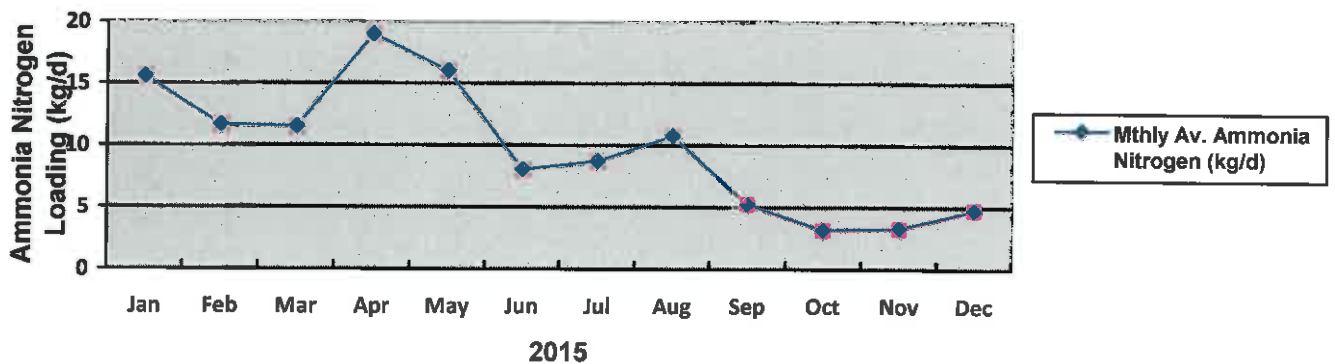
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2015 TAN Mthly Av. Concentrations (mg/L)	5.602	4.375	4.458	6.993	4.96	3.074	3.12	3.673	1.764	1.237	1.678	<2.61

Total Ammonia Nitrogen Monthly Average Concentrations (mg/L) Various Mthly Limits (Lowest is 10)



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2015 TAN Mthly Av. Loadings (kg/d)	15.514	11.596	11.474	18.933	15.978	8.003	8.683	10.727	5.226	3.14	3.259	<4.721

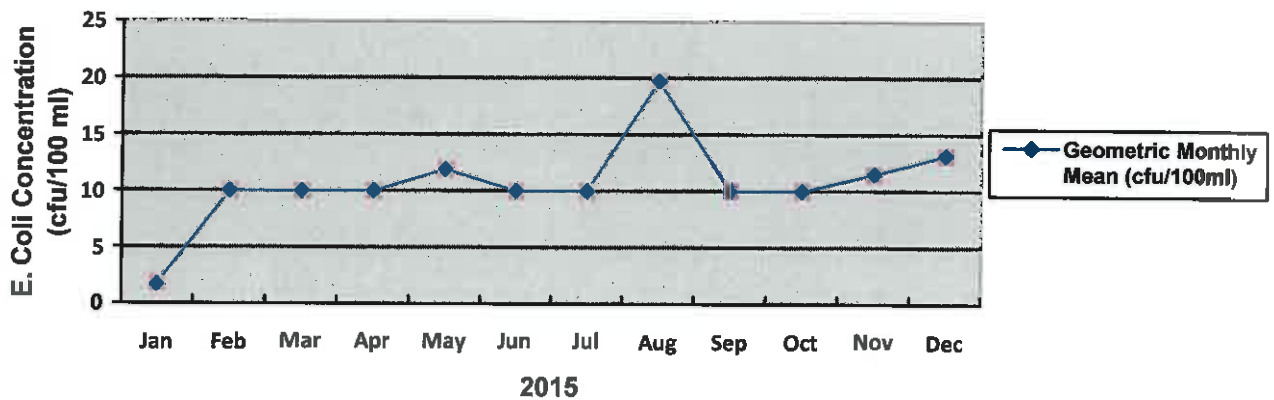
Total Ammonia Nitrogen Monthly Average Loadings (kg/d) Various Mthly Limits (Lowest is 27.3)



Effluent E. Coli:

Monthly Geometric Mean Density of E. Coli	JAN	1.78
	FEB	10.00
	MAR	10.00
	APR	10.00
	MAY	11.89
	JUN	10.00
	JUL	10.00
	AUG	19.68
	SEP	10.00
	OCT	10.00
	NOV	11.49
	DEC	13.16

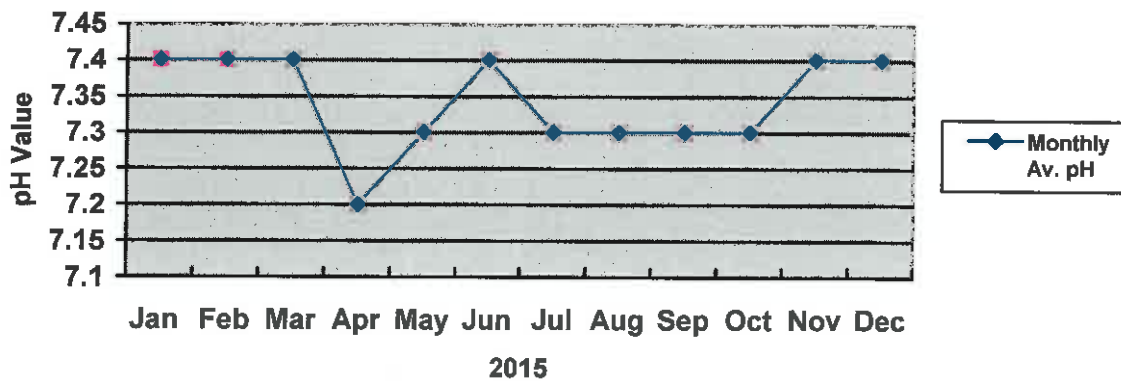
E. Coli Geometric Monthly Mean (cfu/100 ml) Limit=200



Effluent pH:

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Av. FE pH	7.4	7.4	7.4	7.2	7.3	7.4	7.3	7.3	7.3	7.3	7.4	7.4

pH Monthly Averages Limit=6.0 to 9.5



Effluent Quality Assurance or Control Measures:

As per Section 10.6(d) of Certificate of Approval #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 Certificate of Approval #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 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. As of 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 Certificate of Approval #1655-7P8SPE

The Deep River STP uses a Workplace Management System (WMS - Hansen). This is a comprehensive computerized maintenance tracking system. The system creates work orders for scheduled maintenance on an annual, semi-annual, 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 2015 calendar year, a total of 236 Work Orders were completed at the Deep River Sewage Treatment Plant. A breakdown of this total is listed below:

- Corrective 0
- Preventative 28
- Weekly PM 196
- Operational 5
- Capital 7

A detailed 2015 Facility Work Order Summary for the equipment repairs, replacements, installations, inspections and scheduled maintenance can be viewed in Appendix D.

Calibration and Maintenance of Monitoring Equipment:

As per Section 10.6(e) of Certificate of Approval #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 E.

Sludge Generation:

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

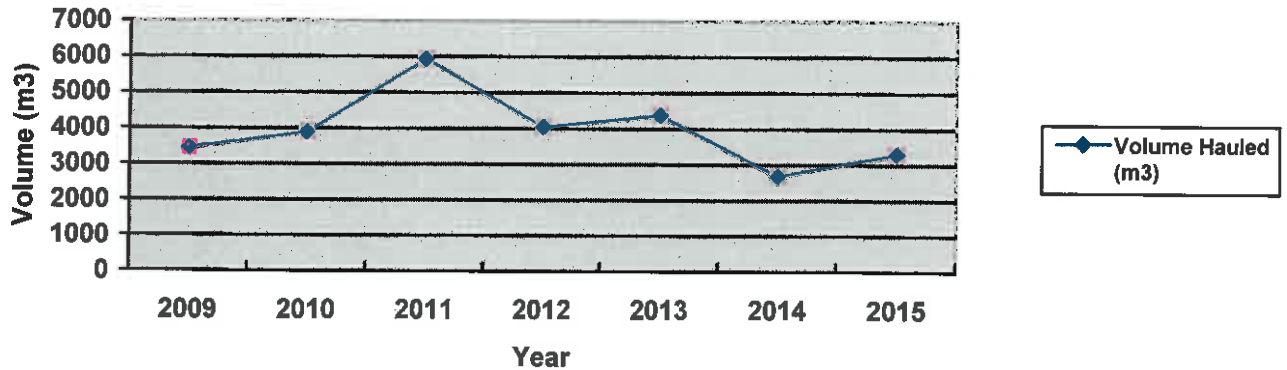
In Appendix F, there is a summary report entitled “Biosolids Quality Report - Liquid”. This report summarizes nutrient and heavy metal amounts determined through laboratory testing. The hauling volumes are also displayed in this report for the 2015 season.

The sludge from this facility is usually spread on agricultural land. This year, OCWA contracted Terratec Environmental Ltd. to remove the sludge from the plant to certified NASM fields, but, two loads were also taken to the Vale Mineland Reclamation site (ECA #SD-01-2014) within the City of Greater Sudbury, as Terratec Environmental waited for more approved NASM-certified fields through OMAFRA. The total amount of sludge hauled from the plant for 2015 was 3 272 cubic meters.

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 Ministry of the Environment & Climate Change (MOECC) guidelines.

	2009	2010	2011	2012	2013	2014	2015
Volume of sludge hauled (m3/yr)	3434	3875	5923	4025	4360	2651	3272

Total Sludge Hauled - 2009 to 2015



Community Complaints:

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

There were no community complaints for the reporting period of January 1, 2015 to December 31, 2015 for the Deep River STP.

Bypasses / Spills / Abnormal Discharges:

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

There were no bypasses, spills or abnormal discharges events reported in 2015.

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 2015.

APPENDIX A

Performance Assessment Report

**Ontario Clean Water Agency
Performance Assessment Report Wastewater/Lagoon**

Report extracted 01/22/2016 08:43

Facility: [6853] DEEP RIVER WASTEWATER TREATMENT FACILITY

Works: [5853] DEEP RIVER WASTEWATER TREATMENT FACILITY

From: 01/01/2016 to 31/12/2015

	01/2015	02/2015	03/2015	04/2015	05/2015	06/2015	07/2015	08/2015	09/2015	10/2015	11/2015	12/2015	<-Total-->	<-Avg-->	<-Max-->	<-Criteria-->
Flows:																
Raw Flow: Total - Raw Sewage (m ³ /d)	85843.72	74212.3	79787.95	81227.9	98860.21	78177.4	86269.2	90546.3	88886.2	78663.8	58252.8	56073.4	957800.22			
Raw Flow: Avg - Raw Sewage (m ³ /d)	2769.15	2650.44	2573.8	2707.6	3221.3	2605.91	2782.88	2920.85	2962.84	2537.54	1941.76	1808.82		2623.57		
Raw Flow: Max - Raw Sewage (m ³ /d)	3171.91	3234.89	3200.23	3350.81	3730.33	3127.15	3354.27	3283.36	3388.26	3440.32	2647.81	2621.95			3730.33	
Eff. Flow: Total - Final Effluent (m ³ /d)	85843.72	74212.3	79787.95	81227.9	98860.21	78107.9	86269.2	90546.3	88886.2	78663.8	58252.8	56073.4	957730.73			
Eff. Flow: Avg - Final Effluent (m ³ /d)	2769.15	2650.44	2573.8	2707.6	3221.3	2603.6	2782.88	2920.85	2962.84	2537.54	1941.76	1808.82		2623.38		
Eff. Flow: Max - Final Effluent (m ³ /d)	3171.91	3234.89	3200.23	3350.81	3730.33	3127.15	3354.27	3283.36	3388.26	3440.32	2647.81	2621.95			3730.33	
Carbonaceous Biochemical Oxygen Demand: CBOD:																
Raw: Avg cBOD5 - Raw Sewage (mg/L)	31	41	43	37	30.5	49.333	16.667	34	17.667	78.5	78	36.667		41.111	78.5	
Raw: # of samples of cBOD5 - Raw Sewage	1	1	1	1	2	3	3	2	3	2	3	3	25			
Eff: Avg cBOD5 - Final Effluent (mg/L)	5	1	1	8	6	3	1.667	2.5	4.667	2	2.5	3		< 3.361	8	25
Eff: # of samples of cBOD5 - Final Effluent	1	1	1	1	2	3	3	2	3	2	4	3	26			
Loading: cBOD5 - Final Effluent (kg/d)	13.846	2.65	2.574	21.661	19.328	7.811	4.638	7.302	13.827	5.075	4.854	5.426		9.083	21.661	
Biochemical Oxygen Demand: BOD5:																
Total Suspended Solids: TSS:																
Raw: Avg TSS - Raw Sewage (mg/L)	84	81	116	55	110.5	121.667	86.333	38	61.667	91.5	144.667	120		89.194	144.667	
Raw: # of samples of TSS - Raw Sewage	1	1	1	1	2	3	3	2	3	2	3	3	25			
Eff: Avg TSS - Final Effluent (mg/L)	15	2	2	21	38.5	12.667	11.667	6	10.667	9	13	11.667		12.764	38.5	25
Eff: # of samples of TSS - Final Effluent	1	1	1	1	2	3	3	2	3	2	4	3	26			
Loading: TSS - Final Effluent (kg/d)	41.597	5.301	5.148	56.86	124.02	32.979	32.467	17.525	31.604	22.838	25.243	21.103		34.719	124.02	
Percent Removal: TSS - Raw Sewage (mg/L)	82.143	96.721	98.276	61.818	65.158	89.569	82.412	84.211	82.703	90.164	91.014	90.278			98.276	
Total Phosphorus: TP:																
Raw: Avg TP - Raw Sewage (mg/L)	1.713	2.85	3.008	2.125	2.935	4.374	2.153	2.49	1.436	4.535	3.622	3.015		2.863	4.535	
Raw: # of samples of TP - Raw Sewage	4	4	5	4	4	5	4	4	5	4	5	4	52			
Eff: Avg TP - Final Effluent (mg/L)	0.28	0.235	0.406	0.54	0.835	0.492	0.413	0.35	0.228	0.255	0.383	0.335		0.396	0.835	1

APPENDIX B

PDM Monthly Summary

Ontario Clean Water Agency
Performance Assessment Report Wastewater/Lagoon
From: 01/01/2015 to 31/12/2015

Report extracted 01/22/2016 06:43

Facility: [5853] DEEP RIVER WASTEWATER TREATMENT FACILITY

Works: [5853] DEEP RIVER WASTEWATER TREATMENT FACILITY

	01/2015	02/2015	03/2015	04/2015	05/2015	06/2015	07/2015	08/2015	09/2015	10/2015	11/2015	12/2015	<--Total-->	<--Avg-->	<--Max-->	<--Criteria-->
Flows:																
Raw Flow: Total - Raw Sewage (m ³ /d)	85843.72	74212.34	79787.95	81227.89	99860.21	76177.39	86269.21	90546.33	88885.19	78663.78	58252.84	56073.37	987800.22			
Raw Flow: Avg - Raw Sewage (m ³ /d)	2768.15	2650.44	2573.8	2707.6	3221.3	2605.91	2782.88	2920.85	2962.84	2537.54	1941.76	1806.82	2623.57			
Raw Flow: Max - Raw Sewage (m ³ /d)	3171.91	3234.89	3200.23	3350.81	3730.33	3127.15	3354.27	3288.36	3388.26	3440.32	2647.81	2621.95	3730.33			
Eff. Flow: Total - Final Effluent (m ³ /d)	85843.72	74212.34	79787.95	81227.89	99860.21	78107.8	86269.21	90546.33	88885.19	78663.78	58252.84	56073.37	967730.73			
Eff. Flow: Avg - Final Effluent (m ³ /d)	2768.15	2650.44	2573.8	2707.6	3221.3	2603.6	2782.88	2920.85	2962.84	2537.54	1941.76	1808.82	2623.38			
Eff. Flow: Max - Final Effluent (m ³ /d)	3171.91	3234.89	3200.23	3350.81	3730.33	3127.15	3354.27	3283.36	3388.26	3440.32	2647.81	2621.95	3730.33			
Carbonaceous Biochemical Oxygen Demand: CBOD																
Raw: Avg cBOD5 - Raw Sewage (mg/L)	31	41	43	37	30.5	49.333	16.667	34	17.667	78.5	78	36.867		41.111	78.5	
Raw: # of samples of cBOD5 - Raw Sewage	1	1	1	1	2	3	3	2	3	2	3	3	25			
Eff: Avg cBOD5 - Final Effluent (mg/L)	5	1	1	8	6	<	1.667	2.5	4.667	2	2.5	3	<	3.361	8	25
Eff: # of samples of cBOD5 - Final Effluent	1	1	1	1	2	3	3	2	3	2	4	3	26			
Loading: cBOD5 - Final Effluent (kg/d)	13.846	2.65	2.574	21.661	19.328	<	4.638	7.302	13.827	5.075	4.854	5.426	<	9.083	21.661	
Biochemical Oxygen Demand: BOD5:																
Total Suspended Solids: TSS:																
Raw: Avg TSS - Raw Sewage (mg/L)	84	61	116	55	110.5	121.667	66.333	38	61.667	91.5	144.667	120		89.194	144.667	
Raw: # of samples of TSS - Raw Sewage	1	1	1	1	2	3	3	2	3	2	3	3	25			
Eff: Avg TSS - Final Effluent (mg/L)	15	2	2	21	38.5	12.667	11.667	6	10.667	9	13	11.667		12.764	38.5	25
Eff: # of samples of TSS - Final Effluent	1	1	1	1	2	3	3	2	3	2	4	3	26			
Loading: TSS - Final Effluent (kg/d)	41.537	5.301	5.148	56.86	124.02	32.979	32.467	17.525	31.604	22.638	25.243	21.103		34.719	124.02	
Percent Removal: TSS - Raw Sewage (mg/L)	82.143	96.721	98.276	61.818	65.188	89.989	82.412	84.211	82.703	90.164	81.014	90.278		98.276		
Total Phosphorus: TP:																
Raw: Avg TP - Raw Sewage (mg/L)	1.713	2.95	3.006	2.125	2.835	4.374	2.153	2.49	1.436	4.535	3.622	3.015		2.863	4.535	
Raw: # of samples of TP - Raw Sewage	4	4	5	4	4	5	4	4	5	4	5	4	52			

Eff. Avg TP - Final Effluent (mg/L)	0.28	0.235	0.406	0.54	0.835	0.492	0.413	0.35	0.228	0.255	0.383	0.335	0.386	0.835	1
Eff. # of samples of TP - Final Effluent	4	4	5	4	4	5	4	4	5	4	6	4	53		
Loading: TP - Final Effluent (kg/d)	0.775	0.623	1.045	1.462	2.69	1.281	1.148	1.022	0.676	0.947	0.744	0.606	1.06	2.69	
Percent Removal: TP - Raw Sewage (mg/L)	83.65	92.034	86.494	74.588	71.55	88.752	80.836	86.944	84.123	94.377	89.417	88.889		94.377	
Nitrogen Series:															
Raw. Avg TKN - Raw Sewage (mg/L)	15.525	24.3	24.52	15.3	16.025	15.82	13.575	14.225	14.9	30.125	20.82	20.95	18.84	30.125	
Raw. # of samples of TKN - Raw Sewage	4	4	5	4	4	5	4	4	5	4	5	4	52		
Eff. Avg TAN - Final Effluent (mg/L)	5.602	4.375	4.468	6.983	4.96	3.074	3.12	3.673	1.764	1.237	1.678	2.61	3.629	6.993	8
Eff. # of samples of TAN - Final Effluent	4	4	5	4	4	5	4	4	5	4	6	4	53		
Loading: TAN - Final Effluent (kg/d)	15.514	11.596	11.474	18.933	15.978	8.003	8.683	10.727	5.228	3.14	3.259	4.721	9.771	18.933	
Disinfection:															
Eff. GMD E. Coli - Final Effluent (cfu/100mL)	1.778	10	10	10	11.892	10	10	19.68	10	10	11.487	13.161	10.666	19.68	200
Eff. # of samples of E. Coli - Final Effluent	4	4	5	4	4	5	4	4	5	4	5	4	52		

APPENDIX C

Non-Compliance Notification(s)



NOTIFICATION OF NON-COMPLIANCE

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

Date: November 2, 2015

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

Re: Notification of Non-Compliance with STP Effluent Parameter

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 the verbal notification provided on October 26, 2015 to Jen Bitten.

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
Acute Lethality of Daphnia magna	Oct. 20/15	Pass/Fail	Grab	10% mortality	Pass (0.0% mortality)
Acute Lethality of Daphnia magna	Re-sample Oct. 26/15	Pass/Fail	Grab	100% mortality	Pass (0.0% mortality)

Comments/Actions Taken:

OCWA received lab results from Aquatox on Oct. 23, 2015, with a Daphnia magna result of 10% mortality in the Dm single concentration test collected on Oct. 20, 2015, from the Deep River sewage treatment plant. As a result of this test, re-sampling was done on Oct. 26, 2015 to be sent to the lab for re-testing. OCWA received a phone call from the lab on Oct. 30th, telling us that the re-sample also failed with 100% mortality. The lab was sending us more buckets in order to do another re-sample. This will take place during the week of November 2-6th. We will forward the results to you once they are received.

Based on bacti final effluent results on Oct. 27/15 of < 10 ct/100 mL, and lab results from Oct. 13th – Oct. 20th, 2015 with results as follows:



**Ontario Clean Water Agency
Agence Ontarienne Des Eaux**

TSS: 12; TP: 0.23, 0.25; TKN: 2.37, 3.6; N-NH3: 1.70, 0.82; CBOD5: 2; Un-ionized N-NH3: < 0.02, < 0.02, we have no explanation to what may be contributing to the results we are getting back from the lab for the acute lethality testing failures. The RBT results have been coming back with a 0% mortality rate. The plant has been running as normal, with no out-of-the ordinary incidents. I have attached the results received back from the lab.

If you have any questions or concerns, please contact me at 613-687-2141.

Sincerely,

Brenda Royce

Process & Compliance Technician
Ontario Clean Water Agency
Ottawa Valley Hub - Petawawa Cluster
613-687-2141

ec: Jen Bitten, Water Inspector, MOE
Sean Patterson, Director of Public Works, Town of Deep River
Ric McGee, CAO/Clerk, Town of Deep River
Brad Sweet, Operations Manager, OCWA
Andrew Trader, Senior Operations Manager, OCWA
Debbie Turner, (A) Regional Compliance Advisor, OCWA



AquaTox Testing & Consulting Inc.
11B Nicholas Beaver Rd.
RR 3
Guelph ON N1H 6H9
Tel: (519) 763-4412 Fax: (519) 763-4419

PRELIMINARY

ACUTE LETHALITY REPORT SUMMARY

Workorder No: 229567

Brad Sweet
Ontario Clean Water Agency, Deep River
1 Cedar Road
Deep River ON
K0J 1P0

RESULTS

Substance	Date Collected	Date Tested	Species / Test	Mortality in 100% Concentration (%)
Acute Lethality Test. Final Effluent	2015-10-20	2015-10-21	Dm Single Concentration	10
	2015-10-20	2015-10-21	RBT Single Concentration	0

RBT = rainbow trout
Dm = Daphnia magna
* = pH Stabilized

Test Protocols

Reference Method for Determining Acute Lethality of Effluents to Daphnia magna. Environment Canada EPS 1/RM/14 (Second Edition, December 2000).

Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout. Environment Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007 amendments).

Although test results are generated under strict QA/QC protocols, the results provided herein, along with any unsigned test reports, faxes, or emails are considered preliminary.

Accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA)



AquaTox Testing & Consulting Inc.
11B Nicholas Beaver Rd.
RR 3
Guelph ON N1H 6H9
Tel: (519) 763-4412 Fax: (519) 763-4419

**PRELIMINARY
ACUTE LETHALITY REPORT SUMMARY**

Workorder No: 229608

**Brad Sweet
Ontario Clean Water Agency, Deep River
1 Cedar Road
Deep River ON
K0J 1P0**

RESULTS

Substance	Date Collected	Date Tested	Species / Test	Mortality in 100% Concentration (%)
Acute Lethality Test Final Effluent	2015-10-26	2015-10-30	Dm Single Concentration	100
	2015-10-26	2015-10-27	RBT Single Concentration	0

RBT = rainbow trout
Dm = *Daphnia magna*
* = pH Stabilized

Test Protocols

Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*. Environment Canada EPS 1/RM/14 (Second Edition, December 2000).

Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout. Environment Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007 amendments).

Although test results are generated under strict QA/QC protocols, the results provided herein, along with any unsigned test reports, faxes, or emails are considered preliminary.

Accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA)



AquaTox Testing & Consulting Inc.
11B Nicholas Beaver Rd.
RR 3
Guelph ON N1H 6H9
Tel: (519) 763-4412 Fax: (519) 763-4419

PRELIMINARY

ACUTE LETHALITY REPORT SUMMARY

Workorder No: 229709

Brad Sweet
Ontario Clean Water Agency, Deep River
1 Cedar Road
Deep River ON
K0J 1P0

RESULTS

Substance	Date Collected	Date Tested	Species / Test	Mortality in 100% Concentration (%)
Acute Lethality Test: Final Effluent	2015-11-05	2015-11-06	Dm Single Concentration	0
	2015-11-05	2015-11-06	RBT Single Concentration	0

RBT = rainbow trout
Dm = Daphnia magna
* = pH Stabilized

Test Protocols

Reference Method for Determining Acute Lethality of Effluents to Daphnia magna. Environment Canada
EPS 1/RM/14 (Second Edition, December 2000).

Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout. Environment
Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007 amendments).

Although test results are generated under strict QA/QC protocols, the results provided herein, along with any unsigned test reports, faxes, or emails are considered preliminary.

Accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA)

APPENDIX D

Facility Work Order Summary

Deep River Sewage Treatment Plant

2015 Facility Maintenance Work Order Summary –

Highlights of some of the capital expenditures during the year are summarized below:

- Miscellaneous capital items needed for repairs and maintenance for the 2015 operating year at the DR STP.
- Costs associated with Electrical Safety Authority (ESA) inspection.
- Replacement of submersible level transducer.
- Costs associated with fire alarm equipment inspection by Valley Fire Alarm Services.
- Replacement and repair of blower check valves.
- Costs for annual lifting devices inspections by Accutec.

APPENDIX E

Calibrations

KROHNE

Altometer

KROHNE Altometer
Production facility
of Krohne AG, BaselKerkeplaat 12, 3313 LC Dordrecht
P.O. Box 110, 3300 AC Dordrecht
The NetherlandsPhone : (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: 28-08-2015
Flowmeter: DR RAW SEWAGE**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: 01-05-2015**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

Device identification: DR RAW SEWAGE
Medium: SEWAGE
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

Field current

Nullvalue: 133.233 mA Lower limit: 132.833 mA (-0.3%) Upper limit: 133.633 mA (+0.3%)
28-08-2015: 133.614 mA (+0.28%)

Field frequency

Nullvalue: 9.167 Hz Lower limit: 7.792 Hz (-15%) Upper limit: 10.542 Hz (+15%)
28-08-2015: 9.999 Hz (-8.32%)

ADC 25%

Nullvalue: 25 % Lower limit: 24.894 % (-0.4244%) Upper limit: 25.106 % (+0.4244%)
28-08-2015: 25.034 % (+0.13%)

ADC 50%

Nullvalue: 50 % Lower limit: 49.8 % (-0.4%) Upper limit: 50.2 % (+0.4%)
28-08-2015: 50.036 % (+0.07%)

ADC 75%

Nullvalue: 75 % Lower limit: 74.7 % (-0.4%) Upper limit: 75.3 % (+0.4%)
28-08-2015: 75.125 % (+0.16%)

ADC 100%

Nullvalue: 100 % Lower limit: 99.6 % (-0.4%) Upper limit: 100.4 % (+0.4%)
28-08-2015: 100.203 % (+0.2%)

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)
28-08-2015: 3.999 mA (-0.03%)

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)
28-08-2015: 19.999 mA (-0.01%)

Pulse output

Nullvalue: 500 Hz Lower limit: 499 Hz (-0.2%) Upper limit: 501 Hz (+0.2%)
28-08-2015: 499.925 Hz (-0.02%)

Coil resistance

Lower limit: 30 Ohm Upper limit: 250 Ohm
28-08-2015: 100.527 Ohm

Resistance electrode 1 with filled pipe

Lower limit: 0.15 kOhm Upper limit: 250 kOhm
28-08-2015: 2.57 kOhm

Resistance electrode 1 with empty pipe

28-08-2015: Not measured

Resistance electrode 2 with filled pipe

Lower limit: 0.15 kOhm Upper limit: 250 kOhm
28-08-2015: 2.353 kOhm

Resistance electrode 2 with empty pipe

28-08-2015: Not measured

Isolation

Lower limit: 2 MOhm
28-08-2015: 21 MOhm

KROHNE

Altometer

KROHNE Altometer
Production facility
of Krohne AG, BaselKerkeplaat 12, 3313 LC Dordrecht
P.O. Box 110, 3300 AC Dordrecht
The NetherlandsPhone : (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: 28-08-2015
Flowmeter: DR 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: 01-05-2015**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
certified according to
ISO 9001

Device identification: DR 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%)
28-08-2015: 133.141 mA (-0.08%)

Field frequency

Nullvalue: 9.167 Hz Lower limit: 7.792 Hz (-15%) Upper limit: 10.542 Hz (+15%)
28-08-2015: 9.999 Hz (-8.32%)

ADC 25%

Nullvalue: 25 % Lower limit: 24.9 % (-0.4%) Upper limit: 25.1 % (+0.4%)
28-08-2015: 24.998 % (-0.01%)

ADC 50%

Nullvalue: 50 % Lower limit: 49.8 % (-0.4%) Upper limit: 50.2 % (+0.4%)
28-08-2015: 49.967 % (-0.07%)

ADC 75%

Nullvalue: 75 % Lower limit: 74.7 % (-0.4%) Upper limit: 75.3 % (+0.4%)
28-08-2015: 74.962 % (-0.06%)

ADC 100%

Nullvalue: 100 % Lower limit: 99.6 % (-0.4%) Upper limit: 100.4 % (+0.4%)
28-08-2015: 99.957 % (-0.05%)

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)
28-08-2015: 3.997 mA (-0.09%)

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)
28-08-2015: 19.988 mA (-0.07%)

Pulse output

Nullvalue: 500 Hz Lower limit: 499 Hz (-0.2%) Upper limit: 501 Hz (+0.2%)
28-08-2015: 499.944 Hz (-0.02%)

Coil resistance

Lower limit: 30 Ohm Upper limit: 250 Ohm
28-08-2015: 103.94 Ohm

Resistance electrode 1 with filled pipe

Lower limit: 0.15 kOhm Upper limit: 250 kOhm
28-08-2015: 4.283 kOhm

Resistance electrode 1 with empty pipe

28-08-2015: Not measured

Resistance electrode 2 with filled pipe

Lower limit: 0.15 kOhm Upper limit: 250 kOhm
28-08-2015: 3.984 kOhm

Resistance electrode 2 with empty pipe

28-08-2015: Not measured

Isolation

Lower limit: 2 MOhm
28-08-2015: 21 MOhm

Tag # Raw Sewage

Size: 10 inch

Converter Model # IFC010

IFC010 - Settings as follows:

SIZE: 10 inch (250 mm)

GK : 4.372

FIELD FREQUENCY: 1/6

Current Output : 4 - 20mA

MEASUREMENT: VOLUME FLOW

RANGE: 0 to 175 l/sec

Time Constant: 3 sec

Counter:

Counter : OFF

Measurement:

Volume :

Tag # WAS

Size: 8 inch

Converter Model # IFC010

IFC010 - Settings as follows:

SIZE: 3 inch (80 mm)

GK : 2.5

FIELD FREQUENCY: 1/6

Current Output : 4 - 20mA

MEASUREMENT: VOLUME FLOW

RANGE: 0 to 60 l/sec

Time Constant: 3 sec

Counter:

Counter : OFF

Measurement:

Volume :

Site Visit Notes:

- All remaining configuration parameters at Krohne factory defaults.
- Hooked up MAGCHECK Verificator during site visit at each IFC010 converter and initiated the verification procedure. See attached PDF certificates and Trend reports. ALL Meters / Converters PASSED verification.

Should additional information be required, please feel free to contact us.

Best regards,

Angelo Valente
ACI Instrumentation Limited

P.O. Box 337, 14 Gormley Industrial Ave. Unit #5, Gormley, Ontario L0H-1G0 Tel: 905-888-0063 Fax: 905-888-6381 WWW.ACILTD.CA

APPENDIX F

Biosolids Summary Reports

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

Facility: DEEP RIVER WASTEWATER TREATMENT FACILITY
 Works: 5853
 Period: 01/01/2015 to 12/01/2015

Facility Works Number: DEEP RIVER WASTEWATER TREATMENT FACILITY
 Facility Name: Municipality: TOWN OF DEEP RIVER
 Facility Owner: Class 2 Wastewater Treatment
 Receiver: OTTAWA RIVER
 Service Population: 4200
 Total Design Capacity: 2727.0 m3/day
 Period Being Reported: 01/01/2015 01/12/2015

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										
Station										
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	Lab Published Month Mean
Jan		17,700.000	12,800.000	452.000	127.000	10.000	10.000	1,160.000	68.500	52.000
Feb		16,850.000	12,650.000	419.500	123.500	10.000	10.000	1,085.000	66.750	52.500
Mar		16,350.000	12,200.000	398.000	164.000	10.000	10.000	1,075.000	87.000	52.000
Apr		15,900.000	11,750.000	454.000	264.000	10.000	10.000	1,215.000	137.000	49.000
May		14,333.333	10,493.333	452.333	267.000	10.000	10.000	1,023.667	138.500	45.667
Jun	1,958.000	15,400.000	11,200.000	482.000	359.000	10.000	10.000	587.000	184.500	49.000
Jul										
Aug										
Sep		7,970.000	5,595.000	205.000	35.985	10.000	10.000	501.000	22.993	32.500
Oct	640.000	11,650.000	8,180.000	308.000	78.950	10.000	10.000	752.000	44.475	39.000
Nov	674.000	11,100.000	7,940.000	343.000	69.200	10.000	10.000	779.000	39.600	28.000
Dec										
Average	1,090.667	14,139.259	10,312.037	390.426	165.404	10.000	10.000	908.630	87.702	44.407
Total	3,272.000	127,253.333	92,808.333	3,513.833	1,488.635	90.000	90.000	8,177.667	789.318	399.667

Ontario Clean Water Agency

Biosolids Quality Report - Liquid

Digester Type: AEROBIC

Metals and Criteria

Facility: DEEP RIVER WASTEWATER TREATMENT FACILITY

Works: 5853

Period: 01/01/2015 to 12/01/2015

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)
DEEP RIVER WASTEWATER TREATMENT FACILITY											
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	0.040	0.015	0.040	0.320	5.800	0.050	0.080	0.240	0.400	0.060	6.800
Mar	0.040	0.014	0.030	0.290	5.850	0.055	0.075	0.225	0.385	0.055	5.375
Apr	0.035	0.015	0.030	0.300	5.855	0.050	0.070	0.235	0.375	0.045	6.950
May	0.035	0.015	0.030	0.270	5.880	0.050	0.070	0.225	0.340	0.045	6.615
Jun	0.050	0.011	0.030	0.253	5.200	0.050	0.057	0.187	0.250	0.037	4.967
Jul	0.040	0.013	0.030	0.290	5.450	0.050	0.070	0.210	0.270	0.080	4.940
Aug											
Sep	0.025	0.008	0.015	0.120	3.010	0.050	0.040	0.110	0.135	0.030	4.555
Oct	0.050	0.010	0.020	0.155	3.930	0.050	0.045	0.130	0.165	0.020	4.955
Nov	0.020	0.008	0.010	0.080	2.080	0.050	0.030	0.070	0.090	0.020	2.360
Dec											
Average	0.037	0.012	0.026	0.231	4.784	0.051	0.060	0.181	0.268	0.044	5.280
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)	2.633	0.846	1.847	16.332	398.341	3.576	4.217	12.822	18.839	3.078	373.402

