



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

**WIARTON
WASTEWATER TREATMENT LAGOONS**

Annual Report
January 1 to December 31, 2010

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Ministry of the Environment
Third Floor
101 17th Street East
Owen Sound, ON
N4K 0A5

Attention: Rick Chappell; District Manager

Subject: Wiarton Sewage Lagoons
Lot, Concession 21 E,
Georgian Bluffs (Township of Keppel), ON

The enclosed 2010 Report for the above referenced facility summarizes the performance and related activities in accordance with C of A #3511-6MHS3V and C of A #9441-78RQ8B issued November 9, 2007; Condition 10 (6) a) through j) as follows:

Table 1: Monitoring Program for C of A #9441-78RQ8B

Source (Composite)	Parameter	Frequency	Method
Influent	Flow (m ³)	Daily	Flow Meter
	BOD ₅ , TSS, TP, TKN	Monthly	External Analysis
Effluent	Flow (m ³)	Daily	Flow Meter
	CBOD ₅ , TSS, (Ammonia + Ammonium) Nitrogen, Total Phosphorus	Bi-Weekly	External Analysis
	E. Coli	Bi-Weekly	External Analysis
	Nitrogen NH ₃ + NH ₄	Bi-Weekly	External Analysis
	pH	Bi-Weekly	In-House & External Analysis
	Temperature	Bi-Weekly	In-House & External Analysis

Plant Performance & Effluent Quality

The Warton Wastewater Treatment Lagoons met all effluent limits as per the issued C of A #3511-6MHS3V and C of A #9441-78RQ8B

Table 2: Effluent Limits

Month	CBOD Limits		Suspended Solids Limits		Total Phosphorus Limits	
	Monthly Average 20 mg/l	Percent Removal	Monthly Average 24mg/l	Percent Removal	Monthly Average 0.5 mg/l	Percent Removal
January	4.0	95.24	8.5	92.41	0.30	87.45
February	6.5	94.22	11.0	90.09	0.37	84.77
March	7.7	95.34	15.0	90.00	0.23	91.68
April	9.5	88.55	12.0	88.99	0.12	94.50
May	2.0	96.36	5.0	97.38	0.38	85.66
June	2.0	98.73	3.5	98.13	0.12	96.41
July	3.5	96.64	11.5	94.42	0.16	95.39
August	6.0	90.63	11.5	91.84	0.17	95.00
September	5.0	96.03	12.5	93.84	0.11	97.06
October	3.5	96.24	9.5	93.73	0.11	95.39
November	2.5	97.25	10.0	89.36	0.13	93.46
December	5.5	88.78	8.5	86.29	0.13	90.65
Average	4.9	98.73	10.1	98.13	0.19	97.06

The average Effluent Geo. Mean E. Coli per 100ml for the year 2010 was < 2.0.

The peak Effluent Geo. Mean E. Coli per 100ml for the year 2010 was 2.0

The pH of the effluent was maintained between 6.0 and 9.5 inclusive at all times.

The annual average daily flow of 1,548m³ per day was 61.9% of the design capacity of 2,500 m³ per day. The average daily flow did not exceed the design capacity in 2010. The Peak Daily flow was not exceeded in 2010.

Table 3: Daily Flow Data 2010

Month	Average Day (m ³)	Peak Day (m ³)
January	1724.4	3683
February	1370.4	1652
March	2140.3	4505
April	1573.3	2941
May	1379.1	1969
June	1763.9	2973
July	1238.6	1553
August	1134.0	2324
September	1595.2	3044
October	1304.5	1787
November	1591.3	2673
December	1753.9	3319

Project Description

The Warton Wastewater Treatment Lagoons began operating in the present configuration in 1999. The facility consists of a series of 3 aerated lagoons operated in series.

The sewage lagoons are a three cell (6 ha.) system, aerated and operated in series configuration. Discharge from #3 cell is continuous.

The collection system serves the former Town of Warton only. All raw sewage, including waste from the Warton Water Filtration Plant sewage pump station, is collected at the #1 (recently upgraded) pump station located at George and Taylor Streets. It is then pumped to the #2 pump station at Taylor and Elm Streets. Raw sewage is then pumped to the lagoon site to #1 (south) cell.

In 2006, upgrades to Taylor St. pumping station included the installation of two new 60 hp 1775 rpm sewage pumps located in a dry well each with a rated capacity of 103.0 L/s at a TDH of 29.0 m (one duty, one standby) and a combined rated capacity of 130 L/s at a TDH of 39.0 m. Upgrades also incorporated the installation of a forcemain air relief and vacuum relief valve in the dry well. The installation of three new air relief and vacuum relief valve chambers along the

forcemain between Sewage Pumping Stations No. 1 and No. 2 were also included in the upgrades.

Coagulant (Fast Blend) is injected at the #1 pump station to provide precipitation of phosphorous in the lagoons.

In early 2004, the Wiarnton Lagoon was upgraded with the addition of a Dynasand Effluent Filtration System, Coagulant addition in the filter building, Ultraviolet Disinfection system, and a septic receiving facility adjacent to the main building. Also included in these upgrades was the addition of a third blower for the aeration cells. Disinfection is only required from May 15 to September 15 utilizing the Ultraviolet Disinfection system.

The plant discharge utilizes the pipe located on Mary Street to Isaac Street (original) and also utilizes the original abandoned forcemain on Taylor Street. Both pipes intersect at the discharge pipe located at George and Tyson Streets.

Lagoons Facts

Facilities:	Three Aerated lagoons, two pump stations
Design Capacity:	2,500 m ³ /day
Average Daily Flow:	1,548 m ³ per day (2010)
Households:	1,100
Receiving Water:	Colpoy's Bay (Georgian Bay)
Certificates of Approval	9441-78RQ8B Sewage 3-0709-82-006 Air 8-1028-99-006 Air

Table 5: Effluent Limits for C of A #3511-6MHS3V and C of A #9441-78RQ8B

Effluent Limits from Certificate of Analysis		
Parameter	Average Monthly Concentration (mg/L)	Average Loading (kg/day)
CBOD5	20	50
Suspended Solids	24	60
Total Phosphorous	0.5	1.25
pH	6.0-9.5	

The average density of e-coli in the effluent shall not exceed 200 per month (monthly geometric mean density). Effluent is being continuously discharged and disinfected during the entire calendar year.

Sampling Procedures

Table 6: Raw Sewage Monitoring for C of A #3511-6MHS3V and C of A #9441-78RQ8B

Parameters	Sample Type	Frequency
CBOD5	Grab	Monthly
Total Suspended Solids	Grab	Monthly
Total Phosphorous	Grab	Monthly
Total Kjeldahl	Grab	Monthly

Table 7: Effluent Monitoring for C of A #3511-6MHS3V and C of A #9441-78RQ8B

Parameters	Sample Type	Frequency
CBOD5	Composite	Bi-weekly
Total Suspended Solids	Composite	Bi-weekly
Total Phosphorous	Composite	Bi-weekly
(Ammonia + Ammonium) Nitrogen	Composite	Bi-weekly
<i>E.coli</i>	Grab	Bi-weekly
pH	Grab	Bi-weekly
Temperature	Grab	Bi-weekly

All chemical and bacteriological sample analyses are conducted by SGS Lakefield Research Laboratory.

Flows

The total flow treated in 2010 was 564,998 m³. The annual average daily flow of 1,548 m³ per day was 61.9% of the design capacity. The maximum peak flow of 4,505m³/day occurred in March, 2010 caused by high temperature, heavy rains, and snowmelt.

Plant Performance & Effluent Quality

Detailed (daily) analytical data is available at the Southampton Hub office. Annual and monthly averages/loadings are summarized in Appendix A.

Analytical data shows that the Wiarion Lagoon System met all the required effluent limits as outlined in the Certificate of Approval C of A #9441-78RQ8B.

All effluent compliance limits in the Certificate of Approval were met during the 2010 operational period.

Table 8: Annual Average Effluent Concentrations

Parameters	Effluent Concentrations	Percent Removal
CBOD5 (mg/L)	4.9	95.90
Suspended Solids (mg/L)	10.1	92.90
Total Phosphorous (mg/L)	0.19	92.70
E-coli (cfu/100 mL)	< 2.0	

Bypassing and Abnormal Conditions

There were no bypasses in 2010 at the Wiarion Sewage Lagoon System. See Appendix B.

Maintenance and Calibration Activities

Plant maintenance, including non-scheduled maintenance, is monitored using the Hansen Preventative Maintenance software program. Detailed maintenance reports are available at the OCWA Hub Office.

All routine and preventative maintenance was conducted as scheduled in 2010.

Flowmetrix calibrated all flow measuring equipment on July 10, 2010.

The report is attached as Appendix C.

Septage Receiving Works

Approximately 326,200 imperial gallons of septage/holding tank waste was treated at the Wiarton Lagoons during 2010.

The summary is tabulated in Appendix D.

Discussion

The following is a table summarizing the results received for the period of January to December, 2010, for the following parameters, with the maximum concentrations of the effluent parameters as outlined in the Terms and Conditions C of A #9441-78RQ8B: CBOD₅; Suspended Solids; Total Phosphorous.

Table 9: Effluent Limits for C of A #9441-78RQ8B

Month	CBOD ₅ Limits		Suspended Solids Limits		Total Phosphorus Limits	
	Monthly Average 20 mg/l	Monthly Loadings 50 kg/d	Monthly Average 24 mg/l	Monthly Loadings 60 kg/d	Monthly Average 0.5 mg/l	Monthly Loadings 1.25 kg/d
January	4.0	6.9	8.5	14.7	0.30	0.51
February	6.5	8.9	11.0	15.1	0.37	0.51
March	7.7	11.0	15.0	21.6	0.23	0.33
April	9.5	14.9	12.0	18.9	0.12	0.19
May	2.0	2.8	5.0	6.9	0.38	0.52
June	2.0	3.5	3.5	6.2	0.12	0.20
July	3.5	4.3	11.5	14.2	0.16	0.19
August	6.0	6.8	11.5	13.0	0.17	0.19
September	5.0	8.0	12.5	19.9	0.11	0.17
October	3.5	4.6	9.5	12.4	0.11	0.14
November	2.5	4.0	10.0	15.9	0.13	0.20
December	5.5	9.6	8.5	14.9	0.13	0.23
AVERAGE	4.9	7.12	10.1	14.5	0.19	0.28

The final effluent pH average for 2010 was 8.08, minimum 7.70 and maximum of 8.41.

The effluent parameters specified in the above table are analyzed by Lakefield Research, an accredited laboratory located in Lakefield, Ontario.

In house tests are conducted by licensed Operators for monitoring purposes using Standard Methods, and the data generated from these tests is used to determine the treatment efficiency while maintaining process control.

An Annual Self Assessment was conducted by OCWA in order to ensure that we meet all requirements specified by our regulators.

The E-Coli concentrations were never greater than 2.0 cfu/100 ml.

All the effluent concentration and loading compliance limits were achieved for 2010.

No complaints were received during 2010 with regards to the operation of the Wiarion Lagoon facility.

No biosolids were removed and disposed of during 2010.

Summary

The overall performance of the Wiarion Wastewater Treatment Lagoons was very good during 2010. The Wiarion Lagoon System has a capacity rating of 2500 m³/day. The Wiarion Lagoon facility was re-classified during 2005 to a Wastewater Treatment Class 2 facility. A new C of A #9441-78Q8B was issued for the Facility on November 9, 2007.

APPENDIX A

Lagoons Performance Summary

2010



Ontario Clean Water Agency Performance Assessment Report Wastewater/Lagoon

From 01/01/2010 to 12/31/2010

Facility: [5620] - Warton Wastewater Treatment Lagoon
Works: [110000819] - Warton Wastewater Treatment Lagoon

Flow: 01/2010 02/2010 03/2010 04/2010 05/2010 06/2010 07/2010 08/2010 09/2010 10/2010 11/2010 12/2010 <- Total -> <- Avg. -> <- Max. -> <- Criteria ->

	01/2010	02/2010	03/2010	04/2010	05/2010	06/2010	07/2010	08/2010	09/2010	10/2010	11/2010	12/2010	Total	Avg.	Max.	Criteria
Raw: Total Flow 1000 m3	53.457	33.37	66.348	47.2	42.752	52.916	38.397	35.153	47.855	40.44	47.738	54.372	564.998			
Raw: Avg. Day Flow 1000 m3/day	1.724	1.37	2.14	1.573	1.379	1.764	1.239	1.134	1.593	1.305	1.591	1.754	1.548			
Raw: Max. Day Flow 1000 m3/day	3.683	1.652	4.503	2.941	1.969	2.973	1.553	2.324	3.044	1.787	2.673	3.319				4.503
Eff: Total Flow 1000 m3	53.457	38.37	44.64	47.2	42.752	52.916	38.397	35.153	47.855	40.44	47.738	54.372	540.29			
Eff: Avg. Day Flow 1000 m3/day	1.724	1.37	1.44	1.573	1.379	1.764	1.239	1.134	1.593	1.305	1.591	1.754	1.488			
Eff: Max. Day Flow 1000 m3/day	3.683	1.652	1.44	2.941	1.969	2.973	1.553	2.324	3.044	1.787	2.673	3.319				3.683
Discharge Duration (day/mth)	31.0	28.0	31.0	30.0	31.0	30.0	31.0	31.0	30.0	31.0	30.0	31.0	365.0			

Carbonaceous Biochemical Oxygen Demand:

Raw: Avg. CBOD5 (mg/L)	84.0	112.9	164.3	83.0	55.0	156.0	104.0	64.0	126.0	93.0	91.0	49.0	98.667			262.0
Raw: Number of Samples CBOD5	1.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0	15.0			
Eff: Avg. CBOD5 (mg/L)	4.0	6.5	7.667	9.5	2.0	2.0	3.5	6.0	5.0	3.5	2.5	5.5	4.908			15.0
Eff: Number of Samples CBOD5	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	25.0			
CBOD5 Loading (kg/d)	6.898	8.907	11.04	14.947	2.758	3.528	4.335	6.804	7.876	4.568	3.973	3.647	7.115			14.947
CBOD5 Percent Removal	95.238	94.222	95.339	88.554	96.364	98.734	96.633	90.625	96.032	96.237	97.253	88.776	88.776			98.734

Suspended Solids:

Raw: Avg. SS (mg/L)	112.0	111.0	150.0	109.0	191.0	187.0	206.0	141.0	203.0	151.5	94.0	62.0	143.125			220.0
Raw: Number of Samples SS	1.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0	15.0			
Eff: Avg. SS (mg/L)	8.3	11.0	15.0	12.0	5.0	3.5	11.5	11.5	12.5	9.5	10.0	8.5	9.875			16.0
Eff: Number of Samples SS	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	25.0			
SS Loading (kg/d)	14.658	15.074	21.6	18.88	6.855	6.174	14.244	13.041	19.94	12.993	15.913	14.906	14.477			21.6
SS Percent Removal	92.411	90.09	90.0	88.991	97.392	98.128	94.417	91.844	93.842	93.729	89.352	86.23	86.23			98.128

Phosphorus:

Raw: Avg. Phos (mg/L)	2.35	2.43	2.725	2.18	2.05	3.2	3.36	3.4	3.57	2.395	1.91	1.39	2.623			3.69
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Note: 1. The Total, Average, Max and Criteria summaries are not included in the wastewater XML files submitted to the MOE.

2. The annual average concentrations are calculated by taking the arithmetic mean of the monthly average concentration in the effluent calculated for any particular calendar year.

Parameters List: OCWA POC - MEWS

CBOD5 - Carbonaceous Biochemical Oxygen Demand 5 Day; BOD5 - Biochemical Oxygen Demand, 5 Day, Total Demand; Suspended Solids - Residue, Particulate; NH3 + NH4 as N - Ammonium + Ammonia, Total Unfil. Resac.; Total Phosphorus - Phosphorus, Unfiltered Total
TRN - Nitrogen, Total Kjeldahl Unf. Tot; Nitrate as N - Nitrate, Unfiltered Reactive; Nitrite as N - Nitrite, Unfiltered Reactive; E. coli - Escherichia Coli MF

-legend:

Tag group:
Eff-Final Effluent



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

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Facility: [5620] - Warton Wastewater Treatment Lagoon
Works: [110000819] - Warton Wastewater Treatment Lagoon

	01/2010	02/2010	03/2010	04/2010	05/2010	06/2010	07/2010	08/2010	09/2010	10/2010	11/2010	12/2010	Total	Avg.	Max.	Criteria
Phosphorus:																
Raw: Number of Samples Phos	1.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0	15.0			
Eff: Avg. Phos (mg/L)	0.295	0.37	0.227	0.12	0.38	0.115	0.155	0.17	0.105	0.11	0.125	0.13		0.192		0.47
Eff: Number of Samples Phos	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	25.0			
Phos. Loading (kg/d)	0.509	0.507	0.325	0.189	0.524	0.203	0.192	0.193	0.167	0.143	0.198	0.228		0.282		1.25
Total Phos Percent Removal	87.447	84.774	91.682	94.495	85.56	96.406	95.387	95.0	97.059	95.388	93.455	90.547				97.059
Nitrogen Series:																
Eff: Avg. NH3 + NH4 (mg/L)	9.0	10.25	9.6	4.1	6.45	0.1	0.1	0.1	0.1	0.1	1.85	6.5		4.063		11.8
Eff: Number of Samples NH3 + NH4	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	25.0			
NH3 + NH4 Loading (kg/d)	15.52	14.046	13.824	6.451	8.895	0.176	0.124	0.113	0.16	0.783	2.944	11.401		6.203		15.52
Raw: Avg. TKN (mg/L)	19.1	18.35	18.3	19.1	23.7	22.5	26.7	24.7	24.4	21.25	15.6	8.1		20.2		27.6
Raw: # of Samples TKN	1.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0	15.0			
Eff: Avg. TKN (mg/L)	9.3	11.5	9.567	5.05	7.15	0.55	0.9	1.0	0.88	1.19	3.0	7.3		4.793		11.7
Eff: # of Samples TKN	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	25.0			
Eff: Avg. Nitrate (mg/L)	0.725	0.535	0.523	0.935	1.24	1.885	0.565	0.745	0.34	0.72	1.415	1.095		0.894		3.07
Eff: Number of Samples Nitrate	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	25.0			
Eff: Avg. Nitrite (mg/L)	0.06	0.06	0.06	0.08	0.13	0.305	0.06	0.06	0.06	0.145	0.06	0.06		0.1		0.95
Eff: Number of Samples Nitrite	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	25.0			
Disinfection:																
Eff: Geometric Mean E. Coli per 100 ml	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0		2.0
Eff: Number of Samples E. Coli per 100 ml	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0		2.0

Note: 1. The Total, Average, Max, and Criteria summaries are not included in the wastewater XML files submitted to the MOE.
2. The annual average concentrations are calculated by taking the arithmetic mean of the monthly average concentration in the effluent calculated for any particular calendar year.

Parameters List: CCWA PDC - MEWS
CBOD5 - Carbonaceous Biochemical Oxygen Demand 5 Day; BOD5 - Biochemical Oxygen Demand, 5 Day; Total Demand; Suspended Solids - Residue; Particulate; NH3 + NH4 as N - Ammonium + Ammonia; Total Unfil. React.; Total Phosphorus - Phosphorus; Unfiltered Total
TKN - Nitrogen, Total Kjeldahl N; Tot. Nitrate as N - Nitrate, Unfiltered Reactive; Nitrite as N - Nitrite, Unfiltered Reactive; E coli - Escherichia Coli MF

Legend:
Tag group:
Eff-Final Effluent



**Ontario Clean Water Agency
Monthly Process Data Report**

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Municipality: Town of Warton
 Facility: [5620] - Warton Wastewater Treatment Lagoon
 Works: [110000819] - Warton Wastewater Treatment Lagoon
 Classification: Class 2 Wastewater Collection, Class 2 Wastewater Treatment
 Receiver: Colpoys Bay to Georgian Bay

Period: 01/01/2010 to 12/31/2010
 Serviced Population: 2,291
 Total Design Capacity(m³/day): 2,500.0

	Jan/2010	Feb/2010	Mar/2010	Apr/2010	May/2010	Jun/2010	Jul/2010	Aug/2010	Sep/2010	Oct/2010	Nov/2010	Dec/2010	Summary ->
Raw Sewage/Flows													
Raw Flow: Sum (m3/d)	1,724.416	1,370.35	2,140.258	1,573.333	1,379.097	1,763.867	1,238.613	1,133.968	1,595.167	1,304.516	1,591.267	1,753.935	1,547.938
Avg	3,683.0	1,652.0	4,505.0	2,941.0	1,969.0	2,973.0	1,553.0	2,324.0	3,044.0	1,787.0	2,673.0	3,319.0	4,505.0
Max	1,411.0	1,245.0	1,208.0	1,218.0	702.0	1,106.0	1,023.0	895.0	1,029.0	1,020.0	1,083.0	1,228.0	702.0
Sum	53,456.9	38,369.8	66,348.0	47,200.0	42,752.0	52,916.0	38,397.0	35,153.0	47,855.0	40,440.0	47,738.0	54,372.0	564,997.7
Final Effluent/Flows													
Final Eff. Flow: Sum (m3/d)	1,724.416	1,370.35	1,440.0	1,573.333	1,379.097	1,763.867	1,238.613	1,133.968	1,595.167	1,304.516	1,591.267	1,753.935	1,488.465
Avg	3,683.0	1,652.0	1,440.0	2,941.0	1,969.0	2,973.0	1,553.0	2,324.0	3,044.0	1,787.0	2,673.0	3,319.0	3,683.0
Max	1,411.0	1,245.0	1,440.0	1,218.0	702.0	1,106.0	1,023.0	895.0	1,029.0	1,020.0	1,083.0	1,228.0	702.0
Sum	53,456.9	38,369.8	44,640.0	47,200.0	42,752.0	52,916.0	38,397.0	35,153.0	47,855.0	40,440.0	47,738.0	54,372.0	543,288.7
Final Effluent/Effluent - Final Effluent													
CBOD5 (mg/L)													
Avg	<	4.0	6.5	9.5	2.0	2.0	3.5	6.0	5.0	3.5	2.5	5.5	4.92
Max	<	4.0	7.0	15.0	2.0	2.0	4.0	8.0	5.0	4.0	3.0	7.0	15.0
Min	<	4.0	6.0	4.0	2.0	2.0	3.0	4.0	5.0	3.0	2.0	4.0	2.0
CBOD5 (kg/d)													
Avg	5.995	9.262	11.04	13.057	2.841	2.986	4.52	6.194	7.183	4.815	3.701	9.47	6.927
Max	6.006	9.774	12.96	19.366	3.046	3.474	5.128	7.832	8.37	6.2	4.707	13.44	19.365
Min	5.994	8.75	8.64	6.748	2.636	2.498	3.912	4.556	5.995	3.428	2.694	5.5	2.498
Suspended Solids (mg/L)													
Avg	8.5	11.0	15.0	12.0	5.0	3.5	11.5	11.5	12.5	9.5	10.0	8.5	10.08
Max	9.0	11.0	16.0	15.0	7.0	4.0	13.0	12.0	13.0	12.0	10.0	9.0	16.0
Min	8.0	11.0	13.0	9.0	3.0	3.0	10.0	11.0	12.0	7.0	10.0	8.0	3.0
Suspended Solids (kg/d)													
Avg	12.741	15.835	21.6	17.274	7.308	5.348	14.885	12.139	17.838	13.301	14.58	13.868	14.201
Max	13.514	17.919	23.04	19.365	10.661	6.948	16.952	12.529	20.088	18.6	15.68	15.36	23.04
Min	11.968	13.75	18.72	15.183	3.954	3.747	12.82	11.748	15.587	8.001	13.47	12.375	3.747
Total Phosphorus (mg/L)													
Avg	0.285	0.37	0.227	0.12	0.38	0.115	0.155	0.17	0.105	0.11	0.128	0.13	0.193
Max	0.36	0.37	0.34	0.14	0.47	0.17	0.19	0.19	0.12	0.12	0.15	0.17	0.47
Min	0.23	0.37	0.1	0.1	0.28	0.06	0.12	0.15	0.09	0.1	0.1	0.09	0.06
Total Phosphorus (kg/d)													
Avg	0.442	0.533	0.326	0.175	0.531	0.185	0.2	0.178	0.147	0.146	0.185	0.203	0.273



**Ontario Clean Water Agency
Monthly Process Data Report**



Municipality: Town of Warton
 Facility: [5620] - Warton Wastewater Treatment Lagoon
 Works: [110000819] - Warton Wastewater Treatment Lagoon
 Classification: Class 2 Wastewater Collection, Class 2 Wastewater Treatment
 Receiver: Colpoys Bay to Georgian Bay

Period: 01/01/2010 to 12/31/2010
 Serviced Population: 2,291
 Total Design Capacity(m³/day): 2,500.0

	Jan/2010	Feb/2010	Mar/2010	Apr/2010	May/2010	Jun/2010	Jul/2010	Aug/2010	Sep/2010	Oct/2010	Nov/2010	Dec/2010	Summary
Final Effluent - Final Effluent													
Total Phosphorus (kg/d)													
Max	0.541	0.603	0.49	0.181	0.619	0.295	0.244	0.186	0.151	0.155	0.235	0.234	0.619
Min	0.344	0.463	0.144	0.169	0.442	0.075	0.156	0.171	0.144	0.137	0.135	0.173	0.075
NH3 + NH4 as N (mg/L)													
Avg	9.0	10.25	9.6	4.1	6.45	0.1	0.1	0.1	0.1	0.6	1.83	6.5	4.284
Max	9.4	10.5	11.8	5.1	7.5	0.1	0.1	0.1	0.1	0.7	2.9	7.9	11.8
Min	8.6	10.0	6.4	3.1	5.4	0.1	0.1	0.1	0.1	0.5	0.8	5.2	0.1
NH3 + NH4 as N (kg/d)													
Avg	13.49	14.708	13.824	6.303	9.055	0.149	0.129	0.106	0.144	0.828	2.814	10.355	6.305
Max	14.114	16.29	16.992	8.604	9.885	0.174	0.13	0.114	0.167	1.085	4.55	10.725	16.992
Min	12.886	13.125	9.216	4.002	8.224	0.125	0.128	0.098	0.12	0.572	1.078	9.984	0.098
E. Coli. (cfu/100 mL)													
Avg	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Max	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Min	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Disinfection/Disinfection													
UV Dosage (mJ/cm2)													
Avg	172.968	190.464	197.065	248.133	172.581	249.0	250.0	250.0	250.0	242.871	226.767	194.742	214.431
Max	215.0	280.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0	280.0
Min	97.0	126.0	124.0	226.0	97.0	236.0	250.0	250.0	250.0	166.0	139.0	129.0	97.0
Final Effluent/LRDC - Final Effluent													
pH													
Avg	7.965	7.89	8.097	8.11	7.92	8.21	8.195	8.14	8.13	8.16	8.09	8.1	8.084
Max	7.97	7.98	8.27	8.33	8.14	8.41	8.27	8.22	8.29	8.25	8.11	8.1	8.41
Min	7.96	7.8	7.87	7.89	7.7	8.01	8.12	8.06	7.97	8.07	8.07	8.1	7.7

Note: ? Calculation not verifiable. At least one result reported as < and at least one result reported >.

APPENDIX B

**Bypassing Reports
(no bypasses)**

2010

APPENDIX C

Calibration Reports

2010

Rectangular Weir With End Contractions



Customer: **Ontario Clean Water Agency - Southampton**
 Contact: **Todd Davis**
 Supervisor Water & Wastewater

Western Office
 212 Terrence Avenue
 Dorchester, Ontario
 N0L 1G3
 t: 519-870-FLOW (3569)
 f: 519-268-3459
 e: stacey@flowmetrix.ca

Eastern Office
 1602 Old Wooler Rd
 Wooler, Ontario
 K0K 3M0
 t: 416-779-1456
 f: 613-398-0294
 e: curtis@flowmetrix.ca

Test Performed By: **Curtis King**
 Field Representative

Plant ID: **Warton WWTP** Date of Verification: **10-Jun-10**
 Meter ID: **Final Effluent** Calibration Frequency: **Yearly**
 FIT ID: _____ Date of Next Verification: **June-11**
 Client Tag: **209316**

Converter Details

Manufacturer: **Milttronics**
 Model: **MultiRanger**
 Converter S/N: **05w023466**
 Fuse: **Panel**

Totalizer Information

As Found: **m3**
 As Left: **m3**

Programming Parameters

Flume Type: **Contracted Rectangular Weir**
 Weir Length: **1.010** m
 Max. Head: **0.2** m
 Max. Flow: **574.07** m³/h
 Max Flow: **159.46** l/s

Verification Instruments

Steel Ruller
 Tape Measure
 Spare XRS5 Transducer
 Display Accuracy Verified: **Yes**
 mA Output Accuracy Verified: **Yes**
 Totalizer Accuracy Verified: **Yes**

AS FOUND	0	0	0	0	0	% F.S. Flow
FLOW TUBE SIMULATION*	0	0.076	0.120	0.162	0.196	m
Display	0.000	137.913	271.204	421.776	557.393	m ³ /h
MUT (As Found)	0.00	148.10	290.90	445.90	584.90	m ³ /h
MUT (Error)**	n/a	1.77	3.43	4.20	4.79	%
mA Output		7.84	11.56	15.76	19.54	mA
MUT (As Found)		8.01	11.89	16.11	19.84	mA
MUT (Error)**		2.12	2.87	2.25	1.56	%
Totalizer					557.393	m ³ /h
Test Volume					8	m ³
Time					50.12	Seconds
Calc. Flowrate					574.62	m ³ /h
% Error					3.09	%

* All values are for "As Found" values. If the values are not within acceptable limits an "As Left" certificate will be issued unless otherwise noted.

Comments

Error Calculation as a % of Full scale

Results

	Avg. % Error	PASS/FAIL
Display	3.55	PASS
mA Output	2.20	PASS
Totalizer	3.09	PASS

GPS Coordinates

Electronic "Dry" verification of secondary flow transmitter only as per Manufactures documentation. Verification does not consider the primary flow tube or correctness of installation as part of this verification report.

Krohne Flow Meter Verification Report



Customer: **Ontario Clean Water Agency - Southampton**
 Contact: **Todd Davis**
Supervisor Water & Wastewater

Western Office
 212 Terrence Avenue
 Dorchester, Ontario
 N0L 1G3
 t: 519-870-FLOW (3569)
 f: 519-268-3459
 e: stacey@flowmetrix.ca

Eastern Office
 1602 Old Wooler Rd
 Wooler, Ontario
 K0K 3M0
 t: 416-779-1456
 f: 613-398-0294
 e: curtis@flowmetrix.ca

Test Performed By: **Curtis King**
Field Representative

Plant ID	Warton SPS No1	Date of Verification	10-Jul-10
Meter ID	Taylor Street	Calibration Frequency	Yearly
FIT ID		Date of Next Verification	July-11
Client Tag	165372		

Converter Details

Manufacturer: **Krohne**
 Model: **IFC 020D**
 Converter S/N:
 Fuse: **local**

Totalizer Information

As Found: **465.65 e6 m3**
 As Left: **12345 m3**

Programming Parameters

Diameter (DN): mm **200**
 Full-Scale Flow: lps **200.000**
 k-factor: gkl **4.505**

Verification Instruments

Krohne GS8B: **v/42225/2/1**
 Fluke 787 Process Meter: **84080355**
 Stop Watch: **1/100 th second**

Flow Range @ 10.0 velocity: 215.690 lps
 Flow Zero Reading* lps: 0.32 lps

Display Accuracy Verified: **Yes**
 mA Output Accuracy Verified: **Yes**
 Totalizer Accuracy Verified: **Yes**

FLOW TUBE SIMULATION*	0	0.5	1	2	5	Y + zero
Display	0.320	11.104	21.889	43.458	108.165	lps
MUT (As Found)	0.10	11.09	21.90	43.44	108.15	lps
MUT (Error)**	n/a	-0.13	0.05	-0.04	-0.01	%
mA Output	4.03	4.89	5.75	7.48	12.65	mA
MUT (As Found)	4.00	5.04	5.98	7.61	12.77	mA
MUT (Error)**	-0.61	3.10	3.98	1.78	0.92	%
Totalizer					108.165	lps
Test Volume					6	m3
Time					55.66	Seconds
Calc. Flowrate					107.80	lps
% Error					-0.34	% Error

* All values are for "As Found" Values. If the values are not within acceptable limits an "As Left" Certificate will be issued, with corrections.

Comments

Results

	Avg. % Error	PASS/FAIL
Display	-0.03	PASS
mA Output	2.45	PASS
Totalizer	-0.34	PASS

Electronic "Dry" verification of secondary flow transmitter only as per Manufactures documentation. Verification does not consider the primary flow tube or correctness of installation as part of this verification report.

Krohne Flow Meter Verification Report



Customer	Ontario Clean Water Agency - Southampton	Western Office	Eastern Office
Contact	Todd Davis Supervisor Water & Wastewater	212 Terrence Avenue Dorchester, Ontario N0L 1G3 t: 519-870-FLOW (3569) f: 519-268-3459 e: stacey@flowmetrix.ca	1602 Old Wooler Rd Wooler, Ontario K0K 3M0 t: 416-779-1456 f: 613-398-0294 e: curtis@flowmetrix.ca
Test Performed By:	Curtis King Field Representative		

Plant ID	Warton SPS No2	Date of Verification	10-Jun-10
Meter ID	Taylor Street	Calibration Frequency	Yearly
FIT ID		Date of Next Verification	June-11
Client Tag	165385		

Converter Details

Manufacturer Krohne
Model IFC 020D
Converter S/N:
Fuse local

Totalizer Information

As Found 4855292 m3
As Left 4855312 m3

Programming Parameters

Diameter (DN) mm 250
Full-Scale Flow lps 250.000
k-factor gkl 4.544

Verification Instruments

Krohne GS8B v/42225/2/1
Fluke 787 Process Meter 84080355
Stop Watch 1/100 th second

Flow Range @ 10.0 velocity 339.932 lps
Flow Zero Reading* lps -1.25 lps

Display Accuracy Verified Yes
mA Output Accuracy Verified Yes
Totalizer Accuracy Verified Yes

FLOW TUBE SIMULATION*	0	0.5	1	2	5	Y + zero
Display	-1.250	15.747	32.743	66.736	168.716	lps
MUT (As Found)	-1.25	15.74	32.71	66.67	168.50	lps
MUT (Error)**	n/a	-0.04	-0.10	-0.10	-0.13	%
mA Output	3.92	5.01	6.10	8.27	14.80	mA
MUT (As Found)	4.15	5.15	6.24	8.40	14.87	mA
MUT (Error)**	5.87	2.84	2.37	1.56	0.49	%
Totalizer					168.716	lps
Test Volume					8	m3
Time					47.41	Seconds
Calc. Flowrate					168.74	lps
% Error					0.01	% Error

* All values are for "As Found" Values. If the values are not within acceptable limits an "As Found" Certificate will be issued, with corrections.

Comments

Results

	Avg. % Error	PASS/FAIL
Display	-0.09	PASS
mA Output	1.81	PASS
Totalizer	0.01	PASS

Electronic "Dry" verification of secondary flow transmitter only as per Manufactures documentation. Verification does not consider the primary flow tube or correctness of installation as part of this verification report.

APPENDIX D

Septage Receiving Works Summary

2010

