Ontario Clean Water Agency
Agence Ontarienne Des Eaux

TOBERMORY
SEWAGE LAGOON

Annual Report
January 1 to December 31, 2010

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West Highlands Hub

March 31, 2011

Ministry of the Environment
Third Floor
101 17th Street East
Owen Sound, ON
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Attention: Rick Chappell; District Manager

Subject: Tobermory Sewage Treatment System
Lot 49, Concession 1, Former township of St. Edmonds,
Municipality of Northern Bruce Peninsula, ON

Certificate of Approval (C of A) # 3-0046-93-006 dated February 24, 1993.

The Ontario Clean Water Agency entered into an operation and maintenance agreement for the Tobermory Sewage Works with the Municipality of Northern Bruce Peninsula, which took effect July 1st 2009.

The enclosed 2010 Report for the above referenced facility summarizes the performance and related activities from January 1st 2010 through December 31st 2010 in accordance with C of A # 3-0046-93-006; Condition 15 a) through i).

Table 1: Monitoring Program as per above-referenced C of A

Source	Parameter	Frequency	Method
Influent	Flow (m^3)	Daily	Flow Meter
Secondary Aeration Cell Effluent	BOD_5, SS, TP, TKN, NH3+NH4(N), Nitrate, Nitrite	Monthly – March, June, July, August and October	External Analysis
Aeration Cells	pH, Dissolved Oxygen	Weekly	In-House
Ground Water Wells	Alkalinity, Conductivity, Free Ammonia, Phenols, pH, Chloride, Sulphate, Nitrite, Magnesium, Iron, Nitrate, Calcium, Hardness, Sodium, DOC, Organic Nitrogen, TKN, Dissolved Reactive Phosphorous *, Total P * * = Shallow Wells Only	All thirty – Spring (May) & Fall (October) Limited – Summer (August) OW-6S, OW-6I, OW-6D, OW-7S, OW-9S, OW-9I, OW-9D, OW-10S, OW-11S, OW-12S	External Analysis
Ground Water Wells	Aluminum, Barium, Cadmium, Chromium, Copper, Lead, Manganese, Zinc	Every Three Years – Fall (October)	External Analysis

Project Description

The Tobermory Sewage Works System in the Municipality of Northern Bruce Peninsula (formerly Township of St. Edmunds) comprises a wastewater treatment plant and one sewage pumping station. The wastewater generated within the collection area of Tobermory is collected into the sewer system and pumped to the wastewater treatment plant by way of 150 mm forcemain. The wastewater treatment plant consists of two aerated cells, one storage cell, two exfiltration ponds and one overflow cell.

The wastewater treatment plant contains two (2) aerated lagoons. The capacity of aeration cells #1 and #2 is 10,800 m^3 each. The aeration provided is tapered coarse bubble, diffused aeration. The aeration Cell #2 has a quiescent settling zone to permit effluent clarification. The effluent from the aeration Cell #2 can be recycled to aeration Cell #1 or it can be transferred to storage Cell #1 for winter storage, or transferred to the exfiltration Cells #2 or 3 during summer operations. The exfiltration cells have a combined minimum rated capacity of 317m^3/day, and each cell has approximately 13,750 m^2 of surface area.

To provide coarse bubble diffused aeration for the two aerated cells, the plant is provided with one duty and one standby blower, each rated with a firm capacity of 193 L/sec at approximately 38 kPa.

The sewage pumping station, which is also called Little Tub Harbour Pumping Station, is located near the harbour, and has two submersible pumps each rated at 17.0 L/sec capacity at 50.5 m TDH. The wet well has a normal operating volume of 5.7 m^3. Due to its location near the harbour, the sewage pumping station wet well is provided with an odour control activated carbon adsorption unit having a capacity of 188.8 L/sec, for adsorbing hydrogen sulphide gas emissions from the wet well. The pumping station is also provided with a 150-kW diesel generator set for providing emergency power for the sewage pumps.

Plant Facts

Facility:	Sewage Treatment Lagoon	Plant Classification:	WWT II
Design Capacity:	625 m^3/day	Works Number:	
Average Daily Flow:	139.0 m^3 (2010)	Organization Code:	1132
Receiving Water:	None		
Certificates of Approval:	3-0046-93-006 8-1063-94-006 (Air)		

Plant Performance & Effluent Quality

Table 2: Aeration Cell Effluent Objectives

Effluent Objectives from Certificate of Analysis	
Parameter	**Average Monthly Concentration (mg/L)**
BOD_5	50
Suspended Solids	50

Table 3: Aeration Cell Effluent Lab Results

Month	BOD	SS	Total P	NH3 + NH4 (N)	TKN	Nitrite	Nitrate
March							
May	13	4	3.13	0.2	2.1	0.06	0.64
June	5	4	4.71	9.3	10.3	0.68	2.66
July	10	11	5.43	9.0	10.4	0.77	2.23
August	6	2	9.00	21.8	21.9	0.39	0.80
September	7	2	7.40	2.7	4.5	1.04	8.86
October	4	4	5.90	0.8	2.2	0.13	9.08

From January-December 2010, sample analyses were conducted by an accredited lab, SGS Lakefield Research. Weekly pH, Dissolved Oxygen and temperature readings in the aeration cells were conducted in-house by trained operations staff at the treatment plant using standard methods.

Table 4: Aeration Cell In-House Monitoring

Month	Cell #1 pH		Cell #1 DO		Cell #2 pH		Cell #2 DO	
	Min	Max	Min	Max	Min	Max	Min	Max
May	7.72	8.08	4.30	8.61	7.68	8.02	5.50	8.11
June	7.56	7.96	3.51	6.80	7.61	7.84	4.60	7.80
July	7.56	7.70	2.30	4.95	7.56	7.73	2.51	6.40
August	7.52	7.76	3.54	6.04	7.51	7.56	3.06	5.32
September	7.40	7.68	3.62	4.58	7.52	7.69	3.04	5.49
October	7.56	7.89	4.11	7.60	7.64	7.88	5.32	10.70

Detailed analytical data is summarized in Appendix A.

Flows

Table 2: 2010 Daily Raw Flow Data

Month	Average Day Flow (m^3)
January	105.4
February	78.3
March	77.0
April	92.4
May	131.4
June	190.6
July	278.7
August	276.1
September	199.5
October	102.2
November	54.8
December	75.5
Average	139.0

Detailed Flow data is summarized in Appendix A.

The total flow treated for January 1st through December 31st 2010 was 50,748 m^3. The average daily flow of 139.0m^3 per day was 22.2 % of the design capacity. The maximum average daily flow for this time period was 279.0 m^3 which was recorded in July 2010.

A total of 4,287.2 m³ of hauled septage and sewage was treated by the plant in 2010 of which the largest contributors by volume were Parks Canada, and Big Tub Resort, besides the septage from households.

Raw Sewage

Raw sewage characterization sampling was performed in 2010. The results are shown in the table below:

Summary of Raw Sewage Monitoring 2010

Month	BOD	TSS	TP	TKN	Total Ammonia (N)	Nitrite	Nitrate	Nitrate + Nitrate
May 3	40	32	1.38	8.3	4.9	<0.06	<0.05	<0.06
July 26	11	21	4.80	10.9	10.5	0.74	2.19	2.93
Aug 23	310	203	6.75	53.9	56.3	0.08	<0.05	0.08
Sept 27	61	67	1.17	7.7	6.2	<0.06	<0.05	<0.06

Groundwater Sampling Program

The complete and limited groundwater sampling of all on-site observation wells was completed in the Spring (May), Summer (August) and Fall (October) of 2010. There were no sampling results for monitoring wells (OW5-S, OW7-S,OW9-S), as the groundwater wells were dry. See Appendix B for Summary of groundwater sampling.

Sludge Management

There was no sludge removed from the facility in 2010.

Bypassing and Abnormal Conditions

There were no bypasses in 2010.

Maintenance and Calibration Activities

The Ontario Clean Water Agency is in the process of identifying equipment and maintenance requirements for the Tobermory Sewage Treatment System; once completed, regular and preventative maintenance activities are scheduled and completed on a monthly basis on all equipment at the plant and pumping station through OCWA's Workplace Management System.

The flow metering devices will be calibrated in June, 2011 as part of the Ontario Clean Water Agency, West Highlands Hub's regular, routine third party calibration schedule.

Summary

The Tobermory Sewage Lagoons provided effective wastewater treatment in 2010. The average daily flow from January 1st to December 31st 2010 was 139.0m^3 per day, or approximately 22.2% of the plant's rated design capacity average summer flow of 625m^3 per day.

APPENDIX A

Plant Performance Summary Report

2010

Ontario Clean Water Agency
Monthly Process Data Report

Printed on: 3/18/2011
d_monthlyprocessrep

Municipality:
Facility: [1132] - Tobermory Sewage Works System
Works: [120001577] - Tobermory Sewage Works System
Classification:
Receiver:

Period: 01/01/2010 to 12/31/2010
Serviced Population:
Total Design Capacity(m^3/day): 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 Sewage													
Raw Flow: Sum (m3/d)													
Avg	105.4	78.3	77.0	92.43	131.4	190.61	278.7	276.1	199.53	102.22	54.77	75.48	139.035
Sum	3,267.4	2,192.4	2,387.0	2,772.9	4,073.4	5,718.3	8,639.7	8,559.1	5,985.9	3,168.82	1,643.1	2,339.88	50,747.9
Secondary Effluent\Effluent - Aeration													
BOD5 (mg/L)													
Avg					13.0	5.0	10.0	6.0	7.0	< 4.0			< 7.5
Max					13.0	5.0	10.0	6.0	7.0	< 4.0			13.0
Min					13.0	5.0	10.0	6.0	7.0	< 4.0			< 4.0
Suspended Solids (mg/L)													
Avg					4.0	4.0	11.0	2.0	2.0	< 4.0			< 4.5
Max					4.0	4.0	11.0	2.0	2.0	< 4.0			11.0
Min					4.0	4.0	11.0	2.0	2.0	< 4.0			2.0
Total Phosphorus (mg/L)													
Avg					3.13	4.71	5.43	9.0	7.4	5.9			5.928
Max					3.13	4.71	5.43	9.0	7.4	5.9			9.0
Min					3.13	4.71	5.43	9.0	7.4	5.9			3.13
NH3 + NH4+ - N (kg/d)													
Avg					0.2	9.3	9.0	21.8	2.7	0.8			7.3
Max					0.2	9.3	9.0	21.8	2.7	0.8			21.8
Min					0.2	9.3	9.0	21.8	2.7	0.8			0.2
TKN (mg/L)													
Avg					2.1	10.3	10.4	21.9	4.5	2.2			8.567
Max					2.1	10.3	10.4	21.9	4.5	2.2			21.9
Min					2.1	10.3	10.4	21.9	4.5	2.2			2.1
Nitrite (mg/L)													
Avg					0.06	0.68	0.77	0.39	1.04	0.13			0.512
Max					0.06	0.68	0.77	0.39	1.04	0.13			1.04
Min					0.06	0.68	0.77	0.39	1.04	0.13			0.06
Nitrate (mg/L)													
Avg					0.64	2.66	2.23	0.8	8.86	9.08			4.045
Max					0.64	2.66	2.23	0.8	8.86	9.08			9.08
Min					0.64	2.66	2.23	0.8	8.86	9.08			0.64
Nitrite + Nitrate as N (mg/L)													
Avg					0.7	3.34	3.0	1.19	9.9				3.626

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Total Design Capacity(m³/day): 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 -->
Secondary Effluent\Effluent - Aeration													
Nitrite + Nitrate as N (mg/L)													
Max					0.7	3.34	3.0	1.19	9.9				9.9
Min					0.7	3.34	3.0	1.19	9.9				0.7
Aeration\Aeration - Aeration Cell #1													
Temperature (C)													
Avg					16.527	20.36	24.675	24.2	19.32	13.0			19.021
Max					24.5	22.5	25.4	25.2	24.6	14.6			25.4
Min					10.2	18.3	23.7	22.6	14.6	10.9			10.2
DO (mg/L)													
Avg					7.056	4.692	3.75	4.77	4.11	5.283			5.359
Max					8.61	6.6	4.95	6.04	4.58	7.6			8.61
Min					4.3	3.51	2.3	3.54	3.62	4.11			2.3
pH													
Avg					7.822	7.712	7.64	7.608	7.588	7.775			7.716
Max					8.08	7.96	7.7	7.76	7.68	7.89			8.08
Min					7.72	7.56	7.56	7.52	7.4	7.56			7.4

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

APPENDIX B

Summary of Groundwater Sampling

2010

Observation Well Ground Water Sampling Program in Spring (May)

Well #	DOC mg/L	Phenolics mg/L	Alkalinity mg/L as CaCO3	Conductivity uS/cm	pH	Chloride mg/L	Sulphate mg/L	TKN mg/L	Organic Nitrogen mg/L	NH3 + NH4 mg/L	Diss. Reactive Phos. mg/L	Nitrite as N mg/L	Nitrate as N mg/L	Nitrite + Nitrate as N mg/L	Hardness mg/L as CaCO3	Magnesium mg/L	Calcium mg/L	Iron mg/L	Sodium mg/L	Phosphorous mg/L	Well #
OW6-D		<0.002	302	857	7.86	86	25	<0.5		0.1	0.07	<0.06	0.31	0.31	353	24.1	102	76.8	66.1	3.1	OW6-D
OW6-I		<0.002	294	775	7.98	58	28	<0.5		<0.1	<0.03	<0.06	0.28	0.28	406	34.5	106	1.78	30.2	0.03	OW6-I
OW5-S		<0.002	266	1000	7.92	120	34	<0.5		<0.1	<0.03	<0.06	<0.05	<0.06	364	27.3	101	6.72	86.8	0.064	OW5-S
OW5-I		<0.002	241	1020	7.9	170	31	<0.5		0.2	<0.03	<0.06	<0.05	<0.06	328	20.8	97.1	0.703	103	0.02	OW5-I
OW5-D		<0.002	252	972	7.78	150	29	<0.5		0.1	<0.03	<0.06	<0.05	<0.06	342	24	97.5	2.42	86.2	0.084	OW5-D
OW2-I		<0.002	377	699	7.77	2.7	8.7	<0.5		<0.1	<0.03	<0.06	0.18	0.18	380	33.3	97.2	1.28	4.72	0.167	OW2-I
OW2-D		<0.002	239	482	7.82	1.1	16	<0.5		<0.1	<0.03	<0.06	<0.05	<0.06	276	26.5	66.8	0.08	5.83	<0.009	OW2-D
OW12-S		<0.002	399	856	7.53	65	16	<0.5		<0.1	<0.03	<0.06	0.71	0.71	418	29	120	0.691	55.4	0.02	OW12-S
OW55		<0.002	444	808	7.41	3.8	4.6	0.7		0.4	<0.03	<0.06	0.62	0.62	471	29.6	140	2.12	3.78	0.086	OW55
OW56		<0.002	325	600	7.65	1	3.7	<0.5		<0.1	<0.03	<0.06	0.1	0.1	380	26.6	108	0.94	0.98	0.039	OW56
OW57		<0.002	440	796	7.55	<2	6.8	<0.5		<0.1	<0.03	<0.06	0.36	0.36	501	39.2	136	0.06	1.04	<0.009	OW57
OW60		<0.002	323	618	7.62	1.9	5.5	<0.5		<0.1	<0.03	<0.06	<0.05	<0.06	268	25.1	66.2	0.51	6.12	0.028	OW60
OW61		<0.002	246	478	7.89	3.5	12	<0.5		<0.1	<0.03	<0.06	<0.05	<0.06	372	35.3	90.9	1.44	6.97	0.061	OW61
OW8-I		<0.002	252	500	8.01	3.4	14	<0.5		<0.1	0.14	<0.06	0.11	0.11	334	31.6	81.8	1.16	1.75	0.047	OW8-I
OW8-D		<0.002	260	503	7.78	3.7	16	<0.5		<0.1	<0.03	<0.06	0.06	0.06	875	91.2	200	29.8	2.19	0.724	OW8-D
OW9-S		<0.002	278	520	7.68	1.2	6.4	<0.5		<0.1	<0.03	<0.06	<0.05	<0.06	345	30.6	87.7	1.14	1.07	0.03	OW9-S
OW9-I		<0.002	218	470	8.11	2.6	23	<0.5		0.1	<0.03	<0.06	<0.05	<0.06	291	27.3	71.6	0.379	9.8	0.009	OW9-I
OW9-D		<0.002	219	439	7.9	0.9	15	<0.5		<0.1	<0.03	<0.06	<0.05	<0.06	270	27.1	63.4	0.582	2.95	0.014	OW9-D
OW1-I		<0.002	348	626	7.88	1.4	5.1	<0.5		<0.1	0.26	<0.06	0.06	0.06	416	32.6	113	3.08	3.27	0.4	OW1-I
OW1-D		<0.002	267	516	8.11	2.4	9.7	<0.5		<0.1	<0.03	<0.06	<0.05	<0.06	337	32	82.4	1.68	2.28	0.092	OW1-D
OW11-S		<0.002	267	539	7.77	2.5	17	<0.5		<0.1	<0.03	<0.06	1.82	1.82	377	32.6	97.2	0.997	1.19	0.02	OW11-S
OW10-S		<0.002	223	408	7.98	0.9	13	<0.5		0.1	<0.03	<0.06	<0.05	<0.06	379	31.9	99.1	7.59	3.86	0.253	OW10-S

Observation Well Ground Water Sampling Program in Summer (August)

Well #	DOC mg/L	Phenolics mg/L	Alkalinity mg/L as CaCO3	Conductivity uS/cm	pH	Chloride mg/L	Sulphate mg/L	TKN mg/L	Organic Nitrogen mg/L	NH3 + NH4 mg/L	Diss. Reactive Phos. mg/L	Nitrite as N mg/L	Nitrate as N mg/L	Nitrite + Nitrate as N mg/L	Hardness mg/L as CaCO3	Magnesium mg/L	Calcium mg/L	Iron mg/L	Sodium mg/L	Phosphorous mg/L	Well #
OW6-D			247	474	8.04	2.3	7.6	< 0.5	<0.15	0.6	<0.03	< 0.06	< 0.05	< 0.06	293	27.4	72.1	0.97	6.55	0.02	OW6-D
OW6-I			317	624	7.96	3.6	12	< 0.5	<0.15	< 0.1	<0.03	< 0.06	< 0.05	< 0.06	470	46.9	111	3.39	5.34	0.09	OW6-I
OW7-S	Dry																				OW7-S
OW9-S	Dry																				OW9-S
OW9-I			236	504	8.04	2.4	22	< 0.5	<0.15	<0.1	<0.03	< 0.06	0.06	0.06	282	26.5	69.4	0.55	9.66	<0.01	OW9-I
OW9-D			214	451	8.15	0.9	14	< 0.5	<0.15	< 0.1	<0.03	< 0.06	< 0.05	< 0.06	290	29.5	67.6	0.95	3.22	<0.01	OW9-D
OW10-S			214	408	8.1	0.9	14	< 0.5	<0.15	0.1	<0.03	< 0.06	< 0.05	< 0.06	2430	150	727	43.2	6.38	2.59	OW10-S
OW11-S			268	547	8.01	2.2	15	< 0.5	<0.15	0.1	<0.03	< 0.06	1.72	1.72	388	35	97.5	0.88	1.25	0.01	OW11-S
OW12-S			293	795	7.95	60	22	< 0.5	<0.15	< 0.1	<0.03	< 0.06	0.61	0.61	345	24.6	97.5	0.83	56.5	0.02	OW12-S

Observation Well Ground Water Sampling Program in Fall (October/November)

Well #	DOC mg/L	Phenolics mg/L	Alkalinity mg/L as CaCO3	Conductivity uS/cm	pH	Chloride mg/L	Sulphate mg/L	TKN mg/L	Organic Nitrogen mg/L	NH3 + NH4 mg/L	Diss. Reactive Phos mg/L	Nitrite as N mg/L	Nitrate as N mg/L	Nitrite + Nitrate as N mg/L	Hardness mg/L as CaCO3	Magnesium mg/L	Calcium mg/L	Iron mg/L	Sodium mg/L	Phosphorous mg/L	Well #
OW6-D			244	468	7.99	1.8	4.9	< 0.5	<0.5	< 0.1	<0.03	< 0.06	< 0.05	< 0.06	245	23.1	59.9	0.638	4.57	0.016	OW6-D
OW6-I			331	622	7.85	3.4	12	< 0.5	<0.5	< 0.1	<0.03	< 0.06	< 0.05	< 0.06	420	40.7	101	1.44	4.09	0.086	OW6-I
OW5-S																					OW5-S
OW5-I			249	973	8.1	110	35	< 0.5	<0.5	< 0.1	<0.03	< 0.06	< 0.05	< 0.06	351	26.9	96	1.02	84.2	0.074	OW5-I
OW5-D			262	954	8.13	130	31	< 0.5	<0.5	< 0.1	<0.03	< 0.06	< 0.05	< 0.06	299	21.7	84.1	1.12	79.8	0.056	OW5-D
OW2-I			383	670	8.06	2.8	7.7	< 0.5	0.05	0.1	<0.03	< 0.06	0.06	0.06	388	34	99.3	0.427	2.33	0.147	OW2-I
OW2-D			245	478	8.29	1.3	17	< 0.5	0.38	< 0.1	<0.03	< 0.06	< 0.05	< 0.06	283	25.7	82.9	0.103	9.02	<0.009	OW2-D
OW12-S			321	818	8.03	65	25	< 0.5	<0.5	< 0.1	< 0.03	< 0.06	0.74	0.74	656	58.3	170	0.103	50.1	0.489	OW12-S
OW55			428	778	7.87	4.9	0.2	41.5	40.8	0.7	<0.03	< 0.06	< 0.05	< 0.06	416	24.1	127	12.1	2.63	4.57	OW55
OW56			408	737	7.97	1.6	2.8	< 0.5	0.3	< 0.1	<0.03	< 0.06	< 0.05	< 0.06	335	22.3	97.6	0.021	0.78	0.014	OW56
OW57			482	868	7.98	2.5	7.7	< 0.5	0.2	< 0.1	<0.03	< 0.06	0.32	0.32	517	39.3	142	0.387	1.04	<0.009	OW57
OW60			333	953	7.93	99	30	<0.5	0.07	0.2	<0.03	< 0.06	0.09	0.09	394	27.6	112	.36	61.1	1.65	OW60
OW61			305	751	7.94	52	28	< 0.5	<0.5	< 0.1	.03	< 0.06	0.49	0.49	364	30.7	95.2	1.19	23.1	0.056	OW61
OW8-I			257	507	8	3.7	14	< 0.5	<0.5	< 0.1	<0.03	< 0.06	0.21	0.21	345	33.7	82.6	0.616	1.76	0.067	OW8-I
OW8-D			260	517	8.01	3.7	17	< 0.5	<0.5	< 0.1	<0.03	< 0.06	0.06	0.06	296	27.9	72.6	0.192	1.45	0.028	OW8-D
OW9-S			311	574	7.94	3.4	5.9	< 0.5	<0.5	< 0.1	< 0.03	< 0.06	0.06	0.06	564	58.2	133	1.43	1.08	0.199	OW9-S
OW9-I			236	517	8.07	2.9	23	< 0.5	<0.5	< 0.1	<0.03	< 0.06	3.25	3.25	267	24.8	66.1	0.669	9.28	0.037	OW9-I
OW9-D			218	440	8.15	0.9	13	< 0.5	<0.5	< 0.1	<0.03	< 0.06	< 0.05	< 0.06	247	25.2	57.4	0.722	2.54	0.049	OW9-D
OW1-I			351	647	7.72	2.3	7.3	< 0.5	<0.5	< 0.1	0.44	< 0.06	<0.05	<0.06	459	40.4	117	1.32	5.11	0.335	OW1-I
OW1-D			273	519	7.97	2.4	10	< 0.5	<0.5	< 0.1	<0.03	< 0.06	< 0.05	< 0.06	311	29.7	75.6	1.34	2.33	0.099	OW1-D
OW11-S			277	555	8.07	2.1	16	< 0.5	<0.5	< 0.1	<0.03	< 0.06	1.64	1.64	681	61.6	171	1.45	1.19	0.161	OW11-S
OW10-S			333	404	7.81	0.9	12	< 0.5	<0.5	< 0.1	< 0.03	< 0.06	<0.05	<0.06	1680	51.8	588	8.62	3.51	1.98	OW10-S
OW-75			309	564	8.21	<2.0	2.4	<0.5	<0.05	<0.1	<0.03	<0.06	0.1	0.1	356	28.1	96.1	0.294	1.06	<0.009	OW-75

APPENDIX C

Calibration Reports

2010

F&P Flow Meter
Verification/ Calibration Report

Flowmetrix
Technical Services Inc.

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 Road Wooler, Ontario K0K 3M0 t: 416-779-1456 f: 613-398-0294 e: curtis@flowmetrix.ca
Test Performed By:	*Paris Machuk* *Field Representative*	www.flowmetrix.ca	

Plant ID	Tobermory	Date of Verification	10-Jun-10
Meter ID	Sewage Lift Station	Calibration Frequency	Yearly
FIT ID		Date of Next Verification	June-11
Client Tag			

Converter Details

Manufacturer	Fisher & Porter
Model	50XM
Converter S/N:	9312030479
Fuse	On board

Totalizer Information

As Found	622170 m3
As Left	622193 m3

Programming Parameters

Diameter (DN)	mm	150
Full-Scale Flow	lps	25

Max. Flow @ 10.0 m/s 169 lps

Verification Instruments

F&P Flow Tube Simulator	
Fluke 787 Process Meter	84080355
Stop Watch	1/100 th second
Display Accuracy Verified	Yes
Current Output Verified	Yes
Totalizer Accuracy Verified	Yes

AS FOUND						
FLOW TUBE SIMULATION*	0	25	50	75	100	% F.S. Flow
	0.0	3.7	7.4	11.1	14.8	% Max. Flow
Display	0.00	6.25	12.50	18.75	25.00	lps
MUT (As Found)	0.17	6.40	12.59	18.80	25.01	lps
MUT (Error)**	n/a	2.35	0.72	0.27	0.04	%
Current O/P	4.000	8.000	12.000	16.000	20.000	mA
MUT (As Found)	4.103	8.079	12.041	16.010	19.991	mA
MUT (Error)**	2.57	0.99	0.34	0.06	-0.05	%
Totalizer					25.00	lps
Test Volume					3	m3
Time					120.62	Seconds
Calc. Flowrate					24.87	lps
% Error					-0.51	%

** 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

Note: did totallizer four separate times first -24% error then +25 % error then +1.8 % error then -0.51 % error
Asked operator if totals are taken from unit for tracking ? - Yes
When doing next year verification make note of above!
Dampening set at 50sec.

Results

	Avg. % Error	PASS/FAIL
Display	0.84	PASS
mA Output	0.34	PASS
Totalizer	-0.51	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.