



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

**TOBERMORY
SEWAGE LAGOON**

Annual Report
January 1 to December 31, 2011

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West Highlands Hub

March 31, 2012

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 2011 Report for the above referenced facility summarizes the performance and related activities from January 1st 2011 through December 31st 2011 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, NH ₃ +NH ₄ (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 m³ 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 317m³/day, and each cell has approximately 13,750 m² 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 m³. 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:	120001577
Average Daily Flow:	150.0 m ³ (2011)	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	NH ₃ + NH ₄ (N)	TKN	Nitrite	Nitrate
March	7	6	4.43	8.8	8.1	0.06	4.64
April	14	29	2.24	2.9	2.9	0.14	3.27
May	20	30	3.11	0.5	0.9	0.58	1.10
June	4	3	4.70	1.9	2.6	0.50	2.04
July	12	2	6.22	16.4	16.9	1.29	1.64
August	4	4	7.18	14.5	15.2	0.29	1.19
September							
October	3	6	4.81	2.9	2.8	0.24	4.43

From January-December 2011, sample analyses were conducted by an accredited laboratory, 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	7.71	8.16	6.08	11.6	8.51	8.81	7.50	12.11
June	7.45	8.19	4.49	7.45	7.39	7.69	4.52	12.35
July	7.55	8.25	2.86	4.16	7.51	8.31	2.83	5.22
August	8.01	8.31	2.88	5.63	7.96	8.20	2.48	3.70
September	8.02	8.40	3.82	5.66	8.2	8.34	4.04	5.36
October	7.86	9.00	5.67	8.09	7.85	8.88	6.0	8.03

Detailed analytical data is summarized in Appendix A.

Flows

Table 2: 2011 Daily Raw Flow Data

Month	Average Day Flow (m ³)
January	85
February	85
March	119
April	170
May	145
June	172
July	280
August	295
September	165
October	139
November	69
December	67
Average	150

Detailed Flow data is summarized in Appendix A.

The total flow treated for January 1st through December 31st 2011 was 54,703 m³. The average daily flow of 150.0m³ per day was 24.0 % of the design capacity. The maximum average daily flow for this time period was 295.0 m³ which was recorded in August 2011.

A total of 1,860.1 m³ of hauled sewage/septage was treated by the plant in 2011. Detailed hauled sewage/septage data is summarized in Appendix A.

Raw Sewage

Raw sewage characterization sampling was performed in 2011. The results are shown in the table below:

Summary of Raw Sewage Monitoring 2011

Month	BOD	TSS	TP	TKN	Total Ammonia (N)	Nitrite	Nitrate	Nitrate + Nitrate
April 26	22	74	1.21	5.3	6.0	<0.06	<0.05	<0.06
May 26	274	108	5.93	61.9	55.2	<0.06	<0.05	<0.06
June 27	31	24	2.85	18.9	16.4	0.34	0.41	0.75
July 25	232	174	4.69	36.8	32.7	<0.06	<0.05	<0.06
Aug 23	197	162	4.68	32.6	34.3	<0.06	<0.05	<0.06
Oct 24	117	55	1.91	11.5	12.7	<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 2011. There were no spring or fall sampling results for monitoring well OW8-S, as well as monitoring wells OW6-S and OW7-S for the summer sampling as the groundwater wells were dry at the time of sampling. See Appendix B for Summary of groundwater sampling.

Sludge Management

There was no sludge removed from the facility in 2011.

Bypassing and Abnormal Conditions

There were no bypasses in 2011.

Maintenance and Calibration Activities

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.

Infrastructure improvements/replacements in 2011 included:

- Refurbishing of Sewage Pumping Station Pump #2
- Repairs to lagoon aerator motors Auto Power Restore circuitry.
- Installation of lagoon aeration motor cycle timer.

The flow metering device located in the sewage lift station was calibrated on June 17, 2011 as part of the Ontario Clean Water Agency, West Highlands Hub's regular, routine third party calibration schedule. The Calibration Report is located in Appendix C.

Summary

The Tobermory Sewage Lagoons provided effective wastewater treatment in 2011. The average daily flow from January 1st to December 31st 2011 was 150.0m³ per day, or approximately 24 % of the plant's rated design capacity average summer flow of 625m³ per day.

APPENDIX A

Plant Performance Summary Report

2011



Ontario Clean Water Agency Monthly Process Data Report

Municipality: [1132] - Tobermory Sewage Works System
 Facility: [120001577] - Tobermory Sewage Works System
 Works: Class 1 Wastewater Collection, Class 1 Wastewater Treatment
 Receiver:

Period: 01/01/2011 to 12/31/2011
 Serviced Population: 3,436
 Total Design Capacity(m³/day): 0

	Jan/2011	Feb/2011	Mar/2011	Apr/2011	May/2011	Jun/2011	Jul/2011	Aug/2011	Sep/2011	Oct/2011	Nov/2011	Dec/2011	< - Summary ->
Raw Sewage/Flows - Raw Sewage													
Raw Flow: Sum (m ³ /d)	85.03	85.214	119.32	170.13	144.58	171.8	280.35	294.77	165.36	139.03	69.06	66.806	149.871
Avg	85.03	85.214	119.32	170.13	144.58	171.8	280.35	294.77	165.36	139.03	69.06	66.806	294.77
Max	85.03	85.214	119.32	170.13	144.58	171.8	280.35	294.77	165.36	139.03	69.06	66.806	294.77
Min	85.03	85.214	119.32	170.13	144.58	171.8	280.35	294.77	165.36	139.03	69.06	66.806	66.806
Raw Sewage/Septage - Raw Sewage													
Volume (m ³)	0.763	0.422	0.55	0.424	0.279	15.578	27.525	0.689	12.88	1.063	0.246	0.565	5.096
Avg	0.763	0.422	0.55	0.424	0.279	15.578	27.525	0.689	12.88	1.063	0.246	0.565	27.525
Max	0.763	0.422	0.55	0.424	0.279	15.578	27.525	0.689	12.88	1.063	0.246	0.565	27.525
Min	0.763	0.422	0.55	0.424	0.279	15.578	27.525	0.689	12.88	1.063	0.246	0.565	0.246
Secondary Effluent/Aeration													
BOD ₅ (mg/L)			7.0	14.0	20.0	4.0	12.0	4.0		3.0			9.143
Avg			7.0	14.0	20.0	4.0	12.0	4.0		3.0			20.0
Max			7.0	14.0	20.0	4.0	12.0	4.0		3.0			3.0
Min			7.0	14.0	20.0	4.0	12.0	4.0		3.0			3.0
Suspended Solids (mg/L)													
Avg			6.0	29.0	30.0	3.0	2.0	4.0		6.0			11.429
Max			6.0	29.0	30.0	3.0	2.0	4.0		6.0			30.0
Min			6.0	29.0	30.0	3.0	2.0	4.0		6.0			2.0
Total Phosphorus (mg/L)													
Avg			4.43	2.24	3.11	4.7	6.22	7.18		4.81			4.67
Max			4.43	2.24	3.11	4.7	6.22	7.18		4.81			7.18
Min			4.43	2.24	3.11	4.7	6.22	7.18		4.81			2.24
NH₃ + NH₄⁺ - N (kg/d)													
Avg			8.8	2.9	0.5	1.9	16.4	14.5		2.9			6.843
Max			8.8	2.9	0.5	1.9	16.4	14.5		2.9			16.4
Min			8.8	2.9	0.5	1.9	16.4	14.5		2.9			0.5
TKN (mg/L)													
Avg			8.1	2.9	0.9	2.6	16.9	15.2		2.8			7.057
Max			8.1	2.9	0.9	2.6	16.9	15.2		2.8			16.9
Min			8.1	2.9	0.9	2.6	16.9	15.2		2.8			0.9
Nitrite (mg/L)													
Avg			0.06	0.14	0.58	0.5	1.29	0.29		0.24			0.443
Max			0.06	0.14	0.58	0.5	1.29	0.29		0.24			1.29
Min			0.06	0.14	0.58	0.5	1.29	0.29		0.24			0.06



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Secondary Effluent/Effluent - Aeration													
Nitrate (mg/L)													
Avg			4.64	3.27	1.1	2.04	1.64	1.19			4.43		2,616
Max			4.64	3.27	1.1	2.04	1.64	1.19			4.43		4,64
Min			4.64	3.27	1.1	2.04	1.64	1.19			4.43		1.1
Nitrite + Nitrate as N (mg/L)													
Avg			4.64	3.41	1.68	2.54	2.93	1.48			4.67		3,05
Max			4.64	3.41	1.68	2.54	2.93	1.48			4.67		4,67
Min			4.64	3.41	1.68	2.54	2.93	1.48			4.67		1,48
Aeration/Aeration - Aeration Cell #1													
Temperature (C)													
Avg					15.5	20.3	25.12	23.88		18,025		12.86	19,607
Max					16.5	22.5	26.2	26.1		20.5		18.6	26.2
Min					14.3	19.2	23.7	21.8		15.5		9.2	9.2
DO (mg/L)													
Avg					8.263	5.274	3.474	4.01		4,903		6.694	5,247
Max					11.6	6.91	4.16	5.63		5.65		8.09	11.6
Min					6.08	2.91	2.86	2.88		3.82		5.67	2.86
pH													
Avg					7.94	7.71	7.8	8.106		8,225		8.316	8,014
Max					8.16	8.19	8.25	8.31		8.4		9.0	9.0
Min					7.71	7.45	7.55	8.01		8.02		7.86	7.45
Aeration/Aeration - Aeration Cell #2													
Temperature (C)													
Avg					15.667	19.94	24.56	23.52		17,35		11.82	19,096
Max					16.1	21.7	25.7	25.4		19.0		16.5	25.7
Min					14.8	18.7	22.6	21.8		15.9		8.4	8.4
DO (mg/L)													
Avg					9.373	6.846	4.266	3.074		4,593		6.694	5,589
Max					12.11	12.35	5.22	3.7		5.36		8.03	12.35
Min					7.5	4.52	2.83	2.48		4.04		6.0	2.48
pH													
Avg					8.623	7.57	7.814	8.094		8.24		8.228	8.05
Max					8.81	7.69	8.31	8.2		8.34		8.88	8.88



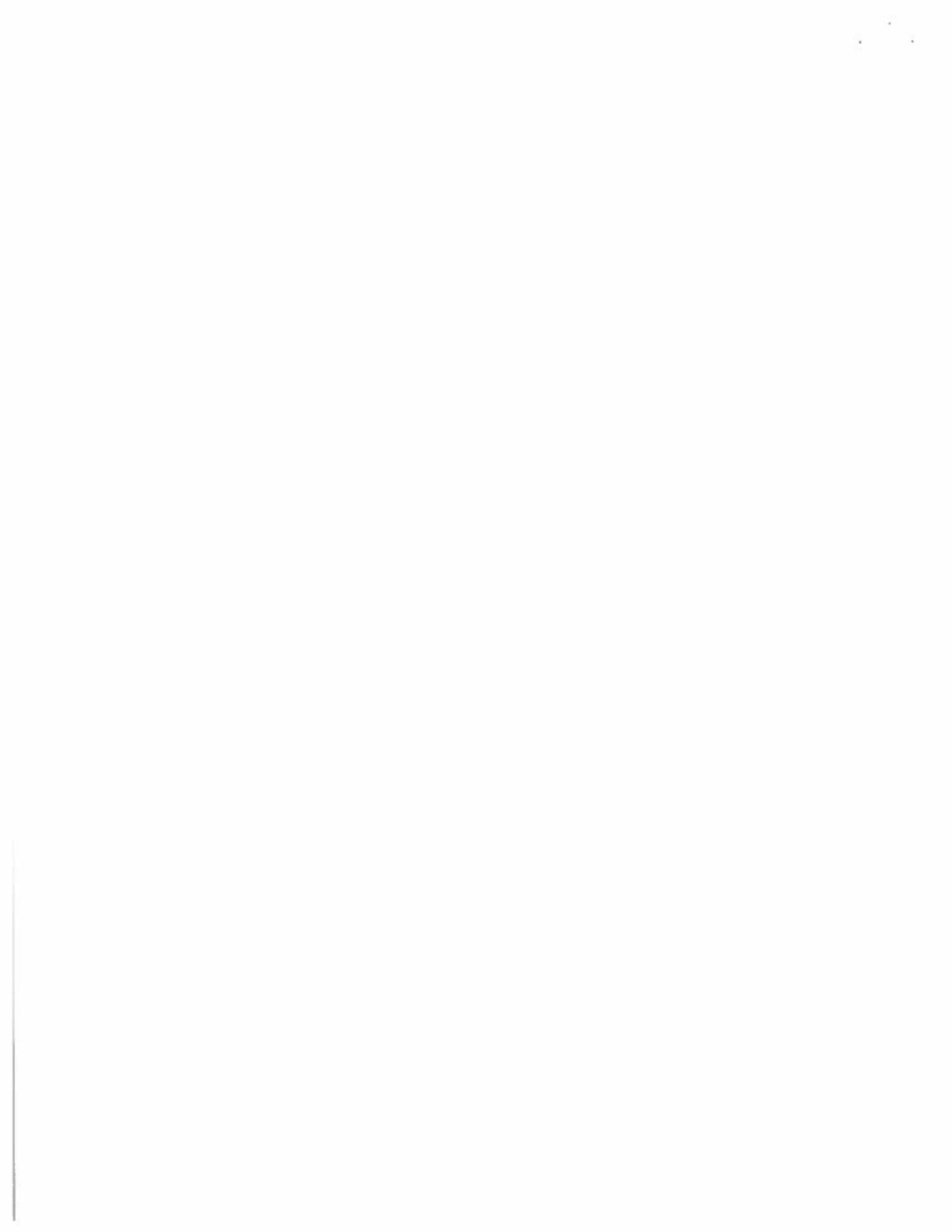
Ontario Clean Water Agency Monthly Process Data Report

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 Classification: Receiver:

Period: 01/01/2011 to 12/31/2011
 Served Population: 3,436
 Total Design Capacity(m³/day): 0

	Jan/2011	Feb/2011	Mar/2011	Apr/2011	May/2011	Jun/2011	Jul/2011	Aug/2011	Sep/2011	Oct/2011	Nov/2011	Dec/2011	<-- Summary -->
Aeration/Aeration - Aeration Cell #2													
pH													
Min					8.51	7.39	7.51	7.96	8.2	7.85			7.39

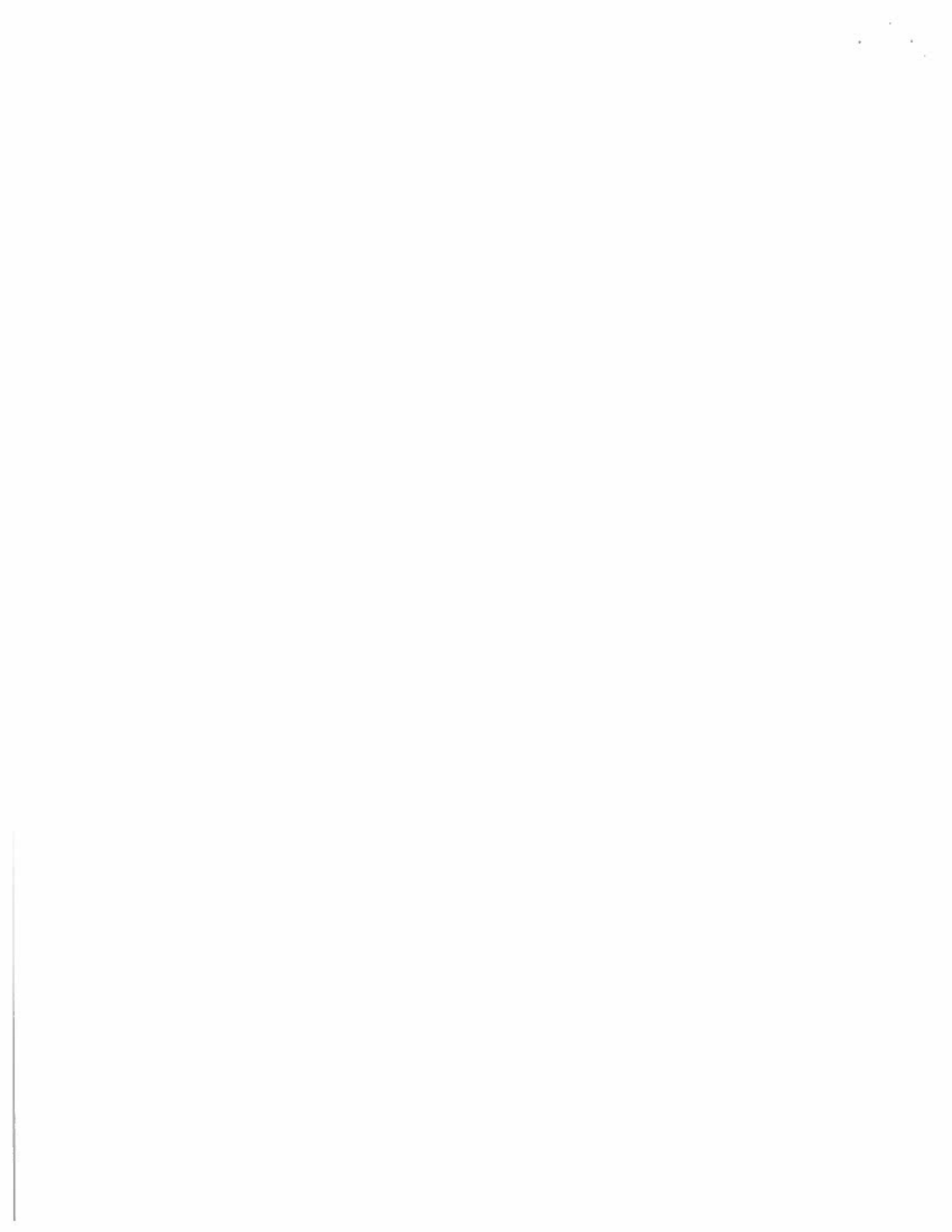
Note: ? Calculation not verifiable. At least one result reported as < and at least one result reported >.



2011 - Hauled Sewage

	January	February	March	April	May	June	July	August	September	October	November	December	TOTAL
Bruce Peninsula Septic Service	5,200	2,600	3,750	2,800	1,900	1,000	900	1,100	3,000	7,250	1,625	3,850	34,975
Scott Septic Pumping						100,600	184,400	82,000 (for Sept/Oct)					367,000
Mountain Trout Camp						1,200	2,400	3,600					7,200
Total	5,200	2,600	3,750	2,800	1,900	102,800	187,700	4,700	85,000	7,250	1,625	3,850	409,175

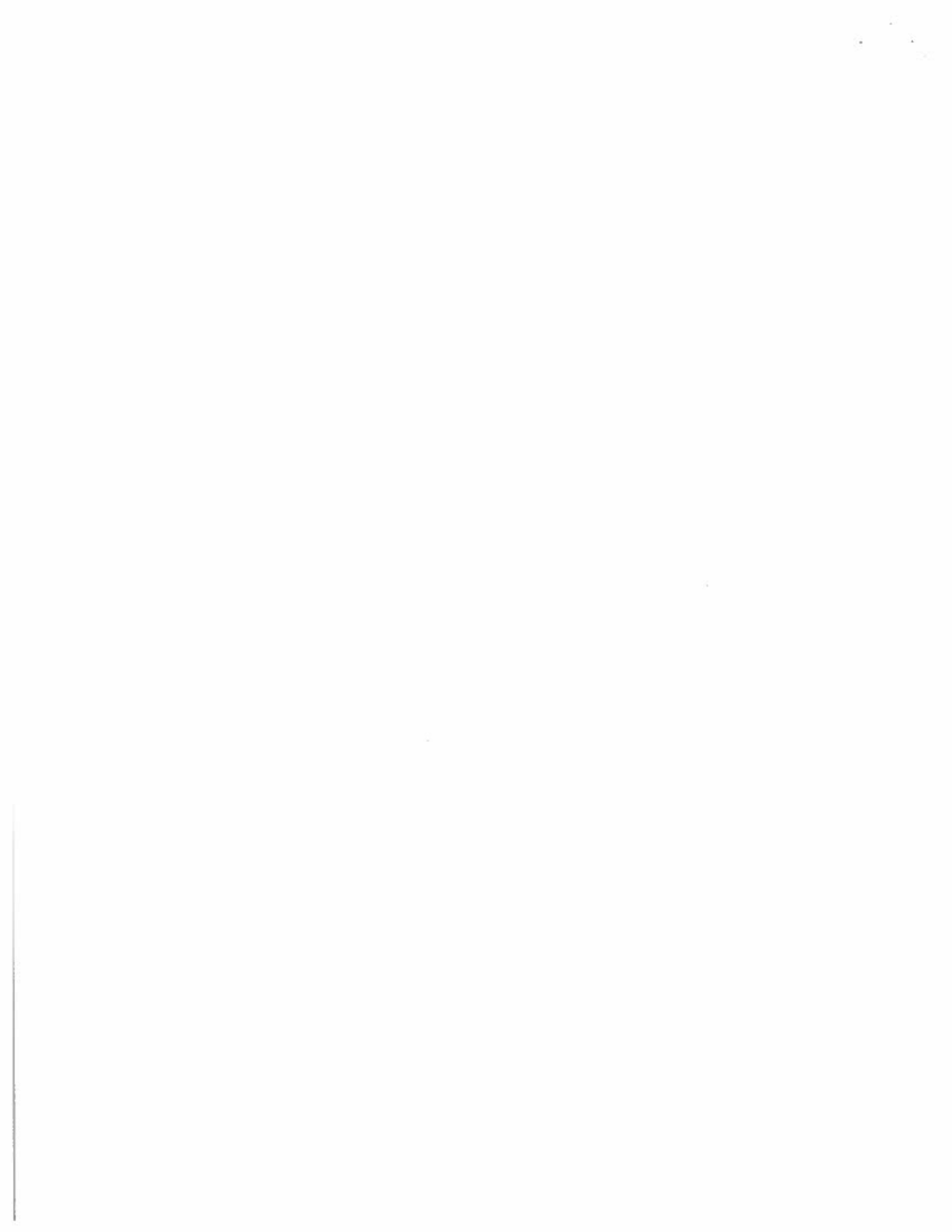
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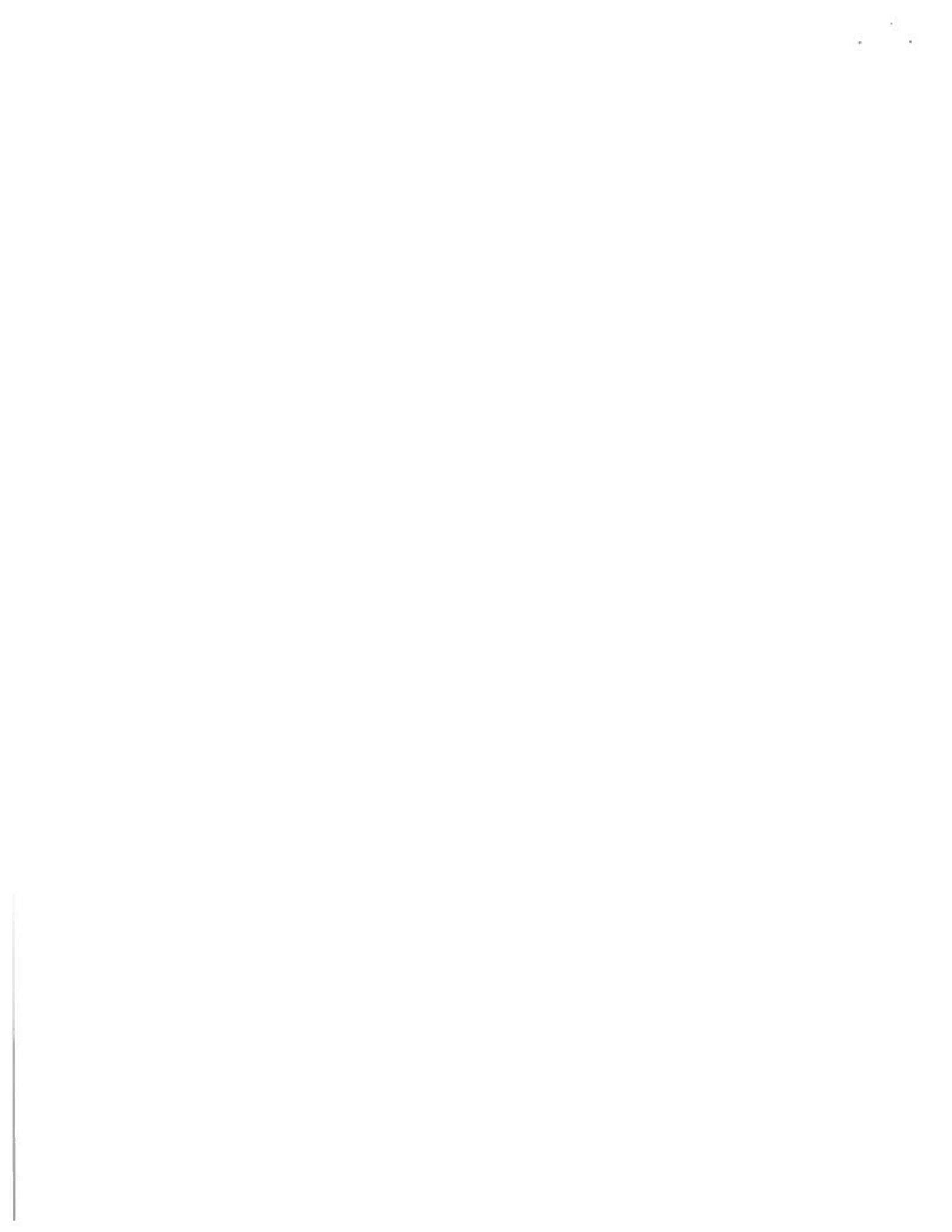


APPENDIX B

Summary of Groundwater Sampling

2011





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	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	Phosphor ous mg/L	Well #	
OW6-S	1.6	<0.002	245	534	7.83	11	6.1	<0.5	0.34	<0.1	<0.03	<0.06	<0.05	<0.06	346	40.3	72.3	1.89	0.62	0.86	OW6-S	
OW6-D	<1.0	<0.002	242	519	7.86	2.4	3.2	<0.5	0.07	<0.1	<0.03	<0.06	<0.05	<0.06	277	26.5	67.4	0.817	6.25	0.017	OW6-D	
OW6-I	1.3	<0.002	303	671	7.75	3.8	11	<0.5	<0.05	0.2	<0.03	<0.06	<0.05	<0.06	441	43.4	105	2.51	7.3	0.088	OW6-I	
OW5-S	3.2	<0.002	228	594	7.91	93	22	<0.5	0.23	<0.1	<0.03	<0.06	<0.05	<0.06	366	29.6	106	14.1	37.2	0.4	OW5-S	
OW5-I	2.8	0.002	275	862	7.89	140	33	<0.5	0.26	<0.1	<0.03	<0.06	<0.05	<0.06	688	61.3	175	3.54	85.6	0.3	OW5-I	
OW5-D	2.6	<0.002	278	847	7.8	95	31	<0.5	0.45	<0.1	<0.03	<0.06	<0.05	<0.06	333	24.1	93.5	1.34	80.8	0.135	OW5-D	
OW2-S	<1.0	<0.002	294	618	8.02	13	19	0.7	0.51	0.2	<0.03	<0.06	0.07	0.07	359	27.7	98.2	4.05	1.17	0.281	OW2-S	
OW2-D	2.5	<0.002	348	740	7.74	3.2	7.2	<0.5	<0.05	0.1	<0.03	<0.06	<0.05	<0.06	426	38.3	107	1.31	3.4	0.249	OW2-D	
OW2-I	1.5	<0.002	237	549	7.89	13	15	<0.5	<0.05	<0.1	<0.03	<0.06	<0.05	<0.06	267	26.1	64.1	0.079	12.6	0.018	OW2-I	
OW12-S	2.5	<0.002	276	1085	7.81	130	23	<0.5	<0.05	<0.1	<0.03	<0.06	0.54	0.54	426	30.7	120	2.31	88.8	0.089	OW12-S	
OW56	1.4	<0.002	231	501	7.8	<2.0	2.4	0.8	<0.05	0.1	<0.03	<0.06	<0.05	<0.06	468	22.9	150	15.3	1	0.052	OW56	
OW57	12.5	<0.002	390	822	7.73	<2.0	7.1	<0.5	0.07	<0.1	<0.03	<0.06	0.26	0.26	275	17.6	81.1	0.426	0.61	0.023	OW57	
OW60	2.2	<0.002	297	907	7.69	110	41	<0.5	0.07	<0.1	<0.03	<0.06	0.5	0.5	445	38.4	141	3.07	0.94	0.028	OW60	
OW61	1.5	<0.002	283	688	7.97	40	15	<0.5	0.46	<0.1	<0.03	<0.06	0.16	0.16	406	33.6	107	32.3	38.4	2.03	OW61	
OW8-I	<1.0	<0.002	240	551	7.97	3.6	13	<0.5	<0.05	<0.1	<0.03	<0.06	0.11	0.11	317	31.5	75.1	0.572	22.5	0.217	OW8-I	
OW8-D	<1.0	0.002	249	573	7.92	4	15	<0.5	0.12	0.2	<0.03	<0.06	<0.05	<0.06	317	30.5	76.5	1.08	209	0.044	OW8-D	
OW9-S	3	<0.002	222	485	7.84	14	9	<0.5	<0.05	<0.1	<0.03	<0.06	<0.05	<0.06	340	31.9	83.7	1.23	164	0.045	OW9-S	
OW9-I	<1.0	<0.002	224	541	7.99	3.4	22	<0.5	<0.05	<0.1	<0.03	<0.06	0.78	0.78	259	24.9	62.8	0.822	0.92	0.105	OW9-I	
OW9-D	4	<0.002	207	478	7.9	11	17	<0.5	<0.05	0.2	<0.03	<0.06	<0.05	<0.06	266	27.2	61.8	2.12	22.5	0.021	OW9-D	
OW1-I	1.3	<0.002	315	680	7.7	15	7.9	<0.5	0.17	<0.1	2.83	<0.06	0.14	0.14	437	35.7	116	0.652	3.08	0.027	OW1-I	
OW1-D	<1.0	<0.002	207	466	7.84	2.6	10	<0.5	0.07	<0.1	0.04	<0.06	<0.05	<0.06	326	31.4	78.7	1.54	16.1	3.18	OW1-D	
OW11-S	<1.0	<0.002	264	589	7.94	2	15	<0.5	<0.05	<0.1	<0.03	<0.06	1.4	1.4	581	56.5	140	4.95	2.83	0.081	OW11-S	
OW10-S	1.9	<0.002	207	448	7.99	11	11	<0.5	<0.05	0.1	<0.03	<0.06	<0.05	<0.06	1600	110	460	30.8	1.25	0.121	OW10-S	
OW75	10.3	0.003	201	449	7.86	16	7.6	<0.5	0.35	<0.1	<0.03	<0.06	<0.05	<0.06	274	21.6	74.3	0.464	0.66	2.32	OW75	
OW-8S																						OW-8S

DRY

Observation Well Ground Water Sampling Program in Fall (October)

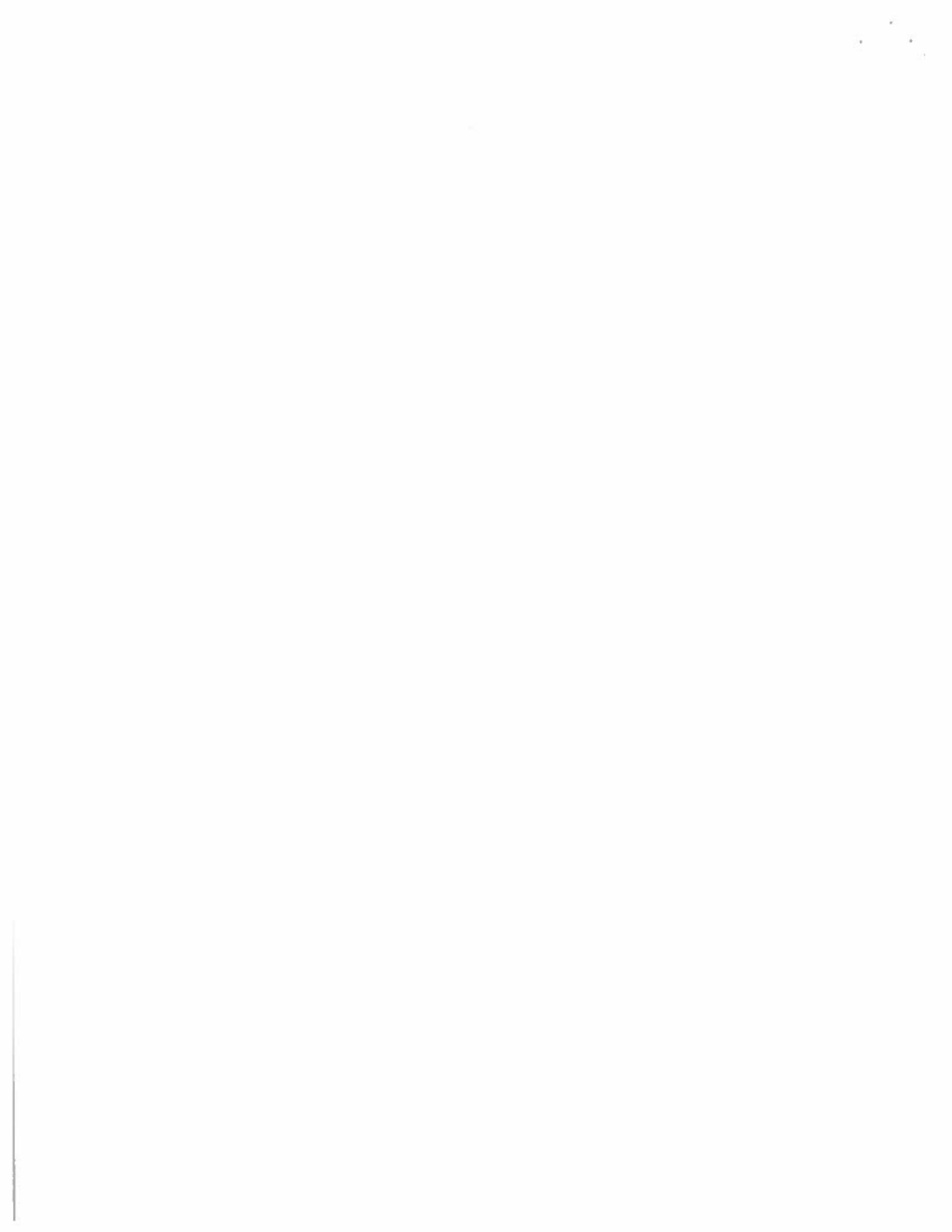
Well #	DOC mg/L	Phenolics mg/L	Alkalinity mg/L as CaCO3	Conductivity uS/cm	pH	Chloride mg/L	Sulphate mg/L	TKN mg/L	Organic Nitrogen mg/L	NH3 + NH4 mg/L	Dis. Reactive Phos. mg/L	Nitrite as N mg/L	Nitrate as N mg/L	Nitrite + Nitrate as N mg/L	Hardness mg/L as CaCO3	Magnesium mg/L	Calcium mg/L	Iron mg/L	Sodium mg/L	Phosphor ous mg/L	Well #	
OW5-S	3.1	<0.002	260	620	7.73	95	18	<0.5	<0.05	0.1	<0.03	<0.06	<0.05	<0.06	448	33.5	124	17.7	92.1	0.247	OW5-S	
OW5-I	3.7	<0.002	267	772	7.91	140	26	<0.5	0.05	0.2	<0.03	<0.06	<0.05	<0.06	357	24.6	103	0.394	92.7	0.024	OW5-I	
OW5-D	3.6	<0.002	264	829	7.94	130	30	<0.5	0.17	<0.1	<0.03	<0.06	<0.05	<0.06	375	27.4	105	1.67	82.4	0.06	OW5-D	
OW9-D	3.1	<0.002	212	460	8.02	0.8	14	<0.5	<0.05	<0.1	<0.03	<0.06	<0.05	<0.06	252	25.2	59.4	0.187	2.75	<0.009	OW9-D	
OW9-I	1	<0.002	228	515	7.99	3.2	21	<0.5	0.25	<0.1	<0.03	<0.06	<0.05	<0.06	252	23.6	61.8	0.125	13.2	<0.009	OW9-I	
OW9-S	2.1	<0.002	272	568	7.94	3	9.7	<0.5	0.07	<0.1	<0.03	<0.06	0.05	0.05	384	35.2	99.7	0.905	1.15	0.036	OW9-S	
OW8-I	3.7	<0.002	239	522	7.98	4	13	<0.5	<0.05	<0.1	<0.03	<0.06	<0.05	<0.06	356	34.4	86	0.392	1.61	0.046	OW8-I	
OW8-D	4	<0.002	248	537	8.08	4.4	15	<0.5	0.09	<0.1	<0.03	<0.06	<0.05	<0.06	311	29.1	76.8	0.166	1.61	0.016	OW8-D	
OW10-S	3.9	<0.002	201	432	8.04	1.1	13	<0.5	0.07	<0.1	<0.03	<0.06	<0.05	<0.06	890	56.3	260	5.37	3.45	1.15	OW10-S	
OW11-S	2.8	<0.002	262	568	8.02	1.7	13	<0.5	0.28	<0.1	<0.03	<0.06	1.64	1.64	405	35.4	104	0.276	1.12	0.059	OW11-S	
OW12-S	4.8	<0.002	270	862	7.9	84	20	<0.5	0.31	<0.1	<0.03	<0.06	0.48	0.48	362	26.1	102	0.177	50.3	0.024	OW12-S	
OW1-D	3.5	<0.002	251	534	8.08	2.4	10	<0.5	<0.05	<0.1	<0.03	<0.06	<0.05	<0.06	317	29.8	77.8	0.469	2.92	0.085	OW1-D	
OW1-I	3.4	<0.002	370	745	7.85	2	6.4	<0.5	<0.05	<0.1	0.49	<0.06	<0.05	<0.06	347	26.6	95.1	0.334	12.8	2.63	OW1-I	
OW6-S	2.9	<0.002	208	430	7.96	1	6.7	<0.5	0.1	0.1	<0.03	<0.06	<0.05	<0.06	238	26.8	50.9	0.179	1.59	<0.009	OW6-S	
OW6-D	1.6	<0.002	293	970	7.97	2.5	7.2	<0.5	<0.05	<0.1	<0.03	<0.06	<0.05	<0.06	276	26.2	67.5	0.166	5.04	<0.009	OW6-D	
OW6-I	3.2	<0.002	311	646	7.83	3.1	10	<0.5	<0.05	<0.1	<0.03	<0.06	<0.05	<0.06	370	35.5	89.7	0.961	5.29	<0.009	OW6-I	
OW57	4.2	<0.002	458	642	7.56	<2	8	<0.5	0.11	0.1	<0.03	<0.06	0.22	0.22	477	36.2	131	0.26	0.88	0.034	OW-57	
OW56	5.7	<0.002	392	599	7.44	1.5	3.9	<0.5	0.13	0.1	<0.03	<0.06	<0.05	<0.06	266	16.9	128	0.071	0.61	<0.009	OW-56	
OW2S	4.3	<0.002	441	846	8.07	1.6	3.4	<0.5	0.19	<0.1	<0.03	<0.06	<0.05	<0.06	491	41.5	128	1.53	0.98	0.184	OW-2S	
OW21	3.1	<0.002	366	569	7.8	2.3	8.5	<0.5	<0.05	<0.1	0.04	<0.06	<0.05	<0.06	396	34.9	101	0.598	3.59	0.195	OW-21	
OW2D	3	<0.002	233	515	8	1.3	18	<0.5	<0.05	<0.1	<0.03	<0.06	<0.05	<0.06	227	24	51.2	0.096	16.1	0.012	OW-2D	
OW55	11.7	<0.002	436	625	7.26	<2	4	2.9	<0.05	2.9	<0.03	<0.06	<0.05	<0.06	382	19.5	121	19.3	1	0.875	OW-55	
OW75	4.4	<0.002	324	507	7.67	1.2	8.4	<0.5	0.1	<0.1	<0.03	<0.06	<0.05	<0.06	357	28.8	95.4	0.286	0.81	0.02	OW-75	
OW60	4.4	<0.002	250	518	8	110	34	<0.5	0.28	<0.1	<0.03	<0.06	<0.05	<0.06	370	25.2	107	38.5	57.8	1.68	OW-60	
OW61	4.5	<0.002	209	379	7.88	40	14	1	0.06	1	<0.03	<0.06	0.72	0.72	271	20.9	74.2	0.62	15.9	0.668	OW-61	
OW8S																						OW-8S

DRY

APPENDIX C

Calibration Reports

2011



F&P Flow Meter

Verification/ Calibration Report



Customer: OCWA - West Highlands
 Contact: Cory McNeil
 Cluster Manager
 519-797-3080
 contact: Tim Brill
 Paris Machuk
 Field Representative

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 Road
 Wooler, Ontario
 K0K 3M0
 t: 416-779-1456
 f: 613-398-0294
 e: curtis@flowmetrix.ca

www.flowmetrix.ca

Plant ID	Tobermory	Date of Verification	17-Jun-11
Meter ID	Sewage Lift Station	Calibration Frequency	Annual
FIT ID	n/a	Date of Next Verification	June-12
Client Tag	n/a		

Converter Details

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

Totalizer Information

As Found: 678993 m³
 As Left: 679007 m³

Programming Parameters

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

Verification Instruments

F&P Flow Tube Simulator
 Fluke 787 Process Meter: 84080355
 Stop Watch: 1/100 th second

Max. Flow @ 10.0 m/s 169 lps

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
Display	0.0	3.7	7.4	11.1	14.8	% Max. Flow
MUT (As Found)	0.00	6.25	12.50	18.75	25.00	lps
MUT (Error)**	n/a	6.39	12.59	18.79	25.01	lps
Current O/P	4.000	8.000	12.000	16.000	20.000	%
MUT (As Found)	4.112	8.066	12.040	16.008	19.992	mA
MUT (Error)**	2.80	0.83	0.33	0.05	-0.04	mA
Totalizer						%
Test Volume					25.00	lps
Time					5	m3
Calc. Flowrate					200.94	Seconds
% Error					24.88	lps
					-0.47	%

* 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

Dampening set at 50sec.

Results

	Avg. % Error	PASS/FAIL
Display	0.81	PASS
mA Output	0.29	PASS
Totalizer	-0.47	PASS

This record only validates the operational integrity and accuracy verification results of the Secondary flow converter ONLY!!! This is not a complete calibration of the entire flow meter whereby, this verification does not validate the integrity of the primary measurement device using a comparative technique or traceable standard.

