



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

78 Centennial Rd., Unit 6
Orangeville, Ontario
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March 23, 2016

Mr. John Telfer
Town Clerk/CAO
Town of Shelburne
203 Main Street East
Shelburne, ON
L0N 1S0

Dear Mr. Telfer:

Re: 2015 Performance Report for Shelburne Waste Water Treatment Facility

Attached is the 2015 Performance Report for the **Shelburne Waste Water Treatment Facility** located at Centennial Street in the Town of Shelburne. This report has been completed in accordance with the Amended Certificate of Approval # 9972-7FYJUB dated August 12, 2008 and issued to the Town of Shelburne.

This report was prepared by the Ontario Clean Water Agency on behalf of the Town of Shelburne based on the information we have in our records. The report covers the period from January 1, 2015 to December 31, 2015.

If you have questions regarding the attached report please do not hesitate to contact me at (519) 941-1938.

Kind Regards,

A handwritten signature in blue ink, appearing to read 'Scott Craggs', with a long horizontal stroke extending to the right.

Scott Craggs
Operations Manager
Ontario Clean Water Agency
West Highlands Hub

SC/lb

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TOWN OF SHELburne



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Annual Report

for the

Shelburne Water Pollution Control Plant

Certificate of Approval No. 9972-7FYJUB

for the year

2015

prepared for the Town of Shelburne

by the Ontario Clean Water Agency

**2015 Annual Performance Report for
The Town of Shelburne Wastewater Treatment Plant
Certificate of Approval No. 9972-7FYJUB**

**Operated by the Ontario Clean Water Agency (OCWA)
under contract to the Town of Shelburne
for the year 2015**

Section 1 - Introduction:

The Ontario Clean Water Agency is pleased to provide the Ministry of the Environment and Climate Change (MOECC) with the 2015 Annual Performance Report for the Shelburne Wastewater Treatment Plant.

This report is designed to inform the MOECC of the quality of effluent being discharged from this facility. The entire treatment process at the Shelburne Wastewater Treatment Plant can best be described as a “transformation”.

A transformation from a harmful wastewater into two useful end products:

- a) A disinfected treated effluent
- b) An agricultural liquid fertilizer

Inquiries regarding this report can be directed to Scott Craggs, Operations Manager at the Ontario Clean Water Agency office located at 78 Centennial Rd., Unit 6 in Orangeville, Ontario. (Tel) (519) 941-1938, Fax (519) 941-1794, email: scraggs@ocwa.com.

Section 2 - Project Description:

The Town of Shelburne is a community of 7,900 people located approximately 100 kilometers northwest of Toronto. The community first obtained a waste disposal system in 1968 with the construction of a 5.5 ha lagoon and associated gravity collection and pumping system. The Town grew consistently over the years and eventually overloaded the lagoon system. In July 1981 construction was completed on a wastewater treatment system located at the present location. This expansion consisted of a new trunk sewer, pumping facilities, secondary and tertiary treatment and modifications to the existing lagoons which now provide storm and effluent holding during excess storm flows and plant upsets and maintenance.

The facility consisted of a wet well, a manual screen, grit channels, an oxidation ditch, one secondary clarifier, four effluent sand filters and a chlorine contact chamber. The oxidation ditch used two brush rotors. The facility operated as an extended aeration plant in this configuration from 1981 until December 1999.

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A major expansion (Phase 1) took place at the Shelburne WWTP in 1999, changing the configuration of the plant and the method of treating wastewater. The plant went under construction starting in April 1999 with the start-up of the new process in December of 1999. The Shelburne WWTP is still an extended aeration plant. As an extended aeration plant it is designed to remove suspended solids, CBOD₅ and phosphorus from the wastewater. Major improvements were two aeration tanks constructed with fine bubble diffusers. The sludge treatment system consists of a two stage aerobic sludge digestion system with a total storage volume of 580m³, equipped with coarse bubble aeration system and supernatant decanting. The former oxidation ditch was converted to a sludge storage facility with approximately six months storage.

Sludge loading facilities provide for transfer of digested aerobic sludge to trucks. Digested sludge is land-applied as farm fertilizer.

Two ultra-violet radiation banks replaced the sodium hypochlorite disinfection system.

In March 2006 the Ministry of the Environment issued an amended Certificate of Approval # 9046-6GAJUM for the Phase 2 extension and upgrading including;

- Construction of a hauled sewage receiving station;
- Replacement of the raw sewage pumping station - two submersible pumps;
- Replacement of the inlet works;
- Construction of a secondary clarifier ;
- Replacement of the clarifier effluent pump system; and
- Reconfiguration of the stormwater and effluent holding ponds.

New media was introduced into the filters, and OCWA and the Town of Shelburne are debating if a dual media filter is necessary as per the amended Certificate of Approval No. 9972-7FYJUB. Currently the filters are operating on single media, and if the Town of Shelburne continues to use a single media filter an administrative amendment to the Certificate of Approval will have to be submitted to reflect the current plant process.

This facility receives residential, commercial, institutional and industrial wastewater and provides a level of treatment to meet the amended "Certificate of Approval - # 9972-7FYJUB" for discharging into the Beasley Drain a minor tributary of the Boyne River. The Boyne Creek empties into the Nottawasaga River, ultimately meeting Georgian Bay at Wasaga Beach.

A "Process Flow Schematic" is included in Appendix D of this report.

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Section 3 - Plant Facts:

Facilities ➤	Extended Aeration Sewage Treatment Plant
Design Capacity ➤	3,420 m ³ /day
Average Daily Flow 2014 ➤	2,282 m ³ /day
Receiving Water ➤	Besley Drain to Boyne Creek to Nottawasaga River
Service Population ➤	7,900 (2015)
Certificate of Approval ➤	9972-7FYJUB
Plant Classification ➤	WWT-III
Organization Number ➤	5773

Effluent Objectives

Table 2 – Effluent Objectives	
Effluent Parameter	Concentration Objective (milligrams per litre unless otherwise indicated)
Column 1	Column 2
CBOD₅	4.0
Total Suspended Solids	4.0
Total Phosphorous	0.12
Total Ammonia Nitrogen	
Oct 1 – May 31	2.0
Jun 1 – Sept 30	0.5
E-coli	100 organisms /100 mL (monthly Geometric Mean Density)
pH of the effluent maintained between 6.5 – 8.5, inclusive, at all times.	

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Effluent Requirements:

Table 1 – Effluent Limits			
Effluent Parameter	Maximum Concentration (milligrams per litre unless otherwise indicated)	Monthly Concentration (milligrams per litre unless otherwise indicated)	Average Annual or Seasonal Loading (kilograms per day unless otherwise indicated)
Column 1	Column 2	Column 3	Column 4
CBOD₅	-	5.0	17.1
Total Suspended Solids	-	5.0	17.1
Total Phosphorous	-	0.25	0.86
Total Ammonia Nitrogen	-	2.4	8.2
Oct 1 – May 31		0.8	2.7
Jun 1 – Sept 30			
E-coli	-	200 organisms /100 mL (monthly Geometric Mean Density)	-
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times.			

Sampling Requirements ➤

Final effluent: a 24 hour composite sample to be collected weekly and tested for BOD₅, CBOD₅, Total Suspended Solids, Total Ammonia Nitrogen, Total Kjeldahl Nitrogen, Nitrite, Nitrate and Total Phosphorus, pH, Alkalinity and Temperature; a weekly grab sample for E.coli.

Raw sewage: a grab sample to be collected monthly and tested for BOD₅, CBOD₅, Total Suspended Solids, Total Kjeldahl Nitrogen, Total Phosphorous, pH and Alkalinity.

Aerobic sludge: a grab sample is collected monthly during the non-spreading and spreading season and tested for total solids, nitrite, nitrate, total phosphorous, total ammonia nitrogen, total kjeldahl nitrogen, pH and metals.

Section 4 - Sampling Procedures:

Raw sewage is sampled monthly and tested for BOD₅, CBOD₅, Suspended Solids, Total Kjeldahl Nitrogen, pH, Alkalinity and Total Phosphorus. Samples are collected using an automatic composite sampler (over a twenty-four hour period).

Final effluent is sampled weekly and tested for CBOD₅, Total Suspended Solids, Total Phosphorus, pH, Alkalinity, Total Kjeldahl Nitrogen, Total Ammonia Nitrogen, Nitrite and Nitrate.

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These are collected using an automatic composite sampler (over a twenty-four hour period). A weekly grab sample is collected and tested for E.coli. Grab samples of final effluent is also collected and tested in the plant by the operator for pH and temperature.

The concentration of un-ionized ammonia is calculated using the grab pH and temperature results and the total ammonia concentration result from SGS Lakefield Research Limited.

In-house tests are conducted by licensed operators for monitoring purposes using Standard Methods. The data generated from these tests is used to determine the treatment efficiency while maintaining process control. All in-house monitoring equipment is calibrated based on the manufacturer's recommendations.

Aerobic sludge is collected and tested as per the sampling requirements.

Section 5 - Summary of Report:

In 2015, the Shelburne WWTP provided effective wastewater treatment, producing effluent with removal rates for CBOD₅, TSS, TKN and Total Phosphorus all 97.1 % or better.

The bacteriological quality of the effluent complied with the certificate of approval monthly geometric mean density of <200 organisms per 100 ml sample for every month during 2015.

The aerobic sludge produced at the facility continued to meet all the Guidelines established for agricultural utilization. Eden Environmental Services Limited of Kenilworth are contracted to haul and spread sludge from the Shelburne WPCP.

Section 6 - Compliance With Provincial Regulations:

OCWA operates this sewage system in accordance with provincial regulations. Here is how we do it:

- **Use of Accredited Labs (SGS Canada Inc.):** Analytical tests to monitor the effluent quality 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. During 2015, all chemical sample analyses were conducted by SGS Lakefield Research Limited.
- **Operation by Licensed Operators:** This sewage system is operated and maintained by the OCWA's licensed staff. The mandatory licensing program for operators of sewage treatment facilities in Ontario is regulated under the Ontario Water Resources Act (OWRA) Ontario

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- Regulation 129/04. Licensing means that an individual meets the education and experience requirements and has successfully passed the certification exam.

The following are certified operators who operated this facility during 2015 with current certified classification, certificate numbers and certificate expiry dates (TABLE 1):

TABLE 1

Operator	Level	Certificate #	Expiry Date
Alex Solonomov	WWT 2	#49144	Jul 31, 2018
	WWC 2	#16652	Jan 31, 2018
Bill Smith	WWT 2	#65685	Aug 31, 2017
Curtis Parker	WWT 3	#79166	Jul 31, 2018
	WWC 2	#79167	Jul 31, 2018
Emanuel Castro	WWT OIT	#OT79030	Jan 31, 2019
	WWC OIT	#OT79006	Jan 31, 2019

- Sampling and Analytical Requirements: OCWA follows a sampling and analysis schedule required by the Certificate of Approval.

Section 7 - System Information:

Facility Name:	Town of Shelburne Waste Water Treatment Plant	Client Services: Phone Number	Ted Smider (705) 523-0528
Receiving Water Disinfection Method	Besley Drain to Boyne River Ultra Violet	E-mail Address	tsmider@ocwa.com
Municipal Location	Town of Shelburne	Operations Manager Phone Number	Scott Craggs (519) 941-1938
Service Population	7,900 (2015)	E-mail Address	scraggs@ocwa.com

Section 8 - Flows:

The total flow treated in 2015 was 764,817 m³. The annual average daily flow of 2,094 m³/day was 61.2% of the design capacity. The maximum peak flow of 4,150 m³/day represents 46.5% of the design peak flow of 8,921 m³/day.

The monthly average daily design flow was not exceeded during 2015.

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Section 9 - Raw Sewage Quality:

The annual average raw sewage CBOD₅ concentration to the plant was 278.19 mg/L. This corresponds to an average CBOD₅ loading of 582.5 kg/day. The annual average raw sewage suspended solids (TSS) concentration to the plant was 357.08 kg/day. This corresponds to an average TSS loading of 747.7 kg/day. The annual average raw sewage nitrogen concentration (as represented by TKN) to the plant was 34.43 mg/L. This corresponds to an average TKN loading of 72.1 kg/day. The annual average raw sewage Total Phosphorus concentration to the plant was 6.49 mg/L. This corresponds to an average Total Phosphorus loading of 13.6 kg/day.

Section 10 - Plant Performance & Effluent Quality:

There were no operating problems encountered or corrective actions required at the Shelburne Water Pollution Control Plant.

Detailed analytical results from SGS Lakefield Research Limited are available at the office on request. A summary of flows and plant performance is provided in this report.

The Shelburne WWTP provided effective wastewater treatment with removal rates for CBOD₅, TSS, TKN and Total Phosphorus of 97.1% or better for 2015.

Effluent Limits

The annual average effluent CBOD₅ concentration was 2.30 with a removal efficiency of 99.7%. The annual average effluent TSS concentration was 2.28 mg/l with a removal efficiency of 99.8%. The annual average effluent Total Kjeldahl Nitrogen (TKN) concentration was 1.00 mg/l with a removal efficiency of 97.1%. The annual average effluent Total Phosphorus concentration was 0.07 mg/l with a removal efficiency of 99.7%. The annual average effluent concentration for Total Ammonia-Nitrogen was 0.17 mg/l for the season (Oct 1 to May 31, 2013). The annual average effluent concentration for Total Ammonia-Nitrogen was 0.10 mg/l for the season (June 1 to Sept 30, 2013).

This facility was in compliance with all the effluent concentration and loading limits for the year 2015. The average waste loadings for the final effluent can be found in the in Appendix A.

The 2015 bacteriological quality of the effluent complied with the certificate of approval monthly geometric mean density of <200 organisms per 100 ml sample for every month during 2015. The monthly geometric mean densities of organisms were between 1.68 to 4.05 per 100 ml.

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Effluent Objectives

The effluent from the facility met all the effluent concentration objectives for Total Phosphorus, CBOD₅, Total Ammonia Nitrogen, Total Suspended Solids, E.coli and pH.

Section 11 - Sludge Management:

Digested sludge produced at the Shelburne WWTP is land-applied in accordance with the Nutrient Management Act 2002 and Ontario Regulation 267/03.

Grab samples of digested (aerobic) sludge are collected and tested as per these requirements. In 2015 sludge sample analysis were carried out by SGS Lakefield Research Limited. A summary of sludge sample results is provided in Appendix B of this report.

Eden Environmental Services Ltd. was contracted to haul and spread sludge from the Shelburne plant in 2015. (Certificate of Approval - Waste Management System #9566-6HYKC3)

The following certified sites were utilized in 2015:

- ***NASM Plan #21481 – Justin Martin***
- ***NASM Plan #20618 – Randy Martin***
- ***NASM Plan #20622 – David Barker***

A total volume of 4,104.0 m³ of sludge was applied to the above fields from the Shelburne WWTP in 2015.

Based on the design flow and average wastewater quality, the anticipated volume of sludge generated for 2016 would be approximately 4,104.0 m³.

Section 12 – A summary of any complaints received during the reporting period and any steps taken to address the complaints:

A standard operating procedure (SOP) has been in place for a number of years to deal with complaints received from the community. All complaints are to be addressed and logged in detail in the facility logbook and a generic "Complaint Form". The information from the form would be entered on OCWA's electronic database system "OPEX". This system contains all the required information and history of all complaints.

No complaints were received during this reporting period with regard to the Shelburne Water Pollution Control Plant.

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Section 13 - Bypassing and Abnormal Conditions:

There were no bypasses at the Shelburne Water Pollution Control Plant during the 2015 reporting period.

Section 14 - Maintenance and Calibration Activities:

Plant maintenance, including non-scheduled maintenance is monitored using Hansen Preventative Maintenance software program. Detailed maintenance reports are available. All routine and preventative maintenance was conducted as scheduled in 2015.

A number of repairs or improvements to equipment on the works were made or identified in 2015 as follows:

Plant:

- Rebuilt the alum header line.
- Replaced the soft start for blower #1.
- Repaired the bar screen auger and rake.
- Repaired the sweep and scum arm for the south clarifier.
- Installed repaired raw sewage pump #1.
- Repaired SCADA computer.

Hollen Controls Limited was contracted to calibrate all flow measuring equipment on October 2, 2015. Copies of the calibration reports can be found in Appendix C of this report.

Section 15 – Inspection of the Facility by the Ministry of the Environment and Climate Change:

There was no MOECC inspection of the Shelburne Water Pollution Control Plant in 2015.

Section 15 - Operational Objectives:

The Town of Shelburne Wastewater Treatment Plant continues to provide excellent wastewater treatment. OCWA and its operators will continue to strive through expertise and knowledge to meet all objectives and to continually improve and optimize the efficiency of the facility.

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Section 16 - Appendix:

- 2015 Annual Performance Summary – Appendix A
 - Annual Summary for 2015
 - Flows and Effluent Quality 2015
- Sludge Quality Data & Haulage 2015 – Appendix B
- Calibration Report 2015 – Appendix C
- Process Flow Schematic 2015 – Appendix D

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Appendix A

Annual Performance Summary

2015

SHELburne WWTP
ANNUAL SUMMARY FOR

2015

Flows JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC C. of A. LIMIT

Total	61,809	51,427	62,625	71,060	66,987	73,193	75,182	62,318	52,753	56,394	64,419	66,650	764,817	Total
Avg day flow	1,994	1,837	2,020	2,369	2,161	2,440	2,425	2,010	1,758	1,819	2,147	2,150	2,094	Average
Max day flow	2,601	2,029	2,801	3,232	2,536	4,150	3,022	2,421	2,086	2,250	2,589	2,677	4,150	Maximum

BYPASS

Primary Volume	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Total
Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Total
Secondary Volume	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Total
Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Total
Tertiary Volume	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Total
Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Total

RAW SEWAGE

CBOD5	339	641	728	72	151	410	150	130	184	219	190	124	278	ANNUAL AVERAGE
TSS	761	1285	648	39	175	211	232	241	180	180	96	127	357	
TKN	54.6	48.5	49.5	32.4	27.1	34.1	24.1	32.8	28.4	29.3	25.9	26.4	34.4	
Total P	10.8	19.3	8.5	3.5	5.0	5.0	3.6	4.2	7.1	3.7	3.3	3.9	6.5	
Alkalinity	447	377	428	388	354	396	396	395	395	346	399	395	393	

FINAL EFFLUENT

CBOD5	2.00	2.00	2.40	2.25	2.00	2.00	2.25	2.20	2.75	3.50	2.20	2.00	2.30	5.0	min	max
TSS	2.00	2.00	2.00	2.00	2.75	3.00	3.00	2.60	2.00	2.00	2.00	2.00	2.28	5.0		
TAN Monthly Average	0.13	0.23	0.24	0.28	0.10	0.10	0.10	0.10	0.10	0.10	0.16	0.10	0.14			
TAN Monthly Limits	2.40	2.40	2.40	2.40	2.40	0.80	0.80	0.80	0.80	0.80	2.40	2.40	Monthly Limits			
TAN Daily Maximum	0.20	0.50	0.80	0.80	0.10	0.10	0.10	0.10	0.10	0.10	0.40	0.10	0.80			
TKN	0.53	0.83	0.64	0.98	0.63	1.16	0.75	1.36	0.83	1.60	1.60	0.98	1.00			
Total P	0.04	0.06	0.05	0.03	0.07	0.09	0.09	0.09	0.10	0.08	0.06	0.05	0.07	0.25		
Nitrite	0.03	0.06	0.07	0.07	0.04	0.06	0.04	0.04	0.04	0.03	0.16	0.05	0.06			
Nitrate	5.34	10.70	13.18	13.74	22.53	24.66	19.33	23.36	23.63	22.28	22.04	21.13	18.49			
Alkalinity	284	246	223	241	182	185	224	205	185	208	210	212	216			
pH (grab)	7.64	7.54	7.38	7.28	7.29	6.90	7.07	7.13	6.98	6.94	7.26	7.43			6.90	
pH (grab)	7.83	7.64	7.55	7.65	7.54	7.71	7.43	7.68	7.16	7.17	7.76	7.68				7.83
Temperature (grab)	7.98	7.28	8.76	10.64	12.40	13.60	12.85	11.96	13.15	11.53	10.54	9.35	10.87			
Unionized Ammonia	0.002	0.004	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.002			

STREAM LOADING COMPLIANCE is now an Annual Average Loading Limit "Average Waste Loadings"

* Note: the Total Ammonia Nitrogen(TAN) - Average Waste Loadings are "Seasonal Loadings"

SHELBURNE WWTP ANNUAL SUMMARY FOR 2015

CHEMICALS & SLUDGE HAULAGE

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	
Alum Used	6773.2	6113.1	7031.5	6859.3	7060.2	6916.7	6916.7	6974.1	6084.4	6314.0	6084.4	6256.6	79384	Total
Alum Dosage	71.7	77.2	73.7	63.6	71.9	62.5	60.3	72.9	75.2	73.0	61.9	61.6	68.7	Average
Sludge Haulage								1404.0	1764.0	936.0			4104.0	Total
Total Solids	2.6	2.7	2.5	2.5	2.3	2.6	2.4	2.5	2.5	3.0	3.1	3.1	2.7	Average

COMPLIANCE LOADINGS FOR 2015

FINAL EFFLUENT

CBOD5	3.99	3.67	4.85	5.33	4.32	4.88	5.46	4.42	4.84	6.37	4.72	4.30		
LIMIT	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1		
Suspended Solids	3.99	3.67	4.04	4.74	5.94	7.32	7.28	5.23	3.52	3.64	4.29	4.30		
LIMIT	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1		
Total Phosphorus	0.09	0.12	0.09	0.06	0.15	0.22	0.23	0.17	0.18	0.14	0.13	0.10		
LIMIT	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86		
Total Ammonia Nitrogen	0.25	0.41	0.48	0.65	0.22	0.24	0.24	0.20	0.18	0.18	0.34	0.22		
LIMIT	8.2	8.2	8.2	8.2	8.2	2.7	2.7	2.7	2.7	8.2	8.2	8.2		

BACTERIOLOGICAL DATA

2015

Sample #1	2	2	2	2	2	2	2	2	2	2	2	2		
Sample #2	2	2	2	2	2	68	2	2	2	2	0	2		
Sample #3	2	2	2	2	2	2	2	2	2	2	2	2		
Sample #4	2	2	2	0	4	2	2	2	2	2	2	2		
Sample #5			2			2		8			4			
Monthly Geo. Mean	2.00	2.00	2.00	1.68	2.38	4.05	2.00	2.64	2.00	2.00	2.00	2.00		
Annual Geometric Mean	2.23													
C. of A. Requirement	<200													

per 100 mL
per 100 mL
per 100 mL
per 100 mL
per 100 mL

per 100 mL
per 100 mL
per 100 mL

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Appendix B

Sludge Quality Data & Haulage

2015

SHE! BIURNE WWTP

SLUDGE QUALITY DATA - 2015

	SAR	TED	MAR	AIR	IMAT	SUN	CUE	ROC	GEL	COT	NOV	DLS	AMMONIUM AVERAGE
mg/l	193.0	223.0	227.0	355.0	379.0	490.5	559.0	681.0	572.0	466.0	434.0	400.3	Ammonia
mg/l	470	410	465	380	420	405	490	470	670	660	720	500	Phosphorus
mg/l	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	Nitrate
mg/l	96.7	111.7	111.9	177.7	189.7	245.4	279.7	340.7	286.2	233.2	217.2	200.3	Ammonia + Nitrate
mg/l	26200	27000	25300	24900	23300	25900	24050	25300	30400	31100	30500	26596	TS

[illegible]

(Max. 1700)	275	230	269	253	240	239	243	277	262	322	305	328		
(Max. 420)	14	10	14	13	11	13	20	15	13	14	14	13	14	14
(Max. 1100)	23	19	22	18	17	19	19	20	16	23	19	23	20	20
(Max. 4200)	363	300	352	329	305	282	283	324	306	362	354	393	329	329
(Max. 170)	11	15	12	4	13	19	17	24	8	10	23	13	14	14
(Max. 34)	0.7	7.4	0.6	0.7	0.4	0.8	1.4	0.8	0.6	0.9	0.7	0.7	1.3	1.3
(Max. 340)	4	3	4	3	3	3	4	4	4	4	4	4	4	4
(Max. 2800)	29	23	28	23	23	24	21	26	24	28	25	25	25	25
(Max. 11)	0.31	0.37	0.47	0.54	0.47	0.35	0.42	0.47	0.36	0.26	0.45	0.53	0.42	0.42
(Max. 94)	11	7	9	10	7	8	7	11	10	12	10	9	9	9
(Max. 34)	4	4	4	4	4	4	4	4	4	3	3	3	3	3

SLUDGE HAULAGE BY SITE 2015

[illegible]



**Environmental
Services Ltd.**

519-848-5646

KENILWORTH, ON

Sewage Biosolid's Daily Haulage Record

Amended Environmental Compliance Approval No.9566-6HYKC3

Amended Environmental Compliance Approval No.2336-84CPFV

Broker # BROKTR11069

Applicator's License #PMAB TR11057

Customer Name: Shelburne WWTP

Date: August 19th, 2015

Generator Location: Shelburne WWTP

Receiver Location: Justin Martin NASM/C of A#: 21481

Number of Loads	Carried With	Tanker Capacity in m3	Total m3 per tanker per day
6	International	36.00	216.00
6	Kenworth	36.00	216.00
6	Mack	36.00	216.00
Daily Total m3:			648.00

Date Signed: August 20th, 2015

Carrier's Signature: Michelle Burns



519-848-5646

KENILWORTH, ON

Sewage Biosolid's Daily Haulage Record

Amended Environmental Compliance Approval No.9566-6HYKC3

Amended Environmental Compliance Approval No.2336-84CPFV

Broker # BROKTR11069

Applicator's License #PMAB TR11057

Customer Name: Shelburne WWTP

Date: August 20th, 2015

Generator Location: Shelburne WWTP

Receiver Location: Justin Martin NASM/C of A#: 21481

Number of Loads	Carried With	Tanker Capacity in m3	Total m3 per tanker per day
1	International	36.00	36.00
1	Kenworth	36.00	36.00
1	Mack	36.00	36.00
Daily Total m3:			108.00

Date Signed: August 20th, 2015

Carrier's Signature: Michelle Burns



EDEN Environmental
Services Ltd.

519-848-5646

KENILWORTH, ON

Sewage Biosolid's Daily Haulage Record

Amended Environmental Compliance Approval No.9566-6HYKC3

Amended Environmental Compliance Approval No.2336-84CPFV

Broker # BROKTR11069

Applicator's License #PMAB TR11057

Customer Name: Shelburne WWTP

Date: August 21st, 2015

Generator Location: Shelburne WWTP

Receiver Location: Justin Martin NASM/C of A#: 21481

Number of Loads	Carried With	Tanker Capacity in m3	Total m3 per tanker per day
7	International	36.00	252.00
7	Kenworth	36.00	252.00
4	Mack	36.00	144.00
Daily Total m3:			648.00

Date Signed: August 24th, 2015

Carrier's Signature: Michelle Burns



519-848-5646

KENILWORTH, ON

Sewage Biosolid's Daily Haulage Record

Amended Environmental Compliance Approval No.9566-6HYKC3

Amended Environmental Compliance Approval No.2336-84CPFV

Broker # BROKTR11069

Applicator's License #PMAB TR11057

Customer Name: Shelburne WWTP

Date: September 15, 2015

Generator Location: Shelburne WWTP

Receiver Location: Randy Martin NASM/C of A#: 20618

Number of Loads	Carried With	Tanker Capacity in m3	Total m3 per tanker per day
5	International	36.00	180.00
5	Kenworth	36.00	180.00
5	Mack	36.00	180.00
Daily Total m3:			540.00

Date Signed: September 16th, 2015

Carrier's Signature: Michelle Burns



519-848-5646

KENILWORTH, ON

Sewage Biosolid's Daily Haulage Record

Amended Environmental Compliance Approval No.9566-6HYKC3

Amended Environmental Compliance Approval No.2336-84CPFV

Broker # BROKTR11069

Applicator's License #PMAB TR11057

Customer Name: Shelburne WWTP

Date: September 16 , 2015

Generator Location: Shelburne WWTP

Receiver Location: Randy Martin NASM/C of A#: 20618

Number of Loads	Carried With	Tanker Capacity in m3	Total m3 per tanker per day
7	International	36.00	252.00
7	Kenworth	36.00	252.00
5	Mack	36.00	180.00
		Daily Total m3:	684.00 ✓

Date Signed: September 17th, 2015

Carrier's Signature: Michelle Burns



**Environmental
Services Ltd.**

519-848-5646

KENILWORTH, ON

Sewage Biosolid's Daily Haulage Record

Amended Environmental Compliance Approval No.9566-6HYKC3

Amended Environmental Compliance Approval No.2336-84CPFV

Broker # BROKTR11069

Applicator's License #PMAB TR11057

Customer Name: Shelburne WWTP

Date: September 17, 2015

Generator Location: Shelburne WWTP

Receiver Location: Randy Martin NASM/C of A#: 20618

Number of Loads	Carried With	Tanker Capacity in m3	Total m3 per tanker per day
5	International	36.00	180.00
5	Kenworth	36.00	180.00
5	Mack	36.00	180.00
		Daily Total m3:	540.00

Date Signed: September 18th, 2015

Carrier's Signature: Michelle Burns



519-848-5646

KENILWORTH, ON

Sewage Biosolid's Daily Haulage Record

Amended Environmental Compliance Approval No.9566-6HYKC3

Amended Environmental Compliance Approval No.2336-84CPFV

Broker # BROKTR11069

Applicator's License #PMAB TR11057

Customer Name: Shelburne

Date: October 26th, 2015

Generator Location: Shelburne

Receiver Location: David Barker NASM/C of A#: 20622

Number of Loads	Carried With	Tanker Capacity in m3	Total m3 per tanker per day
5	International	36.00	180.00
4	Kenworth	36.00	144.00
3	Mack	36.00	108.00
		Daily Total m3:	432.00

Date Signed: October 26th, 2015

Carrier's Signature: Michelle Burns



519-848-5646

KENILWORTH ON

Sewage Biosolid's Daily Haulage Record

Amended Environmental Compliance Approval No.9566-6HYKC3

Amended Environmental Compliance Approval No.2336-84CPFV

Broker # BROKTR11069

Applicator's License #PMAB TR11057

Customer Name: Shelburne

Date: October 27th, 2015

Generator Location: Shelburne

Receiver Location: David Barker NASM/C of A#: 20622

Number of Loads	Carried With	Tanker Capacity in m3	Total m3 per tanker per day
4	International	36.00	144.00
5	Kenworth	36.00	180.00
5	Mack	36.00	180.00
		Daily Total m3:	504.00

Date Signed: October 28th, 2015

Carrier's Signature: Michelle Burns

**2015 Annual Performance Report for
the Town of Shelburne Wastewater Treatment Plant
Certificate of Approval No. 9972-7FYJUB**

Appendix C
Calibration Reports
2015



465 Clair Road West
Guelph, Ontario, N1L 1R1
Phone: 519-766-1152
Fax: 519-766-1153
www.hollencontrols.ca

Instrument Report

Magmeter

Verification: ☒ Yes

Calibration: ☐

Customer: OCWA

Plant: Shelburne WWTP

Description: Air Flow Meter

Date: 02-Oct-15

Manufacturer: Maghelic

Checked By: Terry Wentzell

Model: 2000 Series

Serial No: None Found

Tag No.: FI 08

Application: Airflow

Input %	Input	As Found	As Left	% Error
0%	0 PSI	0 L/S	0 L/S	0.000%
25%	0.25 PSI	250 L/S	250 L/S	0.000%
50%	0.5 PSI	500 L/S	500 L/S	0.000%
75%	0.75 PSI	750 L/S	750 L/S	0.000%
100%	1.0 PSI	1000 L/S	1000 L/S	0.000%

Confirmed Run Mode: ☒ Yes Returned to service: ☒ Yes

Flowmeter Information:

Meter Type: Differential Pressure

Flow Unit: l/s

Flow Range: 0-1000 l/s

Pipe Size: 10"

Pipe Material: Stainless Steel

Calibration Factor:

Comments:

Verification of original calibration.

Replaced air tubing which was worn and cracked.

Signature: 



465 Clair Road West
Guelph, Ontario, N1L 1R1
Phone: 519-766-1152
Fax: 519-766-1153
www.hollencontrols.ca

Instrument Report

Magmeter

Verification: ☒ Yes

Calibration: ☐

Customer: OCWA

Plant: Shelburne WWTP

Description: Air Flow Meter

Date: 02-Oct-15

Manufacturer: Maghelic

Checked By: Terry Wentzell

Model: 2000 Series

Serial No: None Found

Tag No.: FI 09

Application: Airflow

Input %	Input	As Found	As Left	% Error
0%	0 PSI	0 PSI	0 PSI	0.000%
25%	2.50 PSI	2.50 PSI	2.50 PSI	0.000%
50%	5 PSI	5 PSI	5 PSI	0.000%
75%	7.5 PSI	7.5 PSI	7.5 PSI	0.000%
100%	10 PSI	10 PSI	10 PSI	0.000%

Confirmed Run Mode: ☒ Yes Returned to service: ☒ Yes

Flowmeter Information:

Meter Type: Differential Pressure

Flow Unit: l/s

Flow Range: 0-1000 l/s (0 - 10 PSIG)

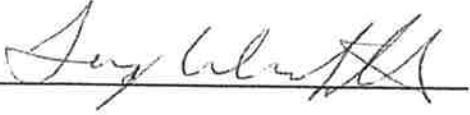
Pipe Size: 10"

Pipe Material: Stainless Steel

Calibration Factor:

Comments:

Verification of original calibration.

Signature: 



465 Clair Road West
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Phone: 519-766-1152
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Instrument Report

Magmeter

Verification: ☒ Yes

Calibration: ☐

Customer: OCWA

Plant: Shelburne WWTP

Description: WAS Flow

Date: 02-Oct-15

Manufacturer: Krohne

Checked By: Terry Wentzell

Model: IFC010D

Serial No: A99 15693

Tag No.: FIT 01

Application: North Aeration Cells

Input %	Input	As Found	As Left	% Error
0%	4.00	4.01	4.01	0.250%
10%	5.60	5.61	5.61	0.179%
50%	12.00	12.01	12.01	0.083%
100%	20.00	20.02	20.02	0.100%

Confirmed Run Mode: ☒ Yes Returned to service: ☒ Yes

Flowmeter Information:

Meter Type: Magnetic
Flow Unit: l/s
Flow Range: 0-27.8 l/s
Pipe Size: 3"
Pipe Material: Stainless Steel
Calibration Factor: 5.167

Comments:

Verification of original calibration.

Signature: 



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Instrument Report

Magmeter

Verification: ☒ Yes

Calibration: ☐

Customer: OCWA

Plant: Shelburne WWTP

Description: RAS Flow

Date: 02-Oct-15

Manufacturer: Krohne

Checked By: Terry Wentzell

Model: IFC010D

Serial No: A99 15978

Tag No.: FIT 02

Application: RAS Flow

Input %	Input	As Found	As Left	% Error
0%	4.00	4.01	4.01	0.250%
10%	5.60	5.61	5.61	0.179%
50%	12.00	12.01	12.01	0.083%
100%	20.00	20.02	20.02	0.100%

Confirmed Run Mode: ☒ Yes Returned to service: ☒ Yes

Flowmeter Information:

Meter Type: Magnetic
Flow Unit: l/s
Flow Range: 0-66.67 l/s
Pipe Size: 4"
Pipe Material: Stainless Steel
Calibration Factor: 5.243

Comments:

Verification of original calibration.

Signature: Terry Wentzell



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Instrument Report

Magmeter

Verification: ☒ Yes

Calibration: ☐

Customer: OCWA

Plant: Shelburne WWTP

Description: RAS Flow North

Date: 02-Oct-15

Manufacturer: Krohne

Checked By: Terry Wentzell

Model: IFC010D

Serial No: A99 15977

Tag No.: FIT 03

Application: North Aeration Cells

Input %	Input	As Found	As Left	% Error
0%	4.00	4.00	4.00	0.000%
10%	5.60	5.62	5.62	0.357%
50%	12.00	12.02	12.02	0.167%
100%	20.00	20.03	20.03	0.150%

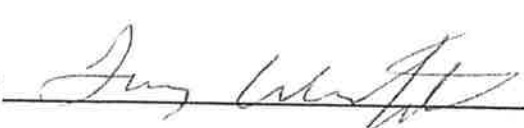
Confirmed Run Mode: ☒ Yes Returned to service: ☒ Yes

Flowmeter Information:

Meter Type: Magnetic
Flow Unit: l/s
Flow Range: 0-66.67 l/s
Pipe Size: 4"
Pipe Material: Stainless Steel
Calibration Factor: 5.243

Comments:

Verification of original calibration.

Signature: 



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Instrument Report

Magmeter

Verification: ☒ Yes

Calibration: ☐

Customer: OCWA

Plant: Shelburne WWTP

Description: Truck Fill Flow

Date: 02-Oct-15

Manufacturer: Krohne

Checked By: Terry Wentzell

Model: IFC 010D

Serial No: A99 15979

Tag No.: FIT 04

Application: Sludge Loading

Input %	Input	As Found	As Left	% Error
0%	4.00	4.00	4.00	0.000%
10%	5.60	5.60	5.60	0.000%
50%	12.00	12.03	12.03	0.250%
100%	20.00	20.03	20.03	0.150%

Confirmed Run Mode: ☒ Yes Returned to service: ☒ Yes

Flowmeter Information:

Meter Type: Magnetic
Flow Unit: l/s
Flow Range: 0-75 l/s
Pipe Size: 4"
Pipe Material: Stainless Steel
Calibration Factor:

Comments:

Verification of original calibration.

Signature: 



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Instrument Report

OCM III

Verification: ☒ Yes

Calibration: ☐

Customer: OCWA

Plant: Shelburne WWTP

Description: Final Effluent

Date: 02-Oct-15

Manufacturer: Milltronics

Checked By: Terry Wentzell

Model: OCM III

Type: 9" Parshall Flume

Tag No.: FIT 05

Range: 0-105 l/s

Input %	Input (mA)	As Found (mA)	As Left (mA)	% Error
0%	4.00	3.99	3.99	0.25%
25%	8.00	7.99	7.99	0.12%
50%	12.00	11.99	11.99	0.08%
75%	16.00	15.99	15.99	0.06%
100%	20.00	19.99	19.99	0.05%

Confirmed Run Mode: ☒ Yes

Placed in service: ☒ Yes

Parameters:

Setup Parameters

P0	Language	0
P1	Units	0
P2	Temperature Unit	0
P3	Primary Element	0
P4	Calculation	1
P5	Flow Unit	0
P6	Max Flow	105
P7	Height of Max Head	34.48
U0	Exponent	1.53
P24	mA Assignment	0
P26	mA Span	0
P32	Totalizer Multiplier	6
P45	Low Flow Cut-off	0
P46	Range at Zero Head	96
P47	Blanking Distance	30.48264

Relay Parameters

Relay	Function	On	Off
Parameters	P13	P14	P15
Relay 1	1	0	0
Parameters	P18	P19	P20
Relay 2			
Parameters	P21	P22	P23
Relay 3			

Comments:

Verification of Calibration

Signature:



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Instrument Report

Magmeter

Verification: ☒ Yes

Calibration: ☐

Customer: OCWA

Plant: Shelburne WWTP

Description: Raw Sewage Flow

Date: 02-Oct-15

Manufacturer: Rosemount

Checked By: Terry Wentzell

Model: 8712

Serial No: 188157

Tag No.: FIT 06

Application: Raw Sewage

Input %	Input	As Found	As Left	% Error
0%	4.00	4.00	4.00	0.000%
25%	8.00	8.01	8.01	0.125%
50%	12.00	12.01	12.01	0.083%
75%	16.00	16.01	16.01	0.063%
100%	20.00	20.01	20.01	0.050%

Confirmed Run Mode: ☒ Yes Returned to service: ☒ Yes

Flowmeter Information:

Meter Type: Magnetic
Flow Unit: l/s
Flow Range: 0-150 l/s
Pipe Size: 8"
Pipe Material: Stainless Steel
Calibration Factor:

Comments:

Verification of original calibration.

Signature: 



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Instrument Report

Magmeter

Verification: ☒ Yes

Calibration: ☐

Customer: OCWA

Plant: Shelburne WWTP

Description: Storm Flow

Date: 02-Oct-15

Manufacturer: ABB

Checked By: Terry Wentzell

Model: Magmaster

Serial No: 3K62000015306

Tag No.: FIT 07

Application Storm Flow

Input %	Input (mA)	As Found	As Left	% Error
0%	4.00	3.99	3.99	0.25%
25%	8.00	7.99	7.99	0.12%
50%	12.00	12.00	12.00	0.00%
75%	16.00	15.99	15.99	0.06%
100%	20.00	20.00	20.00	0.00%

Confirmed Run Mode: ☒ Yes Returned to service: ☒ Yes

Flowmeter Information:

Meter Type: Magnetic
Flow Unit: l/s
Flow Range: 0-200 l/s
Pipe Size: 10"
Pipe Material: Stainless Steel
Calibration Factor:

Comments:

Verification of original calibration.

Signature: 



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Instrument Report

Magmeter

Verification: ☒ Yes

Calibration: ☐

Customer: OCWA

Plant: Shelburne WWTP

Description: Storm Return Flow

Date: 02-Oct-15

Manufacturer: ABB

Checked By: Terry Wentzell

Model: Magmaster

Serial No: 3K62000005505

Tag No.: FIT 08

Application: Storm Return Flow

Input %	Input (mA)	As Found	As Left	% Error
0%	4.00	3.99	3.99	0.25%
25%	8.00	7.99	7.99	0.12%
50%	12.00	11.99	11.99	0.08%
75%	16.00	15.99	15.99	0.06%
100%	20.00	19.99	19.99	0.05%

Confirmed Run Mode: ☒ Yes Returned to service: ☒ Yes

Flowmeter Information:

Meter Type: Magnetic
Flow Unit: l/s
Flow Range: 0-100 l/s
Pipe Size: 8"
Pipe Material: Stainless Steel
Calibration Factor:

Comments:

Verification of original calibration.

Signature: Terry Wentzell



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Instrument Report

Magmeter

Verification: ☒ Yes

Calibration: ☐

Customer: OCWA

Plant: Shelburne WWTP

Description: Sludge Transfer Flow

Date: 02-Oct-15

Manufacturer: ABB

Checked By: Terry Wentzell

Model: Magmaster

Serial No: 3K62000015302

Tag No.: FIT 09

Application: Sludge Flow

Input %	Input (mA)	As Found	As Left	% Error
0%	4.00	4.00	4.00	0.00%
25%	8.00	8.00	8.00	0.00%
50%	12.00	12.00	12.00	0.00%
75%	16.00	16.00	16.00	0.00%
100%	20.00	19.99	19.99	0.05%

Confirmed Run Mode: ☒ Yes Returned to service: ☒ Yes

Flowmeter Information:

Meter Type: Magnetic
Flow Unit: l/s
Flow Range: 0-80 l/s
Pipe Size: 8"
Pipe Material: Stainless Steel
Calibration Factor:

Comments:

Verification of original calibration.

Signature: Terry Wentzell



465 Clair Road West
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Instrument Report

MultiRanger Plus

Verification: ☒

Calibration: ☒

Customer: OCWA

Plant: Shelburne WWTP

Description: Primary Digester Level

Date: 02-Oct-15

Manufacturer: Millitronics

Checked By: Terry Wentzell

Model: Multiranger Plus

Serial No.: Not Found

Tag No.: LIT 02

Range: 0.00m - 4.40m

Input %	Input (mA)	As Found	As Left	% Error
0%	4.00	4.00	4.00	0.00%
25%	8.00	8.00	8.00	0.00%
50%	12.00	11.99	11.99	0.08%
75%	16.00	15.99	15.99	0.06%
100%	20.00	19.99	19.99	0.05%

Confirmed Run Mode: ☒ Returned to service: ☒

Setup Parameters:

Parameters

P1	Units	1
P2	Mode of Measurement	1
P3	Empty	4.81
P4	Span	4.4
P5	Near Blanking	0.31
P6	mA Output	2
P7	Decimal Point	2
P8	Relay 1	0
P9	Relay 1 Setpoint	1.05
P10	Relay 1 Setpoint	1.01

Relays

Relay	Function	On	Off
Parameter	P8	P9	P10
Relay 1	0	1.05	1.01
Parameter	P11	P12	P13
Relay 2			
Parameter	P14	P15	P16
Relay 3			
Parameter	P17	P18	P19
Relay 4			
Parameter	P20	P21	P22
Relay 5			

Comments:

Verified Original Calibration.

Adjusted mA Trim.

Signature: 



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Phone: 519-766-1152
Fax: 519-766-1153
www.hollencontrols.ca

Instrument Report

MultiRanger Plus

Verification: ☒

Calibration: ☒

Customer: OCWA

Plant: Shelburne WWTP

Description: Secondary Digester Level

Date: 02-Oct-15

Manufacturer: Millitronics

Checked By: Terry Wentzell

Model: Multiranger Plus

Serial No.: Not Found

Tag No.: LIT 03

Range: 0.00m - 2.25m

Input %	Input (mA)	As Found	As Left	% Error
0%	4.00	3.99	3.99	0.25%
25%	8.00	8.00	8.00	0.00%
50%	12.00	11.99	11.99	0.08%
75%	16.00	15.99	15.99	0.06%
100%	20.00	19.99	19.99	0.05%

Confirmed Run Mode: ☒ Returned to service: ☒

Setup Parameters:

Parameters

P1	Units	1
P2	Mode of Measurement	1
P3	Empty	3.2
P4	Span	2.25
P5	Near Blanking	0.35
P6	mA Output	2
P7	Decimal Point	2
P8	Relay 1	0
P9	Relay 1 Setpoint	

Relays

Relay	Function	On	Off
Parameter	P8	P9	P10
Relay 1			
Parameter	P11	P12	P13
Relay 2			
Parameter	P14	P15	P16
Relay 3			
Parameter	P17	P18	P19
Relay 4			
Parameter	P20	P21	P22
Relay 5			

Comments:

Verified Original Calibration.

Adjusted mA Trim.

Signature: 



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Phone: 519-766-1152
Fax: 519-766-1153
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Instrument Report

MultiRanger 100

Verification: ☒

Calibration: ☒

Customer: OCWA

Plant: Shelburne WWTP

Description: Well Level

Date: 02-Oct-15

Manufacturer: Siemens

Checked By: Terry Wentzell

Model: Multiranger 100

Serial No.: PBD/TN220356

Tag No.: LIT 04

Range: 0.00m - 2.3m

Input %	Input (mA)	As Found	As Left	% Error
0%	4.00	4.00	4.00	0.00%
25%	8.00	8.00	8.00	0.00%
50%	12.00	12.01	12.01	0.08%
75%	16.00	16.02	16.02	0.12%
100%	20.00	20.02	20.02	0.10%

Confirmed Run Mode: ☒ Returned to service: ☒

Setup Parameters:

Parameters

P001	Operation	1
P002	Material	1
P003	Process Speed	2
P004	Transducer	102
P005	Units	1
P006	Empty	2.64 m
P007	Span	2.30 m
P065	LOE	5.00 m
P070		0.00

Relays

Relay	Function	On	Off
Parameter	P111	P112	P113
Relay 1			
Parameter			
Relay 2			
Parameter			
Relay 3			
Parameter			
Relay 4			
Parameter			
Relay 5			

Comments: Verification of original calibration.

Signature: _____

**2015 Annual Performance Report for
the Town of Shelburne Wastewater Treatment Plant
Certificate of Approval No. 9972-7FYJUB**

Appendix D

Process Flow Schematic

2015

