ANNUAL REPORT

ELMVALE

WASTEWATER TREATMENT PLANT

FOR THE PERIOD:
JANUARY 1, 2016 – DECEMBER 31, 2016

Prepared for the Corporation of the Township of Springwater
by the Ontario Clean Water Agency

Township of Springwater

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

Ministry of the Environment & Climate Change
Barrie District Office
54 Cedar Point Drive, Unit 1203
Barrie, ON L4N 5R7

ATTN: Water Compliance Supervisor

RE: 2016 Annual Performance Report for the Elmvale Wastewater Treatment Plant
1128 Flos Road Ten, East, Springwater Township

The enclosed 2016 report for the above-referenced facility summarizes the performance and related activities in accordance with Certificate of Approval (CofA) #4989-66ZRKT; Condition 10 (6) as follows:

a) A summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Condition 7, including an overview of the success and adequacy of the Works;

Table 1 - Monitoring Plan

SOURCE	PARAMETER	FREQUENCY	METHOD
RAW SEWAGE (24-hour composite)	CBOD5	Monthly	External Analysis
	Suspended Solids		
	Total Kjeldahl Nitrogen		
	Total Phosphorus	Weekly	
FINAL EFFLUENT (24-hour composite, except *E.Coli*, pH & Temperature are grab)	CBOD5	Monthly	
	Suspended Solids		
	Total Phosphorus	Weekly	
	Total Ammonia Nitrogen	Monthly	
	Nitrate Nitrogen		
	E.Coli		
	pH	Weekly	In-house
	Temperature		In-house

Table 2 - Effluent Limits & Comparison

SOURCE	PARAMETER	ANNUAL MAXIMUM	ANNUAL AVERAGE	COMPLIANCE LIMITS
EFFLUENT	CBOD5 (mg/L)	2.0	2.0	**10.0** ANNUAL AVERAGE
	CBOD5 (kg/day)	2.6	2	**18.0** ANNUAL AVERAGE
	TSS (mg/L)	7.0	2.6	**5.0** ANNUAL AVERAGE
	TSS (kg/day)	6.1	2.4	**9.0** ANNUAL AVERAGE
	Total Phosphorus (mg/L)	0.048	0.034	**0.13** ANNUAL AVG **(0.17** MONTHLY AVG**)**
	Total Phosphorus (kg/day)	0.05	0.03	**0.30** MONTHLY AVG
			0.31	**82.8** CUMULATIVE ANNUAL
	pH	8.26	7.42	**6.0 – 9.5** ALL TIMES

Table 3 - Total Phosphorus Loadings

ELMVALE WWTP TOTAL PHOSPHORUS LOADINGS			
2016	**ADF**	**MONTHLY AVG. CONC. (mg/L)**	**MONTHLY AVG. LOADING (kg/day)**
Jan	1047.42	0.045	0.047
Feb	1302.45	0.038	0.049
Mar	2091.26	0.048	0.100
Apr	1369.50	0.033	0.045
May	894.81	0.038	0.034
Jun	752.13	0.030	0.023
Jul	635.10	0.050	0.032
Aug	714.84	0.056	0.040
Sep	690.71	0.040	0.028
Oct	643.39	0.033	0.021
Nov	691.38	0.050	0.035
Dec	883.11	0.115	0.102
Cumulative Yearly Loading (kg) =			14.16
Avg. Monthly Loading (kg) =			0.046

The effluent parameters specified in the above table were analyzed by SGS Canada Inc., Lakefield, Ontario.

Table 4 - Daily Effluent Flow Data

MONTH	AVERAGE DAILY FLOW (m^3)	PEAK FLOW (m^3)	TOTAL FLOW (m^3)
DESIGN	*1800.0*	*6600.0*	-
JANUARY	1047.42	1629.00	32470.00
FEBRUARY	1302.45	2319.00	37771.00
MARCH	2091.26	5434.00	64829.00
APRIL	1369.50	2284.00	41085.00
MAY	894.81	1210.00	27739.00
JUNE	752.13	955.00	22564.00
JULY	635.10	774.00	19688.00
AUGUST	714.84	1493.00	22160.00
SEPTEMBER	690.71	978.00	20721.30
OCTOBER	643.39	843.10	19945.20
NOVEMBER	691.38	1020.00	20049.90
DECEMBER	883.11	1311.00	27376.30
2016	**AVERAGE: 976.34**	**MAXIMUM: 5434.00**	**TOTAL: 356398.70**

The average daily flow for 2016 was 976.34m^3, which is approximately 54% of the specified design flow of 1800 m^3/day.

There were no instances when the daily peak of 6600m^3 was exceeded. The peak flow of 5434m^3/day occurred in March 2016. The peak flow rate of 5434m^3/day is 82% of the approved Peak Flow Rating for the Works.
Based on the above monitoring program, the sewage works provided adequate treatment within the required average daily flows for all parameters.

Refer to Appendix A for detailed performance assessment.

b) A description of any operating problems encountered and corrective actions taken;

There were no operating problems encountered in 2016.

c) A summary of maintenance carried out on major structure, equipment, apparatus, mechanism or thing forming part of the Works;

Plant maintenance, including scheduled and non-scheduled maintenance, is monitored using the Hansen Work Management System. Work orders are generated monthly and any actions over and above this work is documented on corrective work orders and entered into the system for future reference.

- Annual sewage pumping station cleanouts and flushing of collection system
- Aeration tanks #1 & #2 clean-out and diffuser membrane replacement
- Repair to variable frequency drive at Bishop Park SPS
-Upgrade flow chart recorder to Red Lion human-machine interface screen (HMI)
-Emergency sewer line flush on Peter Street
-Replace cathodic anodes in west clarifier
-Filter air lift repairs

d) A summary of any effluent quality assurance or control measures undertaken in the reporting period;

The effluent parameters specified in the above table are analyzed by SGS Lakefield Research Ltd., an accredited lab in 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. All in-house monitoring equipment is calibrated based on the manufacturer's recommendations.

e) A summary of the calibration and maintenance carried out on all effluent monitoring field equipment;

Flow meters are used to measure the raw sewage and final effluent flows, all were successfully calibrated in October 25, 2016 by Flowmetrix Technical Services Inc.

Refer to Appendix B for calibration reports.

f) A description of efforts made and results achieved in meeting the Effluent Objectives of Condition 6, if the concentration objectives are not met;

In 2016, the Elmvale WWTP provided effective wastewater treatment producing effluent with removal rates of CBOD5, TSS and Total Phosphorus (TP) all between 94% - 99%. Effluent objectives were regularly met throughout 2016.

Three objective exceedances occurred in 2016. TP loading was exceeded on March 29th. Concentrations of TP in the effluent were low; however flow was elevated and resulted in the exceedance. TP concentrations on December 28th were elevated and resulted in exceeding TP loading objectives.

Staff routinely monitor plant effluent quality and adjust process as required to maintain a high level of effluent quality from the Elmvale WWTP.

Effluent pH was maintained within the Objective Limits at all times during 2016.

Refer to Appendix A for detailed performance assessment.

g) A tabulation of the volume of sludge generated in the reporting period, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed;

Sludge is hauled by Region of Huronia Environmental Services of New Lowell and applied to certified organic soil conditioning sites based on the "Guidelines for the Utilization of Biosolids on Agricultural Lands" dated March 1996.

Refer to Appendix C for the annual sludge analysis summary.

The table below shows a breakdown of sludge haulage for 2016.

Table 5 – Sludge Haulage 2016

DATE	SITE #	AMOUNT HAULED (m^3)
01-Sep-16	NASM21400	242.0
02-Sep-16	NASM21400	694.0
06-Sep-15	NASM21400	568.0
07-Sep-15	NASM21400	284.0
	TOTAL:	**1788**

A total volume of 1788m^3 was removed from the Elmvale WWTP and utilized as a soil conditioner on agricultural land on the above-stated sites and fields.

A total volume of 381m^3 was transferred from the Snow Valley Highlands WWTP to Elmvale WWTP throughout the year.

A total volume of 517m^3 was transferred from the Royal Oaks WWTP to Elmvale WWTP throughout the year.

h) A summary of any complaints received during the reporting period and any steps taken to address the complaints;

There were no complaints regarding the Elmvale WWTP during the 2016 reporting period.

i) A summary of all By-pass, spill or abnormal discharge events;

There was one (1) by-pass event and one (1) spill occurrence from the Works in 2016.

Heavy precipitation and snow melt stressed the Bishop Park sewage pumping station (SPS) beyond its capacity and resulted in a bypass event on March 28, 2016.

Utility workers drilled into the redundant 6" forcemain from Bishop Park SPS to Elmvale WWTP on May 26, 2017. This line is not currently used; however, the valve at the splitter chamber was open which allowed sewage to escape from the damaged 6" forcemain. The damaged pipe was isolated and repaired.

Both of these occurrences were reported to the appropriate authorities. Detailed reports are in Appendix D.

j) Any other information the District Manager requires from time to time.

There is no additional information for the 2016 reporting period.

Regards,

Richard Eagle
Senior Operations Manager
Ontario Clean Water Agency, North Simcoe Hub

c.c. Mark Archer, Director of Public Works, Township of Springwater

APPENDIX A

PERFORMANCE ASSESSMENT REPORT

Ontario Clean Water Agency
Performance Assessment Report Wastewater/Lagoon

Report extracted 03/21/2017 10:44 **From: 01/01/2016 to 31/12/2016**

Facility: [5634] ELMVALE WASTEWATER TREATMENT FACILITY

Works: [110000169]

		01/2016		02/2016		03/2016		04/2016		05/2016		06/2016		07/2016		08/2016		09/2016		10/2016		11/2016		12/2016		<--Total-->		<--Avg.-->		<--Max.-->		<--Criteria-->
Flows:																																
Raw Flow: Total - Raw (m^3)		34164.00		37961.00		61741.00		39388.00		26204.00		20971.00		19464.00		21904.00		20394.45		21239.90		20654.00		28809.10		352894.45								
Raw Flow: Avg - Raw (m^3/d)		1102.06		1309.00		1991.65		1312.93		845.29		699.03		627.87		706.58		679.82		685.16		688.47		929.33				964.77					
Raw Flow: Max - Raw (m^3/d)		1744.00		2172.00		4329.00		2318.00		1122.00		918.00		779.00		1489.00		915.00		970.10		1056.00		1288.00						4329.00			
Eff. Flow: Total - Eff (m^3)		32470.00		37771.00		64829.00		41085.00		27739.00		22564.00		19688.00		22160.00		20721.30		19945.20		20049.90		27376.30		356398.70							
Eff. Flow: Avg - Eff (m^3/d)		1047.42		1302.45		2091.26		1369.50		894.81		752.13		635.10		714.84		690.71		643.39		691.38		883.11				976.34					
Eff. Flow: Max - Eff (m^3/d)		1629.00		2319.00		5434.00		2284.00		1210.00		955.00		774.00		1493.00		978.00		843.10		1020.00		1311.00						5434.00			
Carbonaceous Biochemical Oxygen Demand: CBOD:																																
Raw: Avg cBOD5 - Raw (mg/L)		54.000		48.000		129.000		77.000		121.000		109.000		271.000		44.000		155.000		366.000		197.000		197.000				147.333		366.000			
Raw: # of samples of cBOD5 - Raw (mg/L)		1		1		1		1		1		1		1		1		1		1		1		1		12							
Eff: Avg cBOD5 - Eff (mg/L)	<	2.000	<	2.000	<	2.000	<	4.000	<	2.000	<	2.000	<	2.000	<	2.000	<	2.000	<	2.000	<	2.000	<	2.000			<	2.167	<	4.000		10.0
Eff: # of samples of cBOD5 - Eff (mg/L)		1		1		1		1		1		1		1		1		1		1		1		1		12							
Loading: cBOD5 - Eff (kg/d)	<	2.095	<	2.605	<	4.183	<	5.478	<	1.790	<	1.504	<	1.270	<	1.430	<	1.381	<	1.287	<	1.383	<	1.766			<	2.181	<	5.478		18.0
Percent Removal: cBOD5 - Raw (mg/L)		96.296		95.833		98.450		94.805		98.347		98.165		99.262		95.455		98.710		99.454		98.985		98.985						99.454			
Biochemical Oxygen Demand: BOD5:																																
Total Suspended Solids: TSS:																																
Raw: Avg TSS - Raw (mg/L)		60.000		67.000		87.000		65.000		80.000		78.000		219.000		39.000		115.000		291.000		219.000		106.000				118.833		291.000			
Raw: # of samples of TSS - Raw (mg/L)		1		1		1		1		1		1		1		1		1		1		1		1		12							
Eff: Avg TSS - Eff (mg/L)		2.000		4.000		4.000		2.000		2.000		2.000		4.000		2.000		3.000	<	2.000	<	2.000	<	2.000			<	2.583		4.000		5.0
Eff: # of samples of TSS - Eff (mg/L)		1		1		1		1		1		1		1		1		1		1		1		1		12							
Loading: TSS - Eff (kg/d)		2.095		5.210		8.365		2.739		1.790		1.504		2.540		1.430		2.072	<	1.287	<	1.383	<	1.766			<	2.682		8.365			
Percent Removal: TSS - Raw (mg/L)		96.667		94.030		95.402		96.923		97.500		97.436		98.174		94.872		97.391		99.313		99.087		98.113						99.313			
Total Phosphorus: TP:																																
Raw: Avg TP - Raw (mg/L)		2.583		2.305		1.582		1.955		2.552		3.228		3.793		2.820		3.423		3.530		3.294		3.097				2.847		3.793			
Raw: # of samples of TP - Raw (mg/L)		4		4		5		4		5		4		4		5		4		4		5		4		52							
Eff: Avg TP - Eff (mg/L)	<	0.045	<	0.038	<	0.048	<	0.033		0.038	<	0.030	<	0.050		0.056	<	0.040	<	0.033	<	0.050		0.115			<	0.048		0.115		0.17
Eff: # of samples of TP - Eff (mg/L)		4		4		5		4		5		4		4		5		4		4		5		4		52							
Loading: TP - Eff (kg/d)	<	0.047	<	0.049	<	0.100	<	0.045		0.034	<	0.023	<	0.032		0.040	<	0.028	<	0.021	<	0.035		0.102			<	0.046		0.102			
Percent Removal: TP - Raw (mg/L)		98.258		98.373		96.966		98.338		98.511		99.070		98.682		98.014		98.831		99.079		98.482		96.287						99.079			
Nitrogen Series:																																
Raw: Avg TKN - Raw (mg/L)		15.400		10.300		17.200		15.400		21.900		28.400		35.000		25.800		30.200		33.000		38.900		23.600				24.592		38.900			
Raw: # of samples of TKN - Raw (mg/L)		1		1		1		1		1		1		1		1		1		1		1		1		12							
Eff: Avg TAN - Eff (mg/L)	<	0.100		0.300		0.900		0.300	<	0.100	<	0.100	<	0.100	<	0.100	<	0.100	<	0.100	<	0.100	<	0.100			<	0.200		0.900			
Eff: # of samples of TAN - Eff (mg/L)		1		1		1		1		1		1		1		1		1		1		1		1		12							
Loading: TAN - Eff (kg/d)	<	0.105		0.391		1.882		0.411	<	0.089	<	0.075	<	0.064	<	0.071	<	0.069	<	0.064	<	0.069	<	0.088			<	0.282		1.882			
Eff: Avg NO3-N - Eff (mg/L)		15.400		23.900		11.200		10.400		21.600		27.500		27.700		32.700		28.000		33.800		28.700		23.500				23.700		33.800			
Eff: # of samples of NO3-N - Eff (mg/L)		1		1		1		1		1		1		1		1		1		1		1		1		12							
Eff: Avg NO2-N - Eff (mg/L)	<	0.030		0.330		1.710		1.110		0.060	<	0.030	<	0.030	<	0.030	<	0.030	<	0.030	<	0.030		0.040			<	0.288		1.710			
Eff: # of samples of NO2-N - Eff (mg/L)		1		1		1		1		1		1		1		1		1		1		1		1		12							
Disinfection:																																
Eff: GMD E. Coli - Eff (cfu/100mL)		2.000		2.000		4.000		2.000		2.000		1.000		2.000		2.000		10.000		40.000		2.000		16.000				7.083		40.000		200.0

Ontario Clean Water Agency
Time Series Info Report

Report extracted 03/29/2017 10:45

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

Facility Org Number: 5634
Facility Works Number: 110000169
Facility Name: ELMVALE WASTEWATER TREATMENT FACILITY
Facility Owner: Municipality: Township of Springwater
Facility Classification: Class 2 Wastewater Treatment
Receiver: Wye River
Service Population: 2651.0
Total Design Capacity: 6600.0 m3/day

	01/2016	02/2016	03/2016	04/2016	05/2016	06/2016	07/2016	08/2016	09/2016	10/2016	11/2016	12/2016	Total	Avg	Max	Min
Eff / pH - ---																
Max IH	7.86	7.7	7.69	7.62	7.57	7.55	7.38	7.68	7.39	7.37	7.51	7.69			7.86	
Mean IH	7.577	7.506	7.516	7.366	7.393	7.395	7.274	7.251	7.274	7.227	7.264	7.454		7.377		
Min IH	7.39	7.22	7.35	7	7.3	7.32	7.1	6.96	7.16	6.97	7.09	7.15				6.96

ELMVALE WWTP 2016
DAILY TOTAL PHOSPHORUS OBJECTIVE LIMITS

TP Loading Objective Limit = 0.18 kg/day
TP Concentration Objective Limit = 0.1 mg/L

Jan	Flow (m^3)	TP Conc	TP Loading
5	1006	0.08	0.080
13	899	0.03	0.027
19	1213	0.03	0.036
25	1178	0.04	0.047
Feb			
2	2180	0.03	0.065
9	1207	0.03	0.036
17	806	0.06	0.048
23	1339	0.03	0.040
March			
1	1359	0.03	0.041
8	1890	0.03	0.057
14	1779	0.03	0.053
22	1241	0.09	0.112
29	3363	0.06	0.202
April			
5	1297	0.03	0.039
11	1476	0.04	0.059
19	1047	0.03	0.031
26	1659	0.03	0.050
May			
3	736	0.04	0.029
9	811	0.03	0.024
17	887	0.04	0.035
25	826	0.04	0.033
31	689	0.04	0.028
June			
7	835	0.03	0.025
14	594	0.03	0.018
21	955	0.03	0.029
29	652	0.03	0.020

July	Flow (m^3)	TP Conc	TP Loading
4	720	0.03	0.022
11	679	0.11	0.075
20	523	0.03	0.016
26	580	0.03	0.017
August			
3	522	0.03	0.016
8	581	0.08	0.046
15	604	0.06	0.036
23	739	0.06	0.044
29	686	0.05	0.034
September			
7	744	0.05	0.037
12	725	0.03	0.022
19	716	0.05	0.036
26	579.1	0.03	0.017
October			
4	784.1	0.03	0.024
12	814.5	0.04	0.033
18	676.6	0.03	0.020
24	843.1	0.03	0.025
November			
1	720.2	0.04	0.029
8	364.2	0.03	0.011
14	741.8	0.09	0.067
21	511.4	0.05	0.026
29	880.5	0.04	0.035
December			
5	935	0.1	0.094
13	642	0.07	0.045
20	520.9	0.1	0.052
28	1311	0.19	0.249

APPENDIX B

CALIBRATION REPORTS

Flowmetrix
Technical Services Inc.

Western Office
2088 Jetstream Road
London, Ontario
N5V 3P6

Eastern Office
1602 Old Wooler Road
Wooler, Ontario
K0K 3M0

Parshall Flume
Verification/Calibration Report

AS FOUND CERTIFICATION

PASS

CLIENT DETAIL	
CUSTOMER	OCWA - Georgian Bay Hub
CONTACT	Richard Eagle
	Operations Manager

EQUIPMENT DETAIL	
[MUT] MANUFACTURER	Milltronics
MODEL	MultiRanger PLUS
CONVERTER SERIAL NUMBER	C/28694/2/1

PLANT ID	Elmvale WWTP
METER ID	Influent Flow Parshall Flume
FIT ID	N/A
CLIENT TAG	OCWA # 81217
OTHER	ORG# 5634
GPS COORDINATES	N/A
ADDRESS	1128 Flos 10 Rd. E.
VERIFICATION DATE	October 25, 2016
CAL. FREQUENCY	Annual
CAL. DUE DATE	October, 2017

VER. BY - FM Paris Machuk

Quality Management Standards Information - Reference equipment and instrumentation used to conduct this verification test is found in our AC-QMS document at the time this test was

PROGRAMMING PARAMETERS		
THROAT DIMENSION (DN)	inches	6
EMPTY DISTANCE	m	0.9719
MAX. HEAD	m	0.4289
DEAD ZONE	m	0.543
BLANKING DISTANCE	m	0.300
MAX. FLOW	LPS	100.1
F.S. RANGE - O/P	LPS	100.0

TOTALIZER		
AS FOUND	837708.23	M3
AS LEFT	837767.34	M3
DIFFERENCE	59.11	M3

TEST CRITERIA	
AS FOUND CERTIFICATION TEST	Yes
ALLOWABLE [%] ERROR	5

COMPONENTS TESTED	
CONVERTER DISPLAY	yes
mA OUTPUT	yes
TOTALIZER	yes
ACCURACY BASED ON [% o.r.]	no

Ultrasonic sensor installed to ensure full scale flow condition

ERROR DOCUMENTED IN THIS REPORT; BASED ON % F.S.

AS FOUND TEST RESULTS

				3.4	10.0	30.0	56.8	89.6	% F.S. Range
				0.050	0.100	0.200	0.300	0.400	m
REF. FLOW RATE				**3.35**	**10.03**	**29.98**	**56.89**	**89.62**	LPS
MUT [Reading]				2.41	8.93	28.06	54.63	86.49	LPS
MUT [Difference]				-0.94	-1.10	-1.92	-2.26	-3.13	LPS
MUT [% Error]				-0.94	-1.10	-1.92	-2.25	-3.13	%
mA OUTPUT				**4.536**	**5.603**	**8.793**	**13.096**	**18.330**	mA
MUT [Reading]	min.	4.000	mA	4.392	5.441	8.489	12.726	17.813	mA
MUT [Difference]	max.	20.000	mA	-0.144	-0.162	-0.304	-0.370	-0.517	mA
MUT [% Error]				-0.72	-0.81	-1.52	-1.85	-2.59	%
TOTALIZER - REF. FLOW RATE								**89.621**	LPS
TOTALIZER [MUT]								12.83	M3
TEST TIME								148.05	SECONDS
CALC. TOTALIZER								13.268	M3
ERROR								-3.42	%

COMMENTS

QUALITY MANAGEMENT STANDARDS INFO.

[QMS] INFORMATION	IDENT.	ID #
[REFERENCE] LEVEL	Sim. BOARD	n/a
PROCESS METER	DMM	3
STOP WATCH	SW	Yes

RESULTS

TEST	AVG %FS	PASS FAIL
DISPLAY	-2.10	PASS
mA OUTPUT	-1.50	PASS
TOTALIZER	-3.42	PASS

This report reflects the test results of the overall accuracy for the above flow converter using the specified manufacturers flow tube simulator to within the specified tolerance as identified within this report.

Flowmetrix
Technical Services Inc.

Western Office
2088 Jetstream Road
London, Ontario
N5V 3P6

Eastern Office
1602 Old Wooler Road
Wooler, Ontario
K0K 3M0

v-Notch Weir
Verification/Calibration Report

AS FOUND CERTIFICATION

PASS

CLIENT DETAIL	
CUSTOMER	OCWA - Georgian Bay Hub
CONTACT	Richard Eagle
	Operations Manager

EQUIPMENT DETAIL	
[MUT] MANUFACTURER	Milltronics
MODEL	MultiRanger PLUS
CONVERTER SERIAL NUMBER	C/28694/2/1

PLANT ID	Elmvale WWTP
METER ID	Final Effluent Flow Meter
FIT ID	N/A
CLIENT TAG	OCWA# 81229
OTHER	ORG# 5634
GPS COORDINATES	N/A
	1128 Flos 10 Rd. E.
VERIFICATION DATE	October 25, 2016
CAL. FREQUENCY	Annual
CAL. DUE DATE	October, 2017

VER. BY - FM Paris Machuk

Quality Management Standards Information - Reference equipment and instrumentation used to conduct this verification test is found in our AC-QMS document at the time this test was

PROGRAMMING PARAMETERS		
NOTCH ANGLE (ϕ)	inches	90
EMPTY DISTANCE, TX to notch	m	0.965
TRANSDUCER (TX), to sump flc	m	n/a
SUMP LEVEL, zero flow	m	n/a
MAX. HEAD	m	0.350
BLANKING DISTANCE	m	0.305
DEAD ZONE	m	0.310
MAX. FLOW	LPS	100.0
F.S. RANGE - O/P	LPS	100.0

TOTALIZER		
AS FOUND	246634.77	M3
AS LEFT	246659.08	M3
DIFFERENCE	24.31	M3

TEST CRITERIA	
AS FOUND CERTIFICATION TEST	Yes
ALLOWABLE [%] ERROR	15

COMPONENTS TESTED	
CONVERTER DISPLAY	Yes
mA OUTPUT	Yes
TOTALIZER	Yes
ACCURACY BASED ON [% o.r.]	No

Ultrasonic Sensor is not installed high enough, to ensure full scale flow conditions

ERROR DOCUMENTED IN THIS REPORT; BASED ON % F.S.

AS FOUND TEST RESULTS

				0.0	4.4	24.7	68.0	93.0	% F.S. Range
				0.000	0.100	0.200	0.300	0.340	m
REF. FLOW RATE				**0.00**	**4.36**	**24.69**	**68.03**	**93.02**	LPS
MUT [Reading]				0.00	4.43	24.59	66.64	92.04	LPS
MUT [Difference]				0.00	0.07	-0.10	-1.39	-0.98	LPS
MUT [% Error]				0.0	0.1	-0.1	-1.4	-1.0	%
mA OUTPUT				**4.000**	**4.698**	**7.949**	**14.883**	**18.882**	mA
MUT [Reading]	min.	4.000	mA	4.003	4.708	7.940	14.658	18.716	mA
MUT [Difference]	max.	20.000	mA	0.003	0.010	-0.009	-0.225	-0.166	mA
MUT [% Error]				0.02	0.05	-0.05	-1.13	-0.83	%
TOTALIZER - REF. FLOW RATE								**93.020**	LPS
TOTALIZER [MUT]								10.28	M3
TEST TIME								111.44	SECONDS
CALC. TOTALIZER								10.366	M3
ERROR								-0.84	%

COMMENTS

QUALITY MANAGEMENT STANDARDS INFO.

[QMS] INFORMATION	IDENT.	ID #
[REFERENCE] LEVEL	Sim. BOARD	n/a
PROCESS METER	PM	2
STOP WATCH	SW	n/a

RESULTS

TEST	AVG %FS	PASS FAIL
DISPLAY	-0.60	PASS
mA OUTPUT	-0.39	PASS
TOTALIZER	-0.84	PASS

This report reflects the test results of the overall accuracy for the above flow converter using the specified manufacturers flow tube simulator to within the specified tolerance as identified within this report.

APPENDIX C

SLUDGE QUALITY ANALYSIS

ELMVALE WASTEWATER TREATMENT PLANT
SLUDGE QUALITY DATA

2016		13-Jan	9-Feb	22-Mar	5-Apr	3-May	7-Jun	20-Jul	3-Aug	1-Sep	4-Oct	1-Nov	N/A	
		JAN	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**AVERAGE**
Nutrients														
TS	(mg/L)	12500	24400	23100	21700	26100	26300	17800	25400	25400	15500	14900		21191
VS	(mg/L)	7710	15200	14000	13200	16100	15600	10000	14700	14000	8900	8500		12537
Ammonia	(mg/L)	1.0	12.0	2.1	6.4	5.1	9	26.4	6.1	8.3	1.3	2.6		7.3
Nitrate	(mg/L)	0.30	0.60	0.90	0.90	0.30	1.4	0.30	2.4	2.10	36.00	67.00		10.20
Ammonia + Nitrate	(mg/L)	1.3	12.6	3.0	7.3	5.4	10.4	26.7	8.5	10.4	37.3	69.6		17.5
TKN	(mg/L)	454	1060	1430	993	1170	1170	792	854	388	482	488		844
Phosphorus	(mg/L)	410	530	740	760	780	810	590	860	900	570	480		675
Metal Concentrations														
Arsenic	(mg/L)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10		0.10
Cadmium	(mg/L)	0.01	0.01	0.010	0.005	0.015	0.009	0.01	0.02	0.01	0.01	0.01		0.01
Cobalt	(mg/L)	0.01	0.02	0.03	0.05	0.040	0.04	0.02	0.04	0.04	0.02	0.02		0.03
Chromium	(mg/L)	0.42	0.47	0.66	0.62	0.68	0.71	0.64	0.79	0.82	0.47	0.41		0.61
Copper	(mg/L)	3.20	4.40	6.20	6.20	6.60	7.30	5.00	7.60	7.70	4.80	3.80		5.71
Mercury	(mg/L)	0.370	0.160	0.220	0.013	0.0250	0.0200	0.019	0.019	0.1500	0.021	0.024		0.09
Potassium	(mg/L)	64	67.0	89.0	120.0	100.0	110.0	89.0	110.0	100.0	68.0	63.0		89.09
Molybdenum	(mg/L)	0.07	0.05	0.09	0.15	0.12	0.10	0.06	0.14	0.13	0.07	0.09		0.10
Nickel	(mg/L)	0.19	0.22	0.31	0.25	0.32	0.43	0.30	0.36	0.37	0.25	0.21		0.29
Lead	(mg/L)	0.10	0.10	0.20	0.20	0.20	0.20	0	0.20	0.20	0.10	0.10		0.16
Selenium	(mg/L)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10		0.10
Zinc	(mg/L)	5.50	6.50	8.90	8.70	9.00	9.80	7.20	10.00	11.00	7.10	5.80		8.14
Bacti														
E. coli (cfu/1g dried wgt)		25600	102459	42857	35443	37165	7605	6180	7874	6299	11613	19463		27505
E. coli (cfu/100mL)		32000	250000	99000	56000	97000	20000	11000	20000	16000	18000	29000		58909
Metal/Solids Concentration														
Arsenic [170]	(mg/kg)	8	4	4	5	4	4	6	4	4	6	7		5
Cadmium [34]	(mg/kg)	0	0	0	0	1	0	0	1	0	0	0		0
Cobalt [340]	(mg/kg)	1	1	1	2	2	2	1	2	2	1	1		1
Chromium [2800]	(mg/kg)	34	19	29	29	26	27	36	31	32	30	28		29
Copper [1700]	(mg/kg)	256	180	268	286	253	278	281	299	303	310	255		270
Mercury [11]	(mg/kg)	30	7	10	1	1	1	1	1	6	1	2		5
Molybdenum [94]	(mg/kg)	6	2	4	7	5	4	3	6	5	5	6		5
Nickel [420]	(mg/kg)	15	9	13	12	12	16	17	14	15	16	14		14
Lead [1100]	(mg/kg)	8	4	9	9	8	8	11	8	8	6	7		8
Selenium [34]	(mg/kg)	8	4	4	5	4	4	6	4	4	6	7		5
Zinc [4200]	(mg/kg)	440	266	385	401	345	373	404	394	433	458	389		390

APPENDIX '

BYPASS & SPILL REPORTS

Ontario Clean Water Agency
Environmental Incident Report

Facility ID: 5634 EIncidentReport

Facility Name: Elmvale Wastewater Treatment Plant

Address: 30 Woodland Dr.

City: Wasaga Beach

Province: Ontario

Postal Code: L9Z2V4

Date of Occurrence: 03/28/2016

Time of Occurrence: 06:50:06 AM

Nature of the Incident

● Level 1 Contingency ○ Level 2 Contingency ○ Level 3 Contingency *Click here To Show the Definitions*

Incident affected: ☐ Air ☒ Water ☐ Land ☐ Nothing

What was discharged or emitted?

☐ Chlorine
☐ Sodium Hypochlorite
☐ Calcium Chloride
☐ Aluminum Compounds (Specify in Other)
☐ Arsenic
☐ Fluoride
☐ Oil/Diesel/Gas
☒ Untreated or partly treated sewage
☐ Odours
☐ Water
☐ Iron Coagulants

Other: _____

If this was a discharge, spill or emission...

If a liquid, approximately what quantity was released?: 392700 Litres

If a gas, approximately what quantity was released?: _____

If a solid, approximately what quantity was released?: _____ Kg

What was the source of release?:

Bishop Park Pump Station bypass due to extreme rain conditions

Where did the release go?:

Wye River

If it entered a watercourse: ● Yes ○ No

If it went off site: ● Yes ○ No

Duration of the release?: 3.1 hrs

Is the release now stopped?: ● Yes ○ No

Was there any damage? (i.e. property and/or environmental): ○ Yes ● No ○ N/A

If "Yes", describe below and fill out "Insurance Claim" report

Action(s) Taken

What actions were taken to control the incident?

Pump station bypass due to high flows caused by an extreme rain event (392.7m3). On arrival, the operator found the wet well level at approximately 2.90m; pumps #2 and #2 running. Operator immediately set up bypass hose and set valving for bypass as per SOP. Began bypassing with pump #2 at 650am to the Wye River. Wet well level at approximately 3.05m

What actions have been taken to remediate the incident?

Operator notified Hub Contact, Richard Eagle, of the by pass at 8:00am. Richard notified the Director of Public Works, Township of Springwater, at 822am. Operator notified SAC at 807 am; notified Public Health Inspector at 912 am; notified Regional Hub Manager, Karen Lorente, at 1030am. A chlorine drip was set up to provide some disinfection. The operator collected a set of upstream, downstream, and effluent point samples. Eisses Disposal was called in to trasnfer 2 loads from the Queen Street lift station to the Elmvale WWTP digester. Bypasses were intermittent throught the day and evening. Bypass ended at 1131pm. A total of 187 minutes of bypass time. Operator called SAC on Tuesday, March 29 to close the incident.

Was this a reportable spill or discharge?: ● Yes ○ No

If "Yes", at what time was it first reported to the MOE?

8:07am

Was it reported to the MOE district office?: ● Yes ○ No

If "Yes", which office/location and who was the contact?: Barrie District Office, Mark Bailey

Was it reported to MOE SAC?: ● Yes ○ No

If "Yes", at what time was it reported to MOE SAC?:

8:07am

Was it reported to Municipality?: ● Yes ○ No

If "Yes", at what time was it reported to Municipality?:

8:22am by Richard Eagle

External Assistance/Involvement

Was corporate or area office assistance requested?: ○ Yes ● No

If "Yes", was it received?: ○ Yes ○ No

Was external emergency assistance requested?: ○ Yes ● No

If "Yes", from who?: ☐ Fire Department ☐ Equipment Suppliers ☐ Canutec
☐ Ambulance or Hospital ☐ MOE ☐ Coast Guard
☐ Police ☐ Municipality

Other: _____

Was there any media involvment?: ○ Yes ● No

If "Yes", who?: _____

Was the public affected?: ○ Yes ● No

If "Yes", how?: _____

Updated By: Mary-Jo Santi 04/01/2016 03:22:26 PM

Comments:

```
                    ******************************
                    ***   MULTI TX/RX REPORT   ***
                    ******************************

TX/RX NO                4747
PGS.                       4
TX/RX INCOMPLETE
                        -----
TRANSACTION OK
                        [*013]7057396440                MOE - Sewage
                        [*014]18002686061               SAC - MOE
                        [*015]7057211495                MOH - Barrie
                        [*018]7057286957                Springwater Twp
                        [*066]14163148300               Corporate
ERROR INFORMATION
                        -----
```

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

30 Woodland Drive
Wasaga Beach, Ontario
L9Z 2V4

TEL: 705 429-2525
FAX: 705 429-7967
www.ocwa.com

Fax

To:

Mark Bailey – MOECC Barrie District Office
Mark Archer – Township of Springwater
Bev Mollard – OCWA VP Southern Ontario
Liz Chopp – OCWA Operations Analyst
Simcoe Muskoka District Health Unit
Spills Action Centre – SAC

From: **Mary-Jo Santi**
Date: **Friday, April 01, 2016**
Number of Pages (including this one)**:** **3**
Subject: **Bishop Park Pump Station, Elmvale – Notification of Bypass - Incident #128798**

Please find the attached **Environmental Incident Report** for the **Bishop Park Pump Station, Elmvale, Ontario** submitted in accordance with terms and conditions of C of A 4989-66ZRKT and provisions of the *Ontario Water Resources Act* and *Environmental Protection Act.*

By-pass of the **Bishop Park Pump Station, March 28, 2016**
SAC Reference Number: **128798**

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Works #: 110000169-NR
Project : PO#017470

04-April-2016

OCWA-Wasaga Beach (Elmvale WWTP)
Attn : Richard Eagle

30 Woodland Drive
Wasaga Beach, ON
L9Z 2V4,

Phone: 705 429-2525
Fax:pdf, ID Plant

Date Rec. : 29 March 2016
LR Report: **CA12865-MAR16**

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Sample ID	Sample Date & Time	Temperature Upon Receipt °C	Carbonaceous Biochemical Oxygen Demand (CBOD5) mg/L	Total Suspended Solids mg/L	Phosphorus (total) mg/L	E. Coli cfu/100mL
1: Analysis Start Date		---	29-Mar-16	29-Mar-16	29-Mar-16	29-Mar-16
2: Analysis Start Time		---	16:20	14:24	21:57	16:40
3: Analysis Approval Date		---	04-Apr-16	31-Mar-16	30-Mar-16	31-Mar-16
4: Analysis Approval Time		---	14:07	15:16	12:20	10:29
6: PSBy PSBy-Bypass Effluent	28-Mar-16 07:40	9.0	32	71	0.96	440000
7: UP UP-Bishop Park (Upstream)	28-Mar-16 07:55	9.0	< 4	265	0.32	700
8: Down Down-Bishop Park (Downstream)	28-Mar-16 07:50	9.0	16	471	0.44	1260

Carrie Greenlaw
Project Specialist
Environmental Services, Analytical

OnLine LIMS

0000647026

Ontario Clean Water Agency
Environmental Incident Report

Facility ID: 5634 EIncidentReport

Facility Name: Elmvale Wastewater Treatment Plant

Address: 1128 Flos Rd 10

City: Elmvale

Province: Ontario

Postal Code: L0L1P0

Date of Occurrence: 05/26/2016

Time of Occurrence: 11:34:00 AM

Nature of the Incident

● Level 1 Contingency ○ Level 2 Contingency ○ Level 3 Contingency *Click here To Show the Definitions*

Incident affected: ☐ Air ☐ Water ☒ Land ☐ Nothing

What was discharged or emitted?

☐ Chlorine
☐ Sodium Hypochlorite
☐ Calcium Chloride
☐ Aluminum Compounds (Specify in Other)
☐ Arsenic
☐ Fluoride
☐ Oil/Diesel/Gas
☒ Untreated or partly treated sewage
☐ Odours
☐ Water
☐ Iron Coagulants

Other: _____

If this was a discharge, spill or emission...

If a liquid, approximately what quantity was released?: 5000 Litres

If a gas, approximately what quantity was released?: _____

If a solid, approximately what quantity was released?: _____ Kg

What was the source of release?:

6" sewage forcemain - not in service - was damaged by Hydro One excavator

Where did the release go?:

Ground

If it entered a watercourse: ○ Yes ● No

If it went off site: ○ Yes ● No

Duration of the release?: 30mins

Is the release now stopped?: ● Yes ○ No

Was there any damage? (i.e. property and/or environmental): ○ Yes ● No ○ N/A

If "Yes", describe below and fill out "Insurance Claim" report

Action(s) Taken

What actions were taken to control the incident?

Hydro One was working on Amelia Street this morning when they struck and damaged a main. A locate of our utilities was previously provided.
A call came in to the Wasaga Beach Hub office at 11:34 am, indicating they had struck a watermain – it was in fact an out-of-service 6" forcemain (this line has been out of service since the mid 1990's - only used as back up if necessary).
Samples were taken and sent for analysis to SGS Labs as per the C of A 4989-66ZRKT.

What actions have been taken to remediate the incident?

Hapamp was called in to remediate and dispose of the material – which consisted of approximately 5m3 of stagnant water and old diluted sewage.
This has been disposed of in the sanitary sewer via manhole on Hapamp property

Was this a reportable spill or discharge?: ● Yes ○ No

If "Yes", at what time was it first reported to the MOE?

SAC was called at 1:50pm

Was it reported to the MOE district office?: ● Yes ○ No

If "Yes", which office/location and who was the contact?:

Was it reported to MOE SAC?: ● Yes ○ No

If "Yes", at what time was it reported to MOE SAC?:

Barrie District office MOECC - Mark Bailey. SAC - Blake Turner 1:50pm

Was it reported to Municipality?: ● Yes ○ No

If "Yes", at what time was it reported to Municipality?:

Township of Springwater - Director of Public Works, Mark Archer and Operations Coordinator,

Heather Coleman

External Assistance/Involvement

Was corporate or area office assistance requested?: ○ Yes ● No

If "Yes", was it received?: ○ Yes ○ No

Was external emergency assistance requested?: ● Yes ○ No

If "Yes", from who?: ☐ Fire Department ☐ Equipment Suppliers ☐ Canutec
☐ Ambulance or Hospital ☐ MOE ☐ Coast Guard
☐ Police ☐ Municipality

Other: HAPAMP Vac Truck

Was there any media involvment?: ○ Yes ● No

If "Yes", who?: _____

Was the public affected?: ○ Yes ● No

If "Yes", how?: _____

Updated By: Mary-Jo Santi 05/26/2016 05:06:23 PM

Comments:

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

30 Woodland Drive
Wasaga Beach, Ontario
L9Z 2V4

TEL: 705 429-2525
FAX: 705 429-7967
www.ocwa.com

Fax

To:	**Mark Bailey – MOECC Barrie District Office** **Mark Archer – Township of Springwater** **Liz Chopp – OCWA Operations Analyst** **Simcoe Muskoka District Health Unit** **Spills Action Centre – SAC**
From:	**Mary-Jo Santi**
Date:	**Thursday, May 26, 2016**
Number of Pages (including this one):	**5**
Subject:	**Forcemain Break, Amelia Street, Elmvale – - Incident #3744-AABPCQ**

Please find the attached **Environmental Incident Report** for a forcemain break/spill, **Amelia Street, Elmvale, Ontario** submitted in accordance with terms and conditions of C of A 4989-66ZRKT and provisions of the *Ontario Water Resources Act* and *Environmental Protection Act.*

Forcemain break due to Hydro One excavation – Amelia Street, Elmvale.
SAC Reference Number: **3744-AABPCQ**

I will follow up with Certificate of Analysis from sampling completed on May 26, 2016.

Please feel free to contact me should you require further information.

Thank you,
Mary-Jo

Mary-Jo Santi, B.ES
Process Compliance Technician (A) | Ontario Clean Water Agency | Georgian Bay Hub |
PH 705.429.2525 | Fax 705.429.7967 | msanti@ocwa.com

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Works #: 110000169
Project : PO#017470

07-June-2016

OCWA-Wasaga Beach (Elmvale WWTP)
Attn : Richard Eagle

30 Woodland Drive
Wasaga Beach, ON
L9Z 2V4,

Phone: 705 429-2525
Fax:pdf, ID Plant

Date Rec. : 27 May 2016
LR Report: **CA12830-MAY16**

Copy: #2

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Approval Date	4: Analysis Approval Time	6: Raw Raw-Amelia Street Spill
Sample Date & Time					26-May-16 13:55
Temperature Upon Receipt [°C]	---	---	---	---	20.0
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	27-May-16	16:24	02-Jun-16	09:29	< 326
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	01-Jun-16	18:32	07-Jun-16	15:17	44
Total Suspended Solids [mg/L]	31-May-16	09:34	03-Jun-16	15:45	597
Phosphorus (total) [mg/L]	27-May-16	22:25	01-Jun-16	13:16	0.52
E. Coli [cfu/100mL]	27-May-16	15:25	30-May-16	10:32	< 1000

Carrie Greenlaw
Project Specialist
Environmental Services, Analytical

OnLine LIMS

00000698696