



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Hensall Sewage Lagoons

2020

Annual

Compliance Report

Municipality of Bluewater

WW#11000926

The Hensall Sewage Lagoons System is operated per Environmental Compliance Approval #3636-9B3NMA issued September 25th 2013.

The Hensall Sewage Lagoons system is a Class 1 Wastewater Treatment facility; the collection system is Class 2 system.

The Hensall Sewage Lagoons System is located on Lot 16 and 17, Concessions 1 & 2 in the Township of Hay; 39868 Rodgerville Road. The lagoon system's effluent is discharged into Black Creek.

In 2014 the Hensall Sewage Lagoons system went through multiple upgrades to:

1) The Waste Stabilization Pond

The Waste Stabilization Pond upgrades involved:

- Reconfiguration of the operation of the inlet structure to distribute raw sewage to Cell No. 1 and Cell No. 3 simultaneously while maintaining approximate equal liquid level in both cells.
- Upgrading transfer structures for Cell No. 1 and Cell No. 3 overflow to Cell No. 2 when top liquid level is reached; Cell No. 2 outflows to the outflow pipes junction manhole at rates based on consideration of the nitrification capacity of the intermittent sand filters. Existing outflow pipes from Cell No. 1 and Cell No. 3 bypassing Cell No. 2 were left and to be maintained for use in emergency or maintenance situations only.
- Replacing existing outflow pipes junction manhole (MH#1) while leaving existing outfall pipe to Black creek to be maintained and utilized during an emergency overflow.

2) The Intermittent Sand Filters

The Intermittent Sand Filters were upgraded to include:

- A wetwell type filter pumping station equipped with two submersible pumps (one duty & one standby pump); each pump is rated at 121.2 L/s at 10.7 m TDH with a common discharge pipe to the distribution chamber.
- A distribution chamber with a flowmeter and two 300 mm diameter forcemains with a control valve chamber to the intermittent sand filters.
- Two intermittent sand filters, each having a surface area of 2,300 m² with fourteen 125 mm diameter surface distribution laterals from the forcemain and sixteen bottom collection laterals to a common 600 mm diameter gravity outlet sewer.

3) Ultraviolet Disinfection System

- The Ultraviolet Disinfection System was upgraded to include one contingent future ultraviolet disinfection system with a Peak Flow Rate of 242.3 L/s.

4) Effluent Outfall

The Effluent Outfall was upgraded to a 600 mm diameter outfall sewer pipe with a cascade outfall structure to Black Creek.

5) Phosphorus Removal System

The Phosphorus Removal System was upgraded to include:

- One 27,000 L capacity phosphorus removal chemical storage tank and two metering pumps (one duty & one standby) each with a capacity of 119.6 L/h.
- All other controls, electrical equipment, instrumentation, piping, pumps, valves and appurtenances essential for the proper operation of the aforementioned sewage works upgrades.

The Hensall Lagoons treated 145,744 m³ of raw sewage in 2020. The daily average flow was 397.71 m³/ day, which was 40.58 % of the design capacity. The maximum daily flow was in January and was 2,044.00 m³/ day; this is 208.6 % of the design capacity. The design capacity for daily flow is 980 m³/ day; see chart 1a and 1b.

Chart 1a: Hensall Lagoons Average Daily Raw Sewage flows in 2020 compared to 2019 flows.

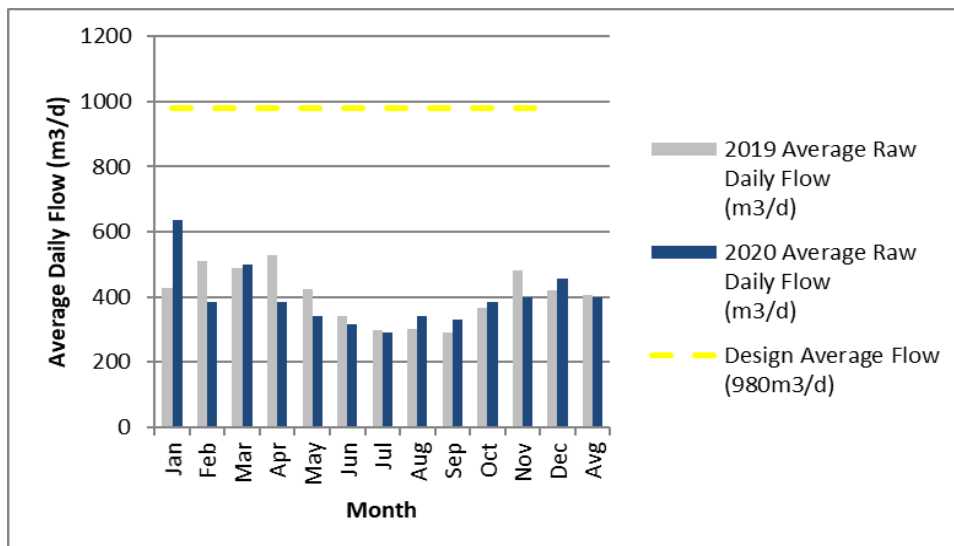
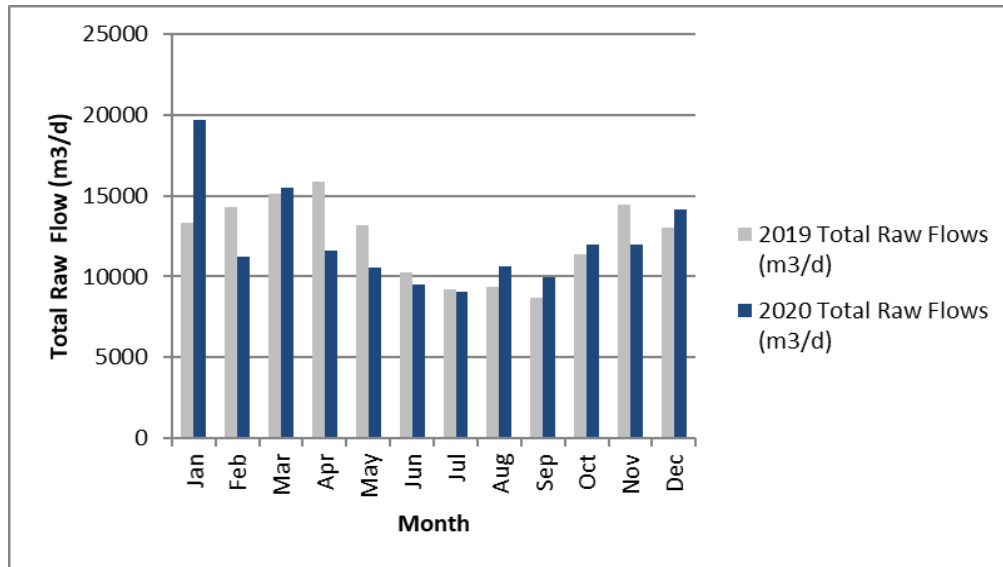


Chart 1b: Hensall Lagoons Total Raw Sewage flows in 2020 compared to 2019 flows.



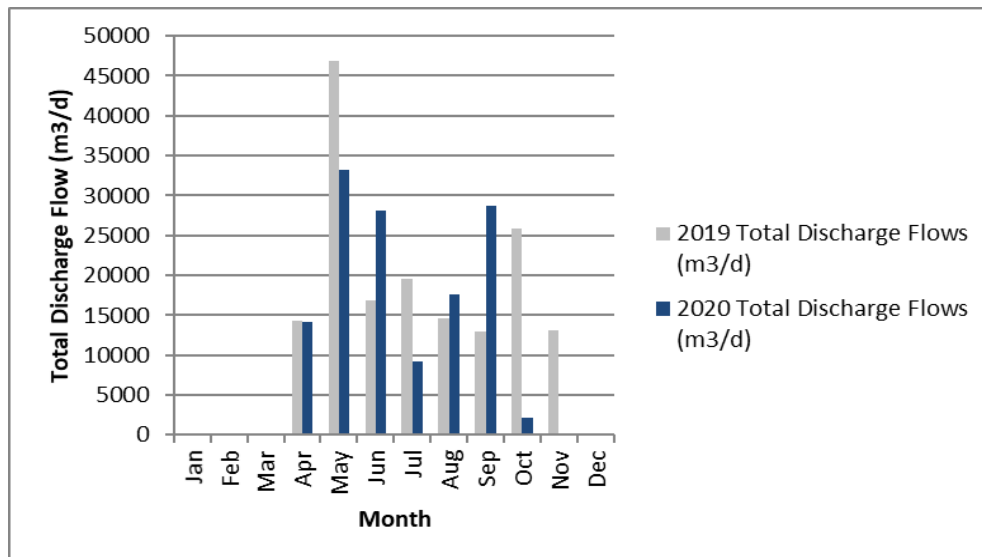
Lagoon Discharge

The total volume discharged between April and October from the lagoon was 133,248.4 m³; see chart 2.

Sampling was completed as required per Environmental Compliance Approval #3636-9B3NMA issued September 25th 2013.

The discharge effluent results were all compliant for the 2020 reporting period.

Chart 2: Hensall Lagoons Effluent Discharge Flows in 2020 compared to 2019 flows.



See Appendix A for flow and sampling summary.

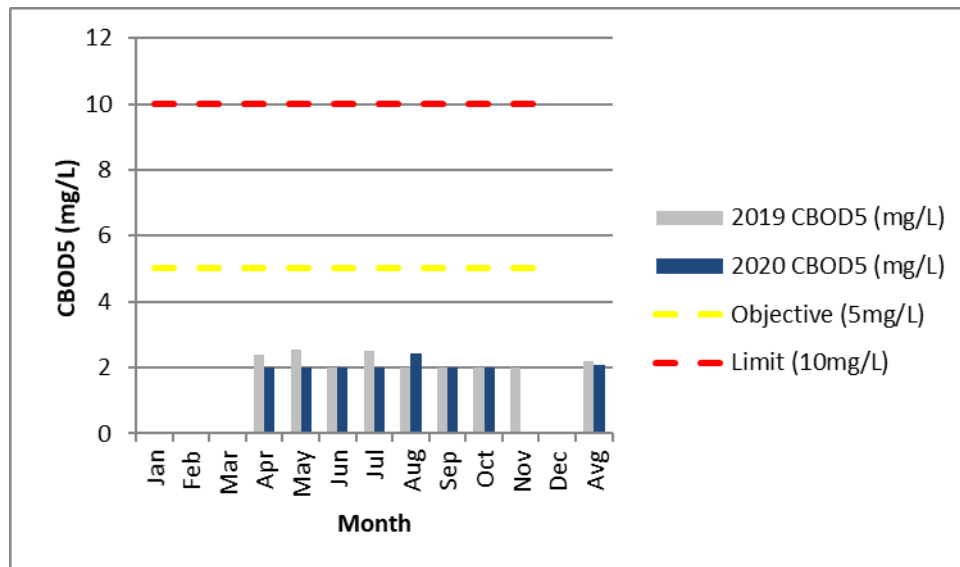
a) A summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Condition 7, including an overview of the success and adequacy of the Works:

Effluent Limits		2020 Annual Average Concentration Results (mg/L unless otherwise indicated)	2020 Maximum Monthly Concentration (mg/L unless otherwise indicated)
Effluent Parameter	Monthly Average Concentration Limit (mg/L unless otherwise indicated)		
CBOD5	10	< 2.06	< 2.43
Total Suspended Solids	10	< 2.51	< 3.33
Total Phosphorus	0.5	0.197	0.22
Total Ammonia Nitrogen	3.0	< 0.354	1.87
E. Coli	100 Organisms/100 mL Monthly Geometric Mean Density	1.52	3.99
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times		7.37	Min. - Max. 6.87-7.87

Effluent Limits		
Effluent Parameter	Average Waste Loading (kg/day)	2020 Annual Average Waste Loading (kg / day)
CBOD5	9.8	< 0.82
Total Suspended Solids	9.8	< 1.0
Total Phosphorus	0.49	0.08
Total Ammonia Nitrogen	2.94	< 0.14

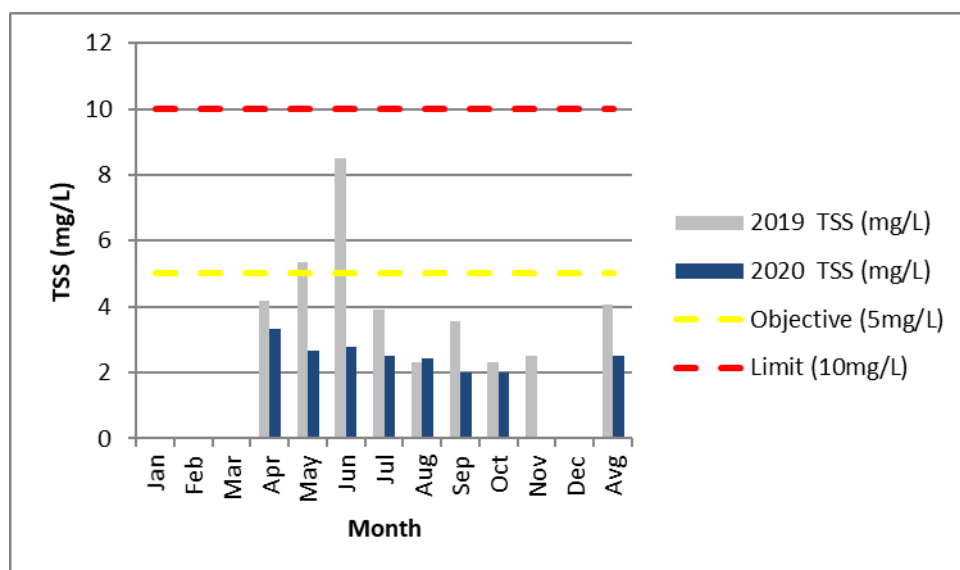
The effluent annual monthly average for Carbonaceous Biochemical Oxygen Demand (CBOD5) concentration was < 2.06 mg/L with a maximum monthly concentration of < 2.43 mg/L recorded for the month of August 2020; compliance limit is 10.0 mg/L, see chart 3. The effluent annual average waste loading for CBOD5 was < 0.82 kg/day; compliance limit is 9.8 kg/day.

Chart 3: Hensall Lagoons Average Monthly Effluent Carbonaceous Biochemical Oxygen Demand (CBOD5) results for 2020 compared to 2019. Monthly CBOD results met ECA identified limit and objective.



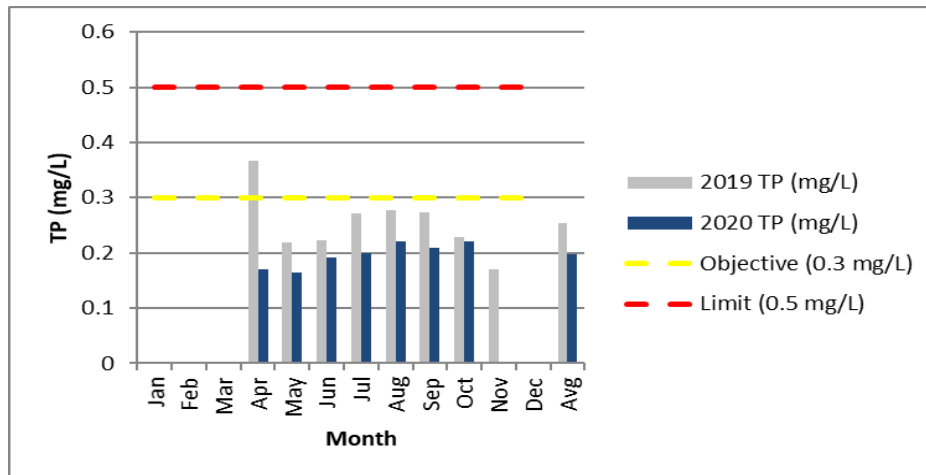
The effluent annual monthly average for Total Suspended Solids (TSS) concentration was < 2.51 mg/L with a maximum monthly concentration of < 3.33 mg/L recorded for the month of April 2020; compliance limit is 10.0 mg/L, see chart 4. The effluent annual average waste loading for Total Suspended Solids concentration was < 1.0 kg/day; compliance limit is 9.8 kg/day.

Chart 4: Hensall Lagoons Average Monthly Effluent Total Suspended Solids (TSS) results for 2020 compared to 2019. Monthly TSS results met ECA identified limit and objective.



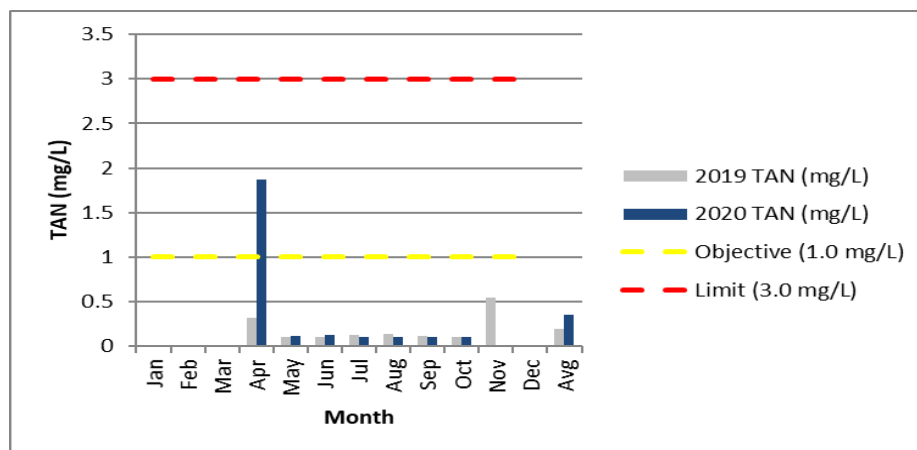
The effluent annual monthly average for Total Phosphorus (TP) concentration was 0.20 (0.197) mg/L with a maximum monthly concentration of 0.22 mg/L recorded for the months of August & October 2020; compliance limit is 0.5 mg/L, see chart 5. The effluent annual average waste loading for Total Phosphorus was 0.08 kg/day; compliance limit is 0.49 kg/day.

Chart 5: Hensall Lagoons Average Monthly Effluent Total Phosphorus (TP) results for 2020 compared to 2019. Monthly TP results met ECA identified limit and objective.



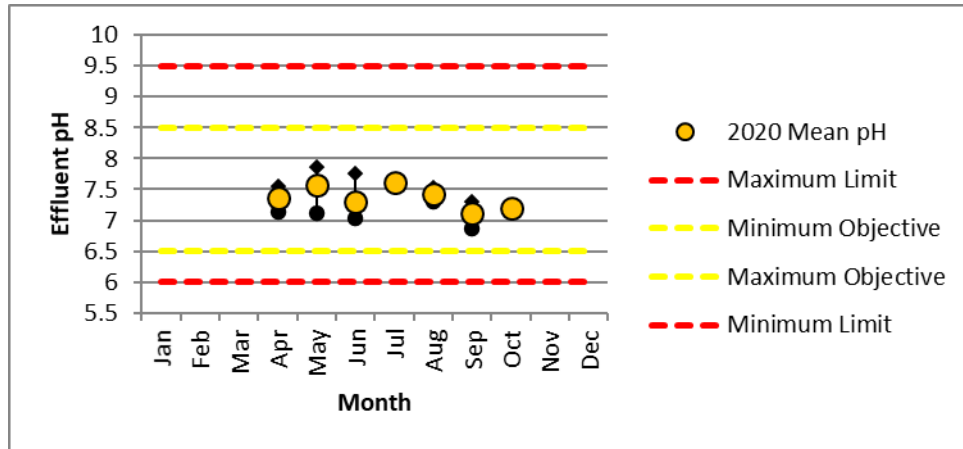
The effluent annual monthly average for Total Ammonia Nitrogen (TAN) concentration was < 0.354 mg/L with a maximum monthly concentration of 1.87 mg/L recorded for the month of April 2020; compliance limit is 3.0 mg/L, see chart 6.

The effluent annual average waste loading for Total Ammonia Nitrogen concentration was < 0.14 kg/day; compliance limit is 2.94 kg/day.



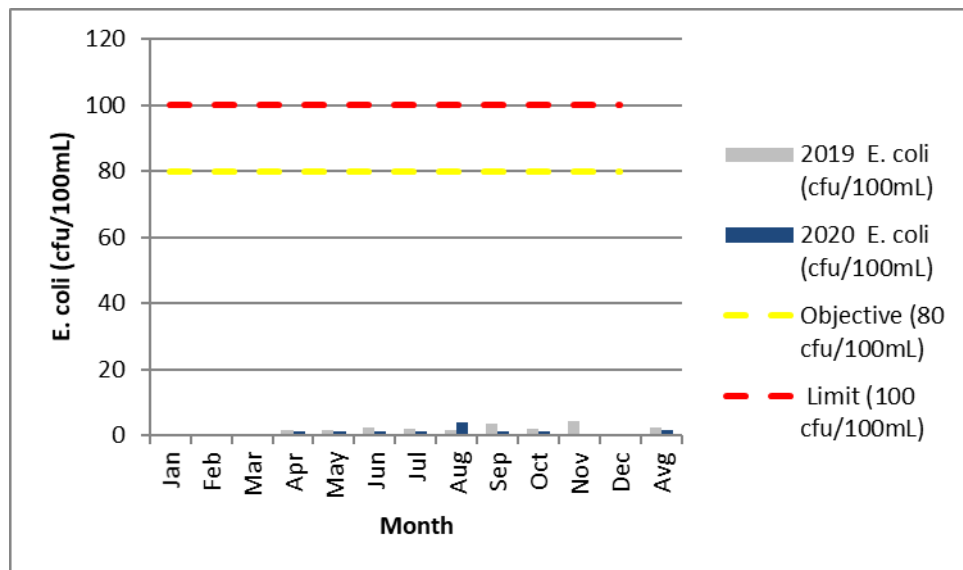
The effluent annual monthly average for pH was 7.37. A maximum pH of 7.87 was recorded in the month of May 2020 & a minimum pH of 6.87 was recorded in the month of September 2020, see chart 7.

Chart 7: Hensall Lagoons Final Effluent pH results for 2020. Daily pH results met ECA identified limit and objective.



The bacteriological quality of the effluent was monitored and the E.coli Geometric Mean Density (GMD) did not exceed the compliance limit of 100 organisms per 100 ml of effluent discharged from the works throughout 2020, see chart 8.

Chart 8: Hensall Lagoons Final Effluent E. coli Geometric Mean Density (GMD) results for 2020 compared to 2019. Monthly E.coli GMD results met ECA identified limit and objective.



The system is providing adequate treatment with discharge effluent results compliant with all identified Environmental Compliance Approval #3636-9B3NMA limits for the 2020 reporting period.

b) An evaluation of the performance of the lagoon and intermittent sand filter system in meeting the E. Coli objective and limit under current flow condition and the projected performance under full Rated Capacity condition and the recommendation on the need for implementation of the contingency ultraviolet disinfection system, including project schedule;

The bacteriological quality of the effluent was monitored and the geometric mean density of E.coli did not exceed the design objective of 80 organisms per 100 mL or the compliance limit of 100 organisms per 100 mL of effluent discharged from the works throughout 2020. The maximum monthly geometric mean density for E.coli was 3.99; this value was recorded for the month of August 2020.

The system design capacity daily flow is 980 m³/ day. The daily average flow for 2020 was 397.71 m³/ day; this value is 40.58 % of the design capacity. The maximum daily flow of 2,044.00 m³/ day was recorded for January 10 and January 11, 2020; this flow value is 208.6 % of the design capacity was related to area precipitation.

The E.coli geometric mean density compliance limit and design objective were not exceeded during this report period therefore showing no indication that the recommended implementation of the contingency ultraviolet disinfection system is required at this time under the current flow conditions and when at the full rated capacity.

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

The wet-wells were cleaned out on multiple occasions throughout the year; grease buildup in the wells must be removed to allow Miltonic recording devices and floats to function effectively.

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

Regular-scheduled monthly preventative maintenance has been assigned and monitored using OCWA's Work Management System program (Maximo). Pierce Services is contracted to complete annual calibration services of all instrumentation for the Hensall Sewage Lagoon System; see Appendix B (attached).

Equipment preventive maintenance requirements are built into the regular work schedule and corrective maintenance work requests are added according to their priority and staff and contractor availability. The following chart notes the number of maintenance work orders generated and completed in 2020.

Preventative Maintenance Work Orders Generated											
JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1	3	4	3	3	3	3	3	8	9	3	3

Maintenance such as wet well cleaning, pump pulling, lifting device inspection, gas monitoring equipment inspection and fire extinguisher inspections were also completed. In-house meters used for pH analysis are calibrated as per manufacturer’s instructions.

Additional unscheduled maintenance is completed as needed. Additional maintenance completed during 2020 included:

- Periodic wet well cleaning completed by hydro vac due to grease build-up;
- Flushing alum lines;
- Chemical pump repairs;
- Periodic rototilling of the sand filter beds;
- Repairs to alarm auto dialer;
- Repairs to Pump #2 at the Hensall Pumping Station; cleaned check valve;
- Cleaned and inspected the collection system.

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

The effluent parameters specified in the Environmental Compliance Approval were analyzed by SGS Lakefield; SGS Lakefield is an accredited laboratory in Ontario.

The system is monitored on an on-going basis to ensure proper operations. System checks include well level checks, pump hour meter readings, testing of alarms and running generators to ensure all systems are operating effectively.

Annually a facility sampling schedule calendar is prepared and reviewed with operational staff; the sampling schedule calendar identifies sample collection dates to meet regulatory requirements of the Environmental Compliance Approval.

Operators are on-site a minimum of once per week monitoring the facility and twice a week during the discharge period to collect required samples.

The lab results are reviewed by the operators as they are received to ensure compliance.

f) a summary of the calibration and maintenance carried out on all effluent monitoring equipment;

In 2020 flow meter calibrations were completed by Pierce Services and Solutions Inc. See Appendix B for calibration records.

g) a description of efforts made and results achieved in meeting the Effluent Objectives of Condition 6;

Effluent Objectives		2020 Maximum Monthly Concentration (mg/L unless otherwise indicated)
Effluent Parameter	Concentration Objective (mg/L unless otherwise indicated)	
CBOD5	5.0	< 2.43
Total Suspended Solids	5.0	< 3.33
Total Phosphorus	0.3	0.22
Total Ammonia Nitrogen	1.0	1.87
E. Coli	80 Organisms/100 mL Geometric Mean Density	3.99
pH of the effluent maintained between 6.5 to 8.5, inclusive, at all times		Min. - Max. 6.87-7.87

Objectives were met consistently in 2020 for Carbonaceous Biochemical Oxygen Demand (CBOD), Total Suspended Solids (TSS), Total Phosphorus (TP), pH and E. coli Geometric Mean Density (GMD) sampling. Objectives were not met consistently for Total Ammonia Nitrogen (TAN). TAN April Monthly average was 1.87 mg/L; objective values is 1.0 mg/L.

The TAN monthly objective value was exceeded; the monthly average value did not exceed the compliance limit therefore it is not a reportable exceedance. The filter beds require a run in period to build up the biological layer to effectively remove ammonia concentrations, once this was developed objectives were met. Regular scheduled filter maintenance, alum dosage adjustment and effluent monitoring are completed by operational staff to strive and meet Environmental Compliance Approval design objectives.

Refer to charting found in section a) above.

h) 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;

No sludge was hauled from the Hensall Lagoon System in 2020. It is calculated that approximately 40 m³ of sludge was generated in the 2020 reporting period. It is anticipated that approximately 40 m³ of sludge will be generated during the next reporting period.

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

There were no complaints received during the 2020 reporting period.

j) a summary of all by-pass, spill or abnormal discharge events; and

One overflow event occurred in this report period.

Hensall Sewage Pump Station Overflow: January 11, 2020

An extreme rain event occurred in the area causing widespread flooding and the inability of the sewage pumping station to keep up with the increased flow entering the station. The Overflow event started at approximately 10:45 on Jan. 11th 2020 and ended at approximately 21:00 on Jan. 11th 2020. Approximately 360 m³ of raw sewage overflowed into the Boise Cascade Drain; all required notifications of the overflow event and sample collections were completed.

k) any other information the Water Supervisor requires from time to time.

The Environmental Compliance Approvals #3636-9B3NMA issued September 25th 2013 requires that Bypass & Overflow Reports be submitted to the Ministry's local office quarterly; reports were submitted as required.

REPORT PREPARED BY:

Deb Thomson

Process & Compliance Technician

Ontario Clean Water Agency

APPENDIX A

**ANNUAL SUMMARY
OF RESULTS
&
FLOW DATA**

Ontario Clean Water Agency
Performance Assessment Report Wastewater/Lagoon

From: 01/01/2020 to 31/12/2020

Facility: [5695] HENSALL WASTEWATER TREATMENT LAGOON

Works: [110000926]

	01/2020	02/2020	03/2020	04/2020	05/2020	06/2020	07/2020	08/2020	09/2020	10/2020	11/2020	12/2020	<-Total-->	<-Avg-->	<-Max-->	<-Criteria-->
Flows:																
Raw Flow: Total - Raw Sewage (m³)	19682.00	11193.00	15526.00	11586.00	10565.00	9498.00	9067.00	10611.00	9922.00	11945.00	11982.00	14167.00	145744.00			
Raw Flow: Avg - Raw Sewage (m³/d)	634.90	385.97	500.84	386.20	340.81	316.60	292.48	342.29	330.73	385.32	399.40	457.00		397.71		
Raw Flow: Max - Raw Sewage (m³/d)	2044.00	449.00	946.00	483.00	460.00	342.00	356.00	411.00	377.00	434.00	466.00	771.00			2044.00	
Eff. Flow: Total - Final Effluent (m³)	0.00	0.00	0.00	14223.00	33234.00	28099.00	9242.00	17666.00	28670.40	2114.00			133248.40			
Eff. Flow: Avg - Final Effluent (m³/d)	0.00	0.00	0.00	474.10	1072.06	936.63	924.20	569.87	1061.87	704.67				574.34		
Eff. Flow: Max - Final Effluent (m³/d)	0.00	0.00	0.00	1508.00	9789.00	1081.00	927.00	1349.00	1542.00	1312.00					9789.00	
Carbonaceous Biochemical Oxygen Demand: CBOD:																
Eff: Avg cBOD5 - Final Effluent (mg/L)				< 2.000	< 2.000	< 2.000	< 2.000	< 2.429	< 2.000	< 2.000				< 2.061	< 2.429	
Eff: # of samples of cBOD5 - Final Effluent (mg/L)				3	8	10	2	7	7	2			39			
Loading: cBOD5 - Final Effluent (kg/d)			< 0.948	< 2.144	< 1.873	< 1.848	< 1.384	< 2.124	< 1.409					< 1.676	< 2.144	
Biochemical Oxygen Demand: BOD5:																
Raw: Avg BOD5 - Raw Sewage (mg/L)	299.000			376.000			437.000			245.000				339.250	437.000	
Raw: # of samples of BOD5 - Raw Sewage (mg/L)	1			1			1			1			4			
Total Suspended Solids: TSS:																
Raw: Avg TSS - Raw Sewage (mg/L)	310.000			428.000			295.000			250.000				320.750	428.000	
Raw: # of samples of TSS - Raw Sewage (mg/L)	1			1			1			1			4			
Eff: Avg TSS - Final Effluent (mg/L)			< 3.333	< 2.625	< 2.700	2.500	< 2.429	< 2.000	< 2.000					< 2.512	3.333	
Eff: # of samples of TSS - Final Effluent (mg/L)			3	8	10	2	7	7	2				39			
Loading: TSS - Final Effluent (kg/d)			< 1.580	< 2.814	< 2.529	2.311	< 1.384	< 2.124	< 1.409					< 2.022	2.814	
Percent Removal: TSS - Raw Sewage (mg/L)							99.153			99.200					99.221	
Total Phosphorus: TP:																
Raw: Avg TP - Raw Sewage (mg/L)	7.570			6.310			8.570			6.890				7.335	8.570	
Raw: # of samples of TP - Raw Sewage (mg/L)	1			1			1			1			4			
Eff: Avg TP - Final Effluent (mg/L)			0.170	0.165	0.192	0.200	0.220	0.211	0.220					0.197	0.220	
Eff: # of samples of TP - Final Effluent (mg/L)			3	8	10	2	7	7	2				39			
Loading: TP - Final Effluent (kg/d)			0.081	0.177	0.180	0.185	0.125	0.225	0.155					0.161	0.225	
Percent Removal: TP - Raw Sewage (mg/L)				97.306			97.666			96.807					97.666	
Nitrogen Series:																
Raw: Avg TKN - Raw Sewage (mg/L)	46.700			45.200			44.900			42.500				44.825	46.700	
Raw: # of samples of TKN - Raw Sewage (mg/L)	1			1			1			1			4			
Eff: Avg TAN - Final Effluent (mg/L)			1.867	< 0.112	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100				< 0.354	1.867	
Eff: # of samples of TAN - Final Effluent (mg/L)			3	8	10	2	7	7	2				39			
Loading: TAN - Final Effluent (kg/d)			0.885	< 0.121	< 0.094	< 0.092	< 0.057	< 0.106	< 0.070					< 0.204	0.885	
Disinfection:																
Eff: GMD E. Coli - Final Effluent (cfu/100mL)				1.260	1.189	1.196	1.000	3.991	1.000	1.000				1.519	3.991	

**Ontario Clean Water Agency
Time Series Info Report**

From: 01/01/2020 to 31/12/2020

Facility Org Number: 5695
Facility Works Number: 110000926
Facility Name: HENSALL WASTEWATER TREATMENT LAGOON
Facility Owner: Municipality: Municipality of Bluewater
Facility Classification: Class 1 Wastewater Treatment
Receiver: Black Creek
Service Population: 1210.0
Total Design Capacity: 980.0 m3/day

	01/2020	02/2020	03/2020	04/2020	05/2020	06/2020	07/2020	08/2020	09/2020	10/2020	11/2020	12/2020	Total	Avg	Max	Min
Final Effluent / Dissolved Oxygen: DO - mg/L																
Count IH	0	0	0	3	0	9	2	8	6	2	0	0	30			
Max IH				11.2		8.79	7.32	8.24	9.46	9.37					11.2	
Mean IH				9.58		8.128	7.16	7.82	9.055	9.155				8.38		
Min IH				8.67		7.46	7	7.55	8.33	8.94						7
Final Effluent / pH - ---																
Count IH	0	0	0	3	8	10	2	8	7	2	0	0	40			
Max IH				7.56	7.87	7.76	7.65	7.53	7.3	7.21					7.87	
Mean IH				7.367	7.578	7.311	7.615	7.419	7.121	7.19				7.366		
Min IH				7.13	7.12	7.03	7.58	7.3	6.87	7.17						6.87

APPENDIX B

**ANNUAL
CALIBRATIONS**



Pierce Services
& Solutions Inc.

PO Box 26027
Guelph, ON N1E 6W1

Phone: 519.820.4853
Fax: 519.824.9402

Flowmeter Report

max flow 1

Verification: X

Calibration:

Client: OCWA Bluewater
Description: Mag Flow Meter
Manufacturer: Endress Hauser
Model: Promag W
Inventory No.: _____

Location: Hensall Lagoons
Date: 20-Aug-20
Checked By: Greg Pierce
Serial No.: J6052B1600

Volocity	Input	As Found	As Left	Pass/Fail
0 m/s	0.00 l/s	0.00 l/s	0.00 l/s	Pass
	39.72 l/s	39.72 l/s	39.72 l/s	Pass
2.83 m/s	200.00 l/s	200.00 l/s	200.00 l/s	Pass

Confirmed Run Mode: X

Returned to service: X

Service Comments:

Flowmeter Information

Flow Unit: l/s
Meter Size: 300 mm
Pipe Material: Stainless Steel
Liner Material: PU
Range: 0-200 l/s
Tag Number: FIT 100



Comments:

Verification of original calibration

Signature: 
Greg Pierce, CCST



Pierce Services
& Solutions Inc.

PO Box 26027
Guelph, ON N1E 6W1

Phone: 519.820.4853
Fax: 519.824.9402

Flowmeter Report

Verification: X

Calibration:

Client: OCWA Bluewater
Description: Mag Flow Meter
Manufacturer: Endress Hauser
Model: Promag
Inventory No.: 249166

Location: Hensall Lift Station
Date: 20-Aug-20
Checked By: Greg Pierce
Serial No.: JA02691600

Velocity	Input	As Found	As Left	Pass/Fail
0 m/s	0.00 l/s	0.00 l/s	0.00 l/s	Pass
	39.27 l/s	39.27 l/s	39.27 l/s	Pass
5.65 m/s	100.00 l/s	100.00 l/s	100.00 l/s	Pass

Confirmed Run Mode: X

Returned to service: X

Service Comments:

Flowmeter Information

Flow Unit: l/s
Meter Size: 150 mm
Pipe Material: Stainless Steel
Liner Material: PU
Range: 0-100 l/s
Tag Number: FIT 100



Comments:

Verification of original calibration

Signature: 

Greg Pierce, CCST



Pierce Services
& Solutions Inc.

519.820.4853 Fax 519.824.9402

Instrument Verification Sheet

Client Name: Ontario Clean Water Agency

Date: August 20, 2020

Equipment Description: Level Sensor

Assigned Number: Wet Well Level

Area Located: Hansall Well

AMMS Number: N/A

Instrument Data

Manufacturer: Milltronics

Model Number: MultiRanger Plus

Type: Ultrasonic

Serial Number: N/A

Range: 0 - 3.800 m

Accuracy: +/- 5%

Method Of Calibration: Standard Measurement

Application: Waste Water

Calibration Data

Input %	Input	As Found	As Left	% Error
	13.29 mA	2.206 m	2.206 m	

Confirmed Run Mode:

Placed back in service:

Comments:



Checked By: Greg Pierce CCST

Signature: _____



Pierce Services
& Solutions Inc.

519.820.4853 Fax 519.824.9402

Instrument Verification Sheet

Client Name: Ontario Clean Water Agency

Date: August 20, 2020

Equipment Description: Level Sensor

Assigned Number: Wet Well Level

Area Located: Hansall Pumping Station

AMMS Number: N/A

Instrument Data

Manufacturer: Milltronics

Model Number: MultiRanger Plus

Type: Ultrasonic

Serial Number: N/A

Range: 0 - 2.743 m

Accuracy: +/- 5%

Method Of Calibration: Standard Measurement

Application: Waste Water

Calibration Data

Input %	Input	As Found	As Left	% Error
	11.00 mA	1.17 m	1.17 m	

Confirmed Run Mode:

Placed back in service:

Comments:



Checked By: Greg Pierce CCST

Signature: 



#	Parameter	Value	#	Parameter	Value
P-0	Security	1954	P-50	OCM mA output	1
P-1	Units	1	P-51	OCM simulation	--
P-2	Mode of Measurement	1	P-52	Totalizer display factor	0
P-3	Empty Distance	4.000	P-53	Totalizer decimal point	2
P-4	Span	3.800	P-54	Low total	00.00
P-5	Blanking	0.300	P-55	High total	0000
P-6	Analog Output	2	P-56	Remote totalizer contact	0
P-7	Decimal Point	2	P-57	Flow sampler control	0
P-8	Relay 1, Function	0	P-58	Flow sampler control	1.000
P-9	Relay 1, Setpoint On	1.900	P-59	Time sampler control	--
P-10	Relay 1, Setpoint Off	1.950	P-60	Full Calibration	--
P-11	Relay 2, Function	1	P-61	Empty Calibration	--
P-12	Relay 2, Setpoint On	3.050	P-62	Measurement Offset	0.000
P-13	Relay 2, Setpoint Off	3.030	P-63	Sound Velocity at 20° C	344.1
P-14	Relay 3, Function	7	P-64	Velocity at P-65	344.3
P-15	Relay 3, Setpoint On	3.800	P-65	Air temperature	20 C
P-16	Relay 3, Setpoint Off	3.750	P-66	Maximum air temperature	33 C
P-17	Relay 4, Function	1	P-67	Minimum air temperature	-22 C
P-18	Relay 4, Setpoint On	1.500	P-68	Fill damping	10.00
P-19	Relay 4, Setpoint Off	1.700	P-69	Empty damping	10.00
P-20	Relay 5, Function	0	P-70	Process rate display	0.000
P-21	Relay 5, Setpoint On	--	P-71	Process rate filter	1
P-22	Relay 5, Setpoint Off	--	P-72	Fuzz filter	1
P-23	Transducer, Submersible	0	P-73	Agitator discrimination	1
P-24	Pump 1, hours	0.000	P-74	Fail-safe mode	3
P-25	Pump 2, hours	0.000	P-75	Fail-safe timer	1.000
P-26	Pump 3, hours	0.000	P-76	Reading	2.21
P-27	Pump 4, hours	0.000	P-77	Material level	2.206
P-28	Pump 5, hours	0.000	P-78	Space or distance	1.794
P-29	Pump, run on, interval	0.000	P-79	Scope displays	---
P-30	Pump, run off, duration	0	P-80	Echo confidence	1:24
P-31	Transducer	104	P-81	Confidence threshold long	10
P-32	DLD milliamp output	1	P-82	Confidence threshold long	5
P-33	Inflow/discharge totaling	1	P-83	Echo strength	88
P-34	Tank Shape	0	P-84	Noise	3:7
P-35	Tank dimension A	0.000	P-85	Algorithms	1
P-36	Tank dimension L	0.000	P-86	TVT curve	1
P-37	Convert display	1.000	P-87	Range extension	20
P-38	Display offset	0.000	P-88	Number of transmit pulses	4
P-39	Display reading options	0	P-89	Software version	1.22
P-40	Primary measuring device	1	P-90	Memory test	PASS
P-41	Flow rate time units	4	P-91	LCD,LED and relay test	PASS
P-42	OCM exponent	1.550	P-92	mA output test	13.29
P-43	Flume Dimensions	1.000	P-93	Temperature sensor test	168.0
P-45	Maximum head	3.800	P-94	Transmitter test	PASS
P-46	Maximum flow rate	1000	P-95	Programmer test	PASS
P-47	Auto zero	--	P-96	Watchdog reset test	PASS
P-48	OCM low head cutoff	5.000	P-97	Trim for 4 mA	220
P-49	OCM decimal point	2	P-98	Trim for 20 mA	3495
			P-99	Master reset	



Tag # Wet Well Level Hensall Lift

Date: August 20, 20

Parameter #	Parameter Description	Parameter Value	Value Description	Relay #
P001	Operation	1	Level measurement	
P002	Material	1	Liquid surface	
P003	Process Speed	2	Medium (1m/min)	
P004	Transducer	104	XPS 10	
P005	Units	1	Meters	
P006	Empty	2.743	Transducer to base	
P007	Span	2.682	Maximum reading	
P065	Reading Override Value	5.00	Relay Value Inserted	
P111	Pump Fixed Duty Setting	1	Pump Fixed Duty Setting	1
P112	Relay on Level	0.950	Meters	1
P113	Relay off Level	0.100	Meters	1
P309	Run Time	47736	Hours	1
P111	Pump Fixed Duty Setting	1	Pump Fixed Duty Setting	2
P112	Relay on Level	1.550	Meters	2
P113	Relay off Level	1.100	Meters	2
P309	Run Time	2.3	Hours	2
P111	Pump Fixed Duty Setting	1	Pump Fixed Duty Setting	3
P112	Relay on Level	1.650	Meters	3
P113	Relay off Level	1.200	Meters	3
P309	Run Time	2	Hours	3
P111	Loss of Echo	6		4
P112	Relay on Level		Meters	4
P113	Relay off Level		Meters	4
P309	Run Time	1.2	Hours	4
P111	Loss of Echo	1		5
P112	Relay on Level	1.820		5
P113	Relay off Level	1.750		5
P309	Run Time	0.6		5
P340	Date of Manufacture	9:10:22		
P341	Run Time	1849		
P342	Start Ups	169		
P650	Offset Calibration			
P651	Sound Calibration			
P652	Offset Correction			
P653	Velocity	343.4		
P654	Velocity at 20 C	344.1		
P660	Temperature Source Fixed	1		
P791	Bus Error Count	8		
P802	Transducer Submergence	0		
	%	43.79		
	Echo	100		
	Temp	20 C		
	mA	11.00		
	Level	1.17		