

Deep River Wastewater System

Waterworks # 120000612

Annual Report

Prepared For: Town of Deep River

Reporting Period of January 1st – December 31st, 2020

Issued: Mar 29th, 2021

Revision: 1

Operating Authority:



This report has been prepared to meet the requirements set out in the facility Environmental Compliance Approval (ECA) #1655-7P8SPE issued February 26, 2009.

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Operations and Compliance Reliability Indices

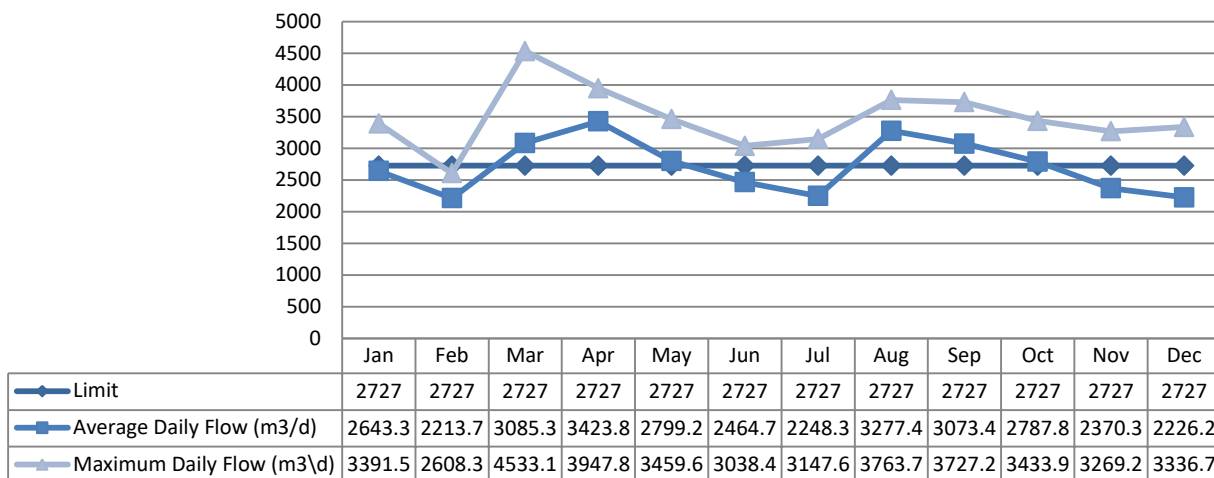
| Compliance Event | # of Events |
|--|---|
| Ministry of the Environment, Conservation and Parks (MECP) Inspections | There were no inspections during this reporting period. |
| Ministry of Labour Inspections | There were no inspections during this reporting period. |
| Non-Compliances to MECP/EC | There were non-compliances during this reporting period. |
| Community Complaints | There were no complaints during this reporting period. |
| Spills | There were no spills reported during this reporting period. |
| By-Pass/Overflows | There were no by-passes/overflows during this reporting period. |

Treatment Flows

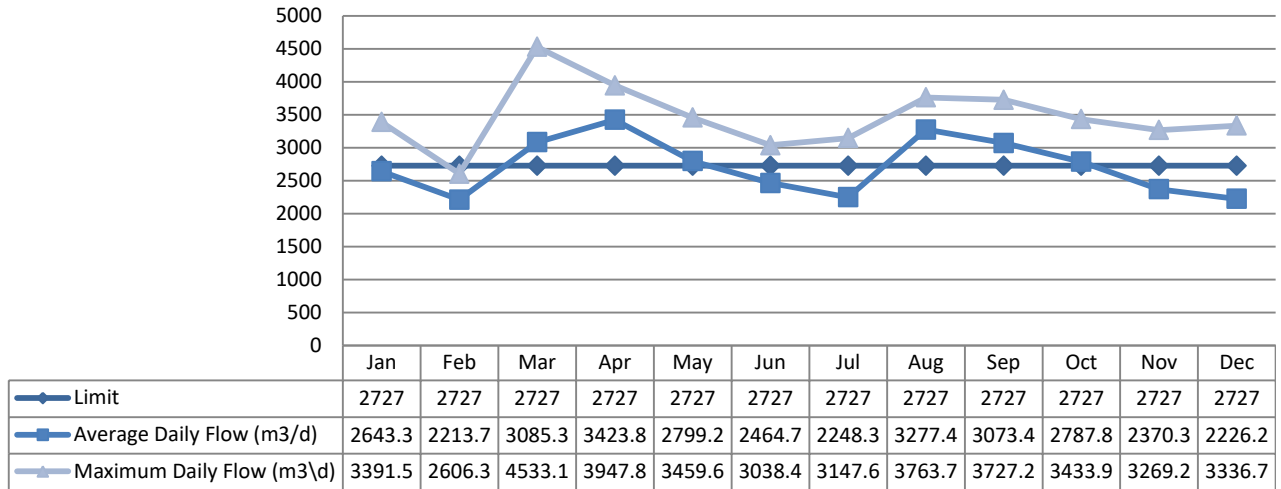
Raw Flows (m3/d)

In 2020, the average daily raw flow was approx. 99.7% of the current design capacity.

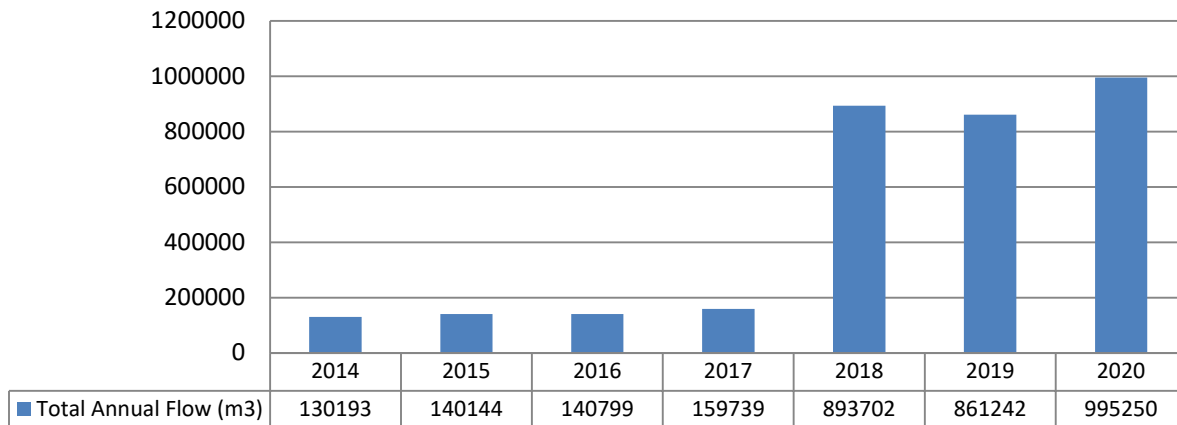
The rated capacity based on the annual average daily raw flow exceeds 80%. Recommendations to reduce this influx to the sewage plant are being addressed by the Town decreasing the Infiltration & Inflow (I&I) problems throughout the collection system piping and the manhole levels. This will be a long-term strategy to deal with the I&I issues, along with the sub drain to try and deal with the ongoing water table issues also contributing to the issues.



Effluent Flow (m3/d)



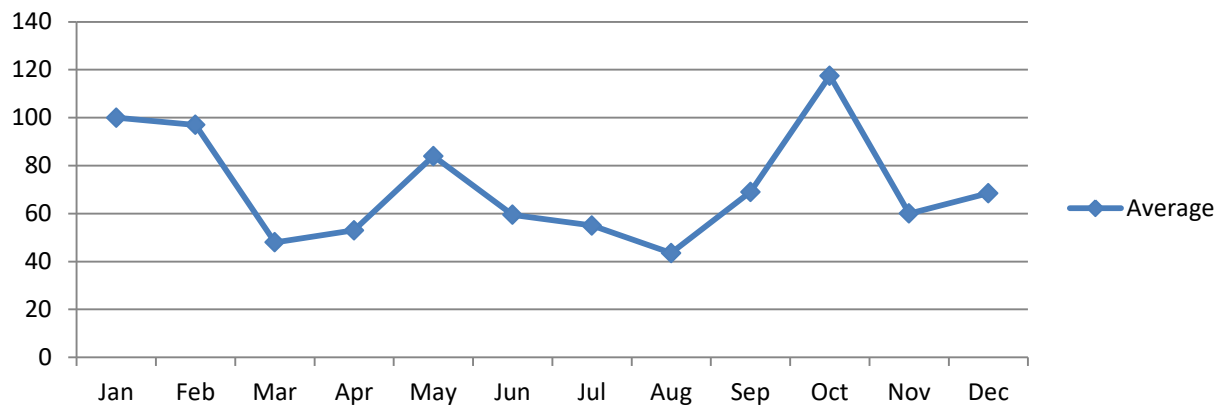
Annual Comparison (m3)



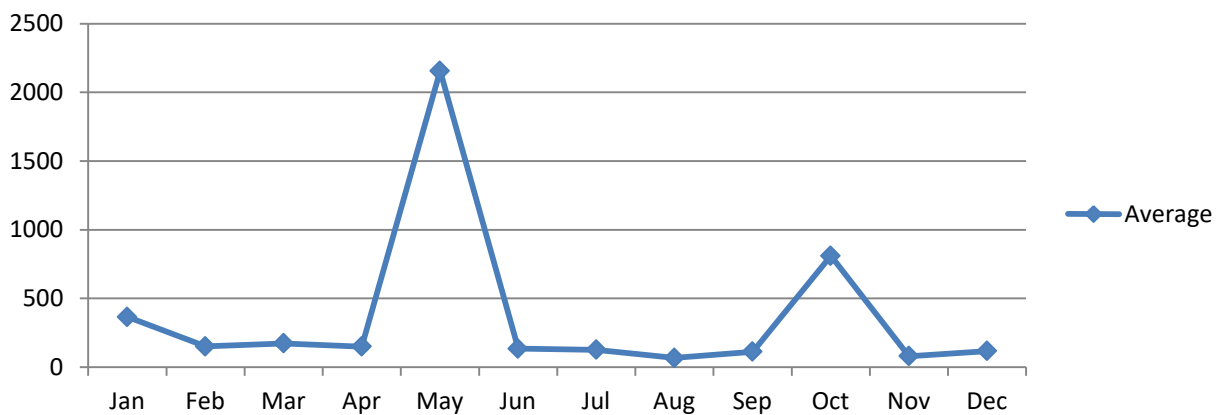
Raw Sewage Quality

Further details are included in the Performance Report (PAR) in Appendix A.

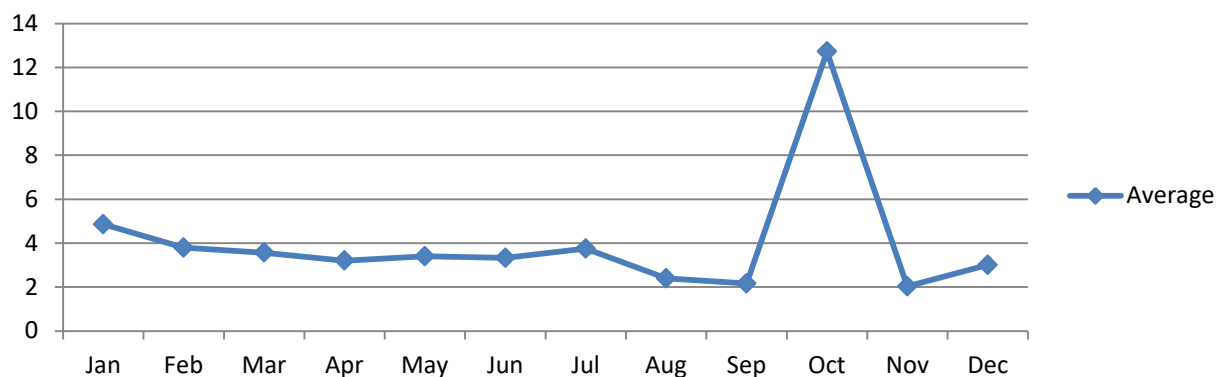
CBOD5 (mg/L)



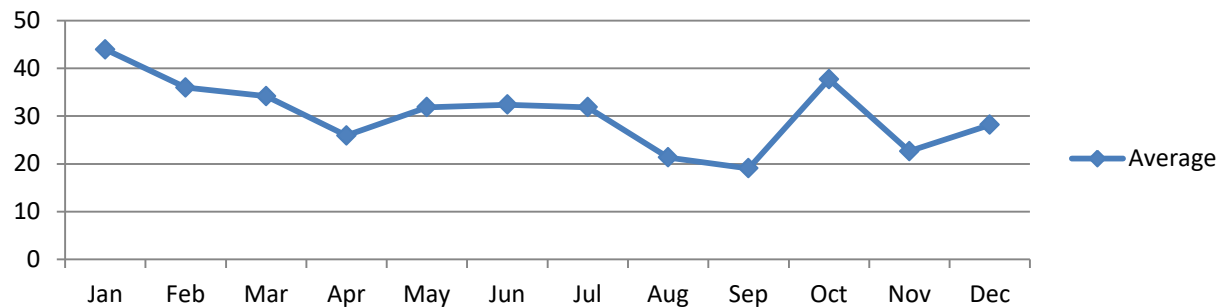
Total Suspended Solids (mg/L)



Total Phosphorus (mg/L)



Total Kjeldahl Nitrogen (mg/L)



Effluent Quality Assurance and Control Measures Taken

Effluent control measures include in-house sampling and testing for operational parameters such as suspended solids, phosphorus, and dissolved oxygen. In-house testing provides real time results which are then used to enhance process and operational performance. All in-house sampling and analysis are performed by certified operations staff utilizing approved methods and protocols for sampling, analysis and recording as specified in the Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works", the Ministry's publication, "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" and the publication, "Standard Methods for the Examination of Water and Wastewater".

All final effluent samples collected during the reporting period to meet ECA sampling requirements were submitted to Eurofins laboratory in Ottawa for analysis. Eurofins has been deemed accredited by the Canadian Association for Laboratory Accreditation (CALA), meeting strict provincial guidelines including an extensive quality assurance/quality control program. By choosing this laboratory, the Ontario Clean Water Agency is ensuring appropriate control measures are undertaken during sample analysis. The pH and temperature parameters were analyzed in the field at the time of sample collection by certified operators, to ensure accuracy and precision of the results obtained. The unionized ammonia was calculated using the total ammonia nitrogen concentration, pH and temperature, as required by the facility ECA. The Deep River STP uses AquaTox Testing & Consulting Inc. for the testing of Acute Lethality. It's laboratory in Puslinch, ON is also accredited under CALA.

Effluent Quality

Further details are included in the Performance Report (PAR) in Appendix A.

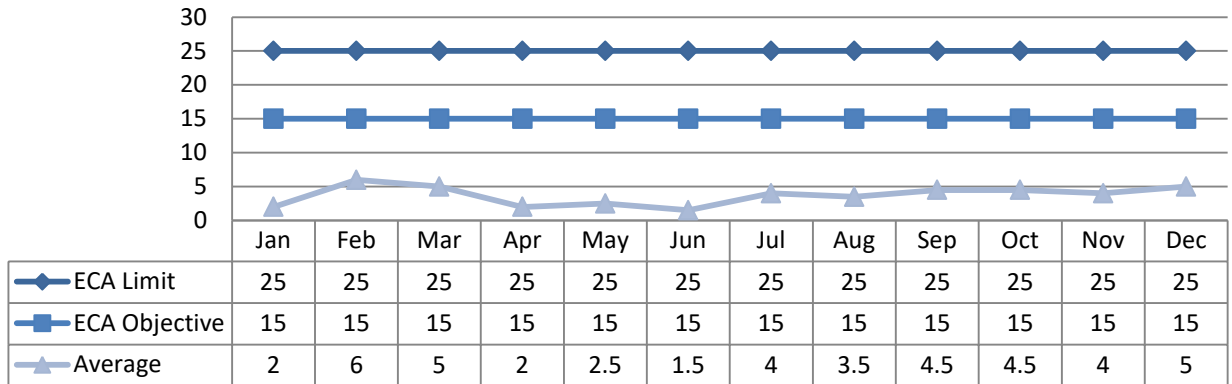
CBOD5

Compliance

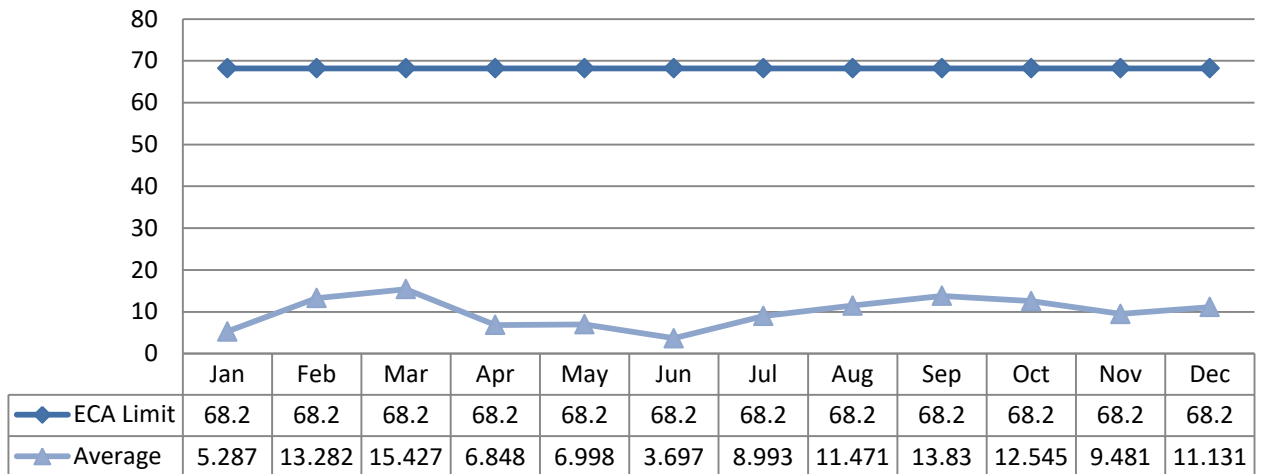
Compliance is based on an Annual Average Concentration and Annual Average Loading.

| | Limit | Annual Average | Met Compliance |
|---------------|-----------|----------------|----------------|
| Concentration | 25.0 mg/L | 3.7 mg/L | Met |
| Loading | 68.2 kg/d | 9.9 kg/d | Met |

Concentration (mg/L)



Loading (kg/d)



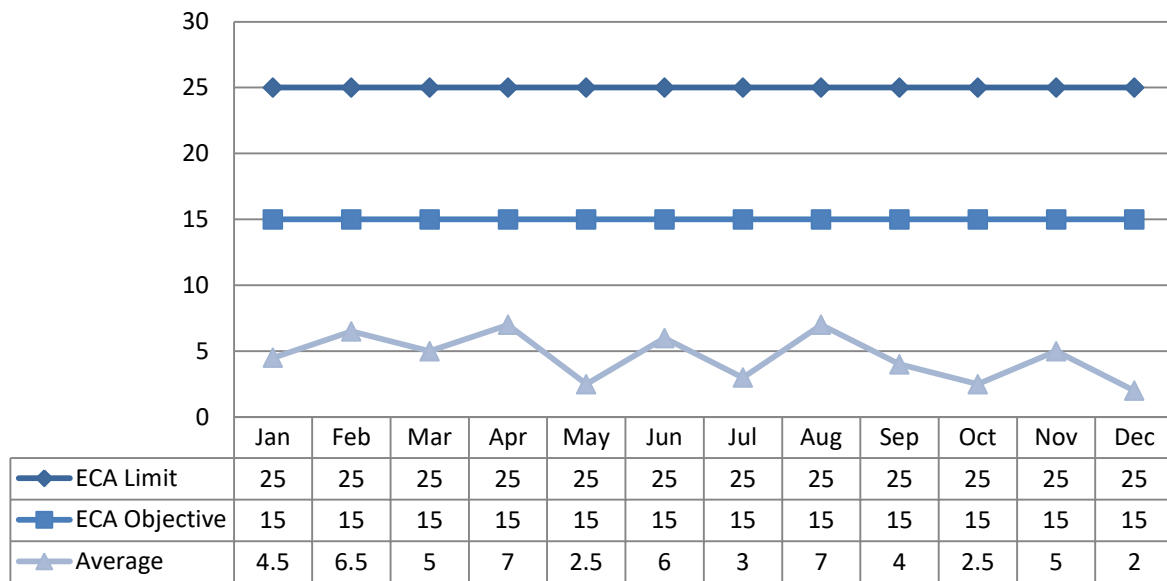
Total Suspended Solids

Compliance

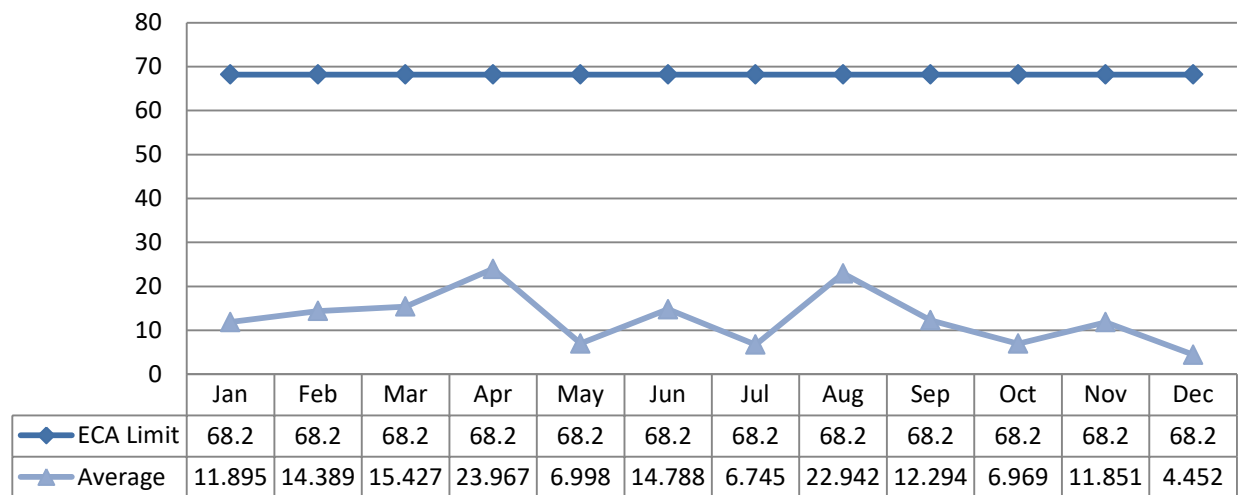
Compliance is based on an Annual Average Concentration and Annual Average Loading.

| | Limit | Annual Average | Met Compliance |
|---------------|-----------|----------------|----------------|
| Concentration | 25.0 mg/L | 4.6 mg/L | Met |
| Loading | 68.2 kg/d | 12.7 kg/d | Met |

Concentration (mg/L)



Loading (kg/d)



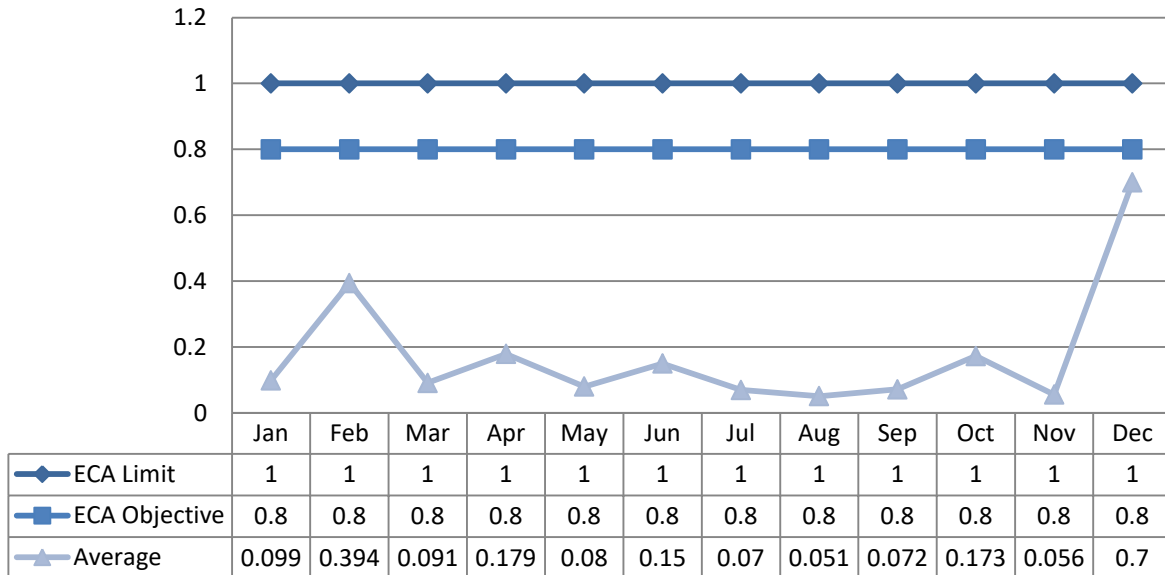
Total Phosphorus

Compliance

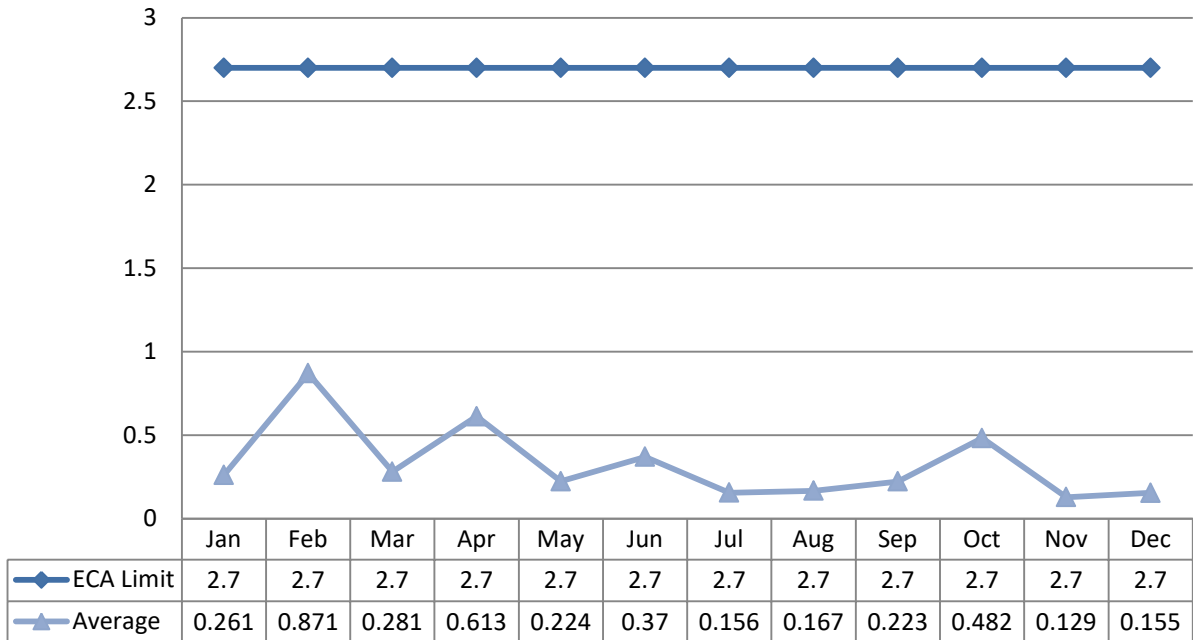
Compliance is based on a Monthly Average Concentration and Monthly Average Loading.

| | Limit | Monthly Average | Met Compliance |
|---------------|----------|-----------------|----------------|
| Concentration | 1.0 mg/L | 0.12 mg/L | Met |
| Loading | 2.7 kg/d | 0.33 kg/d | Met |

Concentration (mg/L)



Loading (kg/d)



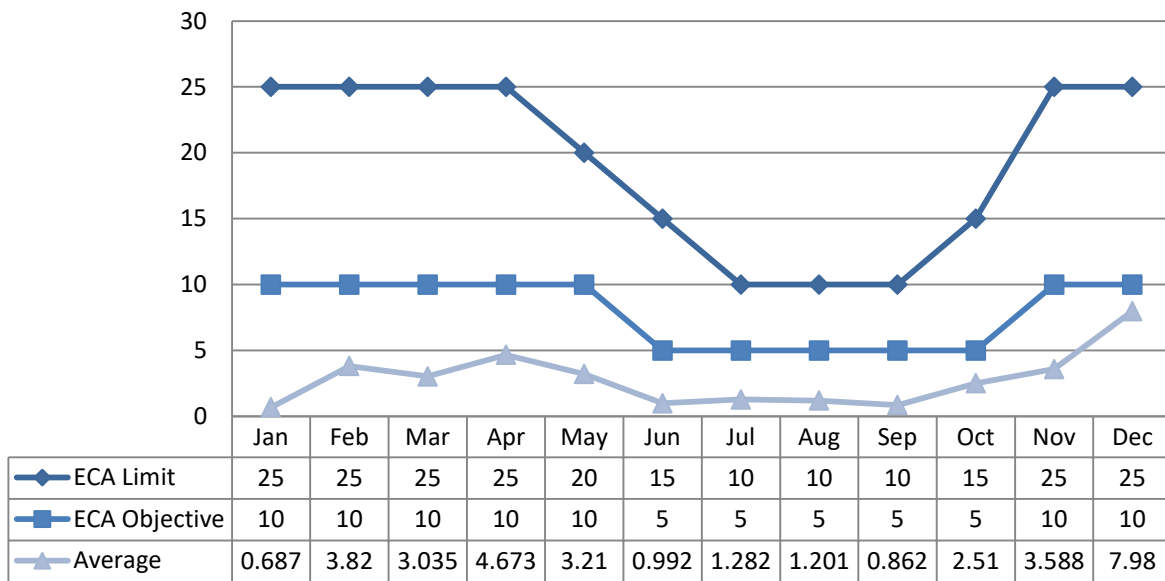
Total Ammonia Nitrogen

Compliance

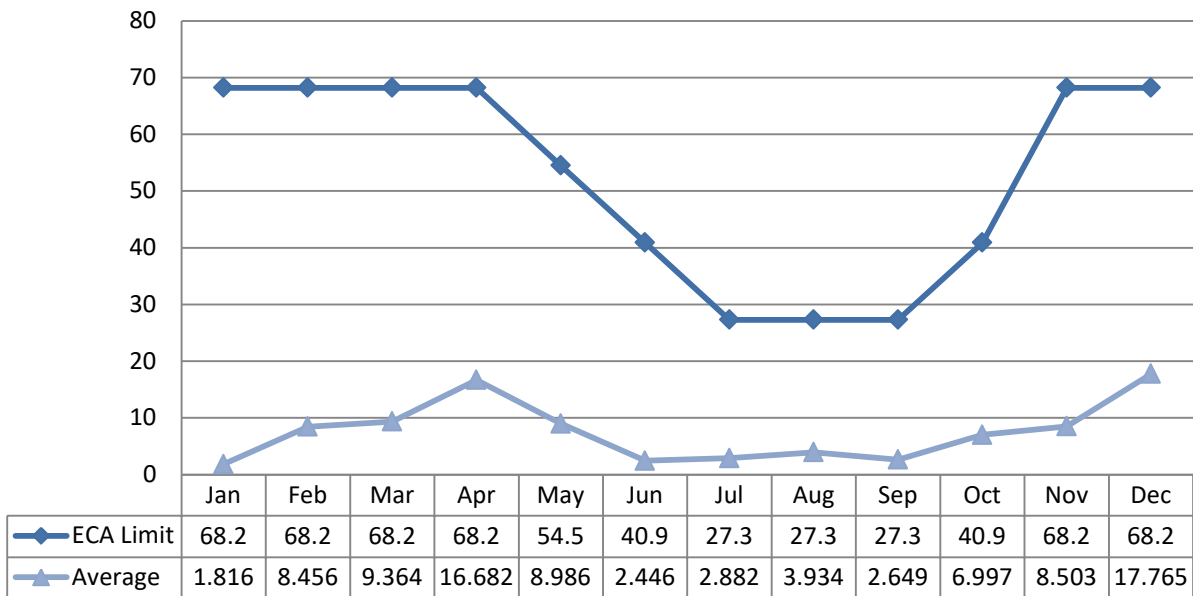
Compliance is based on a various Monthly Average Concentrations and various Monthly Average Loadings.

| | Limit | Monthly Average | Met Compliance |
|---------------|-----------------|-----------------|----------------|
| Concentration | Varies by month | 2.84 mg/L | Met |
| Loading | Varies by month | 7.54 kg/d | Met |

Concentration (mg/L)



Loading (kg/d)

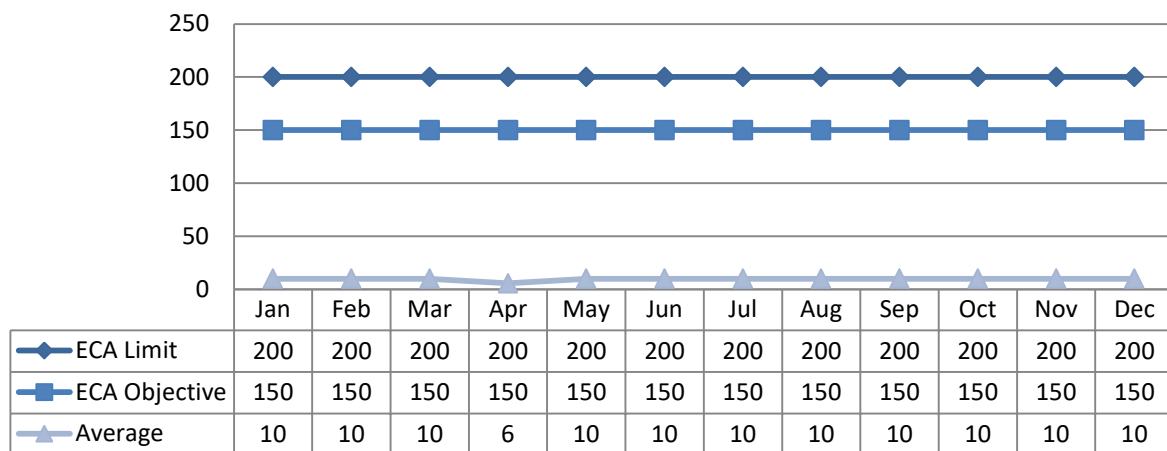


E-coli

Compliance

| Date | Exceedance of | Limit | Value | Corrective Action |
|--|---------------|-------|-------|-------------------|
| There were no Non-Compliance events during the reporting period. | | | | |

Geometric Mean (cfu/100mL)

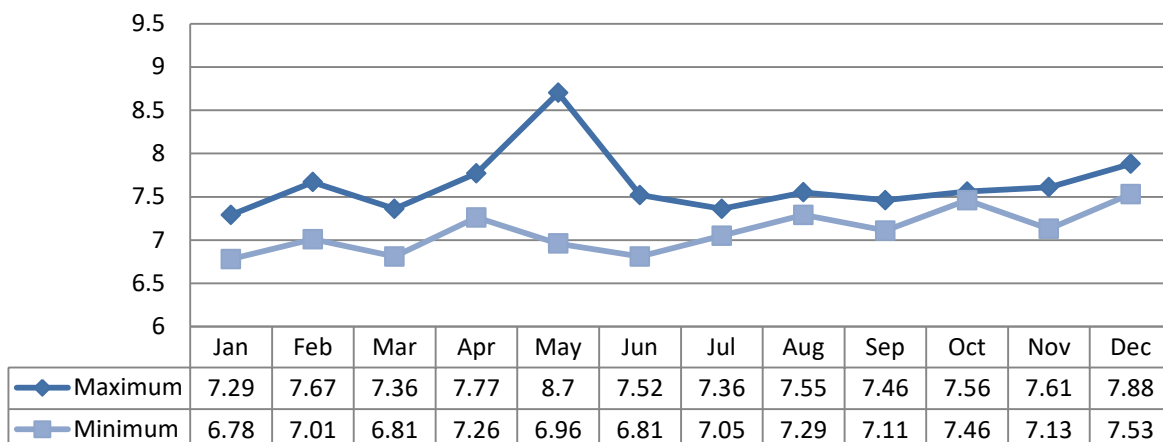


pH

Compliance

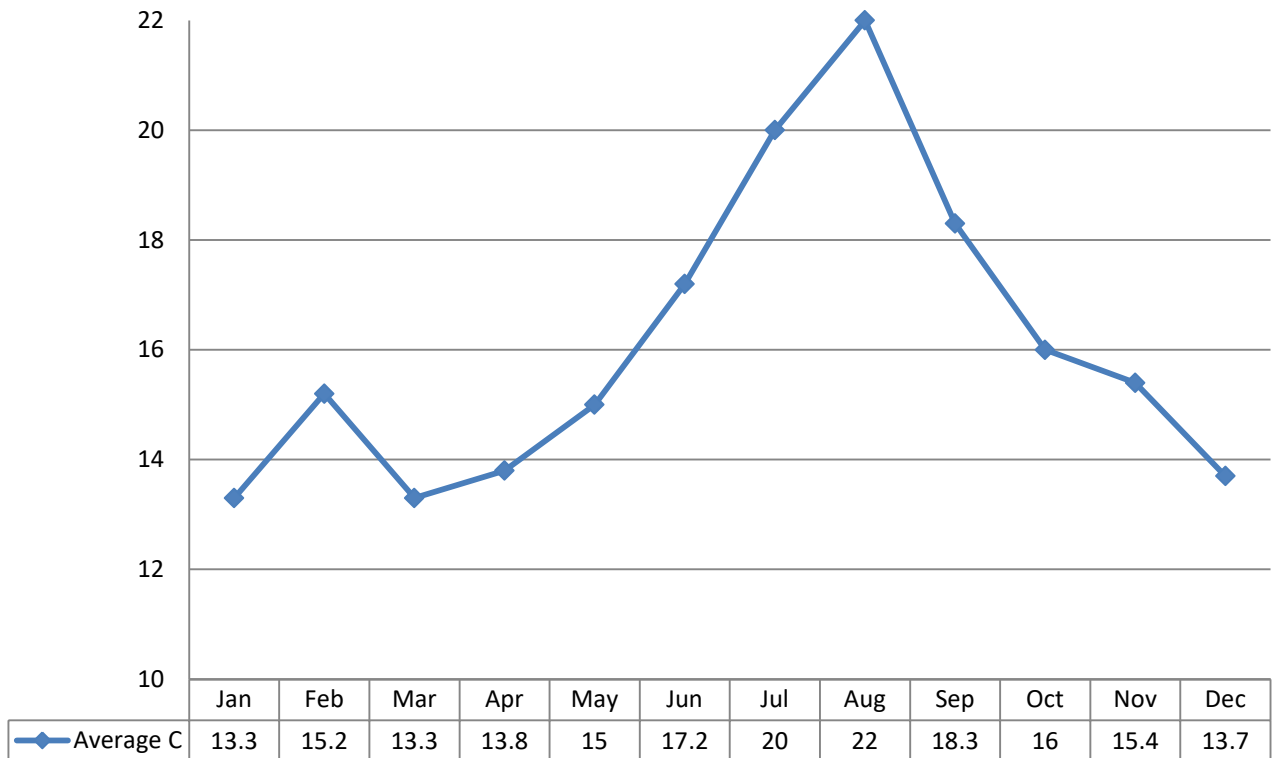
| Date | Exceedance of | Limit | Value | Corrective Action |
|--|---------------|-------|-------|-------------------|
| There were no Non-Compliance events during the reporting period. | | | | |

pH is to remain in the range of 6.0-9.5. Each instance the pH is outside of that range, it is reported as non-compliant. The objective is 6.5-9.0 inclusively.



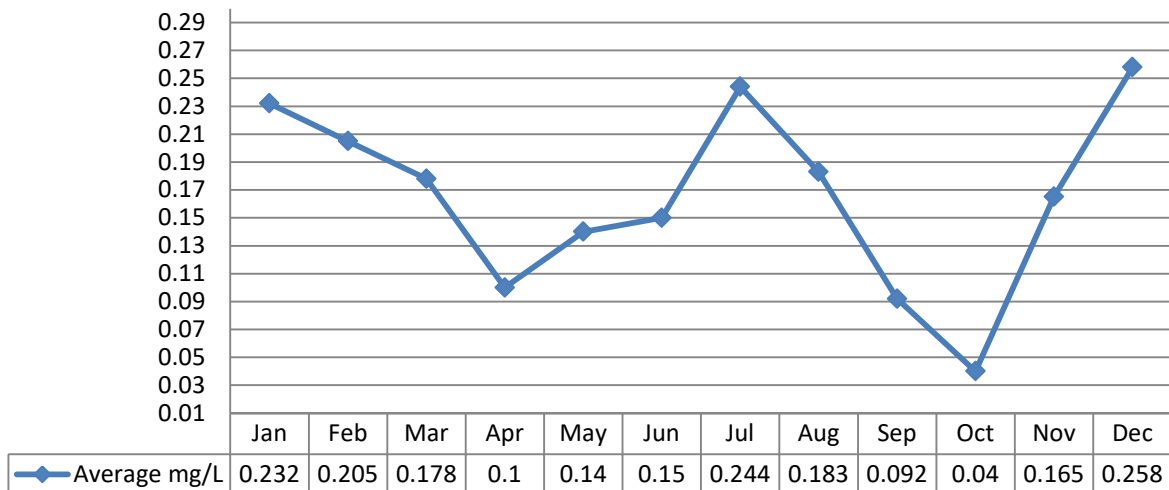
Temperature

Temperature is required to be tested, but there are no compliance limits for this parameter.



Un-ionized Ammonia

Un-ionized is required to be tested, but there are no compliance limits for this parameter.



Acute Lethality

There was one (1) sample collected in 2020 and tested for acute lethality for both Rainbow Trout and Daphnia magna. This sampling is required annually, both provincially and federally. Results are displayed as % mortality. An adverse result is a > 50% mortality rate.

| Date | Rainbow Trout | Daphnia Magna |
|-------------|---------------|---------------|
| Jul 7, 2020 | 0 | 0 |
| Jul 7, 2020 | 0 | 0 |

Operating Issues

There were no major operating issues during 2020.

Maintenance

The Deep River STP uses a Workplace Management System (WMS) called Maximo. This is a comprehensive computerized maintenance tracking system. The system creates work orders for scheduled maintenance on an annual, semi-annual, monthly, quarterly and weekly basis. The service work is recorded in the work order history. This ensures routine and preventive maintenance is performed. Emergency and capital repair maintenance is completed and added to the system.

During the 2020 calendar year, a total of 384 Work Orders were completed at the Deep River Sewage Treatment Plant. A breakdown of this total is listed below:

| Maintenance Type | # Completed in 2020 |
|--------------------------|---------------------|
| Corrective Work Orders | 55 |
| Emergency Work Orders | 2 |
| Preventative Work Orders | 241 |
| Operational Work Orders | 55 |
| Capital Work Orders | 18 |
| Call Back Work Orders | 13 |

Major Maintenance Summary (Capital)

| WO # | Description |
|---------|--|
| 1998961 | Purchase of a washing machine for the sewage plant. |
| 1586971 | Miscellaneous capital items purchased including: <ul style="list-style-type: none"> • Parts for stand-by hypo system, • Tire tubes for the snow blower, • Sump pump inspection, |

| | |
|---------|---|
| | <ul style="list-style-type: none"> • Parts for alum pump servicing, • Machine and bore keyways, and • Pump and other hardware. |
| 1750218 | <p>Miscellaneous items purchased for the plant including:</p> <ul style="list-style-type: none"> • Hardware for the fire hose, • Parts for the muffin monster, • Filters for the furnace, • Belt for garage door, • Hose for tank clean out, • Valve set-up for trash pump, • Gaskets for valve replacement, and • Other hardware and supplies. |
| 1918470 | Replacement of the hot water tank. |

Calibration Reports

Flow meter calibration reports are included in Appendix B.

Proposed Alterations, Extensions, or Replacement to Works

In 2020, a number of alternations and replacements were completed at the sewage plant, including: a hypo dosing pump, a new sump pump, a VFD raw sewage pump, UV seals and relay board for a full rebuild of all the UV's, a mixing valve and mud valve and actuator for SBR#1, a new raw sewage grinder, six sludge holding tank valves, and a back-up digester pump was purchased, but not installed.

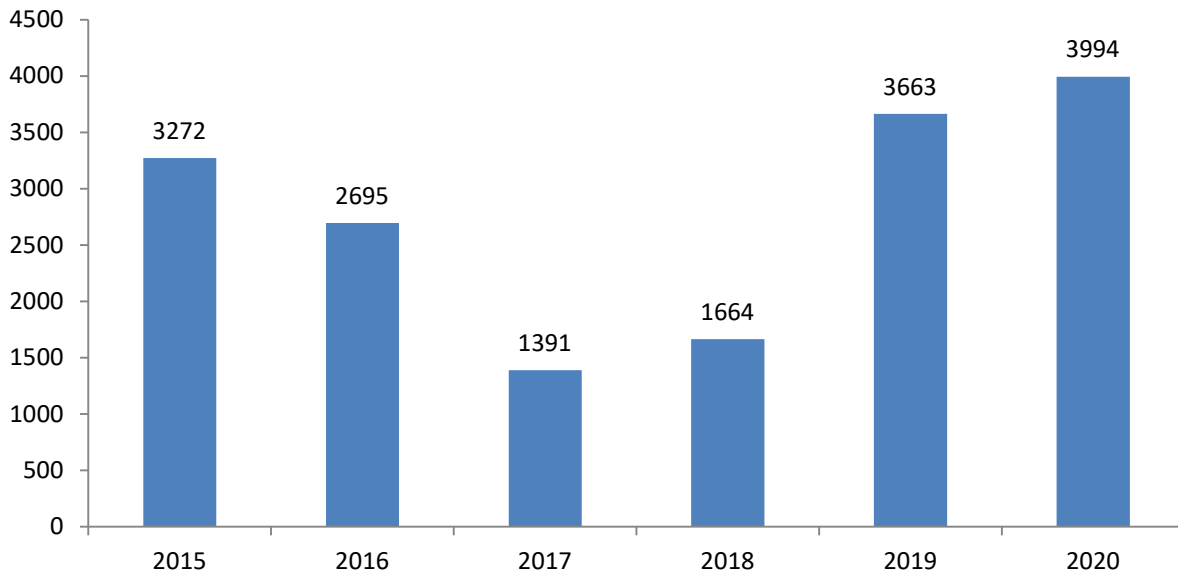
Sludge Generation

Sludge generated from the treatment plant is spread on agricultural land during the spreading season, as per the Nutrient Management Act, O. Reg. 267/03. OCWA contracted the sludge hauling in 2020 to Bio-Ag. All NASM Plans are done under their authority.

Sludge Disposal Summary

| Date | Disposal Location | NASM Approval Number | Total Volume (m3) |
|--------------|------------------------|----------------------|-------------------|
| Jun 2020 | Yantha – TV Tower Farm | 24041 | 2291 |
| Nov 2020 | Yantha – TV Tower Farm | 24041 | 1703 |
| Total Sludge | | | 3994 |

Annual Comparison (m3/year)



It is anticipated that sludge volumes will be similar in the 2021 season, as in 2020.

Summary of Complaints

| Location | Date | Nature of Complaint | Actions Taken |
|---|------|---------------------|---------------|
| There were no complaints received during this reporting period. | | | |

Summary of By-Pass, Overflows, Spill or Abnormal Discharge Events

| Date/Time | Duration | Cause | Details | Volume (m3) |
|---|----------|-------|---------|-------------|
| There were no by-passes, overflows, spills or abnormal discharge events during this reporting period. | | | | |

Appendix A

Performance Assessment Report

Ontario Clean Water Agency
Performance Assessment Report Wastewater/Lagoon

Report extracted 03/02/2021 07:58

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

Facility: [5853] DEEP RIVER WASTEWATER TREATMENT FACILITY

Works: [12000612]

| | 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) | 81942.05 | 64196.76 | 95644.30 | 102714.03 | 86776.43 | 73940.28 | 69696.78 | 101598.23 | 92201.60 | 86420.60 | 71108.29 | 69010.60 | 995249.95 | | | |
| Raw Flow: Avg - Raw Sewage (m³/d) | 2643.29 | 2213.68 | 3085.30 | 3423.80 | 2799.24 | 2464.68 | 2248.28 | 3277.36 | 3073.39 | 2787.76 | 2370.28 | 2226.15 | | 2717.77 | | |
| Raw Flow: Max - Raw Sewage (m³/d) | 3391.53 | 2608.31 | 4533.12 | 3947.82 | 3459.58 | 3038.42 | 3147.61 | 3763.68 | 3727.19 | 3433.88 | 3269.15 | 3336.74 | | | 4533.12 | |
| Eff. Flow: Total - Final Effluent (m³) | 81942.05 | 64196.76 | 95644.30 | 102714.03 | 86776.43 | 73940.28 | 69696.78 | 101598.23 | 92201.60 | 86420.60 | 71108.29 | 69010.60 | 995249.95 | | | |
| Eff. Flow: Avg - Final Effluent (m³/d) | 2643.29 | 2213.68 | 3085.30 | 3423.80 | 2799.24 | 2464.68 | 2248.28 | 3277.36 | 3073.39 | 2787.76 | 2370.28 | 2226.15 | | 2717.77 | | 2727.0 |
| Eff. Flow: Max - Final Effluent (m³/d) | 3391.53 | 2608.31 | 4533.12 | 3947.82 | 3459.58 | 3038.42 | 3147.61 | 3763.68 | 3727.19 | 3433.88 | 3269.15 | 3336.74 | | | 4533.12 | |
| Carbonaceous Biochemical Oxygen Demand: CBOD: | | | | | | | | | | | | | | | | |
| Raw: Avg cBOD5 - Raw Sewage (mg/L) | 100.000 | 97.000 | 48.000 | 53.000 | 84.000 | 59.500 | 55.000 | 43.500 | 69.000 | 117.500 | 60.000 | 68.500 | | 71.250 | 117.500 | |
| Raw: # of samples of cBOD5 - Raw Sewage (mg/L) | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 23 | | | |
| Eff: Avg cBOD5 - Final Effluent (mg/L) | 2.000 | 6.000 | 5.000 | < 2.000 | 2.500 | 1.500 | 4.000 | 3.500 | 4.500 | 4.500 | 4.000 | 5.000 | | < 3.708 | 6.000 | 25.0 |
| Eff: # of samples of cBOD5 - Final Effluent (mg/L) | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 23 | | | |
| Loading: cBOD5 - Final Effluent (kg/d) | 5.287 | 13.282 | 15.427 | < 6.848 | 6.998 | 3.697 | 8.993 | 11.471 | 13.830 | 12.545 | 9.481 | 11.131 | | < 9.916 | 15.427 | |
| Biochemical Oxygen Demand: BOD5: | | | | | | | | | | | | | | | | |
| Total Suspended Solids: TSS: | | | | | | | | | | | | | | | | |
| Raw: Avg TSS - Raw Sewage (mg/L) | 366.000 | 151.500 | 174.000 | 150.500 | 2155.500 | 134.500 | 127.000 | 67.000 | 113.000 | 810.500 | 80.500 | 118.000 | | 370.667 | 2155.500 | |
| Raw: # of samples of TSS - Raw Sewage (mg/L) | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 23 | | | |
| Eff: Avg TSS - Final Effluent (mg/L) | 4.500 | 6.500 | 5.000 | 7.000 | < 2.500 | < 6.000 | 3.000 | 7.000 | 4.000 | 2.500 | 5.000 | < 2.000 | | < 4.583 | 7.000 | 25.0 |
| Eff: # of samples of TSS - Final Effluent (mg/L) | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 23 | | | |
| Loading: TSS - Final Effluent (kg/d) | 11.895 | 14.389 | 15.427 | 23.967 | < 6.998 | < 14.788 | 6.745 | 22.942 | 12.294 | 6.969 | 11.851 | < 4.452 | | < 12.726 | 23.967 | |
| Percent Removal: TSS - Raw Sewage (mg/L) | 98.770 | 95.710 | 97.126 | 95.349 | 99.884 | 95.539 | 97.638 | 89.552 | 96.460 | 99.692 | 93.789 | 98.305 | | | 99.884 | |
| Total Phosphorus: TP: | | | | | | | | | | | | | | | | |
| Raw: Avg TP - Raw Sewage (mg/L) | 4.854 | 3.795 | 3.568 | 3.205 | 3.400 | 3.327 | 3.750 | 2.393 | 2.166 | 12.715 | 2.035 | 3.006 | | 4.018 | 12.715 | |

| | | | | | | | | | | | | | | | | |
|---|---------|--------|--------|--------|---------|--------|--------|---------|--------|--------|---------|---------|----|---------|--------|----------------------------------|
| Raw: # of samples of TP - Raw Sewage (mg/L) | 5 | 4 | 5 | 4 | 4 | 4 | 5 | 4 | 5 | 4 | 4 | 5 | 53 | | | |
| Eff: Avg TP - Final Effluent (mg/L) | 0.099 | 0.394 | 0.091 | 0.179 | 0.080 | 0.150 | 0.070 | 0.051 | 0.072 | 0.173 | < 0.055 | < 0.070 | | < 0.123 | 0.394 | 1.0 |
| Eff: # of samples of TP - Final Effluent (mg/L) | 5 | 4 | 5 | 4 | 4 | 4 | 5 | 4 | 5 | 4 | 4 | 5 | 53 | | | |
| Loading: TP - Final Effluent (kg/d) | 0.261 | 0.871 | 0.281 | 0.613 | 0.224 | 0.370 | 0.156 | 0.167 | 0.223 | 0.482 | < 0.129 | < 0.155 | | < 0.328 | 0.871 | |
| Percent Removal: TP - Raw Sewage (mg/L) | 97.969 | 89.631 | 97.450 | 94.415 | 97.647 | 95.492 | 98.144 | 97.868 | 96.657 | 98.641 | 97.322 | 97.685 | | | 98.641 | |
| Nitrogen Series: | | | | | | | | | | | | | | | | |
| Raw: Avg TKN - Raw Sewage (mg/L) | 43.920 | 35.950 | 34.140 | 25.925 | 31.850 | 32.375 | 31.840 | 21.325 | 19.040 | 37.700 | 22.625 | 28.160 | | 30.404 | 43.920 | |
| Raw: # of samples of TKN - Raw Sewage (mg/L) | 5 | 4 | 5 | 4 | 4 | 4 | 5 | 4 | 5 | 4 | 4 | 5 | 53 | | | |
| Eff: Avg TAN - Final Effluent (mg/L) | < 0.687 | 3.820 | 3.035 | 4.873 | < 3.210 | 0.992 | 1.282 | < 1.201 | 0.862 | 2.510 | 3.588 | 7.980 | | < 2.837 | 7.980 | 20.0 - 15.0 - 10.0 - 15.0 - 25.0 |
| Eff: # of samples of TAN - Final Effluent (mg/L) | 5 | 4 | 5 | 4 | 4 | 4 | 5 | 4 | 5 | 4 | 4 | 5 | 53 | | | |
| Loading: TAN - Final Effluent (kg/d) | < 1.816 | 8.456 | 9.364 | 16.682 | < 8.986 | 2.446 | 2.882 | < 3.934 | 2.649 | 6.997 | 8.503 | 17.765 | | < 7.540 | 17.765 | |
| Disinfection: | | | | | | | | | | | | | | | | |
| Eff: GMD E. Coli - Final Effluent (cfu/100mL) | 10.000 | 10.000 | 10.000 | 5.623 | 10.000 | 10.000 | 10.000 | 10.000 | 10.000 | 10.000 | 10.000 | 10.000 | | 9.635 | 10.000 | 200.0 |
| Eff: # of samples of E. Coli - Final Effluent (cfu/100) | 4 | 4 | 5 | 4 | 4 | 4 | 5 | 4 | 5 | 4 | 4 | 5 | 52 | | | |

Appendix B

Calibration Reports

FIELD SERVICE REPORT

Quote Date: November 30, 2020

PAGES: 2

ACI Instrumentation Limited is pleased to provide you with our field service report for you as follows:

| | |
|-----------------------|---|
| Site Location / Date: | ON Site- Krohne Magnetic Flow Meters 13-11-2020 VERIFICATION |
|-----------------------|---|

| | | |
|------------------|--|---|
| Customer: | Stephen Bird Ontario Clean Water Agency 177 River Road Deep River Ontario. K0J 1P0 | Telephone: 613-584-3141 E-Mail Address: sbird@OCWA.com |
|------------------|--|---|

Further to our site visit on November 13, 2020, the Krohne Magnetic flowmeters all PASSED Verification using the Krohne MagCheck and GS8B simulator. The meters / converters settings as found and left after the verification process:

Size: 8 inch

Converter Model # IFC010

IFC010 - Settings as follows:

SIZE: 8 inch (200 mm)

GK: 9.089

FIELD FREQUENCY: 1/6

Current Output: 4 - 20mA

MEASUREMENT: VOLUME FLOW

RANGE: 0 to 92.58 l/sec

Time Constant: 5 sec

Counter:

Counter: ON

Measurement: Volume

Volume: m3

Size: 8 inch

Converter Model # IFC010

IFC010 - Settings as follows:

SIZE: 8 inch (200 mm)

GK: 9.346

FIELD FREQUENCY: 1/6

Current Output: 4 - 20mA

MEASUREMENT: VOLUME FLOW

RANGE: 0 to 333.3 m3/hr

Time Constant: 3 sec

Counter:

Counter: ON

Measurement: Volume

Volume: m3

Size: 8 inch

Converter Model # IFC010

IFC010 - Settings as follows:

SIZE: 8 inch (200 mm)

GK: 9.275

FIELD FREQUENCY: 1/6

Current Output: 4 - 20mA

MEASUREMENT: VOLUME FLOW

RANGE: 0 to 333.3 m3/hr

Time Constant: 3 sec

Counter:

Counter: ON

Measurement: Volume

Volume: m3

Tag # Raw Sewage

Size: 10-inch

Converter Model # IFC100W

IFC100 - Settings as follows:

SIZE: 10-inch (250 mm)

GK: 4.372

FIELD FREQUENCY: 1/6

Current Output: 4 - 20mA

MEASUREMENT: VOLUME FLOW

RANGE: 0 to 175 l/sec

Time Constant: 3 sec

Counter:

Counter: OFF

Measurement: Volume

Volume: m3

Tag # WAS

Size: 3 inch

Converter Model # IFC010

IFC010 - Settings as follows:

SIZE: 3 inch (80 mm)

GK: 2.5

FIELD FREQUENCY: 1/6

Current Output: 4 - 20mA

MEASUREMENT: VOLUME FLOW

RANGE: 0 to 60 l/sec

Time Constant: 3 sec

Counter:

Counter: OFF

Measurement: Volume

Volume: m3

Site Visit Notes:

- Hooked up MAGCHECK Vericator at each IFC010 converter and initiated the verification procedure. See attached PDF certificates and Trend reports. ALL Meters / Converters PASSED verification.
- Hooked up GS8B simulator at the IFC100W converter on the 250mm Raw Sewage flowmeter. Simulated flows and documented results of flow rate indications at converter display.

Note: See copies of GS8B simulation report attached for the Raw Sewage Flow Meter.

Should additional information be required, please feel free to contact us.

Best regards,

Angelo Valente
ACI Instrumentation Limited

ACI Instrumentation Limited

F.O.B. Gormley, Ontario; Freight and Taxes extra; Terms Net 30 Days.

This quotation is subject to ACI Instrumentation Limited standard terms and conditions of sale; prices valid for 30 days, E. & O.E.

KROHNE

Altometer

KROHNE Altometer
Production facility
of Krohne AG, BaselKerkpleat 12, 3313 LC Dordrecht
P.O. Box 110, 3300 AC Dordrecht
The NetherlandsPhone : (31) (0)78 - 63 08 331
Fax : (31) (0)78 - 63 08 384
E-mail : helpdesk@krohne-altometer.nl
Website : <http://krohne.com>**FLOWMETER VERIFICATION CHECK
CERTIFICATE****Measurement:**Operator: AJV
Date of verification: 13-11-2020
Flowmeter: DR WAS**Flowmeter:**Converter type: IFC010
Number: 00069498
Order number:
Full scale range: 60 l/s
Current output: 4 - 20
Frequency output: 0-1000 Hz
Diameter: 80 mm / 3 inch
PC: 2.5
Field frequency: 1/6
Empty pipe: No**MagCheck Info**MagCheck Serial No.: 00640486
MagCheck date of Calibration: 05-03-2020**Results:**Field current O.K.
Field frequency O.K.
ADC 25% O.K.
ADC 50% O.K.
ADC 75% O.K.
ADC 100% O.K.
Current output 4mA O.K.
Current output 20mA O.K.
Pulse output O.K.
Coil resistance O.K.
Resistance electrode 1 with filled pipe O.K.
Resistance electrode 1 with empty pipe Not measured
Resistance electrode 2 with filled pipe O.K.
Resistance electrode 2 with empty pipe Not measured
Isolation O.K.***Based on the verification results stated above, this certificate confirms that the accuracy of this electromagnetic flowmeter is within +/- 1% of the original factory calibration values***

Device identification: DEEP RIVER WAS
Medium: WAS
Converter type: IFC010
Number: 00068498
Order number:

Full scale range: 60 l/s
Current output: 4 - 20
Frequency output: 0-1000 Hz
Diameter: 80 mm / 3 inch
PC: 2,5
Field frequency: 1/6
Empty pipe: No

Field current

Nullvalue: 133.237 mA Lower limit: 132.837 mA (-0.3%) Upper limit: 133.637 mA (+0.3%)
29-08-2014: 133.179 mA (-0.05%)

Field frequency

Nullvalue: 9.187 Hz Lower limit: 7.792 Hz (-15%) Upper limit: 10.542 Hz (+15%)
29-08-2014: 9.999 Hz (-8.32%)

ADC 25%

Nullvalue: 25 % Lower limit: 24.9 % (-0.4%) Upper limit: 25.1 % (+0.4%)
29-08-2014: 24.981 % (-0.08%)

ADC 50%

Nullvalue: 50 % Lower limit: 49.8 % (-0.4%) Upper limit: 50.2 % (+0.4%)
29-08-2014: 49.964 % (-0.08%)

ADC 75%

Nullvalue: 75 % Lower limit: 74.7 % (-0.4%) Upper limit: 75.3 % (+0.4%)
29-08-2014: 74.95 % (-0.07%)

ADC 100%

Nullvalue: 100 % Lower limit: 99.6 % (-0.4%) Upper limit: 100.4 % (+0.4%)
29-08-2014: 99.941 % (-0.06%)

Current output 4mA

Nullvalue: 4 mA Lower limit: 3.968 mA (-0.3% - 0.02 mA) Upper limit: 4.032 mA (+0.3% + 0.02 mA)
29-08-2014: 3.998 mA (-0.08%)

Current output 20mA

Nullvalue: 20 mA Lower limit: 19.92 mA (-0.3% - 0.02 mA) Upper limit: 20.08 mA (+0.3% + 0.02 mA)
29-08-2014: 19.991 mA (-0.05%)

Pulse output

Nullvalue: 500 Hz Lower limit: 499 Hz (-0.2%) Upper limit: 501 Hz (+0.2%)
29-08-2014: 499.975 Hz (-0.01%)

Coil resistance

Lower limit: 30 Ohm Upper limit: 250 Ohm
29-08-2014: 104.108 Ohm

Resistance electrode 1 with filled pipe

Lower limit: 0.15 kOhm Upper limit: 250 kOhm
Electrode interruption
29-08-2014: > 21 MOhm

Resistance electrode 1 with empty pipe

29-08-2014: Not measured

Resistance electrode 2 with filled pipe

Lower limit: 0.15 kOhm Upper limit: 250 kOhm
Electrode interruption
29-08-2014: > 21 MOhm

Resistance electrode 2 with empty pipe

29-08-2014: Not measured

Isolation

Lower limit: 2 MOhm
29-08-2014: 21 MOhm

GS 8 B On-Site Verification Record

GS 8 B STANDARD SETTINGS

This spreadsheet is protected, thus entry is only allowed in accessible fields, drop-down boxes & bright green cells. To use this calculator, you will only need to input requested information in the bright green cells from your data tags. The Converter type, engineering units, diameter and frequency have drop down boxes, allowing the user to simply choose from the list. This spreadsheet will automatically choose inch or metric (depending upon the converter), and state which GK(L) to use. Printing of the programming results is allowed by simply choosing "Print" through your File menu.

Important: If there is a flowrate value present at the GS8 B zero flow setting, you must compensate to obtain proper evaluation values. Either manually set converter zero value entry/(record original for restoration) or zero converter (zero calibration to be redone for reconnect with primary head). If unable to manually set zero value entry or redo zero calibration after reconnecting, then use the offset-compensated tables on second sheet of this spreadsheet (Calculator + Zero Compensation). Be aware for possible low flow cutoff setting effects.

Date Recorded: 13/11/2020 Serial #: S16319115 Tag #: Raw Sewage
 Flow Tube Model #: Aquaflex 2000F Commission #: Tested by: A. Valente

| INPUT VARIABLES | | DATA INPUT AREAS (in green) | |
|------------------------|---|--------------------------------|---|
| Converter | = | IFC-100 | |
| Q Fullscale | = | 175 | liters/sec |
| Select Meter Dia. | = | | Inch mm |
| DN | = | 250 | mm |
| Diameter | = | 10 | Inch (ref only) |
| I _{bx} | = | 4 | mA |
| I _{100%} | = | 20 | mA |
| P _{100%} (ft) | = | | Hz |
| GK | = | | <do not use |
| GKL | = | 4.3720 | <use GKL |
| K | = | | Value automatically chosen from K value table |

$$X = \frac{Q_{100\%} \cdot K \cdot F}{GK(L) \cdot DN^2} = \frac{1462053.283}{273250} = 5.351$$

$$Y_{MAX} = \frac{Output Current}{Max Knob Setting} = \frac{5.0}{D}$$

| | | |
|------------------|---|--------------------|
| Output Current | = | 18.952 mA |
| Output Frequency | = | |
| Output Flow Rate | = | 163.533 liters/sec |

| GS 8 B Knob Setting | Calculated Current Output (mA) | Calculated Frequency Hz | Calculated Flowrate (liters/sec) | Observed Selected I/O | | Deviation Evaluation Flow Rate |
|---------------------|--------------------------------|-------------------------|----------------------------------|-----------------------|-----------|--------------------------------|
| | | | | Flow Rate | Flow Rate | |
| 0 | 4.000 | . | 0.00 | 0.000 | | 0.000 |
| A | 5.495 | . | 16.35 | 16.340 | | -0.08% |
| B | 6.990 | . | 32.71 | 32.700 | | -0.02% |
| C | 9.981 | . | 65.41 | 65.400 | | -0.02% |
| D | 18.952 | . | 163.53 | 163.520 | | -0.01% |
| E | | . | | | | |

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