ANNUAL REPORT

ARTHUR
WASTEWATER TREATMENT PLANT

FOR THE PERIOD:
MAY 1, 2019 – APRIL 30, 2020

Prepared for the Township of Wellington North
by the Ontario Clean Water Agency

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

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1. System Description

The Arthur Wastewater Treatment System begins with the Inlet Works feeding into two (2) Grit Channels that feed towards a comminutor, complete with a bypass screen for when the comminutor is offline.

The first treatment step consists of two (2) cell annular ring type aeration tanks, equipped with fine bubble air diffusion systems. At this stage, chemicals are added for phosphorus removal via chemical metering pumps. Treated effluent is then fed into a Final Clarifier which contains sludge collection units and a scum skimming mechanism for sludge management. Effluent is then directed through an effluent filter system (granular media filter modules) and a UV Disinfection System for microbiological control. Treated effluent is then directed to an Outfall Sewer via gravity during discharge periods; when discharge is not possible, effluent is pumped towards Sewage Lagoons for storage.

A return sludge and waste sludge pumping system handles any collected sludge from the treatment stages and directs it towards two (2) aerobic sludge digestors and four (4) sludge storage tanks for approved haulage as required.

An overview of the Arthur Wastewater Treatment System can be found in the following table:

Table 1: Arthur WWTP System Overview

Facility Name	Arthur Wastewater Treatment Plant
Facility Type	Extended Aeration, Sand Filtration, Chemical Phosphorus Removal, and UV Treatment
Plant Classification	III
Works Number	110000882
Rated Capacity	1,465 m^3/d
Discharge Point	Conestogo River
Environmental Compliance Approval	3773-ABJKXX (November 28, 2016) 7654-BEMKVD (September 10, 2019)

2. Monitoring Data Influent

ECA 7654-BEMKVD, Section 13 (4)(a):

"a summary and interpretation of all Influent, Processed Organic Waste monitoring data, and a review of all historical trend of the sewage characteristics and flow rates;"

2.1 Monitoring Program Influent

The following tables outline the monitoring programs at the Arthur Wastewater Treatment Plant (WWTP) as required by the ECA that was issued for the reporting period. There are additional in-house samples taken and analyzed in-house throughout the year in order to help with process performance monitoring, adjustment, and optimization. The parameters were analyzed by an accredited analytical laboratory (SGS Canada Inc., Lakefield, Ontario).

Table 2: Influent Monitoring Program – Discharge of Inlet Sewer

Parameters	Sample Type	Frequency
Biochemical Oxygen Demand (BOD_5)	24-hour Composite	Monthly
Total Suspended Solids (TSS)	24-hour Composite	Monthly
Total Phosphorous (TP)	24-hour Composite	Monthly
Total Kjeldahl Nitrogen (TKN)	24-hour Composite	Monthly

Table 3: Influent Monitoring Program – Pond Influent Liquid (When discharging to the Holding Pond)

Parameters	Sample Type	Frequency
Carbonaceous Biochemical Oxygen Demand ($CBOD_5$)	Grab	Monthly
Total Suspended Solids (TSS)	Grab	Monthly
Total Phosphorous (TP)	Grab	Monthly
Total Ammonia Nitrogen (TAN)	Grab	Monthly
Nitrite-Nitrogen	Grab	Monthly
Total Kjeldahl Nitrogen (TKN)	Grab	Monthly
Hydrogen Sulfide (when odour present)	Grab/Probe	Monthly
Dissolved Oxygen	Grab/Probe	Monthly
pH	Grab/Probe	Monthly
Temperature	Grab/Probe	Monthly

2.2 Sewage Characteristics

A summary of the influent laboratory results can be seen in the following tables:

Table 4: Influent Lab Analysis – Discharge of Inlet Sewer

Month & Year	TP (mg/L)	BOD_5 (mg/L)	TSS (mg/L)	TKN (mg/L)
May 2019	9.02	193.00	139.00	27.30
June 2019	5.30	238.00	188.00	35.80
July 2019	7.97	341.00	237.00	50.80
August 2019	10.60	282.00	215.00	48.00
September 2019	6.06	241.00	162.00	46.00
October 2019	4.64	193.00	148.00	30.20
November 2019	5.53	194.00	180.00	34.40
December 2019	3.92	216.00	148.00	29.60
January 2020	4.12	202.00	109.00	41.50
February 2020	4.19	229.00	171.00	34.30
March 2020	2.52	239.00	136.00	30.50
April 2020	2.52	109.00	89.00	18.00
Annual Average	**5.53**	**223.08**	**160.17**	**35.53**

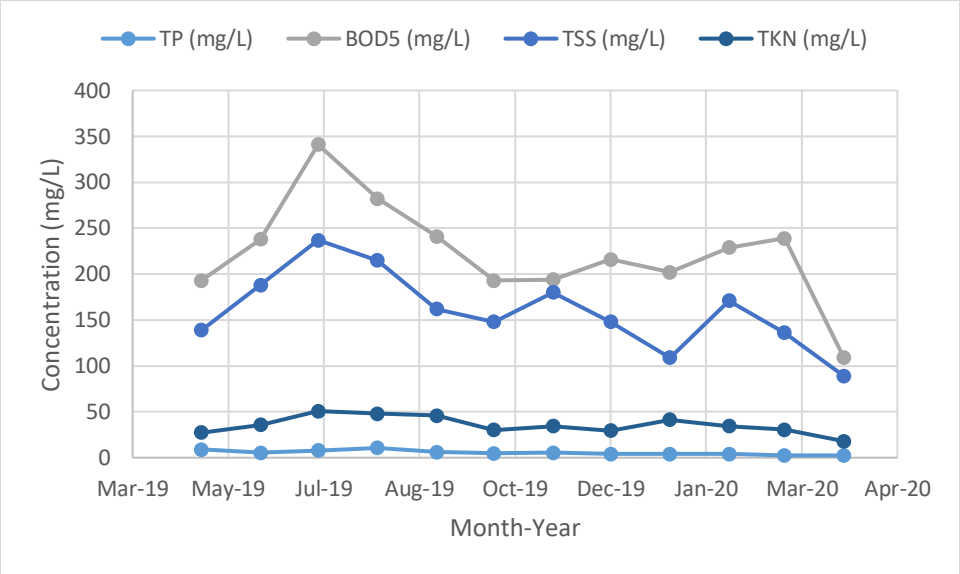
Table 5: Influent Lab Analysis – Pond Influent Liquid during Retention Period

Month & Year	$CBOD_5$ (mg/L)	TSS (mg/L)	TP (mg/L)	TAN (mg/L)	NO_{3-} (mg/L)	NO_{2-} (mg/L)	TKN (mg/L)	DO (mg/L)	pH
May 2019	5.00	9.00	0.13	3.60	0.63	1.33	3.60	8.70	8.25
June 2019	5.00	3.00	0.08	0.10	24.10	0.08	0.70	6.20	8.08
July 2019	2.00	6.00	0.14	6.60	5.97	0.70	8.50	7.90	7.94
August 2019	4.00	7.00	0.77	1.10	13.90	0.37	4.10	7.80	8.24
Annual Average	**4.00**	**6.25**	**0.28**	**2.85**	**11.15**	**0.62**	**4.23**	**7.65**	**8.13**

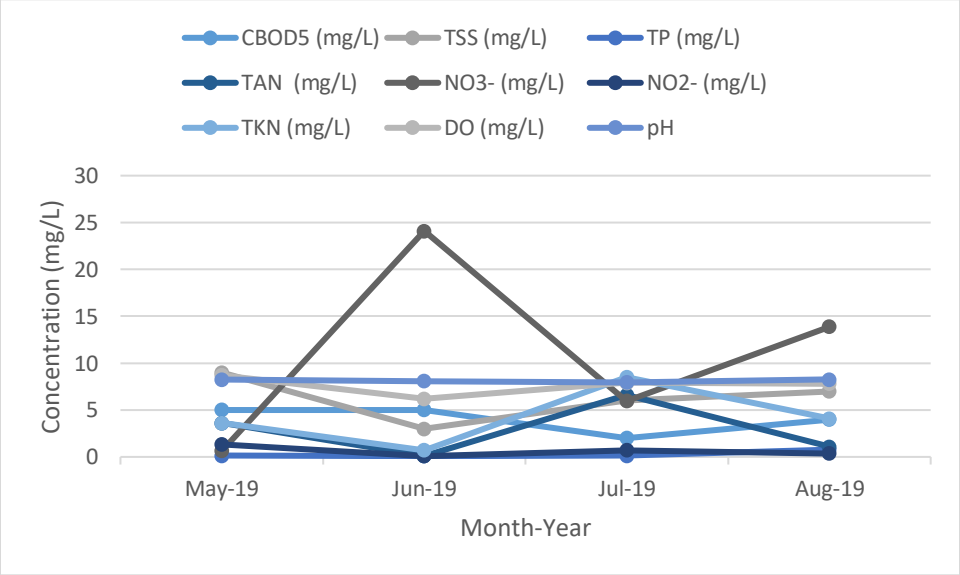
Inlet Sewer lab analysis throughout the year averaged a Total Phosphorus (TP) of 5.53 mg/L, a Biochemical Oxygen Demand of 223.08 mg/L, a Total Suspended Solids (TSS) concentration of 160.17 mg/L, and a Total Kjeldahl Nitrogen concentration of 35.53 mg/L.

During influent retention periods, the pond received average concentrations of $CBOD_5$ at 4.00 mg/L, TSS at 6.25mg/L, TP at 0.28 mg/L, TAN at 2.85 mg/L, NO_{3-} at 11.15 mg/L, NO_{2-} at 0.62 mg/L, TKN at 4.23 mg/L, DO at 7.65 mg/L and an average pH of 8.13.

Graph 1: Chemical Parameters Lab Results (Influent) – Discharge of Inlet Sewer



Graph 2: Chemical Parameters Lab Results (Influent) – Pond Influent Liquid during Retention Period



2.3 Influent Flows

Table 6: Influent Flows

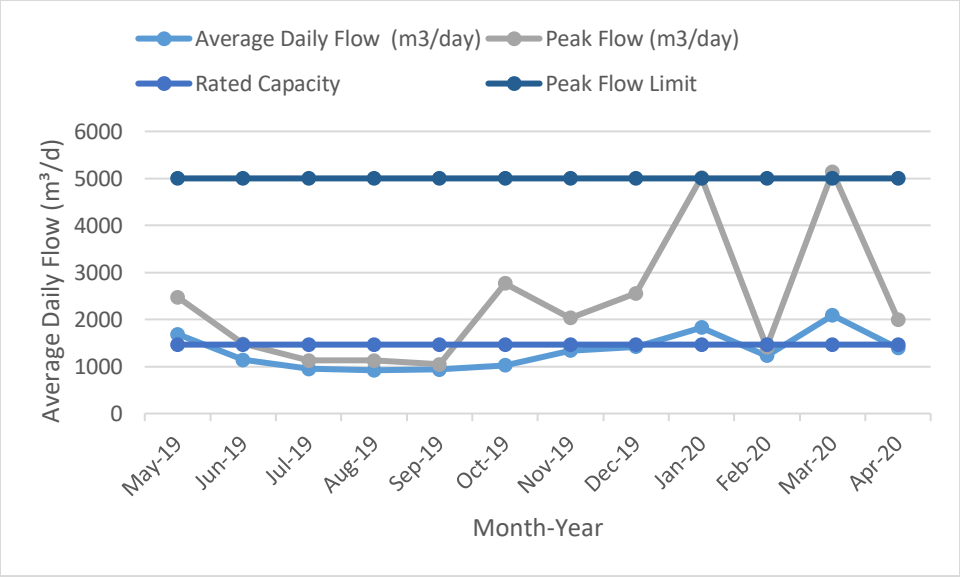
Month	Average Daily Flow (m^3/day)	Peak Flow (m^3/day)	Total Flow (m^3)
May 2019	1683.78	2471.40	52197.20
June 2019	1140.15	1482.60	34204.49
July 2019	949.01	1124.00	29419.28
August 2019	919.76	1126.50	28512.60
September 2019	933.46	1047.63	28003.74
October 2019	1024.71	2765.30	31766.02
November 2019	1336.75	2035.40	40102.36
December 2019	1419.77	2556.60	44012.98
January 2020	1828.94	5021.10	56697.15
February 2020	1228.15	1410.20	35616.30
March 2020	2088.39	5138.72	64740.15
April 2020	1393.10	1999.70	41792.88
Annual Average	**1328.83**	**-**	**-**
Annual Max	**-**	**5138.72**	**-**
Annual Total	**-**	**-**	**487065.15**

The average daily flow for the reporting period was 1328.83 m^3, which is approximately 90.71% of the specified design flow of 1465 m^3/day. The highest recorded Monthly Average Daily Flow was in March at 2088.39 m^3 and was due to heavy rain and increased inflows from the seasonal melt.

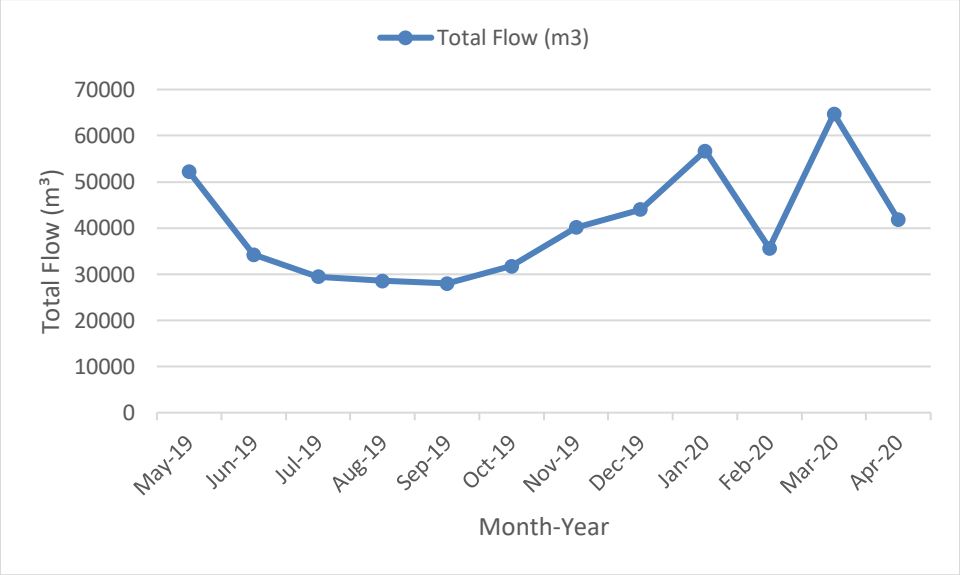
There were no instances when the daily peak of 6500 m^3 was exceeded. The highest recorded peak flow of 5021.0 m^3/day occurred in January 2020. This maximum peak flow is approximately 77.25% of the approved Peak Flow Rating for the Works.

Please refer to below for graphical representation of influent flows for the reporting period:

Graph 3: Influent: Average Daily Flows & Peak Flows Versus Designed Limits for Reporting Period



Graph 4: Influent: Total Flows for the Reporting Period



3. Monitoring Data Effluent

ECA 7654-BEMKVD, Section 13 (4)(b):

"a summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, loading and a comparison to the design objectives and compliance limits in this Approval, including an overview of the success and adequacy of the Works;"

3.1 Monitoring Program Effluent

The following table outlines the effluent limits at the Arthur Wastewater Treatment Plant as per its ECA. The applicable effluent parameters are either "concentrations" expressed as milligrams per litre or "loadings" expressed as kilograms per day, and they are reportable either "Annually," "Monthly," or "Daily."

Table 7: Arthur WWTP Effluent Limits

Source	Parameter	Monthly Average Concentration (mg/L)	Annual Average Concentration (mg/L)	Annual Average Waste Loading (Kg/d)
Final Effluent	$CBOD_5$	15	10	14.65
	Total Suspended Solids	15	10	14.65
	Total Phosphorus	1	1	1.47
	Total Ammonia Nitrogen	2.3	1.5	2.20
	E. coli	200	n/a	n/a
	pH	6.0 to 9.5, inclusive		

$CBOD_5$ = Carbonaceous Biochemical Oxygen Demand

3.2 Effluent Results During Discharge Periods

The following tables outline the Monthly Averages and Annual Averages for the 2019 – 2020 reporting period at the Arthur WWTP:

Table 8: Carbonaceous Biochemical Demand Concentrations versus ECA Limits

	Monthly Average Concentration (mg/L)	Within Monthly Limits? (15 mg/L)	Within Annual Limits? (10 mg/L)	Monthly Average Loading (kg/d)	Within Annual Limit? (14.65 kg/d)
September 2019	4.50	Yes	-	0.982	-
October 2019	4.00	Yes	-	1.388	-
November 2019	2.00	Yes	-	4.349	-
December 2019	3.60	Yes	-	11.829	-
January 2020	3.50	Yes	-	10.999	-
February 2020	7.75	Yes	-	31.895	-
March 2020	11.00	Yes	-	46.826	-
April 2020	8.75	Yes	-	21.019	-
Annual Average	**5.64**	**-**	**Yes**	**16.161**	**No**

Table 9: Total Suspended Solids Concentrations versus ECA Limits

	Monthly Average Concentration (mg/L)	Within Monthly Limits? (15 mg/L)	Within Annual Limits? (10 mg/L)	Monthly Average Loading (kg/d)	Within Annual Limit? (14.65 kg/d)
September 2019	7.00	Yes	-	1.528	-
October 2019	4.50	Yes	-	1.562	-
November 2019	3.25	Yes	-	7.067	-
December 2019	4.40	Yes	-	14.457	-
January 2020	3.75	Yes	-	11.785	-
February 2020	6.50	Yes	-	26.750	-
March 2020	11.00	Yes	-	46.826	-
April 2020	**22.00**	**No**	-	52.848	-
Annual Average	**7.80**	**-**	**Yes**	**20.353**	**No**

Table 10: Total Phosphorus Concentrations versus ECA Limits

	Monthly Average Concentration (mg/L)	Within Monthly Limits? (1 mg/L)	Within Annual Limits? (1 mg/L)	Monthly Average Loading (kg/d)	Within Annual Limit? (1.47 kg/d)
September 2019	0.490	Yes	-	0.107	-
October 2019	0.150	Yes	-	0.052	-
November 2019	0.198	Yes	-	0.429	-
December 2019	0.206	Yes	-	0.677	-
January 2020	0.188	Yes	-	0.589	-
February 2020	0.688	Yes	-	2.829	-
March 2020	0.378	Yes	-	1.607	-
April 2020	0.423	Yes	-	1.015	-
Annual Average	**0.340**	**-**	**Yes**	**0.913**	**Yes**

Table 11: Total Ammonia Nitrogen Concentrations versus ECA Limits

	Monthly Average Concentration (mg/L)	Within Monthly Limits? (2.3 mg/L)	Within Annual Limits? (1.5 mg/L)	Monthly Average Loading (kg/d)	Within Annual Limit? (2.2 kg/d)
September 2019	7.80	**No**	-	1.703	-
October 2019	0.25	Yes	-	0.087	
November 2019	3.10	**No**	-	6.740	-
December 2019	4.94	**No**	-	16.231	-
January 2020	3.55	**No**	-	11.156	-
February 2020	6.40	**No**	-	26.339	-
March 2020	5.05	**No**	-	21.497	-
April 2020	5.33	**No**	-	12.792	-
Annual Average	**4.55**	**-**	**No**	**12.068**	**No**

Table 12: *E. coli* Concentrations versus ECA Limits

	Monthly Average Concentration (CFU/100mL)	Within Monthly Limits? (200 CFU/ 100mL)
September 2019	33	Yes
October 2019	2	Yes
November 2019	87	Yes
December 2019	307	**No**
January 2020	176	Yes
February 2020	477	**No**
March 2020	780	**No**
April 2020	34	Yes

Table 13: pH Ranges versus ECA Limits

	pH Ranges	Within Limits? (6.00 – 9.50)
September 2019	7.46 – 8.08	Yes
October 2019	7.19 – 8.11	Yes
November 2019	7.22 – 8.16	Yes
December 2019	7.02 – 8.20	Yes
January 2020	7.12 – 8.22	Yes
February 2020	7.07 – 8.24	Yes
March 2020	7.13 – 8.15	Yes
April 2020	7.31 – 8.16	Yes

3.3 Success & Adequacy of the System

The parameters $CBOD_5$, Total Suspended Solids (TSS), and Total Phosphorus (TP) for effluent discharges were within the limits outlined by the ECA for the majority of the year, with removal rates between 75% - 98%. However, annual loading limits for $CBOD_5$ and TSS were exceeded for the reporting years discharge period.

The singular TSS exceedance was primarily due to the bottom solids being drawn from the storage lagoon, leading to higher than normal influent TSS concentrations being ran through the plant. The intent was to get the storage lagoon to lower water levels for future maintenance and upgrades for the remainder of the 2020 year. Discharge was ceased shortly after the confirmed exceedance.

E. coli concentrations reached a maximum of 780 CFU/100mL in March 2020, exceeding the compliance limit of 200 CFU/100mL. During the seasonal discharge period, colony counts exceeded the limit 3 out of the 8 months of discharge.

Despite best efforts, Total Ammonia Nitrogen (TAN) concentrations were out of compliance 7 out of the 8 months of discharge. As a result, the Annual Limit for TAN was also exceeded. This set of exceedances is part of an ongoing investigation of unusual plant loading occurring at the beginning of 2019.

Please refer to **Section 3** of this report for more details regarding the discharge period exceedances.

Refer to Appendix A for a detailed performance assessment report.

3.4 Effluent Flows - Discharges

The following table outlines the effluent flow discharge data for the 2019 – 2020 reporting season:

Table 14: Effluent Discharge Summary

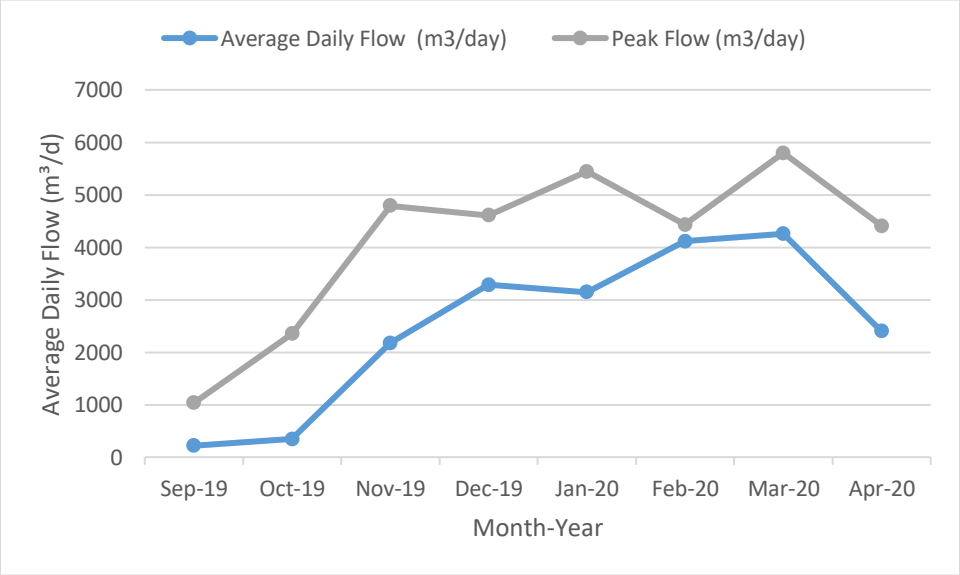
Month	Average Daily Flow (m^3/day)	Peak Flow (m^3/day)	Total Flow (m^3)
September 2019	218.31	1033.10	6549.21
October 2019	347.02	2350.10	10757.74
November 2019	2174.34	4791.70	65230.10
December 2019	3285.71	4608.30	101856.90
January 2020	3142.57	5443.80	97419.70
February 2020	4115.46	4429.90	119348.20
March 2020	4256.93	5799.20	131964.80
April 2020	2402.16	4404.90	72064.91
Annual Average	**1661.87**	-	-
Annual Max	-	**5799.20**	-
Annual Total	-	-	**605191.56**

The average daily effluent flow for the 2019 – 2020 reporting period was 1661.87 m^3/d, with the highest peak flow at 5799.20 m^3/d recorded during the month of March 2020. Total discharge flow for this reporting period was 605,191.56 m^3

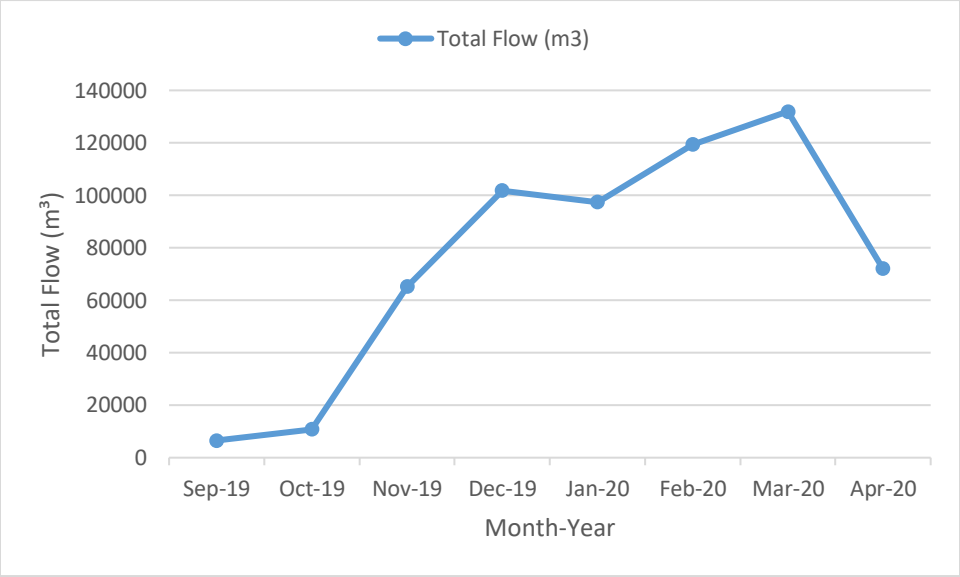
Discharge periods occurred between the ECA-allotted time frame of September 16 to April 30, following the ammonia-based discharge curves generated by the Ministry. The design discharge limit of 6500 m^3/d was not exceeded during this reporting period.

Please see Appendix B for the Daily Discharge Summary

Graph 5: Effluent Discharge Flow: Average Daily Flow and Peak Flow for Discharge Period



Graph 6: Effluent Discharge Flow: Total Flow for Discharge Period



4. Annual Update to the Stage-Discharge Curve

ECA 7654-BEMKVD, Section 13 (4)(c):

"a summary of the annual update to the stage-discharge curve as required in Paragraph 9 (e);"

e. The Owner shall operate, calibrate and maintain the Conestogo River at Arthur hydrometric station (17T 536350E 4853113N) and collect and record daily streamflow measurements for that station or for any replacement gauging station approved by the District Manager.

The Conestogo River Arthur hydrometric station equipment is calibrated as per manufacturer's recommendations. Monitoring and metering equipment is also calibrated by a third party on an annual basis. Preventative maintenance is scheduled for all equipment at the sewage treatment plant and pumping stations at regular frequency (frequency depends on the equipment and type of maintenance). Maintenance activities are scheduled within the work management system Maximo, upon completion, Operators set the work order to complete. On a monthly basis, preventative work orders are reviewed for completion.

Flowmetrix Technical Services Inc. successfully calibrated the hydrostatic station measuring equipment on September 24, 2019.

Refer to Appendix E for the Calibration Reports.

Operators collect and record daily streamflow measurements for the Conestogo River hydrometric station on their daily check sheets and entered in OCWA's PDM (WISKI) Management System.

Table 15: Conestogo River Streamflow Measurements

Month	Monthly Minimum Daily River Height (cm)	Monthly Average Daily River Height (cm)	Monthly Max Daily River Height (cm)
May 2019	23.09	38.54	63.76
June 2019	12.39	17.93	31.46
July 2019	10.62	11.78	13.30
August 2019	11.49	12.66	15.18
September 2019	11.55	13.28	14.73
October 2019	10.64	17.74	59.31
November 2019	24.71	36.69	75.48
December 2019	23.86	41.72	84.16
January 2020	29.77	49.43	168.28
February 2020	27.02	28.93	34.90
March 2020	29.14	54.50	127.98
April 2020	27.36	39.27	47.88
Annual Minimum	**10.62**	**-**	**-**
Annual Average	**-**	**30.25**	**-**
Annual Max	**-**	**-**	**168.28**

Refer to Appendix I for Report of Daily Streamflow Measurements

5. Monitoring Schedule

ECA 7654-BEMKVD, Section 13 (4)(d):

"a summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year;"

Operations staff at the Arthur WWTP maintained a sampling schedule where samples were taken on Thursdays for the majority of the reporting period. Fluctuations on sample dates were due to the additional raw sampling/investigation sampling done throughout the year, as well as operator shift coverage which may have staggered the dates.

Please find the attached Sampling Calendar prepared for 2020 in Appendix C

6. Operating Problems & Corrective Actions

ECA 7654-BEMKVD, Section 13 (4)(e):

"a summary of all operating issues encountered and corrective actions taken;"

6.1 UV Disinfection Efficiency

During the discharge period of January 2020, the UV lamps became blocked by excess algae and debris while effluent was passing through the discharge channel. Despite regular cleaning and turning on both UV banks, the effluent discharge remained cloudy, resulting in less than effective disinfection during periods of discharge.

The UV System was serviced around March 2020 following a previous exceedance, resulting in a drastic drop in colony counts in the April 2020 monthly geometric mean (34 CFU/100mL). Operations staff have been persistent in monitoring the UV channels, and have since implemented a more regular cleaning of the UV channels to prevent future exceedances, as well as stronger checks to ensure the units are in good working condition. Following an increase in cleaning frequencies, scheduled upgrades, and addressing current loading issues, it is expected *e. Coli* exceedances will be lessened in future discharge periods.

6.2 Golden Valley Farms and Influent Loading

Starting in January 2019, it was noted that Total Ammonia Nitrogen levels were exceeding the ECA limit due to abnormally concentrated influent, which disrupted the nitrification processes at the plant.

Golden Valley Farms, an industrial meat processing plant, has been discharging into the Sewage Collection Systems since its establishment. It was suspected that the processing plant had been contributing higher than normal loadings to the plant, causing process upsets. Further investigations with regular extra raw sampling confirmed abnormally concentrated influent from the processing plant.

On January 7, 2020 Golden Valley approved an onsite composite sampler be installed for our operations staff to sample their effluent discharges and aid in troubleshooting their treatment processes. Golden Valley has also been working closely with the chemical supplier to improve effluent output.

Please refer to Appendix D for a summary of lab results from Golden Valley Farms and a copy of the Wellington North Sewer Use By-law.

Please note, sampling parameters were adjusted based on troubleshooting methods and in reference to the Wellington North Sewer-use Bylaw.

OCWA is in continuous talks with the Township and Golden Valley to address this issue, with investigative sampling continuing well into 2020. It is suspected, after substantial completion of the Arthur WWTP upgrades under the new ECA (9614-B5FJV7), capacity and treatment capabilities of the plant will improve to further mitigate any future loading issues.

7. Major Maintenance Activities

ECA 7654-BEMKVD, Section 13 (4)(f):

"a summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus or mechanism forming part of the Works;"

7.1 Work Management System

Planned maintenance, including scheduled and non-scheduled maintenance activities are scheduled using a computerized Work Management System (WMS) that allows user to:

- Enter detailed asset information
- Generate and process work orders
- Access maintenance and inspection procedures
- Plan, schedule, and document all asset related tasks and activities

- Access maintenance records and asset histories

Work Orders are automatically generated by the WMS program and are assigned to the applicable Operations staff accordingly.

7.2 Preventative Maintenance

There were a number of major maintenance tasks throughout 2019 – 2020 reporting period. They are as follows:

- Annual sewage pumping station cleanouts
- Annual Generator inspections and load testing
- Annual calibrations
- UV inspection and servicing
- Alum Tank and Lagoon Chamber cleanout
- Semi-annual Lagoon Perimeter Inspection

7.3 Repairs & Improvements

There were a number of repairs and/or improvements made in the 2019 – 2020 reporting period. They are as follows:

- Diesel Generator cooling system repairs
- Well Street Pump Station SLP #2 repairs
- Well Street Service Pump #2 repairs
- Air lifts from Sand Filters repairs
- Effluent Pump repairs
- Fredrick Street Pump Station VFD replacement
- Well Street Pump Station Flight Rails repairs

8. Effluent Quality Assurance & Control

ECA 7654-BEMKVD, Section 13 (4)(g):

"a summary of any effluent quality assurance or control measures undertaken;"

The Ontario Clean Water Agency (OCWA) operates the Arthur Wastewater Treatment Plant in accordance with provincial regulations.

- Use of Accredited Laboratories: analytical tests to monitor the effluent quality are conducted by a laboratory audited by the Canadian Association for Laboratory Accreditation Inc. (CALA) and accredited by the Standards Council of Canada (SCC). Accreditation ensures that the laboratory has acceptable laboratory protocols and test methods in place. It also requires the laboratory to provide evidence and assurances of the proficiency of the analysts performing the test methods. During this monitoring period (May 1, 2019 to April 30, 2020), all chemical sample analyses were conducted by SGS (Lakefield) Canada Inc.

- Operation by Licensed Operators: Arthur WWTP is operated and maintained by the Ontario Clean Water Agency's licensed Operation Staff. The mandatory licensing program for operators of sewage treatment facilities in Ontario is regulated under the Ontario Water Resources Act (OWRA) Regulation 435/93 and Ontario Regulation 129/04. Licensing means that an individual meets the education and experience requirements and has successfully passed the certification exam. The Georgian Highlands Region of the Ontario Clean Water Agency operates the sewage works from their Highlands Hub Office in Shelburne, Ontario using only Licensed Operators. Refer to the following table summarizing current Operations staff licensing for the Arthur WWTP:

Table 16: Operator Licensing for the Arthur WWTP

Operator	Level	Certificate #	Expiry Date
Dwight Hallahan	WWT 2 WWC 1	15499 16002	Apr 30, 2022 Oct 31, 2022
Dan Yake	WWT 2 WWC 1	57390 69121	July 31, 2022 Jan 31, 2023
Steve Miller	WWT 4 WWC 2	15422 17899	Jan 31, 2022 Jan 31, 2022

- Sampling and Analytical Requirements: OCWA followed a sampling and analysis schedule required by the Environmental Compliance Approval.

- Use of In-House Laboratory: in-house tests are conducted by Licensed Operators for monitoring purposes using Standard Methods. The data generated from these tests is used to determine the treatment efficiency while maintaining process control. All in-house monitoring equipment is calibrated based on the manufacturer's recommendations. The Operators of the facility will continue to use their expertise in order to meet our objective of no exceedances of the ECA Effluent Compliance Limits and future Compliance Objectives.

9. Calibration & Maintenance Procedures

ECA 7654-BEMKVD, Section 13 (4)(h):

"a summary of the calibration and maintenance carried out on all Influent and Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer;"

All in-house monitoring equipment is calibrated as per manufacturer's recommendations. Monitoring and metering equipment is also calibrated by a third party on an annual basis. Preventative maintenance is scheduled for all equipment at the sewage treatment plant and pumping stations at regular frequency (frequency depends on the equipment and type of maintenance). Maintenance activities are scheduled within the work management system Maximo, upon completion, Operators set the work order to complete. On a monthly basis, preventative work orders are reviewed for completion.

Flowmetrix Technical Services Inc. successfully calibrated flow measuring equipment on September 24, 2019.

Refer to Appendix E for the Calibration Reports.

10. Design Objective Requirements

ECA 7654-BEMKVD, Section 13 (4)(i):

"a summary of efforts made to achieve the design objectives in this Approval, including an assessment of the issues and recommendations for pro-active actions if any are required under the following situations":

i. When any of the design objectives are not achieved more than 50% of the time in a year, or there is an increasing trend of deterioration of Final Effluent quality;

ii. When Annual Average Daily Influent Flow reaches 80% of the Rated Capacity;"

Arthur WPCP currently has no objectives under the old ECA 3773-ABJKKX (November 28, 2016) parameters. At this time Phase 1 construction has not been completed. Best efforts will be made to meet the objectives under the new ECA 7654-BEMKVD (September 10, 2019) once Phase 1 construction onwards improves plant performance and output effluent quality.

The average daily flow for the reporting period was 1328.83 m^3, which is approximately 90.71% of the specified design flow of 1465 m^3/day. The highest recorded Monthly Average Daily Flow was in March at 2088.39 m^3 and was due to heavy rain and increased inflows from the seasonal melt.

There were no instances when the daily peak of 6500 m^3 was exceeded. The highest recorded peak flow of 5021.0 m^3/day occurred in January 2020. This maximum peak flow is approximately 77.25% of the approved Peak Flow Rating for the Works.

Refer to Appendix A for detailed performance assessment.

11. Sludge Generation

ECA 7654-BEMKVD, Section 13 (4)(j):

"a tabulation of the volume of sludge generated, 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;"

The table below shows a summary of sludge haulage for the 2019-2020 reporting period:

Table 17: Sludge Haulage

Date	NASM #	Volume Hauled (m^3)	Comments
10/05/2019	n/a	90.00	Hauled by Saugeen Agri Service
06/06/2019	W1007	801.00	Hauled by Wessuc
07/10/2019	W2001	222.50	Hauled by Wessuc
08/10/2019	W2001	534.00	Hauled by Wessuc
25/11/2019	n/a	132.26	Hauled by Saugeen Agri Service
19/12/2019	n/a	121.04	Hauled by Saugeen Agri Service
17/01/2020	n/a	119.63	Hauled by Saugeen Agri Service
24/02/2020	n/a	109.21	Hauled by Saugeen Agri Service
08/04/2020	n/a	61.35	Hauled by Saugeen Agri Service
09/04/2020	n/a	61.35	Hauled by Saugeen Agri Service
14/04/2020	n/a	61.35	Hauled by Saugeen Agri Service
16/04/2020	n/a	61.35	Hauled by Saugeen Agri Service
	Total:	**2375.04**	

Digested sludge produced at the Arthur Wastewater Treatment Plant is land-applied in accordance with the Nutrient Management Act 2002 and Ontario Regulation 267/03. Additional sludge haulage is directed towards Lystek International Inc., located in Dundalk, Ontario. This facility converts biosolids into "market ready" fertilizer products.

Grab samples of digested (aerobic) sludge are collected and tested as per these guidelines. During the reporting period, sludge sample analysis was carried out by SGS Lakefield Research Limited. A summary of sludge sample results is provided in **Appendix F.**

Two haulers were used during the 2019 – 2020 reporting period:

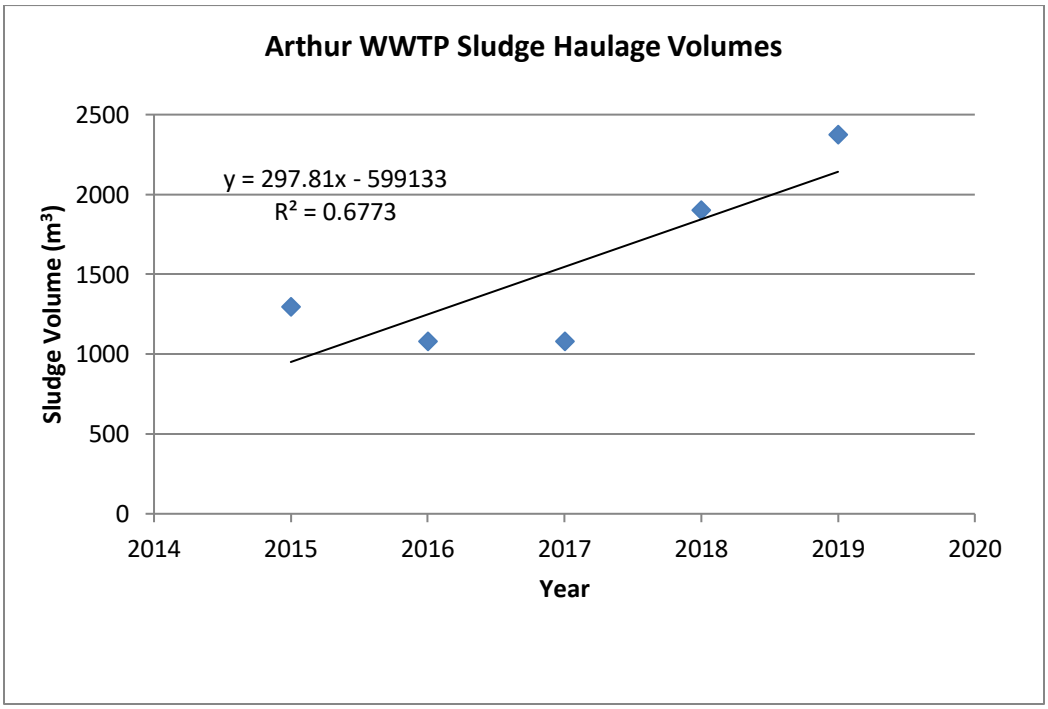
- Wessuc Environmental Services Inc. - Certificate of Approval: Waste Management System #1603-4LGJBN
- Eden Environmental Services Ltd. - Certificate of Approval: Waste Management System #9566-6HYKC3

The Certificate of Approval for the Mount Forest Sludge Storage Facility #7965-5EKNUW allows the storage of sludge from the Arthur WWTP. There was no sludge stored at the Mount Forest facility for this reporting period.

Trending sludge production can be seen in Figure 1. Please note: the reporting year noted on the X-axis is the first year of the reporting period, meaning 2019 would include the period from May 2019 to April 2020.

Based on the design flow, predicted sludge haulage, average wastewater quality and a linear regression with an R^2 value of 67.73%, the anticipated volume to be generated in the next reporting period is approximately 2443.20 m^3.

Figure 1: Arthur WWTP Sludge Haulage Trending



12. Community Complaints

ECA 7654-BEMKVD, Section 13 (4)(k):

"a summary of any complaints received any steps taken to address the complaints;"

There is a standard operating (SOP) in place that outlines the steps required for receiving and addressing community complaints. All complaints are to be discussed and/or investigated, and resolved as required. The community complaint is logged in detail in the facility logbook and then various details are entered into OCWA's electronic database system "OPEX." This database contains the history of all complaints with the relevant information enclosed.

There was one complaint registered for the Arthur WWTP during the 2019 - 2020 reporting period:

- August 12, 2019 – A strong odour was described by the resident, to which the wastewater plant was suspected to be the source. The responding Operator noted no odours at the plant during the time of the complaint. Upon further investigation, the source of the odour was likely the Chicken Farm and/or All Treat Farms, located close to the resident's home. Resident was satisfied with the response.

Please see Appendix G for the full OPEX Report

13. By-pass, Spill or Abnormal Discharge Events

ECA 7654-BEMKVD, Section 13 (4)(l):

"a summary of all By-pass, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events;"

13.1 By-pass events

There were no by-pass events during the reporting period.

13.2 Overflow events

Two overflow events were noted during the reporting period:

January 13, 2020 – Fredrick Street Pump Station overflow event due to heavy precipitation with untreated sewage. Approximately 783.0 m^3 was overflowed from the station over a 15 hour duration. Continuous monitoring of the situation, chlorine pucks, and a VAC truck was used to control the overflow. Overflow was sampled as required.

March 12, 2020 – Fredrick Street Pump Station overflow event due to heavy precipitation with untreated sewage. Approximately 313.2 m^3 was overflowed from the station over a 6 hour duration. Continuous monitoring of the situation, chlorine pucks, and a VAC truck was used to control the overflow. Overflow was sampled as required.

All overflow events were reported to SAC and the MECP.

Please see Appendix H for the full OPEX Report

13.3 Spills

There were no spills during the reporting period.

13.4 Abnormal Discharge Events

There were no abnormal discharge events during the reporting period.

14. Notice of Modifications

ECA 7654-BEMKVD, Section 13 (4)(m):

"a summary of all Notice of Modifications to the Sewage Works completed under Paragraph 1.d. of Condition 10, including a report on status of implementation of all modification;"

There were no Notice of Modifications under Schedule B, Section 1 submitted during this reporting period.

14.1 Modification Completion Reports

There were no modifications completed under Schedule B, Section 3 during this reporting period.

15. Conformance with Procedure F-5-1

ECA 7654-BEMKVD, Section 13 (4)(n):

"a summary of efforts made to achieve conformance with Procedure F-5-1 including but not limited to projects undertaken and completed in the sanitary sewer system that result in overall Bypass/Overflow elimination including expenditures and proposed projects to eliminate Bypass/Overflows with estimated budget forecast for the year following that for which the report is submitted;"

Sanitary Sewage Pumping Stations
Frederick Street Pumping Station and Forcemain
Upgrade to the existing Frederick Street Pumping Station having a firm capacity of 110 L/s, located at 176 Frederick Street West, comprising;

- Construction of a new wet well having dimension of 5.5m x 5.3m x 7.2m, having an active storage volume of 90 m3, equipped with three variable speed controlled sewage pumps, two for duty and one for standby, each with a rated capacity of 55 L/s under 30m TDH, discharging through a common header to Arthur Wastewater Treatment Plant through an existing 755m long 250mm diameter forcemain, complete with a MCC, a new PLC based control system, high level floats and alarms;
- Conversion of existing wet well in to a bypass chamber, complete with one (1) sewage drain pump, located in the existing wet well, with a capacity of 10 L/s under 8m TDH, receiving sewage overflow from the inlet sewer under extreme flow events with an Emergency Overflow to the Conestogo River;

Arthur Wastewater Treatment Plant (WWTP)
Equalization Tank (to be upgraded to Extended Aeration Plant B during Phase 2)

- Construction of the equalization tank 1 (to be used as the future secondary treatment/extended aeration tank during Phase 2), having a total capacity of 2,100 m3, and operated in a manner to allow the flows entering the secondary treatment in Phase 1 to be reduced to 5,270 m3/d, comprising of two cells and a central future secondary clarifier tank, receiving diverted peak flow through a weir located in the headworks building outlet pipe under peak flow conditions, complete with a sewer line connecting a new hopper adjacent to the existing Headworks to a new Headworks channel upstream of Plant B;
- One (1) submersible drain pump, to be located in a precast manhole (to be converted to a scum collection pit and transfer pump in Phase 2), connected to the equalization tank, with a capacity of 10 L/s under a TDH of 8m, discharging to Headworks channel;

Proposed Works - Phase 2

Inlet Works

- Diversion of existing sanitary Sewers from Preston Street to the new Headworks building of sewage treatment plant;
- Diversion of existing sanitary sewage forcemain from Frederick Street Sewage Pumping Station in to the new Headworks building of sewage treatment plant;

Headworks Building
Inlet Channels

- One (1) duty inlet channel 0.8m wide, 1.2m deep, equipped with an inclined mechanically cleaned screen with 6mm spacing, designed to handle an average daily flow of 2,300 m3/d and a maximum daily flow of 12,700 m3/d, equipped with washer/compactor conveyor for screenings, complete with diffusers for intermittent channel aeration;
- one (1) back-up channel 0.8m wide, 1.2m deep, equipped with an inclined manual bar screen having 50mm spacing, complete with diffusers for intermittent channel aeration;

Grit Removal

- A Grit removal system with by-pass capability, comprising of a Vortex Grit Tank 2.5m in diameter with a 0.37 kW vortex drive, a Vortex Grit Classifier Unit designed for a peak flow rate of 12,700 m3/d, screenings/grit disposal bin in the Screen room;

Flow Channels and Parshall Flume

- Two flow splitting channels, complete with flow control weirs and two Parshall Flume flowmeters, one in each channel, downstream of the Vortex Tank, with duty channel discharging to the existing and new treatment units (Plant A and Plant B);

The increased capacity and upgrade to the Sewage Pump Station will aid in directing influent flows to the plant more effectively and efficiently. In addition to having an additional pump and all pumps being upsized with Variable Frequency Drives (VFD) this will allow the pumps to adjust to the required pumping speeds in increments as needed, increasing overall pump efficiency. This upgrade will further reduce the chance potential future bypass/overflow events through increased reliability and capacity. This Project is anticipated to be complete in 2020.

During high flow events, the increased flows from the pump station will be split at the head of the plant and will allow part of the flow to go through treatment and a portion to be captured in the equalization tank to not overwhelm the treatment system and be pumped back to the Headworks at a later time.

There are no estimated budget forecasts at this time as the current construction upgrades will mitigate the bypass/overflow events at the plant and at the pump station.

16. Construction and Commissioning Schedule Updates

ECA 7654-BEMKVD, Section 13 (4)(o):

"any changes or updates to the schedule for the completion of construction and commissioning operation of major process(es)/equipment groups in the Proposed Works;"

Arthur Wastewater Treatment Plant Expansion Project

Q4 – December 2019

Sanitary Pumping Station Frederick Street Site

Work Performed

1. WCCI mobilized to the Pumping Station site the week of September 16th and performed locates, removed existing fence and installed construction fencing.
2. The first site activities were to install MH11 and CB10, as well as sewer and storm pipes.
3. Excavation for the Pumping Station began the week of September 23rd and the shoring was installed.
4. Construction halted at the Pumping Station for a few weeks while WCCI worked on their Dewatering Plan.
5. Dewatering measures were implemented the week of October 21st and tying of rebar for the base slab commenced.
6. Base slab concrete pour was completed with no issues and tying of rebar for the walls commenced.
7. The concrete pour for the Pumping Station walls was completed with no issues and damp proofing application began.

Immediately Upcoming Work

1. Dewatering will continue.
2. Damp proofing and backfilling will be completed.
3. Shoring and forming for the top slab of the pump station will begin.
4. General site cleanup and tarping will be performed prior to holidays.
5. WCCI offsite from December 23rd to January 3rd.

Waste Water Treatment Plant Preston Street Site

Work Performed

1. Site preparation began at the WWTP the week of October 7th with layouts, modular fencing and silt fencing installation and electrical hook-ups to the temporary trailers.
2. Excavation of the driveway followed along with compaction of fill and granular. Compaction testing has been periodically performed by CMT.
3. Tree and stump removal was completed on the east side of the site.
4. Structural modifications were made to the existing basement wall to accommodate the new chemical containment wall.
5. Formwork was fabricated and installed for the chemical containment wall.
6. Excavation began for the exterior Alum Tank pad foundation.
7. Excavation began for the 300mm storm piping.

Immediately Upcoming Work

1. Work on underground piping will continue.
2. Work will continue for alum tank including excavation, pouring footings and curb, and forming and rebar tying for walls.
3. General site cleanup and tarping will be performed prior to holidays.
4. WCCI offsite from December 23rd to January 3rd.

Q1 – April 2020

Sanitary Pumping Station Frederick Street Site

Work Performed

1. Blowers arrived onsite and were moved into the basement.
2. Installation, testing, training and startup were completed for the first digester blower, BL302.
3. WCCI was offsite for two weeks in March.
4. WCCI performed cleanup work and inspected silt fencing upon re-mobilization to site in April.
5. Installation of underground services continued, including piping, catch basins and sanitary manholes.
6. Stripping of topsoil and backfill of Granular B was completed for the driveway.
7. Excavation for the Equalization Tank began.
8. Mechanical installation of the air discharge header and the first aeration blower began, BL203.
9. Demolition began for the existing alum system.

Immediately Upcoming Work

1. Excavation for the Equalization Tank will be completed, and concrete work will begin.
2. Excavation for the new Alum containment structure will be completed, and concrete work will begin.
3. Aeration and digester blower installation will continue.
4. Valve installation will be completed in the lagoons.

Wastewater Treatment Plant Preston Street Site

Work Performed

1. Shingles were stripped from the existing Pumping Station roof and ice and water shield was installed.
2. Concrete pours for the new station were completed, including benching.
3. Hatches were installed prior to the roof concrete pour.
4. The FRP landing, access ladder and pump bases were installed in the new station.
5. Process piping was installed in the new station by the end of February.
6. There was no notable work performed at the pumping station in March.
7. WCCI performed cleanup work and inspected silt fencing upon re-mobilization to site in April.

Immediately Upcoming Work

1. No major work is anticipated on this site in the immediate future.

Refer to **Appendix J** for scheduled completion of construction and commissioning of major process (es)/equipment groups in the Proposed Works.

17. Water Supervisor Information Request

ECA 7654-BEMKVD

"any other information from the Water Supervisor requires from time to time."

There were no requests from the Water Supervisor for any other information during the reporting period.

2019 – 2020 Annual Performance Report
Arthur Wastewater Treatment Plant
ECA 7654-BEMKVD

Appendix A

Performance Assessment Report

May 2019 – April 2020

Ontario Clean Water Agency
Performance Assessment Report Wastewater/Lagoon

Report extracted 06/12/2020 14:12 **From: 01/05/2019 to 30/04/2020**

Facility: [5767] ARTHUR WASTEWATER TREATMENT PLANT

Works: [110000882]

	05/2019	06/2019	07/2019	08/2019	09/2019	10/2019	11/2019	12/2019	01/2020	02/2020	03/2020	04/2020	<--Total-->	<--Avg.-->	<--Max.-->	<--Criteria-->
Flows:																
Raw Flow: Total - Raw Sewage (m³)	52197.20	34204.49	29419.28	28512.60	28003.74	31766.02	40102.36	44012.98	56697.15	35616.30	64740.15	41792.88	487065.15			
Raw Flow: Avg - Raw Sewage (m³/d)	1683.78	1140.15	949.01	919.76	933.46	1024.71	1336.75	1419.77	1828.94	1228.15	2088.39	1393.10		1328.83		1465.0
Raw Flow: Max - Raw Sewage (m³/d)	2471.40	1482.60	1124.00	1126.50	1047.63	2756.30	2035.40	2556.60	5021.10	1410.20	5138.72	1999.70			5138.72	
Eff. Flow: Total - Final Effluent (m³)	0.00	0.00	0.00	0.00	6549.21	10757.74	65230.10	101856.90	97419.70	119348.20	131964.80	72064.91	605191.56			
Eff. Flow: Avg - Final Effluent (m³/d)	0.00	0.00	0.00	0.00	218.31	347.02	2174.34	3285.71	3142.57	4115.46	4256.93	2402.16		1661.87		
Eff. Flow: Max - Final Effluent (m³/d)	0.00	0.00	0.00	0.00	1033.10	2350.10	4791.70	4608.30	5443.80	4429.90	5799.20	4404.90			5799.20	
Carbonaceous Biochemical Oxygen Demand: CBOD:																
Eff: Avg cBOD5 - Final Effluent (mg/L)					< 4.500	4.000	< 2.000	< 3.600	3.500	7.750	11.000	8.750		< 5.638	11.000	
Eff: # of samples of cBOD5 - Final Effluent (mg/L)					2	2	4	5	4	4	4	4	29			
Loading: cBOD5 - Final Effluent (kg/d)					< 0.982	1.388	< 4.349	< 11.829	10.999	31.895	46.826	21.019		< 16.161	46.826	
Biochemical Oxygen Demand: BOD5:																
Raw: Avg BOD5 - Raw Sewage (mg/L)	193.000	238.000	341.000	282.000	241.000	193.000	194.000	216.000	202.000	229.000	239.000	109.000		223.083	341.000	
Raw: # of samples of BOD5 - Raw Sewage (mg/L)	1	1	1	1	1	1	1	1	1	1	1	1	12			
Eff: Avg BOD5 - Final Effluent (mg/L)					5.000	3.500	< 2.250	5.600	3.750	8.500	9.750	13.500		< 6.481	13.500	15.0
Loading: BOD5 - Final Effluent (kg/d)					1.092	1.215	< 4.892	18.400	11.785	34.981	41.505	32.429		< 18.287	41.505	
Percent Removal: BOD5 - Raw Sewage (mg/L)					97.925	98.187	98.840	97.407	98.144	96.288	95.921	87.615			98.840	
Total Suspended Solids: TSS:																
Raw: Avg TSS - Raw Sewage (mg/L)	139.000	188.000	237.000	215.000	162.000	148.000	180.000	148.000	109.000	171.000	136.000	89.000		160.167	237.000	
Raw: # of samples of TSS - Raw Sewage (mg/L)	1	1	1	1	1	1	1	1	1	1	1	1	12			
Eff: Avg TSS - Final Effluent (mg/L)					7.000	4.500	3.250	4.400	3.750	6.500	11.000	22.000		7.800	22.000	15.0
Eff: # of samples of TSS - Final Effluent (mg/L)					2	2	4	5	4	4	4	4	29			
Loading: TSS - Final Effluent (kg/d)					1.528	1.562	7.067	14.457	11.785	26.750	46.826	52.848		20.353	52.848	
Percent Removal: TSS - Final Effluent (mg/L)					95.679	96.959	98.194	97.027	96.560	96.199	91.912	75.281			98.194	
Percent Removal: TSS - Raw Sewage (mg/L)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			0.000	
Total Phosphorus: TP:																
Raw: Avg TP - Raw Sewage (mg/L)	9.020	5.300	7.970	10.600	6.060	4.640	5.530	3.920	4.120	4.190	2.520	2.520		5.533	10.600	
Raw: # of samples of TP - Raw Sewage (mg/L)	1	1	1	1	1	1	1	1	1	1	1	1	12			
Eff: Avg TP - Final Effluent (mg/L)					0.490	0.150	0.198	0.206	0.188	0.688	0.378	0.423		0.340	0.688	1.0
Eff: # of samples of TP - Final Effluent (mg/L)					2	2	4	5	4	4	4	4	29			
Loading: TP - Final Effluent (kg/d)					0.107	0.052	0.429	0.677	0.589	2.829	1.607	1.015		0.913	2.829	
Percent Removal: TP - Final Effluent (mg/L)					91.914	96.767	96.429	94.745	95.449	83.592	85.020	83.234			96.767	
Nitrogen Series:																
Raw: Avg TKN - Raw Sewage (mg/L)	27.300	35.800	50.800	48.000	46.000	30.200	34.400	29.600	41.500	34.300	30.500	18.000		35.533	50.800	
Raw: # of samples of TKN - Raw Sewage (mg/L)	1	1	1	1	1	1	1	1	1	1	1	1	12			
Eff: Avg TAN - Final Effluent (mg/L)					7.800	< 0.250	3.100	4.940	3.550	6.400	5.050	5.325		< 4.552	7.800	2.3
Eff: # of samples of TAN - Final Effluent (mg/L)					2	2	4	5	4	4	4	4	29			
Loading: TAN - Final Effluent (kg/d)					1.703	< 0.087	6.740	16.231	11.156	26.339	21.497	12.792		< 12.068	26.339	
Eff: Avg NO3-N - Final Effluent (mg/L)					< 0.245	17.300	1.225	1.932	1.468	0.285	0.238	0.247		< 2.867	17.300	
Eff: # of samples of NO3-N - Final Effluent (mg/L)					2	2	4	5	4	4	4	4	29			
Eff: Avg NO2-N - Final Effluent (mg/L)					< 0.035	< 0.030	0.248	0.232	0.085	0.045	< 0.035	< 0.060		< 0.096	0.248	
Eff: # of samples of NO2-N - Final Effluent (mg/L)					2	2	4	5	4	4	4	4	29			
Disinfection:																
Eff: GMD E. Coli - Final Effluent (cfu/100mL)					33.466	2.000	86.754	306.927	175.587	477.162	780.454	33.703		237.007	780.454	200.0
Eff: # of samples of E. Coli - Final Effluent (cfu/100mL)					2	2	4	5	4	4	4	4	29			

2019 - 2020 Annual Performance Report
Arthur Wastewater Treatment Plant
ECA 7654-BEMKVD

Appendix B

Daily Discharge Summary

Arthur WWTP

Annual Performance Report

Daily Effluent Discharge Volumes

September 16, 2019 - April 30, 2020

Sep-19	
Date	Flow (m^3)
16/09/2019	13.62
17/09/2019	54.80
18/09/2019	39.55
19/09/2019	409.92
20/09/2019	947.92
21/09/2019	927.04
22/09/2019	957.62
23/09/2019	1033.10
24/09/2019	1032.40
25/09/2019	535.53
26/09/2019	147.43
27/09/2019	139.40
28/09/2019	141.57
29/09/2019	89.60
30/09/2019	79.71

Oct-19	
Date	Flow (m^3)
01/10/2019	497.63
02/10/2019	1214.20
03/10/2019	1937.20
04/10/2019	2350.10
05/10/2019	1426.60
06/10/2019	1430.70
07/10/2019	1359.10
08/10/2019	459.26
09/10/2019	3.02
10/10/2019	13.92
11/10/2019	44.06
12/10/2019	20.91
13/10/2019	5.04
14/10/2019	0.00
15/10/2019	0.00
16/10/2019	0.00
17/10/2019	0.00
18/10/2019	0.00
19/10/2019	0.00
20/10/2019	0.00
21/10/2019	0.00
22/10/2019	0.00
23/10/2019	0.00
24/10/2019	0.00
25/10/2019	0.00
26/10/2019	0.00
27/10/2019	0.00
28/10/2019	0.00
29/10/2019	0.00
30/10/2019	0.00
31/10/2019	0.00

Nov-19	
Date	Flow (m^3)
01/11/2019	0.00
02/11/2019	0.00
03/11/2019	0.00
04/11/2019	2049.40
05/11/2019	4058.00
06/11/2019	3798.80
07/11/2019	3285.00
08/11/2019	2318.80
09/11/2019	2330.00
10/11/2019	1991.10
11/11/2019	2085.80
12/11/2019	2058.10
13/11/2019	1992.10
14/11/2019	1959.00
15/11/2019	1963.60
16/11/2019	1970.20
17/11/2019	1941.20
18/11/2019	1915.40
19/11/2019	2011.30
20/11/2019	2000.80
21/11/2019	1174.40
22/11/2019	0.00
23/11/2019	0.00
24/11/2019	0.00
25/11/2019	1736.70
26/11/2019	4192.40
27/11/2019	4791.70
28/11/2019	4673.10
29/11/2019	4523.40
30/11/2019	4401.80

Dec-19	
Date	Flow (m^3)
01/12/2019	4321.10
02/12/2019	3988.10
03/12/2019	3653.40
04/12/2019	3626.40
05/12/2019	3639.90
06/12/2019	3584.40
07/12/2019	3483.90
08/12/2019	3554.40
09/12/2019	4608.30
10/12/2019	1342.40
11/12/2019	3615.40
12/12/2019	3269.80
13/12/2019	2155.20
14/12/2019	2834.90
15/12/2019	2757.30
16/12/2019	2911.70
17/12/2019	3589.00
18/12/2019	3849.20
19/12/2019	3984.50
20/12/2019	3737.30
21/12/2019	3100.80
22/12/2019	2031.80
23/12/2019	2214.60
24/12/2019	2913.10
25/12/2019	3364.00
26/12/2019	3025.10
27/12/2019	3351.00
28/12/2019	3311.20
29/12/2019	2760.40
30/12/2019	3605.60
31/12/2019	3669.70

Jan-20	
Date	Flow (m^3)
01/01/2020	2701.60
02/01/2020	2978.80
03/01/2020	3862.80
04/01/2020	3837.00
05/01/2020	3710.70
06/01/2020	3787.90
07/01/2020	3710.00
08/01/2020	2615.20
09/01/2020	2627.50
10/01/2020	2908.00
11/01/2020	5443.80
12/01/2020	4540.00
13/01/2020	2727.00
14/01/2020	2274.50
15/01/2020	2422.40
16/01/2020	2897.20
17/01/2020	1699.00
18/01/2020	1700.70
19/01/2020	1494.50
20/01/2020	2179.40
21/01/2020	3112.60
22/01/2020	3297.10
23/01/2020	3723.10
24/01/2020	2999.50
25/01/2020	2783.00
26/01/2020	2817.20
27/01/2020	3593.60
28/01/2020	4261.10
29/01/2020	4040.20
30/01/2020	3250.40
31/01/2020	3423.90

Feb-20	
Date	Flow (m^3)
01/02/2020	3699.40
02/02/2020	3625.90
03/02/2020	3705.80
04/02/2020	3679.60
05/02/2020	3769.60
06/02/2020	4101.80
07/02/2020	4021.20
08/02/2020	3991.10
09/02/2020	3994.90
10/02/2020	3990.70
11/02/2020	4080.20
12/02/2020	4316.00
13/02/2020	4362.90
14/02/2020	4377.60
15/02/2020	4361.90
16/02/2020	4307.10
17/02/2020	4349.70
18/02/2020	4429.90
19/02/2020	4406.60
20/02/2020	4388.20
21/02/2020	4380.00
22/02/2020	4360.80
23/02/2020	4395.50
24/02/2020	4001.70
25/02/2020	3162.80
26/02/2020	4258.40
27/02/2020	4289.00
28/02/2020	4329.90
29/02/2020	4210.00

Mar-20	
Date	Flow (m^3)
01/03/2020	4247.40
02/03/2020	4300.20
03/03/2020	3973.90
04/03/2020	3836.20
05/03/2020	4098.50
06/03/2020	4624.70
07/03/2020	4615.60
08/03/2020	4676.10
09/03/2020	5664.80
10/03/2020	5799.20
11/03/2020	4043.70
12/03/2020	5308.80
13/03/2020	5735.50
14/03/2020	5183.10
15/03/2020	4903.90
16/03/2020	4845.10
17/03/2020	3780.60
18/03/2020	3155.50
19/03/2020	4178.00
20/03/2020	3745.40
21/03/2020	3022.60
22/03/2020	4140.80
23/03/2020	4772.50
24/03/2020	4745.60
25/03/2020	4824.80
26/03/2020	4741.60
27/03/2020	4755.00
28/03/2020	3979.10
29/03/2020	1386.70
30/03/2020	1505.70
31/03/2020	3374.20

Apr-20	
Date	Flow (m^3)
01/04/2020	3605.3
02/04/2020	3707.8
03/04/2020	3958.7
04/04/2020	4370.1
05/04/2020	4404.9
06/04/2020	4366.6
07/04/2020	4392.5
08/04/2020	3792.5
09/04/2020	3645.7
10/04/2020	4161.8
11/04/2020	3717.2
12/04/2020	2876.6
13/04/2020	2993.9
14/04/2020	2166.4
15/04/2020	767.62
16/04/2020	1443
17/04/2020	1155.9
18/04/2020	2845.7
19/04/2020	2541
20/04/2020	2333.2
21/04/2020	2475.8
22/04/2020	2539.8
23/04/2020	1823.9
24/04/2020	1209.5
25/04/2020	769.49
26/04/2020	0
27/04/2020	0
28/04/2020	0
29/04/2020	0
30/04/2020	0

2019 - 2020 Annual Performance Report
Arthur Wastewater Treatment Plant
ECA 7654-BEMKVD

Appendix C

Sampling Schedule

2019 Arthur Sampling Schedule

JANUARY						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

FEBRUARY						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

MARCH						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

APRIL						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

MAY						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

JUNE						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

JULY						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

AUGUST						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

SEPTEMBER						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

OCTOBER						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

NOVEMBER						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

DECEMBER						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Discharge Period September 16 to April 30 - Weekly Effluent CBOD5, TSS, TP, TAN, TKN, Nitrate, Nitrite, E. Coli, Dissolved Oxygen, pH, Temperature.

Every other week WSER Weekly Effluent Sampling - Weekly Effluent + BOD5, Alkalinity, pH @ 15 C, and Unionized Ammonia.

Monthly Influent BOD5, TSS, TKN + Weekly Effluent / WSER Weekly Effluent

Monthly Raw BOD5, TSS, TKN + Secondary Effluent (Pond) BOD5, CBOD5, TSS, TP, TKN, Ammonia, Nitrite, Nitrate, pH, Alk, DO

Extra Raw - Sampled 1 week + 1 day from the last RAW sample taken

Monthly Sludge

Notes: pH & Temperature of the Final Effluent shall be determined in the field at the time of sampling for TAN.

Biosolids Results Four (4) Months prior to haulage.

Rev.2 2019.10.07

2020 Arthur Sampling Schedule

JANUARY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

FEBRUARY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

MARCH

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

APRIL

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

MAY

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

JUNE

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

JULY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

AUGUST

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

SEPTEMBER

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

OCTOBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

NOVEMBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

DECEMBER

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Discharge Period September 16 to April 30 - Weekly Effluent CBOD5, TSS, TP, TAN, TKN, Nitrate, Nitrite, E. Coli, Dissolved Oxygen, pH, Temperature.

Every other week WSER Weekly Effluent Sampling - Weekly Effluent + BOD5, Alkalinity, pH @ 15 C, and Unionized Ammonia.

Monthly Influent BOD5, TSS, TKN + Weekly Effluent / WSER Weekly Effluent

Monthly Raw BOD5, TSS, TKN + Secondary Effluent (Pond) BOD5, CBOD5, TSS, TP, TKN, Ammonia, Nitrite, Nitrate, pH, Alk, DO

Extra Raw - Sampled 1 week + 1 day from the last RAW sample taken

Monthly Sludge

Notes: pH & Temperature of the Final Effluent shall be determined in the field at the time of sampling for TAN.

Biosolids Results Four (4) Months prior to haulage.

Rev.3 2019.12.17

2019 - 2020 Annual Performance Report
Arthur Wastewater Treatment Plant
ECA 7654-BEMKVD

Appendix D

Golden Valley Farm
Lab Analysis Summary

Golden Valley Composite Samples (January 8th 2020 - June 4th, 2020)

Date	BOD_5	TP	TSS	TAN	Iron (total)	Chloride	Sulphate	Sulphide	Oil & Grease - Total	Oil & Grease – Animal/Vegetable	Oil & Grease – Mineral/Synthetic
01/08/2020	258.00	9.68	147.00	25.70	-	-	-	-	-	-	-
01/14/2020	417.00	13.90	118.00	16.60	0.23	1600.00	340.00	-	-	-	-
01/15/2020	620.00	20.70	120.00	37.50	0.31	1800.00	280.00	-	-	-	-
01/22/2020	346.00	19.20	144.00	16.90	0.37	1500.00	330.00	0.57	14.00	10.00	4.00
01/23/2020	594.00	12.70	153.00	13.40	0.23	1300.00	390.00	0.21	6.00	4.00	4.00
01/30/2020	479.00	15.50	143.00	22.00	0.32	1200.00	270.00	4.80	18.00	15.00	4.00
01/31/2020	289.00	12.70	192.00	21.90	0.22	1200.00	260.00	7.00	17.00	8.00	11.00
Monthly Averages	**429.00**	**14.91**	**145.29**	**22.00**	**0.28**	**1433.33**	**311.67**	**3.15**	**13.75**	**9.25**	**5.75**
02/05/2020	474.00	18.00	162.00	14.30	0.36	1600.00	420.00	0.53	10.00	10.00	4.00
02/06/2020	415.00	16.30	134.00	17.50	0.28	1400.00	410.00	4.10	13.00	12.00	4.00
02/13/2020	470.00	15.00	91.00	15.70	0.21	1500.00	290.00	4.80	6.00	4.00	6.00
02/14/2020	398.00	12.90	143.00	33.80	0.16	1200.00	320.00	8.20	14.00	11.00	4.00
02/21/2020	468.00	15.80	151.00	17.20	0.30	1400.00	340.00	3.90	20.00	12.00	8.00
02/22/2020	348.00	12.60	136.00	15.20	0.17	1300.00	270.00	4.10	10.00	6.00	4.00
02/25/2020	545.00	18.90	126.00	19.30	0.47	2000.00	310.00	0.78	14.00	12.00	8.00
02/26/2020	942.00	27.80	231.00	17.70	0.53	1600.00	280.00	4.70	24.00	11.00	13.00
Monthly Averages	**507.50**	**17.16**	**146.75**	**18.84**	**0.31**	**1500.00**	**330.00**	**3.89**	**13.88**	**9.75**	**6.38**
03/06/2020	567.00	12.70	91.00	21.30	0.21	1400.00	250.00	4.80	8.00	8.00	4.00
03/07/2020	277.00	13.30	224.00	14.40	0.26	1500.00	210.00	2.30	6.00	4.00	5.00
03/11/2020	472.00	12.70	140.00	15.30	0.34	1200.00	300.00	4.00	12.00	9.00	8.00
03/20/2020	694.00	9.87	106.00	16.50	0.22	1200.00	250.00	11.00	13.00	4.00	13.00
Monthly Averages	**502.50**	**12.14**	**140.25**	**16.88**	**0.26**	**1325.00**	**252.50**	**5.53**	**9.75**	**6.25**	**7.50**
04/15/2020	372.00	13.20	150.00	13.00	0.28	1500.00	390.00	0.16	22.00	15.00	8.00
04/16/2020	270.00	5.36	83.00	13.60	0.13	1600.00	420.00	0.67	13.00	10.00	4.00
04/22/2020	268.00	3.76	105.00	7.80	0.16	1700.00	320.00	0.04	6.00	6.00	4.00
04/23/2020	225.00	2.37	178.00	8.70	0.13	1400.00	340.00	0.02	4.00	4.00	4.00
Monthly Averages	**283.75**	**6.17**	**129.00**	**10.78**	**0.17**	**1550.00**	**367.50**	**0.22**	**11.25**	**8.75**	**5.00**
05/01/2020	495.00	25.40	273.00	4.70	2.22	750.00	2200.00	0.19	51.00	41.00	10.00
05/02/2020	598.00	16.30	187.00	0.90	1.69	950.00	1400.00	0.02	19.00	16.00	4.00
05/05/2020	385.00	2.19	135.00	2.80	0.16	970.00	420.00	0.02	3.00	4.00	4.00
05/06/2020	500.00	1.26	84.00	6.50	0.13	730.00	310.00	0.02	2.00	4.00	4.00
05/20/2020	431.00	1.92	114.00	20.30	0.13	2200.00	380.00	0.02	13.00	13.00	4.00
05/27/2020	513.00	17.50	140.00	21.80	0.34	1700.00	380.00	5.20	14.00	10.00	4.00
Monthly Averages	**487.00**	**10.76**	**155.50**	**9.50**	**0.78**	**1216.67**	**848.33**	**0.91**	**17.00**	**14.67**	**5.00**
06/04/2020	644.00	16.80	260.00	24.20	0.46	1500.00	320.00	0.72	39.00	33.00	6.00

Wellington North Sewer Use By-law Limits - Schedule B and Schedule C

Substance	Schedule "B" Concentration Limit (mg/L)	Schedule "C" Extra Strength Surcharge Agreement Limits (mg/L)
Biochemical Oxygen Demand	300	1000
Total Suspended Solids	300	1200
Phosphorus (total)	10	15
Total Kjedahl Nitrogen	n/a	75
Sulfide	1	n/a
Oil & Grease – Animal and Vegetable	150	450
Oil & Grease – Mineral and Synthetic	15	n/a

2019 - 2020 Annual Performance Report
Arthur Wastewater Treatment Plant
ECA 7654-BEMKVD

Appendix E

Calibration Records

Flowmetrix
Technical Services Inc.

Western Office
2088 Jetstream Road
London, Ontario
N5V 3P6

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

ROSEMOUNT
Verification Report

AS FOUND CERTIFICATION

FORWARD FLOW DIRECTION

PASS

CLIENT DETAIL	
CUSTOMER	OCWA - West Highlands Hub
CONTACT	Don Irvine Process Compliance Technician p. 519-925-1938 x225 c. 519-321-9474 e: dirvine@ocwa.com
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

EQUIPMENT DETAIL	
[MUT] MANUFACTURER	Rosemount
MODEL	8712D
CONVERTER SERIAL NUMBER	0860216177
PLANT ID	Arthur WPCP
METER ID	Pond Effluent Flow
FIT ID	n/a
CLIENT TAG	OCWA# 122848
OTHER	n/a
GPS COORDINATES	N43 49 903 W080 32 948
VERIFICATION DATE	September 21, 2018
CAL. FREQUENCY	Annual
CAL. DUE DATE	September, 2019

PROGRAMMING PARAMETERS		
DIAMETER (DN)	mm	150
F.S. FLOW - MAG	LPS	223.7
F.S. RANGE - O/P	LPS	100.000
TUBE CAL. FACTOR		0895005708809005

FORWARD TOTALIZER INFORMATION		
AS FOUND	1518017	M3
AS LEFT	1518041	M3
DIFFERENCE	24	M3

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

COMPONENTS TESTED	
CONVERTER DISPLAY	yes
mA OUTPUT	yes
TOTALIZER	yes
ACCURACY BASED ON [% o.r.]	yes

VERIFICATOR CAL. FACTOR [16-digits] 1000015010000000

ERROR DOCUMENTED IN THIS REPORT; BASED ON % o.r.

FLOW TUBE SIMULATION

			0	3	10	30	ft/s
DISPLAY			0.00	3.00	10.00	30.00	ft/s
MUT Reading			0.00	3.00	10.00	30.02	ft/s
MUT % Error			n/a	0.00	0.00	0.07	%
mA OUTPUT			4.000	5.600	9.333	20.000	mA
MUT Reading	4	mA	3.996	5.595	9.329	19.995	mA
MUT % Error	20	mA	-0.10	-0.09	-0.05	-0.02	%
TOTALIZER						30.00	ft/s
TEST Accumulation						2448.00	ft
TIME						81.63	seconds
CALC. Velocity						29.99	ft/s
% Error						-0.04	%

QUALITY MANAGEMENT STANDARDS INFO.		
[QMS] INFORMATION	IDENT.	ID #
[REFERENCE] FTS	ROS	1
PROCESS METER	PM	11
ANALOG METER	AM	N/A
STOP WATCH	SW	Yes

*All values are for "As Found" values.

COMMENTS

RESULTS		
TEST	AVG % o.r.	PASS FAIL
DISPLAY	0.02	PASS
mA OUTPUT	-0.05	PASS
TOTALIZER	-0.04	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

ROSEMOUNT
Verification Report

AS FOUND CERTIFICATION

FORWARD FLOW DIRECTION

PASS

CLIENT DETAIL

CUSTOMER OCWA - West Highlands Hub
CONTACT Don Irvine
Process Compliance Technician
p 519-925-1938 x225
c 519-321-9474
e dirvine@ocwa.com

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

EQUIPMENT DETAIL

[MUT] MANUFACTURER	Rosemount
MODEL	8712D
CONVERTER SERIAL NUMBER	080220959
PLANT ID	Arthur WPCP
METER ID	Plant Effluent Flow Meter
FIT ID	n/a
CLIENT TAG	OCWA# 205612
OTHER	n/a
GPS COORDINATES	N43 49 903 W080 32 948
VERIFICATION DATE	September 21, 2018
CAL. FREQUENCY	Annual
CAL. DUE DATE	September, 2019

PROGRAMMING PARAMETERS

DIAMETER (DN)	mm	150
F.S. FLOW - MAG	LPS	223.7
F.S. RANGE - O/P	LPS	100.000
TUBE CAL. FACTOR		0916605509025005

VERIFICATOR CAL. FACTOR [16-digits] 1000015010000000

FORWARD TOTALIZER INFORMATION

AS FOUND	1148119	M3
AS LEFT	1148145	M3
DIFFERENCE	26	M3

TEST CRITERIA

AS FOUND CERTIFICATION TEST	Yes
FORWARD FLOW DIRECTION	Yes
ALLOWABLE [%] ERROR	5

COMPONENTS TESTED

CONVERTER DISPLAY	yes
mA OUTPUT	yes
TOTALIZER	yes
ACCURACY BASED ON [% o.r.]	yes

ERROR DOCUMENTED IN THIS REPORT; BASED ON % o.r.

FLOW TUBE SIMULATION

			0	3	10	30	ft/s
DISPLAY			0.00	3.00	10.00	30.00	ft/s
MUT Reading			0.00	3.00	10.01	30.02	ft/s
MUT % Error			n/a	0.00	0.10	0.07	%
mA OUTPUT			4.000	5.600	9.333	20.000	mA
MUT Reading	4	mA	4.000	5.600	9.332	19.994	mA
MUT % Error	20	mA	0.00	0.00	-0.01	-0.03	%
TOTALIZER						30.00	ft/s
TEST Accumulation						2992.00	ft
TIME						99.46	seconds
CALC. Velocity						30.08	ft/s
% Error						0.27	%

QUALITY MANAGEMENT STANDARDS INFO.

[QMS] INFORMATION	IDENT.	ID #
[REFERENCE] FTS	ROS	1
PROCESS METER	PM	11
ANALOG METER	AM	n/a
STOP WATCH	SW	Yes

*All values are for "As Found" values.

COMMENTS

RESULTS

TEST	AVG % o.r.	PASS FAIL
DISPLAY	0.06	PASS
mA OUTPUT	-0.01	PASS
TOTALIZER	0.27	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

Parshall Flume
Verification/Calibration Report

AS FOUND CERTIFICATION

PASS

CLIENT DETAIL

CUSTOMER	OCWA - West Highlands Hub
CONTACT	Don Irvine
	Process Compliance Technician
	p. 519-925-1938 x225
	c. 519-321-9474
	e. dirvine@ocwa.com

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

EQUIPMENT DETAIL

[MUT] MANUFACTURER	Milltronics
MODEL	OCM-III
CONVERTER SERIAL NUMBER	PBD/W3100009
PLANT ID	Arthur WPCP
METER ID	Plant Effluent Flow
FIT ID	n/a
CLIENT TAG	n/a
OTHER	n/a
GPS COORDINATES	n/a
VERIFICATION DATE	September 21, 2018
CAL. FREQUENCY	Annual
CAL. DUE DATE	September, 2019

PROGRAMMING PARAMETERS

THROAT DIMENSION (DN)	inches	9
EMPTY DISTANCE	m	0.960
MAX. HEAD	m	0.334
DEAD ZONE	m	0.626
BLANKING DISTANCE	m	0.305
MAX. FLOW	LPS	100.0
F.S. RANGE - O/P	LPS	100.0

TOTALIZER

AS FOUND	2198488	M3
AS LEFT	2198524	M3
DIFFERENCE	36	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

		0.0	15.8	29.4	45.6	84.9	% F.S. Range
		0.000	0.100	0.150	0.200	0.300	m
REF. FLOW RATE		0.000	15.801	29.383	45.630	84.854	LPS
MUT [Reading]		0.000	15.610	29.520	45.290	85.040	LPS
MUT [Difference]		0.000	-0.191	0.137	-0.340	0.186	LPS
MUT [% Error]		n/a	-0.19	0.14	-0.34	0.19	%
mA OUTPUT		4.000	6.528	8.701	11.301	17.576	mA
MUT [Reading]	min. 4.000 mA	4.008	6.505	8.732	11.253	17.617	mA
MUT [Difference]	max. 20.000 mA	0.008	-0.023	0.031	-0.048	0.041	mA
MUT [% Error]		0.04	-0.12	0.15	-0.24	0.20	%
TOTALIZER - REF. FLOW RATE						84.854	LPS
TOTALIZER [MUT]						16	M3
TEST TIME						187.60	SECONDS
CALC. TOTALIZER						15.919	M3
ERROR						0.51	%

COMMENTS

QUALITY MANAGEMENT STANDARDS INFO.

[QMS] INFORMATION	IDENT.	ID #
[REFERENCE] LEVEL	Sim. BOARD	n/a
PROCESS METER	PM	11
STOP WATCH	SW	n/a

RESULTS

TEST	AVG %FS	PASS FAIL
DISPLAY	-0.05	PASS
mA OUTPUT	0.01	PASS
TOTALIZER	0.51	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.

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

Volumetric Comparison
Verification Report

CERTIFICATION RESULTS

AS FOUND	**PASS**
AS LEFT	**PASS**

CLIENT DETAIL

CUSTOMER	OCWA - West Highlands Hub
CONTACT	Don Irvine
	Process Compliance Technician
	p 519-925-1938 x225
	c 519-321-9474
	e dirvine@ocwa.com

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

EQUIPMENT DETAIL

[MUT] MANUFACTURER	Milltronics
MODEL	MultiRanger 200
CONVERTER SERIAL NUMBER	PBD/U9180052
PLANT ID	Arthur WPCP
METER ID	River Gauge Level
FIT ID	n/a
CLIENT TAG	OCWA# n/a
OTHER	n/a
GPS COORDINATES	N43 49 903 W080 32 948
VERIFICATION DATE	September 21, 2018
CAL. FREQUENCY	Annual
CAL. DUE DATE	September, 2019

[MUT] PROGRAMMING PARAMETERS

P001=	1	Operation Mode (1=Level)
P002=	1	(1=Liquid or Horizontal)
P003=	3	Process Speed (3=Fast)
P004=	112	Transducer Type (112=XRS-5)
P005=	2	Units (2=cm)
P006=	200 66	Empty Distance (Value in cm)
P007=	167 66	Span (Value in cm)
P065=	500	Reading Ovende Value (Value in cm)
P212=	4	mA Output Min. Limit (Value)

REFERENCE

REFERENCE DEVICE	Board Level

Condition of PASS/FAIL

of Individual Test Results;	Y
or of Average Results;	N

LEVEL COMPARISON

Reference Level (cm)	MUT Displayed Level (cm)	% ERROR
0	-0 17	n/a
10	10 12	1.200
30	29 85	-0.500
70	69 91	-0.129
100	99 88	-0.120
155	154 98	-0.013
	Average	**0.09**

Note: This report validates the performance of the MUT only. This does not validate the setup based on process - no information available has been provided.

Note: this is also using Flowmetrix's transducer for this level test as there is not a way to provide a test like this at the location of the transducer - this only validates that the MultiRanger 200 is working as expected.

COMMENTS

QUALITY MANAGEMENT STANDARDS INFO.

[QMS] INFORMATION	IDENT.	ID #
[REFERENCE] METER	KROHNE-LAB	n/a
[REFERENCE] METER	ELSTER-LAB	n/a
[REFERENCE] METER	FLOW-LAB1	n/a
[REFERENCE] METER	Coulter	n/a
PROCESS METER	PM	n/a

Accuracy Requirements: High Flow 98 5-101 5%, Medium Flow 98 5-101 5%, Low Flow/Cross Over 95-101 5%

This report reflects the comparison test results at a constant test flow rate. This report reflects the "AS FOUND" and "AS LEFT" results based on the test results observed.

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N5V 3P6

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

Endress Hauser ProMag Series
Verification Report

AS FOUND CERTIFICATION

FORWARD FLOW DIRECTION

PASS

CLIENT DETAIL

CUSTOMER	OCWA - West Highlands Hub
CONTACT	Don Irvine
	Process Compliance Technician
	p: 519-925-1938 x225
	c: 519-321-9474
	e: dirvine@ocwa.com

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

EQUIPMENT DETAIL

[MUT] MANUFACTURER	ENDRESS & HAUSER
MODEL	Promag 53W
CONVERTER S/N:	M4053919000
FUSE	
PLANT ID	Arthur WPCP
METER ID	RAS West Flow
FIT ID	n/a
CLIENT TAG	OCWA# not assigned
OTHER	n/a
GPS COORDINATES	N43 49 903 W080 32 948
VERIFICATION DATE	September 21 2018
CAL. FREQUENCY	Annual
CAL. DUE DATE	September 2019

PROGRAMMING PARAMETERS

DIAMETER (DN)	mm	100
F.S. FLOW - MAG	LPS	78.538
F.S. RANGE - O/P	LPS	20.000
TUBE k-FACTOR		1.3323
TUBE zero		4

FORWARD TOTALIZER INFORMATION

AS FOUND	81135.57	M3
AS LEFT	81150.62	M3
DIFFERENCE	15.05	M3

TEST CRITERIA

AS FOUND CERTIFICATION TEST	Yes
FORWARD FLOW DIRECTION	Yes
ALLOWABLE [%] ERROR	5

COMPONENTS TESTED

CONVERTER DISPLAY	yes
mA OUTPUT	yes
TOTALIZER	yes
ACCURACY BASED ON [% o.r.]	yes

ERROR DOCUMENTED IN THIS REPORT; BASED ON % o.r.

FLOW TUBE SIMULATION

				0.0	5.0	10.0	15.0	20.0	LPS
				0.0	6.4	12.7	19.1	25.5	% F.S. Flow
				0.0	25.0	50.0	75.0	100.0	% F.S. Range
REF. FLOW RATE				0.0000	5.0000	10.0000	15.0000	20.0000	LPS
MUT [Reading]				0.0057	5.0086	10.0040	15.0220	20.0150	LPS
MUT [Difference]				0.0057	0.0086	0.0040	0.0220	0.0150	LPS
MUT [% Error]				n/a	0.17	0.04	0.15	0.08	% O.R
mA OUTPUT				4.000	8.000	12.000	16.000	20.000	mA
MUT [Reading]	min.	4	mA	4.002	8.003	12.009	16.009	20.014	mA
MUT [Difference]	max.	20	mA	0.002	0.003	0.009	0.009	0.014	mA
MUT [% Error]				0.05	0.04	0.08	0.06	0.07	% O.R
TOTALIZER - REF. FLOW RATE								20.000	LPS
TOTALIZER [MUT]								8.1	M3
TEST TIME								403.61	SECONDS
CALC. TOTALIZER								8.072	M3
ERROR								0.34	%

COMMENTS

Note: tube and parameters programmed match.

QUALITY MANAGEMENT STANDARDS INFO.

[QMS] INFORMATION	IDENT.	ID #
[REFERENCE] FTS	E&H (FC)	1
PROCESS METER	PM	11
ANALOG METER	AM	n/a
STOP WATCH	SW	Yes

RESULTS

TEST	AVG % o.r.	PASS FAIL
DISPLAY	0.11	PASS
mA OUTPUT	0.06	PASS
TOTALIZER - R	0.34	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
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Western Office
2088 Jetstream Road
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N5V 3P6

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

Endress Hauser ProMag Series
Verification Report

AS FOUND CERTIFICATION

FORWARD FLOW DIRECTION

PASS

CLIENT DETAIL

CUSTOMER	OCWA - West Highlands Hub
CONTACT	Don Irvine
	Process Compliance Technician
	p 519-925-1938 x225
	c 519-321-9474
	e dirvine@ocwa.com

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

EQUIPMENT DETAIL

[MUT] MANUFACTURER	ENDRESS & HAUSER
MODEL	Promag 53W
CONVERTER S/N:	M4053819000
FUSE	
PLANT ID	Arthur WPCP
METER ID	RAS East Flow
FIT ID	n/a
CLIENT TAG	OCWA# not assigned
OTHER	n/a
GPS COORDINATES	N43 49 903 W080 32 948
VERIFICATION DATE	September 21 2018
CAL. FREQUENCY	Annual
CAL. DUE DATE	September, 2019

PROGRAMMING PARAMETERS

DIAMETER (DN)	mm	100
F.S. FLOW - MAG	LPS	78.538
F.S. RANGE - O/P	LPS	20 000
TUBE k-FACTOR		1 3156
TUBE zero		4

FORWARD TOTALIZER INFORMATION

AS FOUND	119004 3	M3
AS LEFT	119013 6	M3
DIFFERENCE	9.3	M3

TEST CRITERIA

AS FOUND CERTIFICATION TEST	Yes
FORWARD FLOW DIRECTION	Yes
ALLOWABLE [%] ERROR	5

COMPONENTS TESTED

CONVERTER DISPLAY	yes
mA OUTPUT	yes
TOTALIZER	yes
ACCURACY BASED ON [% o.r.]	yes

ERROR DOCUMENTED IN THIS REPORT, BASED ON % o.r.

FLOW TUBE SIMULATION

				0.0	5.0	10.0	15.0	20.0	LPS
				0.0	6.4	12.7	19.1	25.5	% F.S. Flow
				0.0	25.0	50.0	75.0	100.0	% F.S. Range
REF. FLOW RATE				0.000	5.000	10.000	15.000	20.000	LPS
MUT [Reading]				0.000	5.004	10.003	15.003	19.999	LPS
MUT [Difference]				0.000	0.004	0.003	0.003	-0.001	LPS
MUT [% Error]				n/a	0.07	0.03	0.02	-0.01	% O.R
mA OUTPUT				4.000	8.000	12.000	16.000	20.000	mA
MUT [Reading]	min.	4	mA	3.999	7.998	12.002	15.999	19.996	mA
MUT [Difference]	max.	20	mA	-0.001	-0.002	0.002	-0.001	-0.004	mA
MUT [% Error]				-0.02	-0.02	0.02	-0.01	-0.02	% O.R
TOTALIZER - REF. FLOW RATE								20.000	LPS
TOTALIZER [MUT]								6	M3
TEST TIME								299.97	SECONDS
CALC. TOTALIZER								5.999	M3
ERROR								0.01	%

COMMENTS

Note: tube and parameters programmed match.

QUALITY MANAGEMENT STANDARDS INFO.

[QMS] INFORMATION	IDENT	ID #
[REFERENCE] FTS	E&H (FC)	1
PROCESS METER	PM	11
ANALOG METER	AM	n/a
STOP WATCH	SW	Yes

RESULTS

TEST	AVG % o.r.	PASS FAIL
DISPLAY	0.03	PASS
mA OUTPUT	-0.01	PASS
TOTALIZER - R	0.01	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.

2019 - 2020 Annual Performance Report
Arthur Wastewater Treatment Plant
ECA 7654-BEMKVD

Appendix F

Sludge Quality Analysis Summary

ARTHUR WASTEWATER TREATMENT PLANT
SLUDGE QUALITY DATA

2019 - 2020

	Month/Year	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	AVERAGE
Nutrients														
TS	(mg/L)	34700	20200	26400	21000	28800	31500	32000	28900	32800	38200	35100	36500	**30508**
Ammonia+Ammonium	(mg/L)	189.0	204.0	365	481	378	21.9	131.0	74.1	114.0	106.0	143.0	239	**203.8**
Nitrate	(mg/L)	0.30	0.30	0.30	0.30	0.50	0.3	0.30	0.3	0.3	0.30	0.30	0.30	**0.32**
Ammonia + Nitrate	(mg/L)				481.3									**481.3**
TKN	(mg/L)	2490	1370	1180	1010	1770	1340	1840	1650	2140	2280	2320	2640	**1836**
Phosphorus	(mg/L)	1200	660	930	640	1400	1600	1600	1000	240	1300	1200	1300	**1089**
Metal Concentrations														
Arsenic	(mg/L)	0.10	0.10	0.10	0.10	0.10	0.20	0.20	0.10	0.20	0.10	0.20	0.10	**0.13**
Cadmium	(mg/L)	0.016	0.007	0.010	0.007	0.013	0.016	0.013	0.010	0.018	0.011	0.013	0.014	**0.01**
Cobalt	(mg/L)	0.06	0.03	0.04	0.02	0.030	0.06	0.06	0.05	0.08	0.06	0.06	0.07	**0.05**
Chromium	(mg/L)	2.10	0.48	0.80	0.44	1.10	1.20	1.50	1.10	2.10	1.50	1.80	2.50	**1.39**
Copper	(mg/L)	24.00	14.00	19.00	14.00	29.00	32.00	27.00	19.00	31.00	23.00	24.00	24.00	**23.33**
Mercury	(mg/L)	0.004	0.007	0.005	0.003	0.0080	0.0120	0.009	0.006	0.006	0.0050	0.0080	0.005	**0.007**
Potassium	(mg/L)	150	130.0	140.0	110.0	160.0	180.0	170.0	130.0	240.0	170.0	180.0	160.0	**160**
Molybdenum	(mg/L)	0.25	0.08	0.15	0.12	0.26	0.24	0.26	0.21	0.29	0.21	0.24	0.26	**0.21**
Nickel	(mg/L)	1.10	0.30	0.44	0.26	0.57	0.67	0.81	0.60	1.10	0.80	0.96	1.20	**0.73**
Lead	(mg/L)	0.20	0.20	0.20	0.10	0.30	0.30	0.30	0.20	0.30	0.20	0.20	0.30	**0.23**
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	**0.10**
Zinc	(mg/L)	14.00	8.50	12.00	7.60	16.00	19.00	16.00	11.00	16.00	13.00	12.00	15.00	**13.34**
Bacti														
E. coli (cfu/1g dried wgt)		164,265	282,178	17,446	47,619	1,736	317	196,875	131,488	365,854	86,387	111,111	1,479,452	**240,394**
E. coli (cfu/100mL)		570,000	570,000	46,000	100,000	5,000	1,000	630,000	380,000	1,200,000	330,000	390,000	5,400,000	**801,833**
Metal/Solids Concentration														
Arsenic [170]	(mg/kg)	3	5	4	5	3	6	6	3	6	3	6	3	**4**
Cadmium [34]	(mg/kg)	0	0	0	0	0	1	0	0	1	0	0	0	**0**
Cobalt [340]	(mg/kg)	2	1	2	1	1	2	2	2	2	2	2	2	**2**
Chromium [2800]	(mg/kg)	61	24	30	21	38	38	47	38	64	39	51	68	**43**
Copper [1700]	(mg/kg)	692	693	720	667	1007	1016	844	657	945	602	684	658	**765**
Mercury [11]	(mg/kg)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Molybdenum [94]	(mg/kg)	7	4	6	6	9	8	8	7	9	5	7	7	**7**
Nickel [420]	(mg/kg)	32	15	17	12	20	21	25	21	34	21	27	33	**23**
Lead [1100]	(mg/kg)	6	10	8	5	10	10	9	7	9	5	6	8	**8**
Selenium [34]	(mg/kg)	3	5	4	5	3	3	3	3	3	3	3	3	**3**
Zinc [4200]	(mg/kg)	403	421	455	362	556	603	500	381	488	340	342	411	**438**

2019 - 2020 Annual Performance Report
Arthur Wastewater Treatment Plant
ECA 7654-BEMKVD

Appendix G

Community Complaints

Ontario Clean Water Agency
Community Complaints

Facility ID:	5767
Facility Name:	Arthur Wastewater Treatment Plant, Lagoon & Collection System
Address:	P.O. Box 749
City:	Arthur
Province:	Ontario
Postal Code:	N0G 1A0
Name of Person who filed Complaint:	
Address:	
Phone	

NOTE: If there were multiple complaints, provide the name of the person who filed the initial complaint and note the number and details in the "Description" field below

Date of Complaint:	27/07/2018
Time of Complaint:	03:41:27 PM

Nature of Complaint

- ☒ Noise
- ☐ Visual
- ☐ Odour
- ☐ Water Supply Taste/Colour
- ☐ Service Problem
- ☐ Sludge Related
- ☐ Water Pressure/No Water
- ☐ Basement Flooding

Other: _____

Description:

Operator advised PCT through P&C Report that Barry T (water Supervisor for Wellington North), had received a complaint regarding the noise from the air stack in the aeration cells. The current blowers are too big and have been turned down as much as they can be to eliminate too much DO in the aeration cells. The plant has just passed the 95% design review and will be replacing the blowers in the very near future

Action taken in response:

Operator as purchased a muffler from a local farm store to place on the top of the stack. The noice has almost completely dissappeared at this point. The operator will monitor the noise and replace the muffler if required.

Was the source of the problem identified?: ● Yes ○ No

Was the source an OCWA facility/activity?: ● Yes ○ No If "Yes", describe:

Arthur WWTP aeration cell blow off stack

If any remedial action is required, complete action plan form

Updated By: Donald Irvine 24/08/2018 03:53:38 PM

Investigating Operator:

Comments:

2019 - 2020 Annual Performance Report
Arthur Wastewater Treatment Plant
ECA 7654-BEMKVD

Appendix H

Overflow Report

Ontario Clean Water Agency
Environmental Incident Report

Facility ID: 5767 EIncidentReport

Facility Name: Arthur Wastewater Treatment Plant, Lagoon & Collection System

Address: P.O. Box 749

City: Arthur

Province: Ontario

Postal Code: N1M 2W7

Date of Occurrence: 13/01/2020

Time of Occurrence: 12:24:16 PM

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?: 783000 Litres

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

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

What was the source of release?:

Overflow at the Fredrick Street Pump Station due to excessive rainfall

Where did the release go?:

Conestogo River

If it entered a watercourse: ● Yes ○ No

If it went off site: ● Yes ○ No

Duration of the release?: 15 hours

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?

Close monitoring of the overflow event and alarms, use of chlorination pucks, VAC truck utlized to assist with surcharge to the sanitary sewer, sampling as per the requirements of the ECA.

What actions have been taken to remediate the incident?

A local VAC truck was brought in to assist with the surcharge of the sanitary sewer.

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

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

Saturday January 11, 2020

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

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

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

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

Saturday January 11, 2020 @ 1:30PM

Was it reported to Municipality?: ● Yes ○ No

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

Saturday January 11, 2020

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: David Jorge 14/01/2020 11:26:36 AM

Comments:

Ontario Clean Water Agency
Environmental Incident Report

Facility ID: 5767 EIncidentReport

Facility Name: Arthur Wastewater Treatment Plant, Lagoon & Collection System

Address: P.O. Box 749

City: Arthur

Province: Ontario

Postal Code: N1M 2W7

Date of Occurrence: 12/03/2020

Time of Occurrence: 10:58:37 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?: 313200 Litres

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

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

What was the source of release?:

Due to heavy precipitation and snow melt, the Fredrick Street Pump Station was overflowing

Where did the release go?:

To the adjacent flood plain, and then the Conestogo River

If it entered a watercourse: ● Yes ○ No

If it went off site: ○ Yes ● No

Duration of the release?: 6 hours

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?

Appropriate parties were contacted, chlorination pucks were utilized, overflow was closely monitored by the Operator, and the overflow was sampled by the Operator as required by the ECA.

What actions have been taken to remediate the incident?

Incident was resolved when weather improved.

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

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

March 10, 2020 @ 1200hrs via email

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

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

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

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

March 10, 2020 @ 1121hrs

Was it reported to Municipality?: ● Yes ○ No

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

March 10, 2020 @ 1120hrs

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: David Jorge 02/04/2020 01:04:23 PM

Comments:

2019 - 2020 Annual Performance Report
Arthur Wastewater Treatment Plant
ECA 7654-BEMKVD

Appendix I

Daily Streamflow Measurements

Ontario Clean Water Agency
Time Series Info Report

Report extracted 07/27/2020 15:20

From: 01/05/2019 to 30/04/2020

Facility Org Number: 5767
Facility Works Number: 110000882
Facility Name: ARTHUR WASTEWATER TREATMENT PLANT
Facility Owner: Municipality: Township of Wellington North
Facility Classification: Class 3 Wastewater Treatment
Receiver: Conestoga River
Service Population: 2500.0
Total Design Capacity: 1465.0 m3/day

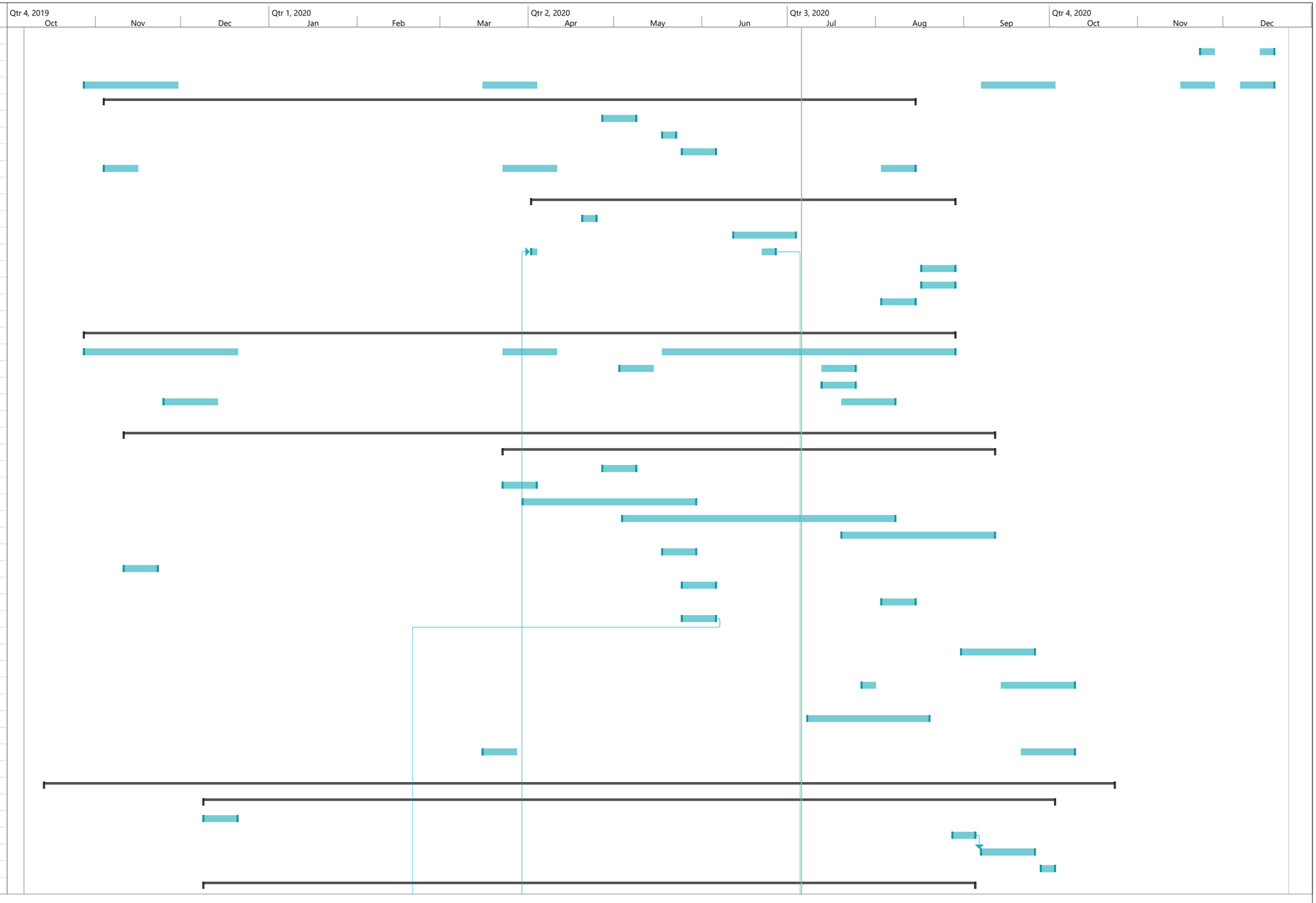
	05/2019	06/2019	07/2019	08/2019	09/2019	10/2019	11/2019	12/2019	01/2020	02/2020	03/2020	04/2020	Total	Avg	Max	Min
Final Effluent / River Height - cm																
Count IH	31	30	31	31	30	31	30	31	31	29	31	30	366			
Total IH	1194.82	537.94	365.06	392.32	398.29	549.99	1100.59	1293.25	1532.45	839.07	1689.59	1178.21	11071.58			
Max IH	63.76	31.46	13.3	15.18	14.73	59.31	75.48	84.16	168.28	34.9	122.98	47.88			168.28	
Mean IH	38.543	17.931	11.776	12.655	13.276	17.742	36.686	41.718	49.434	28.933	54.503	39.274		30.25		
Min IH	23.09	12.39	10.62	11.49	11.55	10.64	24.71	23.86	29.77	27.02	29.14	27.36				10.62

2019 - 2020 Annual Performance Report
Arthur Wastewater Treatment Plant
ECA 7654-BEMKVD

Appendix J

Construction Schedule

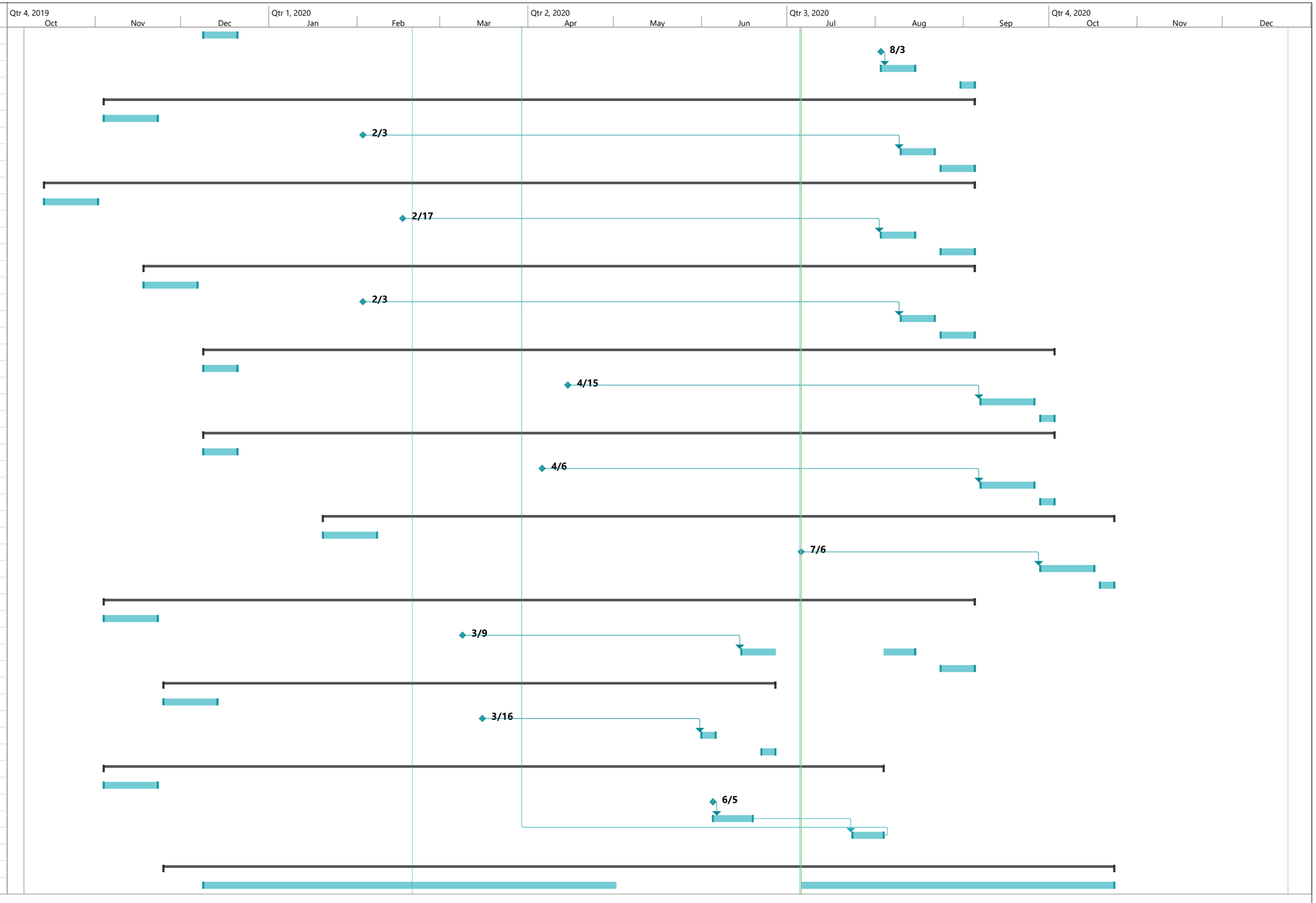
ID	Task Name
1	**Mobilization**
2	**Demobilization**
3	
4	**Roads/Siteworks**
5	**Excavation/Backfill**
6	Alum Tank
7	Diesel Generator Pad
8	Antenna Base
9	Equalization Tank
10	
11	**Demolition/Removals**
12	Alum Tank
13	Alum System
14	Generator Removal
15	Temporary Blower Removal
16	Existing Aeration Blower Removal
17	Digester Blower Removal
18	
19	**Yard Piping**
20	General Yard Piping
21	Site Chemical Piping
22	Equalization Drain Chamber
23	Manholes / Catch Basins
24	
25	**Concrete/Rebar**
26	Equalization Tank
27	Mud Slab
28	Sump
29	Base Slab
30	Walls
31	Troughs/Channels/Walkways/Stairs
32	Alum Tank Containment
33	Alum Secondary Containment
34	Diesel Generator Pad
35	Eq Inlet Chamber
36	Antenna Base
37	
38	**Concrete Repairs in Sludge Treatment Facility**
39	
40	**Miscellaneous Metals**
41	
42	**Insulation / Dampproofing**
43	
44	**Painting / Finishes**
45	
46	**Equipment**
47	Section 11280 S.S. Slidegates
48	Shop Drawings
49	Delivery
50	Installation
51	Commission
52	Section 11333 Manual Bar Screen



Project: Arthur WWTP Construc
Date: Mon 7/6/20

Task	Summary	Inactive Milestone	Duration-only	Start-only	External Milestone	Manual Progress
Split	Project Summary	Inactive Summary	Manual Summary Rollup	Finish-only	Deadline	
Milestone	Inactive Task	Manual Task	Manual Summary	External Tasks	Progress	

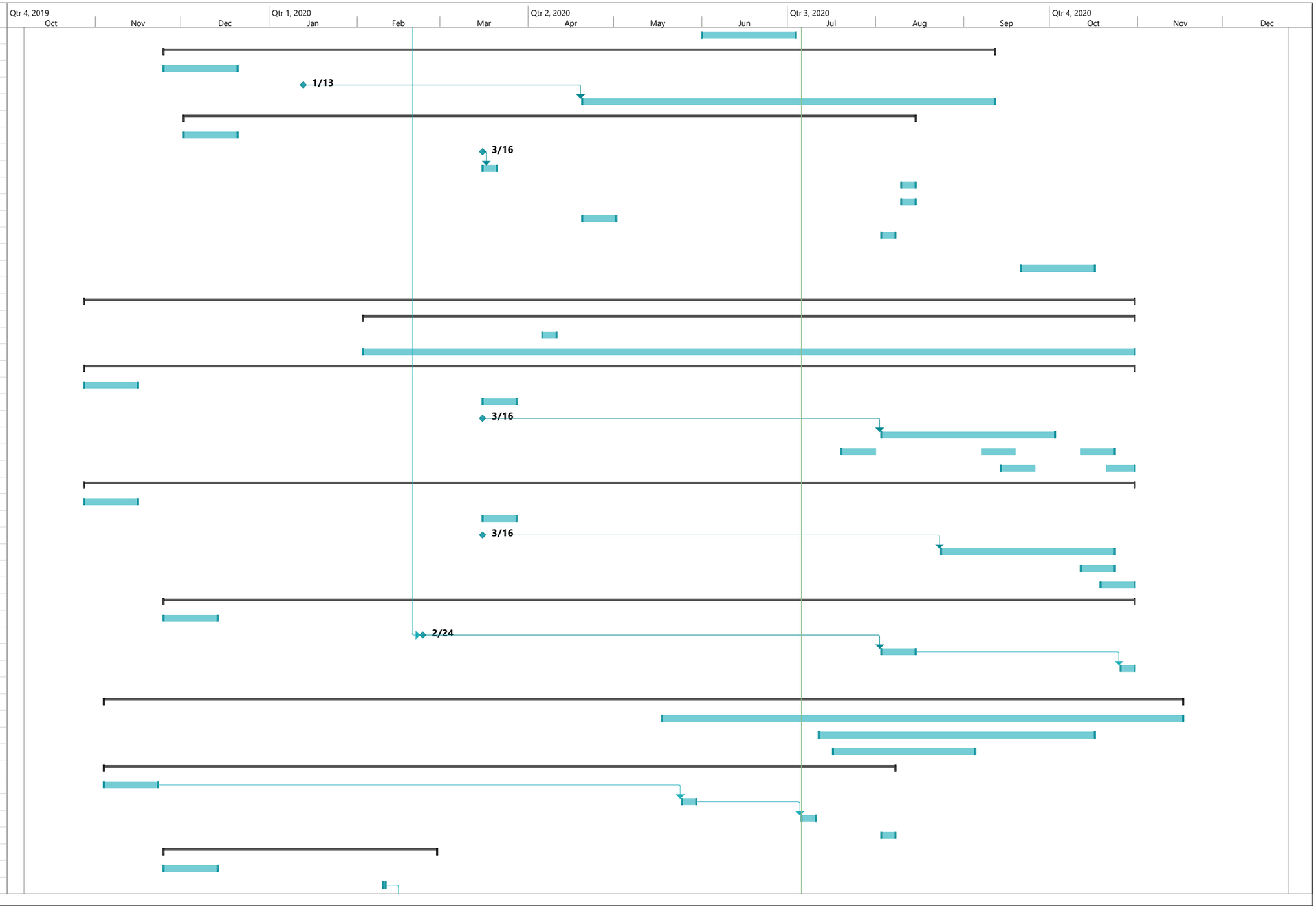
ID	Task Name
53	Shop Drawings
54	Delivery
55	Installation
56	Commission
57	Section 11370 Aeration Blowers
58	Shop Drawings
59	Delivery
60	Installation
61	Commission
62	Section 11370 Digester Blowers
63	Shop Drawings
64	Delivery
65	Installation
66	Commission
67	Section 11375 Air Compressor
68	Shop Drawings
69	Delivery
70	Installation
71	Commission
72	Section 11420 RAS/WAS Pumps
73	Shop Drawings
74	Delivery
75	Installation
76	Commission
77	Section 11421 Equalization Drain Pump
78	Shop Drawings
79	Delivery
80	Installation
81	Commission
82	Section 11423 Decant Pump Assembly
83	Shop Drawings
84	Delivery
85	Installation
86	Commission
87	Section 11531 Alum Pumps
88	Shop Drawings
89	Delivery
90	Installation
91	Commission
92	Section 11655 Alum Tank
93	Shop Drawings
94	Delivery
95	Installation
96	Commission
97	Section 16231 Diesel Generator
98	Shop Drawings
99	Delivery
100	Installation
101	Commission
102	
103	**Mechanical / Process Piping**
104	General Mechanical / Process Piping



Project: Arthur WWTP Construc
Date: Mon 7/6/20

Task	Summary	Inactive Milestone	Duration-only	Start-only	External Milestone	Manual Progress	
Split	Project Summary	Inactive Summary	Manual Summary Rollup	Finish-only	Deadline		
Milestone	Inactive Task	Manual Task	Manual Summary	External Tasks	Progress		

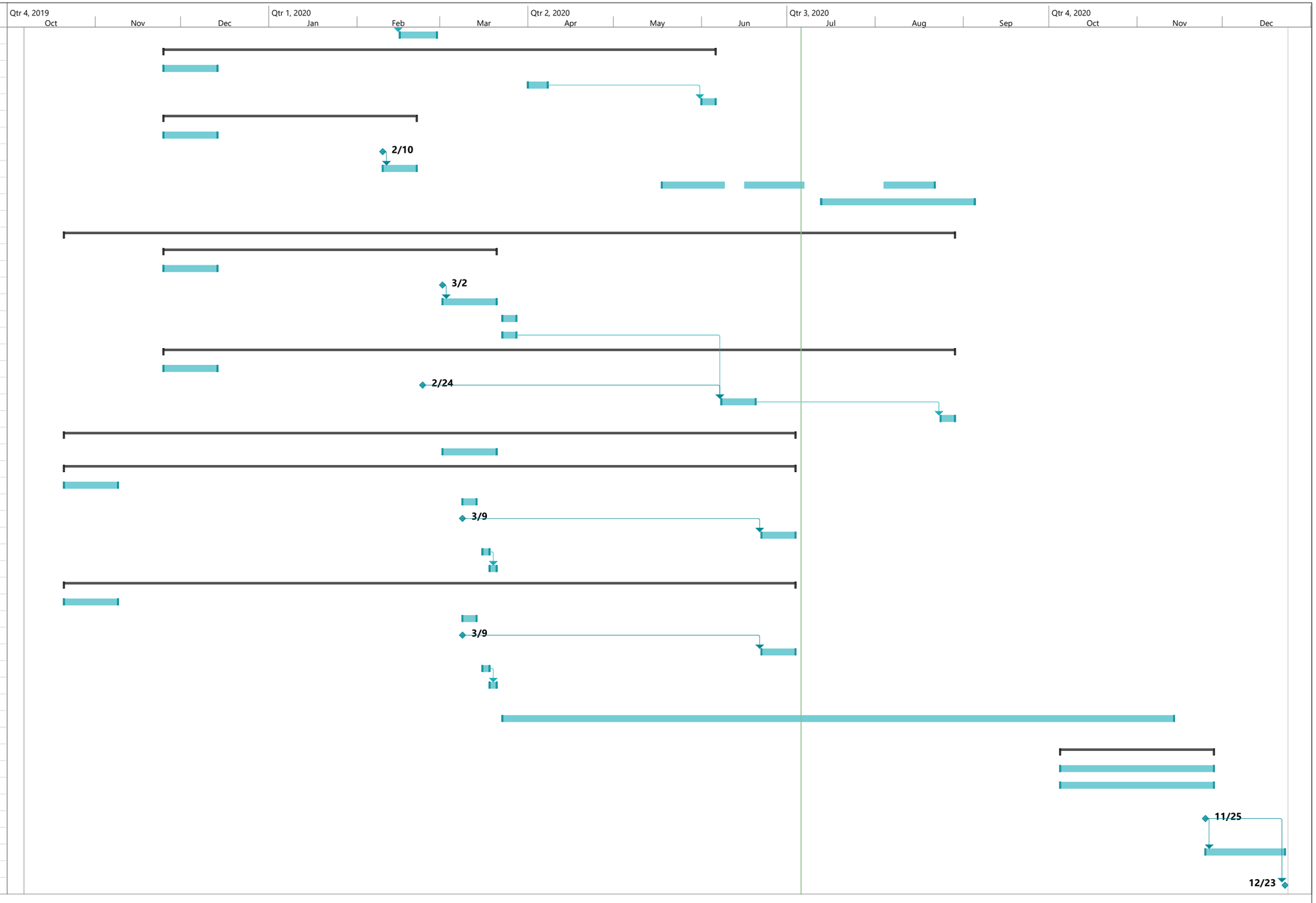
ID	Task Name
105	Chemical Piping
106	Valves
107	Shop Drawings
108	Delivery
109	Installation
110	Mud Valves
111	Shop Drawings
112	Delivery
113	Installation of AST01-DV01
114	Installation of RP200-DV01
115	Installation of RP100-DV01
116	Piping Under EQ Tank Slab
117	400 Pipe at Filter Room
118	
119	**HVAC**
120	
121	**Instrumentation**
122	**General Instrumentation**
123	Installation of SSTP0-FI01
124	General Instrumentation
125	ICP-01
126	Shop Drawings
127	FAT
128	Delivery
129	Installation
130	I/O Pre-SAT
131	SAT
132	CCP1 Network Control Panel
133	Shop Drawings
134	FAT
135	Delivery
136	Installation
137	I/O Pre-SAT
138	SAT
139	Antenna
140	Shop Drawings
141	Delivery
142	Installation
143	Commission
144	
145	**Electrical**
146	General Electrical
147	Demolition/Removals
148	Wellington North Power Work
149	New Service Entrance MCC
150	Shop Drawings
151	Delivery
152	Installation
153	Commission
154	MCC 1 Retrofits
155	Shop Drawings
156	Delivery



Project: Arthur WWTP Construc
Date: Mon 7/6/20

Task	Summary	Inactive Milestone	Duration-only	Start-only	External Milestone	Manual Progress
Split	Project Summary	Inactive Summary	Manual Summary Rollup	Finish-only	Deadline	
Milestone	Inactive Task	Manual Task	Manual Summary	External Tasks	Progress	

ID	Task Name
157	Installation
158	MCC 2 Retrofits
159	Shop Drawings
160	Delivery
161	Installation
162	MCC 3 Retrofits
163	Shop Drawings
164	Delivery
165	Installation
166	Ductbanks
167	Cable Tray Installation
168	
169	**Lagoon Retrofit**
170	Valve Replacements
171	Shop Drawings
172	Delivery
173	Installation
174	Duct Bank
175	Antenna Base
176	Antenna
177	Shop Drawings
178	Delivery
179	Installation
180	Commission
181	**Instrumentation**
182	General Instrumentation
183	Lagoons Level and RC Panel
184	Shop Drawings
185	FAT
186	Delivery
187	Installation
188	I/O Pre-SAT
189	SAT
190	Solar Control Panel
191	Shop Drawings
192	FAT
193	Delivery
194	Installation
195	I/O Pre-SAT
196	SAT
197	
198	**Training**
199	
200	**Contract Closeout Documentation**
201	O&M
202	Redline Drawings
203	
204	**Substantial Performance**
205	
206	**Contract Deficiencies**
207	
208	**Final Completion**



Project: Arthur WWTP Construc
Date: Mon 7/6/20

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