Town of Petrolia
Wastewater Treatment Plant

2023 Annual Report of Operations

Managed, Operated, and Maintained by

Jacobs

February 2024

Ontario Ministry of the Environment, Conservation and Parks
1094 London Road,
Sarnia, Ontario.

Dear MECP District Manager:

On behalf of the Corporation of the Town of Petrolia, in Lambton County, Jacobs (OMI) is pleased to submit to you the annual operating report for the Town of Petrolia, Wastewater Treatment Plant. Please feel free to contact the undersigned if you have any questions regarding this report.

Respectfully submitted,

Joe Bloomfield
Jacobs - Project Manager

cc: Mike Thompson, Manager of Operations, Town of Petrolia
Cathy Culnan, Operator II, Jacobs
Rick Marsh, Area Manager, Jacobs

Introduction

The WWTP is classified as a Class Three (3) Treatment Facility with a Class Two (2) Collection system. OMI (Jacobs) is the Operating Authority for the Treatment plant and the Collection system's pumping stations, on behalf of The Town of Petrolia. OMI (Jacobs) commenced operations of the new plant July/2017.

Wastewater System number # 110000579

The system operates under **ECA # 7692-CRXKHQ, Issue Date: July 28, 2023.**

The MECP performed an inspection of the WWTP on July 10th, 2019.

The WWTP has a back-up power generator on-site which operates the Treatment Plant and the Main sewage pumping station during power outages/emergencies.

Main pump station receives the Raw sewage flow from all pump stations through the gravity feed sewer system. It is then pumped directly to the WWTP.

The reports submitted quarterly to the Water Supervisor at the Ontario Ministry of the Environment, Conservation and Parks (MECP) are the R1 and R2 Municipal Utility Monitoring Program reports for mechanical plants. Also submitted quarterly are the Bypass/Overflow reports.

A required, quarterly, Federal ERRIS (Effluent Regulatory Reporting Information System) report is submitted by Jacobs on behalf of The Town of Petrolia.

Benthic sampling of Bear Creek was performed in June/2017, June/2018 and June/2019. After reviewing three (3) consecutive year results, the MECP had concluded the results show no water impairment to Bear Creek and the monitoring requirement for Benthic sampling of Bear Creek was terminated.

Pumping Stations & Collection system:

The Petrolia collection system consists of twelve (12) sewage pumping stations.

The Pump Stations are checked on a weekly basis and have alarm monitoring capabilities 24 hours per day. Pump run time hours are documented during the weekly checks. Pump Station valve chambers are pumped out annually.

Main pump station is connected to the backup generator at the WWTP therefore the pumps will operate during a power outage. Barrett's Lane pump station also has a backup generator for emergency outages.
All other pump stations are equipped with a terminal plug and transfer switch in the event they require a portable generator.

Glenview, Ella, Progress, Barrett's Lane, and Greenfield sewage pumping stations are all controlled by a Flyght Cloud Multi-Smart System which enables Operators to quickly log in remotely if an emergency should arise. In 2024 a Flyght Cloud Multi-Smart System is to be installed at Waterville & Vanderwall sewage pumping stations.

Lagoons:
Petrolia Wastewater Treatment Plant has two (2) on site lagoons.

East: is a sludge stabilization lagoon with a holding capacity of 88,200 m3 used for storage and treatment of sludge from the aerobic digesters, equipped with an outfall structure and a gate valve discharging to Bear Creek.

West: is a sewage lagoon with a holding capacity of 126,540 m3 used for storage and treatment of excess sewage flow diverted from the sewage treatment plant during an emergency, equipped with an outfall structure and a gate valve discharging to Bear Creek.

Discharge from East or West lagoons shall be allowed only if the monitoring results obtained under condition 8 (5) comply with the compliant limits, otherwise the supernatant from either lagoon will be conveyed back to the sewage treatment plant headworks for further treatment.

When the Lagoon Discharge is out of compliance with the Design Objectives, the valve will be closed, and the supernatant shall be pumped back to the plant for further treatment, therefore eliminating an issue before it becomes a non-compliance.

The Lagoon cross connection pumping chamber is pumped out before winter to prevent piping/supports from freezing.

Leachate:
The Corporation of the Town of Petrolia has entered into an agreement with Waste Management Canada to receive and treat the Leachate from the Petrolia Waste Management site located on Oil Heritage Road. The Leachate enters the system through a forcemain which starts at the Waste Management site and continues north along Oil Heritage Road to Petrolia Line. It discharges into the collection system in the manhole, located at the corner of Petrolia Line and Oil Heritage Road.

The maximum volume of leachate that will be accepted at the WWTP is limited to 100 m3 per/day up to a total of 15,000 m3 per year. The volume of leachate flow that enters the system is tracked through a flowmeter maintained by Waste Management (calibrated March 9, 2023). Each month OMI and the Town of Petrolia receive a flow volume report. The total 2023 leachate flow that the WWTP received and treated is approximately 7,044 m3. (2022: 6,272) (2021: 5,620) (2020: 8,967)

Leachate grab samples are collected quarterly; 2023: Jan 23rd, April 14th, July 17th, Oct 16th

The Leachate samples are sent to SGS Laboratories and analyzed for the parameters: BOD5 and TKN

The Operator performs an on-site analysis of the: pH and Temperature.

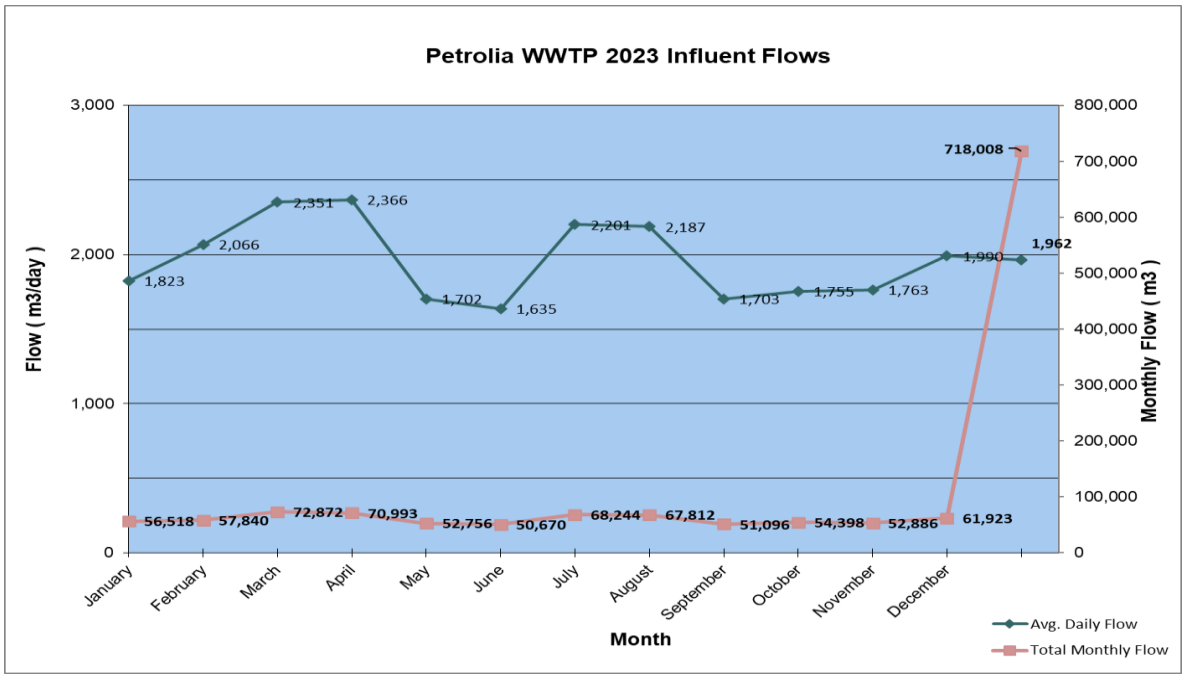
Operators collect the leachate samples at the receiving point in the collection system.

ECA, Schedule 11: Reporting

The Owner shall prepare performance reports on a calendar year basis and submit to the District Manager by March 31 of the calendar year following the period being reported upon. The reports shall contain, but not limited to, the following information pertaining to the reporting period:

a) a summary and interpretation of all Influent & Imported Sewage monitoring data, and a review of the historical trend of the sewage characteristics and flow rates.

The Total Influent flow to the plant for 2023 was approximately 718,008 m3 which is an annual daily average of 1,962 m^3/day or approximately 37.2% of capacity (2022 – 609,207) (2021 – 635,698)
The plant's design capacity is an average daily flow of 5,263 m^3/day and a peak flow rate capacity of 21,050 m3/day.

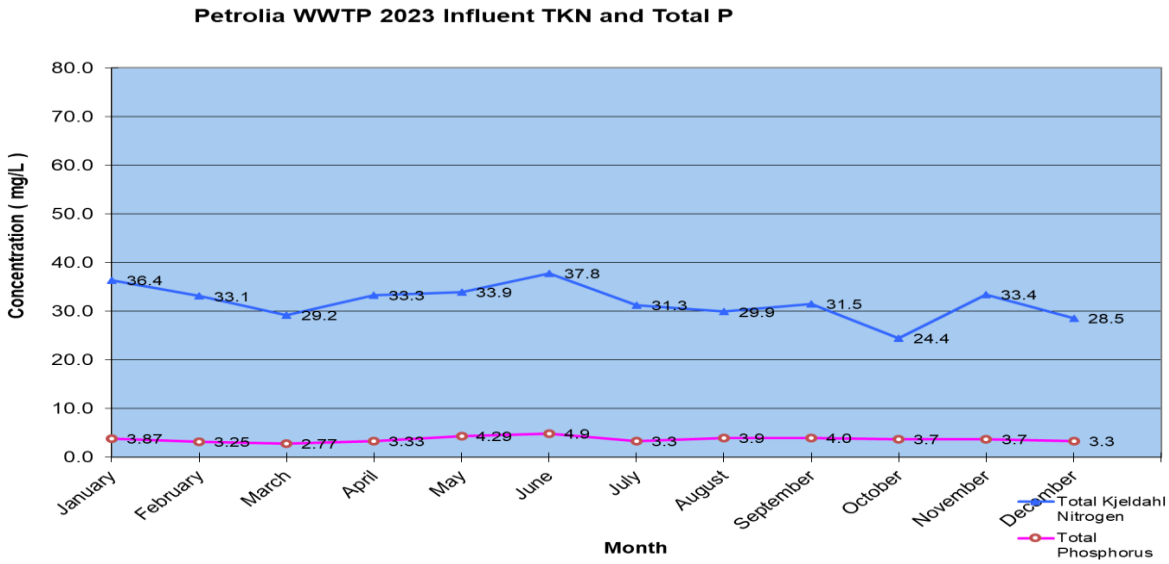


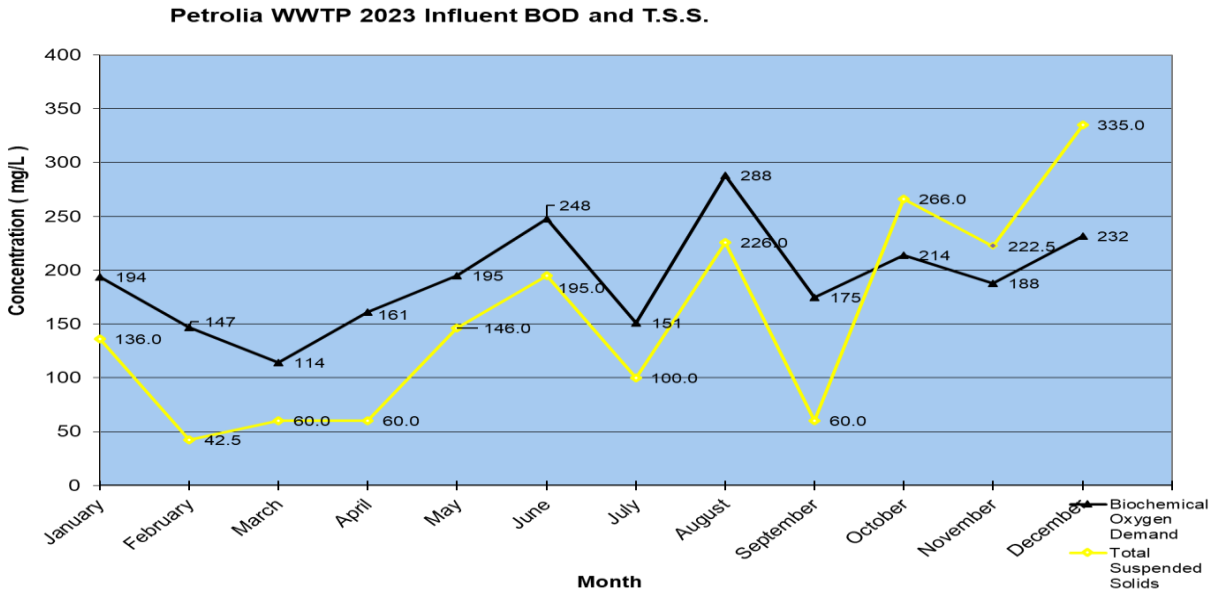
A 24-hour composite sample of the Influent (Raw) sewage is collected weekly and analyzed by SGS Laboratories for the parameters: BOD5, TKN and Total Phosphorous. The Operator performs the weekly sample analysis for TSS, Alkalinity, pH, and Temperature.

Historically the Influent flow rates increase during storms & heavy rain events throughout the summer months. We see a rise in flow throughout the spring season with the melting of snow and run-off from fields. Also, there is an increase due to expansion & new development occurring in residential areas and new business growth within the Municipality.

Phosphorous and solids removal is achieved by the addition of aluminum sulphate (alum) from two (2) metering pumps which deposits the alum directly into a combined receiving channel at the end of the aeration tanks. The alum is stored indoors in a 20,000 Litre tank. Outdoor alum piping is insulated to prevent freezing during the winter. The volume of Alum used for 2023 is 65,781 Liters. (2022: 64,182)

Sodium Bicarbonate is added to the Influent flow, as needed, to maintain pH levels.





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.

The treated Effluent discharges through the WWTP outfall pipe leading into Bear Creek. The outfall has gabion & cement structures to lessen the impact of the flow entering Bear Creek.

Compliance samples for the Final Effluent are collected weekly & analyzed by SGS Laboratories for the parameters: CBOD5, TSS, Total Phosphorous, Ammonia and E-coli. Operator performs the analysis for Alkalinity, Nitrite, Nitrate, pH, Temperature & Reactive Phosphorous.

The Effluent flow data is interpreted by a virtual flow meter. Influent flow minus any wasting that has occurred and then this result is to be the Final Effluent flow. (ECA: Section 9, 4(b) (page 15)

The UV System is operated seasonally from April 1st to November 30th (ECA: Schedule C, page 22) As requested by the MECP we document/highlight the e-coli parameter overages throughout the winter when the UV system is offline. The automatic UV system is cleaned, greased and bulbs replaced before putting on-line in the Spring.

Parameter	Design Objective	Design Limit
CBOD5	5 mg/L (26.3 kg/d)	10 mg/L (52.6 kg/d)
TSS	5 mg/L (26.3 kg/d)	10 mg/L (52.6 kg/d)
Total Phos	0.37 mg/L (1.9 kg/d)	0.74 mg/L (3.9 kg/d)
TAN	2.0 mg/L (10.5 kg/d) (May 1 – Nov 30)	3.0 mg/L (15.8 kg/d) (May 1 – Nov 30)
TAN	4.0 mg/L (21.0 kg/d) (Dec 1 – April 30)	6.0 mg/L (31.6 kg/d) (Dec 1 – April 30)
pH	6.5 – 8.5 inclusive at all times	6.0 – 9.5 inclusive at all times
E-Coli	150 organisms per 100 mL	200 organisms per 100 mL

Petrolia 2023 Effluent Flow - m3

DATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
1	1866	1479	2293	7964	1770	1109	1652	1260	1473	1737	1559	1964	**m^3/d**
2	2029	1573	2035	3351	2003	1272	1619	1445	1591	1661	1386	2348	**m^3/d**
3	1502	1304	1753	2514	2283	1612	3260	1127	1624	1631	1523	2536	**m^3/d**
4	1653	1800	2603	5958	1954	1616	1820	1182	1757	1666	1742	2050	**m^3/d**
5	1441	1861	3474	3393	1651	974	1630	1521	1208	1626	1727	1673	**m^3/d**
6	1460	1385	2812	2658	1833	1269	2489	1764	1377	1644	1583	1634	**m^3/d**
7	1767	1662	2279	2368	1862	1275	1669	1827	1217	1715	1417	1543	**m^3/d**
8	1830	1863	1878	2251	1416	1227	2001	1382	1109	1684	1757	1727	**m^3/d**
9	1206	3800	1643	2040	1336	1290	1849	1295	1619	1703	2205	1829	**m^3/d**
10	1174	2177	2145	1990	1674	1604	1723	1559	1746	1364	1728	1919	**m^3/d**
11	1237	2295	2268	1622	1479	1671	2927	1537	1494	1523	1805	1757	**m^3/d**
12	1110	2192	2118	1522	1403	1595	2311	1631	1745	1396	1827	1514	**m^3/d**
13	1285	1435	1480	1578	1678	1427	5105	1558	1744	1371	1742	1459	**m^3/d**
14	1650	1667	1388	1501	1685	1425	2252	1245	1573	1719	1681	1392	**m^3/d**
15	1697	1448	1474	1793	1404	1363	2643	4275	1567	2243	1665	1555	**m^3/d**
16	1180	1439	1622	1961	1430	1800	2265	2249	1771	2011	1495	1824	**m^3/d**
17	1496	1563	3108	1489	1382	1612	1603	2613	1786	1504	1462	2152	**m^3/d**
18	1379	1916	2329	1712	1339	1591	1654	1998	1456	1469	1717	2070	**m^3/d**
19	1789	1872	2223	1388	1263	1421	1700	1894	1545	1517	1722	1669	**m^3/d**
20	2280	1866	1531	1063	1974	1296	2401	1824	1640	2014	1452	1675	**m^3/d**
21	2049	1277	1295	1108	1590	1532	1869	1368	1113	1909	1932	1811	**m^3/d**
22	2033	1756	1741	1831	1699	1476	1818	1428	1469	1804	1942	1734	**m^3/d**
23	1335	1992	2327	1789	1276	1273	1759	2342	1684	1428	1568	2280	**m^3/d**
24	1326	1888	1926	1702	1296	1610	1507	5359	1654	1382	1445	1976	**m^3/d**
25	1242	2153	2590	1633	1145	1650	1532	7607	1463	1157	1753	1791	**m^3/d**
26	1308	2161	2304	1632	1168	1433	1871	1839	1699	1274	2024	1807	**m^3/d**
27	1197	1752	2161	1205	1672	1856	2881	1794	1625	1432	1825	2530	**m^3/d**
28	1854	2350	2051	1766	1670	1383	2093	1284	1791	2110	1768	1867	**m^3/d**
29	1901		2037	2254	1184	1290	2201	1377	1407	1854	1678	1723	**m^3/d**
30	1511		1391	2221	856	1591	1836	1612	1716	1681	1443	2125	**m^3/d**
31	1460		4230		972	1652	1699	1272		1479		2064	**m^3/d**
TOTAL	**48,247**	**51,926**	**66,509**	**67,257**	**47,347**	**45,195**	**65,639**	**62,468**	**46,663**	**50,708**	**50,573**	**57,998**	**m^3/d**
MIN.	**1,110**	**1,277**	**1,295**	**1,063**	**856**	**974**	**1,507**	**1,127**	**1,109**	**1,157**	**1,386**	**1,392**	**m^3/d**
MAX.	**2,280**	**3,800**	**4,230**	**7,964**	**2,283**	**1,856**	**5,105**	**7,607**	**1,791**	**2,243**	**2,205**	**2,536**	**m^3/d**
AVG.	**1,556**	**1,855**	**2,145**	**2,242**	**1,527**	**1,458**	**2,117**	**2,015**	**1,555**	**1,636**	**1,686**	**1,871**	**m^3/d**
% Capacity	**30**	**35**	**41**	**43**	**29**	**28**	**40**	**38**	**30**	**31**	**32**	**36**	**%**

Yearly Average: **1,805** **m^3/d** **Yearly Total:** **660,530** **m3**

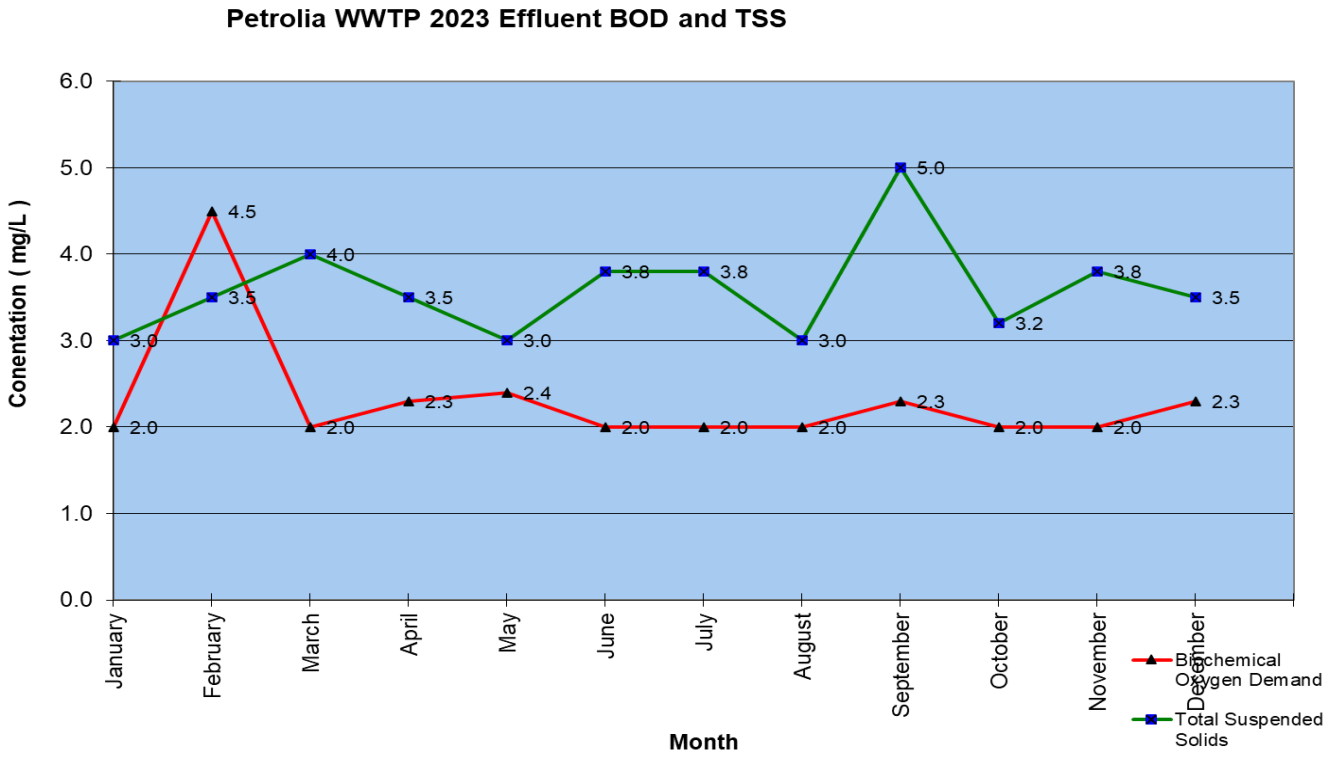
Design Capacity: **5,263** **m^3/d**

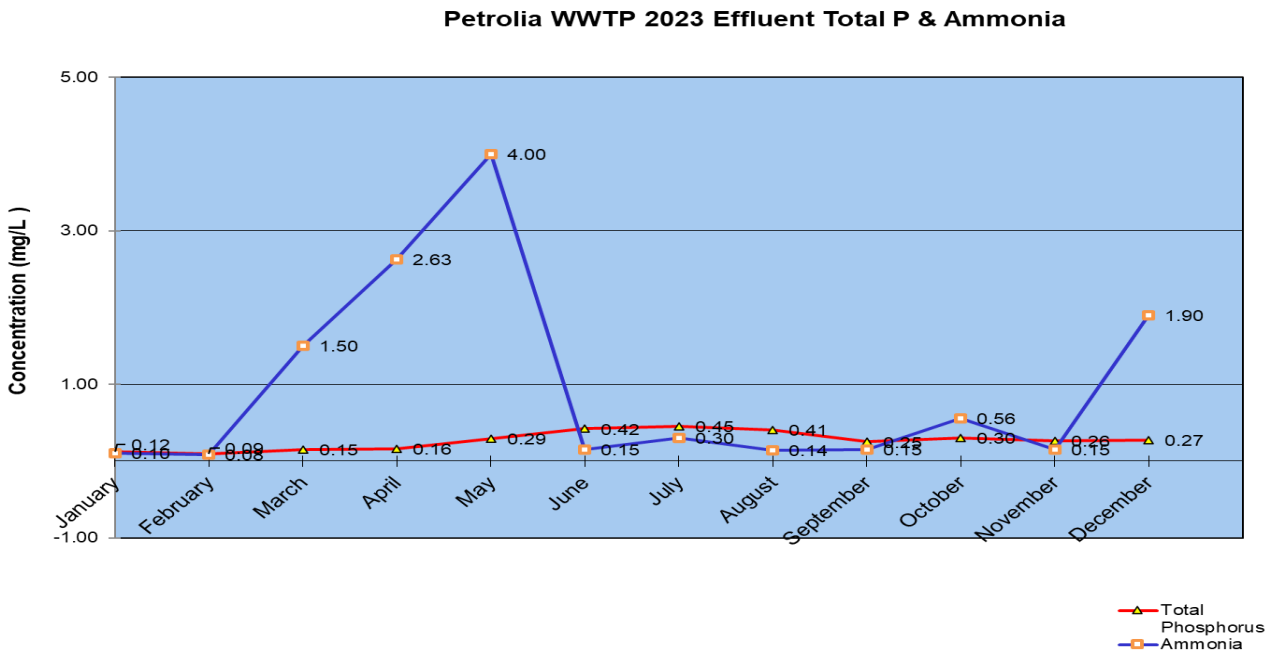
Percent of Capacity: **34.29%**

PETROLIA WWTP EFFLUENT LOADINGS 2023

PARAMETER	AVERAGE EFFLUENT MONTHLY LOADING (Kg/d) SUSPENDED SOLIDS	CBOD5	TOTAL "P"	AMMONIA	AVG Influent Flow Per MECP	AVERAGE EFFLUENT MONTHLY CONCENTRATION (mg/L) SUSPENDED SOLIDS	CBOD5	TOTAL "P"	AMMONIA
ECA Limits	52.6	52.6	3.9	15.8 / 31.6		10	10	0.74	3.0 / 6.0
JAN.	5.46	3.65	0.22	0.18	1823	3.0	2.0	0.12	0.10
FEB.	7.23	9.29	0.18	0.16	2066	3.5	4.5	0.09	0.08
MARCH	9.40	4.70	0.35	3.52	2351	4.0	2.0	0.15	1.50
April	8.28	5.44	0.37	6.22	2366	3.5	2.3	0.16	2.63
MAY	5.10	1.41	0.17	2.35	1702	3.0	2.4	0.29	4.00
JUNE	6.21	3.27	0.68	0.25	1635	3.8	2.0	0.42	0.15
JULY	8.36	4.40	0.99	0.66	2201	3.8	2.0	0.45	0.30
				Started using Average Effluent flow as per MECP					
AUGUST	4.03	6.04	0.82	0.28	2015	20.0	30.0	0.41	0.14
SEPT	7.75	3.57	0.38	0.23	1555	5.0	2.3	0.25	0.15
OCT	7.17	4.49	0.67	1.26	2243	3.2	2.0	0.30	0.56
NOV	6.41	3.37	0.44	0.25	1686	3.8	2.0	0.26	0.15
DEC	6.55	4.30	0.51	3.55	1871	3.5	2.3	0.27	1.90

average monthly concentration X average monthly flow / 1000 = Average Monthly Loading





---

c) a summary of all operating issues encountered, and corrective actions taken.

May – the monthly average Compliance Limit for the parameter Total Ammonia Nitrogen (TAN) was not met, the analysis result was 4.0 mg/L (Compliance Limit is 3.0 mg/L)

- The first two weeks of May there was increased Ammonia levels due to draining and transferring of Aeration tank # 1 into Aeration tank # 2 the air valves to Aeration # 2 had to be tweaked until the correct DO was dispersed throughout the tank (resetting set points).
- From May 9th through to May 12th – Clarifier # 2 was out of service for cleaning therefore running the plant process on one clarifier.
- The Effluent samples for May 16th saw the Ammonia levels decrease significantly (0.10 mg/L)

d) 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.

Jacobs uses a computerized maintenance management system (CMMS) to track preventative and corrective maintenance activities. Preventive maintenance activities are carried out on a regularly scheduled basis (equipment greasing, changes of oil, filters, belts etc.) to ensure optimal performance and readiness of all critical plant equipment during an emergency. Some repairs are listed below.

January – Fiber optic high speed internet was installed at the WWTP**.**
Feb – Filter # 2 replaced bearings on “idler side trunnion wheel.”
March – Cleaned UV Lighting system, replaced several bulbs & replaced automatic wiping cannisters.
April – Annual oil change on clarifier gear boxes & bar screen motors
April – CT Environmental cleaned sewage pump station wet wells & clarifier influent channel
May – BGL replaced the Barrett’s lane pumping station wet well landing, railings & ladder.

May – Bluewater power performed upgrades to the service box at First Ave pumping station.
June – HSE on site for the annual fire extinguisher inspections
July – Barscreen # 1 – installed all new grease nipples.
July – Repairs made to the roof top yard hydrant at the WWTP.
August – Pulled & cleaned pump # 2 at Greenfield pumping station.
September – Changed belt on roof top HVAC system.
October – Annual maintenance on Bar Screens, Grit Classifier, Grit Blowers, Digester Blowers
November – Changed filters on office roof top HVAC.
December – Filter # 1 – repairs to sprayer arm

Electrical Safety authority (ESA) performs annual inspections at the WWTP and pumping stations which was conducted on September 6th, 2023.

HVAC System filters are replaced monthly and are removed throughout the winter months as per equipment manual.

Zelus Material handling annually performs inspections on safety equipment throughout the WWTP.

The on-site generators at the WWTP & at Barrett's Lane pump station are exercised monthly to ensure operations during a power outage emergency. Albert's Generators performs the annual maintenance on both generators – Feb 16, 2023 (oil & filter change, belt inspections, on-load testing, transfer switch testing)

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

Overall, as a Best Management Practice the alum dosing in the winter is lowered to 7-8% and the dosing is increased to approximately 12-14% throughout the warmer months, therefore increasing the efficiency of the Phosphorous removal. Also, phosphorus levels may increase slightly when Supernatant from Lagoon is decanted back to the WWTP.

Disk filter screens are cleaned as necessary with Sodium Percarbonate & Citric Acid. This prevents calcification buildup on the screens which ensures quality Effluent.

The UV lighting disinfection system is cleaned in March prior to putting the system in service. The automatic wiping system's components are checked and serviced - greased, cleaning solution filled and a manual wipe is initiated to check system operations. Bulbs are checked and replaced as necessary.

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

Influent flow meter calibrations are performed annually by Pierce Services. Calibrated on Aug 31, 2023

In-house meters for pH analysis are calibrated and results documented by the Operators as per the manufacturer's recommendations.

Hetek performs calibrations on the gas monitoring system at the WWTP (July 4th & Dec 21st)

g) a summary of efforts made to achieve 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 is not achieved more than 50% of the time in a year, or there is an increasing trend in deterioration of Final Effluent quality.

II. when the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity.

June – the monthly average Design Objective was not met for Total Phosphorus; the analysis result was 0.42 mg/L (Design Objective is 0.37 mg/L)

- It was very dry at the beginning of June with a heavy rainstorm sweeping the area on June 15th and 16th with an increase in infiltration into the collections system from fields and creeks. The Phosphorus from the runoff infiltrates parts of the collection system and is carried through with the flow to the treatment plant.
- Started alternating lagoon return pumps (on/off) at various intervals/days throughout the month and with the lagoon supernatant being returned to the plant, it slightly increases the Phosphorus levels.
- Alum dosing was increased.

July – the monthly average Design Objective was not met for Total Phosphorus; the analysis result was 0.45 mg/L (Design Objective is 0.37 mg/L)

- July 3rd & 11th quick rainstorms with First Ave pump station going into high level.
- On July 20th a very heavy rainstorm swiftly went through the area causing local creeks to flood.
- During the days of 26th, 27, 28th, 29th there were on/off rainstorms, keeping fields and creeks saturated with water.
- All the rain the area received during July caused an increase in infiltration into the collection system from the fields and flooded creeks, this increases the likely hood of higher Phosphorus levels in the plant Influent caused by the runoff.
- Also Supernatant from the Lagoon system also is being returned to the plant at various intervals/days throughout the month which slightly increases the Phosphorus.

August – the monthly average Design Objective was not met for Total Phosphorus; the analysis result was 0.41 mg/L (Design Objective is 0.37 mg/L)

- For the Aug 15h Effluent sample, the lagoon pump was turned on the day before (Aug 14th) causing a slight increase in phosphorus levels for the sample collected.
- Alum dosing was increased.
- For the Aug 22nd Effluent sample, the Influent Vortex and the Anoxic Zone mixer had tripped through the night & was reset. Without the flow going through these processes the Phosphorus had increased.
- Also Supernatant from the Lagoon system also is being returned to the plant at various intervals/days throughout the month which slightly increases the Phosphorus.

h) 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 location to where the sludge was disposed.

As per the ECA, one (1) sample of sludge is collected annually and analyzed for the required parameters. Collected on January 10th, 2023. The Waste Activated Sludge (WAS) is stored in two (2) aerobic digesters.

During 2023 it is estimated that 57,854 m3 of sludge was wasted from the treatment plant to the aerobic digesters, it is then thickened by decanting the supernatant back to the WWTP for further treatment, when no evidence of supernatant exists in the digester, the thickened sludge is then pumped to the East Storage Lagoon. (2022: 48,920 m3) (2021: 49,007 m3)

Historically the sludge volume wasted to the digesters is increasing annually by approximately 1,000 – 2,000 m3 per year. In 2023 the sludge wasting has significantly increased due to population growth and industrial/commercial development. For the year 2024, it is anticipated that the volume of sludge produced will increase again to some extent due to the increase of ongoing construction of residential homes in various new subdivisions, as well there are new business developments and projected growth within the Municipality. More solids are also generated due to the addition & treatment of Leachate from Waste Management. As a BMP (best management practice) an in-house solids test is performed periodically on the receiving Leachate to estimate the extra solids that are received in the Influent.

East Lagoon – (sludge stabilization pond). Throughout the course of 2017/2018, sludge was removed and was land applied. With a total of approximately 24, 408 m3 of sludge being removed.
West Lagoon – to date has had no sludge removed.

i) A summary of any complaints received, and any steps taken to address the complaints.

There were no complaints for 2023.

In 2023, through Ray Dobbin Engineering a noise-study was conducted by HGC Engineering regarding the WWTP and any effects it has on the surrounding residences.

j) A summary of all Bypasses, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPS and abnormal discharge events

There were no Bypasses or Overflows to report for 2023.

August – An extremely heavy rainstorm went through the area on the evening of August 23rd. Due to excessive run-off into Bear Creek from fields and tributaries, it was observed that the creek had breached its banks & flowed into the lagoon system, filling both lagoons. When Bear Creek receded the lagoon system back flowed into Bear Creek. An Emergency discharge of both East & West Lagoons

was permitted by the MECP. The discharge was started Aug 25th and stopped Sept 11th with a total combined 178,950 m3 being released into Bear Creek. (approximately sixty (60) inches per lagoon)

The Town of Petrolia's Public Works Department repaired parts of the lagoon berms that were partially eroded due to the backflow.

August – During the same storm on August 23rd the Greenfield pump station was submerged under water from Bear Creek. The flow entered through the edges of the lid as Bear Creek levels flooded over the station wetwell lid. The pumping station ran for a consecutive 16 hours. Greenfield pump station is in a low-lying area beside Bear Creek.

k) a summary of all Notices of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 10, including a report on status of implementation of all modifications.

There were no modifications to the Sewage Works

l) 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.

There were no projects undertaken.

The sewage pumping station wet wells are cleaned annually to prevent grease and grit buildup therefore lessoning the likelihood of sewage backups in the collection system.

m) a summary of any deviation from the monitoring schedule and reasons for the current reporting year and schedule for the next reporting year.

The sampling schedule is created and distributed in the month of December of the prior reporting year.

As per ECA – Schedule 9. 1 (d) page 14: the schedule shall be revised and updated every year through a rotation of the day of the week/month for the scheduled sampling program.

For 2024 the sampling day is on Tuesday (2023 – sample day was Monday upon receiving new ECA)

2023 Weekly Analytical & Monthly Results

Petrolia WWTP
Operations Number: 110000579
Operating Authority: Jacobs
Town Of Petrolia

Month/Year: Jan/2023

ANALYST: SGS Laboratory & In-house analysis

	AERATION M.L.S.S.		RAW INFLUENT					FINAL EFFLUENT									
Test # Date	#1 Aeration MLSS	#2 Aeration MLSS	BOD5 mg/L	S. S. mg/L	TKN mg/L	Alkalinity CaCO3 mg/L	Total P mg/L	CBOD5 mg/L	S. S. mg/L	Total P mg/L	Ammonia NH3-N mg/L	E-Coli Per 100ml	Effluent pH	Alkalinity CaCO3 mg/L	Nitrate NO3 mg/L	Nitrite NO2 mg/L	Reactive P mg/L
1 Jan 4th	3000	2410	127	30	33.6	254	3.25	2.0	3.0	0.13	0.10	1270	7.12	32	7.2	0.090	0.17
2 Jan 10th	2670	2430	175	50	33.5	260	3.76	2.0	3.0	0.16	0.10	1200	7.15	52	14.8	0.018	0.26
3 Jan 17th	2480	2440	368	460	46.7	316	5.47	2.0	3.0	0.12	0.10	1210	7.12	24	13.9	0.290	0.06
4 Jan 24th	2880	2300	121	70	39.3	308	3.54	2.0	2.0	0.10	0.10	13600	6.98	38	13.3	0.018	0.08
5 Jan 31st	2060	2050	177	70	28.9	322	3.34	2.0	4.0	0.10	0.10	6600	7.16	46	10.7	0.021	0.04
ECA Limits								**10**	**10**	**0.74**	**see below**	**200**	**6 - 9.5**				
Number of Tests			5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Monthly Average:			**194**	**136.0**	**36.4**	**292**	**3.87**	**2.0**	**3.0**	**0.12**	**0.10**	**2778**	**7.11**	**38**	**12.0**	**0.09**	**0.12**
Monthly Min			**121**	**30**	**29**	**254**	**3**	**2**	**2**	**0**	**0**	**1200**	**7**	**24**	**7**	**0**	**0**
Monthly Max			**368**	**460**	**47**	**322**	**5**	**2**	**4**	**0**	**0**	**13600**	**7**	**52**	**15**	**0**	**0**

Total Ammonia Nitrogen (May 1st - Nov 30th) Limit is 3.0 mg/L - Objective is 2.0 mg/L

Total Ammonia Nitrogen (Dec 1st - April 30th) Limit is 6.0 mg/L - Objective is 4.0 mg/L

UV Lights are shut "off" for the season (Dec 1st - March 31st)

NDOGEC - No Data: Overgrown with E-coli

NDOGN - No Data: Overgrown with Non-target Bacteria

2023 Weekly Analytical & Monthly Results

Petrolia WWTP
Operations Number: 110000579
Operating Authority: Jacobs
Town Of Petrolia

Month/Year: Feb/2023

ANALYST: SGS Laboratory & In-house analysis

	AERATION M.L.S.S.		RAW INFLUENT					FINAL EFFLUENT									
Test # Date	#1 Aeration MLSS	#2 Aeration MLSS	BOD5 mg/L	S. S. mg/L	TKN mg/L	Alkalinity CaCO3 mg/L	Total P mg/L	CBOD5 mg/L	S. S. mg/L	Total P mg/L	Ammonia NH3-N mg/L	E-Coli Per 100ml	Effluent pH	Alkalinity CaCO3 mg/L	Nitrate NO3 mg/L	Nitrite NO2 mg/L	Reactive P mg/L
1 Feb 7th	2260	2200	186	50	32.8	266	3.43	2.0	2.0	0.03	0.10	6800	6.91	44	13.5	0.009	0.01
2 Feb 14th	1790	1880	131	50	31.5	250	3.36	2.0	7.0	0.06	0.10	8800	7.31	76	5.9	0.100	0.03
3 Feb 22nd	1930	2220	123	40	35.8	272	3.18	2.0	2.0	0.07	0.10	1060	7.47	64	12.9	0.010	0.04
4 Feb 28th	2030	1950	149	30	32.1	272	3.01	12.0	3.0	0.19	0.01	4800	7.26	34	8.6	0.020	0.05
5																	
ECA Limits								10	10	0.74	see below	200	6 - 9.5				
Number of Tests			4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Monthly Average:			**147**	**42.5**	**33.1**	**265**	**3.25**	**4.5**	**3.5**	**0.09**	**0.08**	**4177**	**7.24**	**55**	**10.2**	**0.03**	**0.03**
Monthly Min			**123**	**30**	**32**	**250**	**3**	**2**	**2**	**0**	**0**	**1060**	**7**	**34**	**6**	**0**	**0**
Monthly Max			**186**	**50**	**36**	**272**	**3**	**12**	**7**	**0**	**0**	**8800**	**7**	**76**	**14**	**0**	**0**

Total Ammonia Nitrogen (May 1st - Nov 30th) Limit is 3.0 mg/L - Objective is 2.0 mg/L

Total Ammonia Nitrogen (Dec 1st - April 30th) Limit is 6.0 mg/L - Objective is 4.0 mg/L

UV Lights are shut "off" for the season (Dec 1st - March 31st)

NDOGEC - No Data: Overgrown with E-coli

NDOGN - No Data: Overgrown with Non-target Bacteria

2023 Weekly Analytical & Monthly Results

Petrolia WWTP
Operations Number: 110000579
Operating Authority: Jacobs
Town Of Petrolia

Month/Year: Mar/2023

ANALYST: SGS Laboratory & In-house analysis

	AERATION M.L.S.S.		RAW INFLUENT					FINAL EFFLUENT									
Test # Date	#1 Aeration MLSS	#2 Aeration MLSS	BOD5 mg/L	S. S. mg/L	TKN mg/L	Alkalinity CaCO3 mg/L	Total P mg/L	CBOD5 mg/L	S. S. mg/L	Total P mg/L	Ammonia NH3-N mg/L	E-Coli Per 100ml	Effluent pH	Alkalinity CaCO3 mg/L	Nitrate NO3 mg/L	Nitrite NO2 mg/L	Reactive P mg/L
1 7-Mar	2250	2340	67	50	26.3	260	2.16	2.0	4.0	0.10	0.10	13800	7.24	38	14.8	0.009	0.08
2 14-Mar	2010	1950	140	90	33.1	270	2.91	2.0	4.0	0.14	0.20	2430	7.34	86	14.5	0.015	0.11
3 21-Mar	1980	1930	87	70	33.4	268	3.34	2.0	3.0	0.20	0.10	20000	7.38	54	13.2	0.016	0.13
4 28-Mar	O.O.S	2280	161	30	24.1	180	2.66	2.0	5.0	0.16	5.60	20000	7.34	82	14.8	0.023	0.09
5																	
ECA Limits								**10**	**10**	**0.74**	**see below**	**200**	**6 - 9.5**				
Number of Tests			4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Monthly Average:			**114**	**60.0**	**29.2**	**245**	**2.77**	**2.0**	**4.0**	**0.15**	**1.50**	**10762**	**7.33**	**65**	**14.3**	**0.02**	**0.10**
Monthly Min			**67**	**30**	**24**	**180**	**2**	**2**	**3**	**0**	**0**	**2430**	**7**	**38**	**13**	**0**	**0**
Monthly Max			**161**	**90**	**33**	**270**	**3**	**2**	**5**	**0**	**6**	**20000**	**7**	**86**	**15**	**0**	**0**

Total Ammonia Nitrogen (May 1st - Nov 30th) Limit is 3.0 mg/L - Objective is 2.0 mg/L

Total Ammonia Nitrogen (Dec 1st - April 30th) Limit is 6.0 mg/L - Objective is 4.0 mg/L

UV Lights are shut "off" for the season (Dec 1st - March 31st)

NDOGEC - No Data: Overgrown with E-coli

NDOGN - No Data: Overgrown with Non-target Bacteria

2023 Weekly Analytical & Monthly Results

Petrolia WWTP
Operations Number: 110000579
Operating Authority: Jacobs
Town Of Petrolia

Month/Year: April/2023

ANALYST: SGS Laboratory & In-house analysis

	AERATION M.L.S.S.		RAW INFLUENT					FINAL EFFLUENT									
Test # Date	#1 Aeration MLSS	#2 Aeration MLSS	BOD5 mg/L	S. S. mg/L	TKN mg/L	Alkalinity CaCO3 mg/L	Total P mg/L	CBOD5 mg/L	S. S. mg/L	Total P mg/L	Ammonia NH3-N mg/L	E-Coli Per 100ml	Effluent pH	Alkalinity CaCO3 mg/L	Nitrate NO3 mg/L	Nitrite NO2 mg/L	Reactive P mg/L
1 April 4th	O.O.S	1420	196	80	23.6	264	2.46	2.0	2.0	0.10	0.20	54	7.41	132	2.0	0.064	0.06
2 April 12th	O.O.S	2520	92	40	36.0	296	2.73	2.0	2.0	0.08	0.40	52	7.40	94	5.6	0.093	0.11
3 April 17th	O.O.S	2600	184	60	39.3	326	4.73	2.0	4.0	0.16	0.20	226	7.12	116	4.7	0.079	0.21
4 April 25th	O.O.S	2570	170	60	34.2	302	3.41	3.0	6.0	0.31	9.70	550	7.43	64	2.3	0.090	0.22
5																	
ECA Limits								**10**	**10**	**0.74**	**see below**	**200**	**6 - 9.5**				
Number of Tests			4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Monthly Average:			**161**	**60.0**	**33.3**	**297**	**3.33**	**2.3**	**3.5**	**0.16**	**2.63**	**137**	**7.34**	**102**	**3.7**	**0.08**	**0.15**
Monthly Min			**92**	**40**	**24**	**264**	**2**	**2**	**2**	**0**	**0**	**52**	**7**	**64**	**2**	**0**	**0**
Monthly Max			**196**	**80**	**39**	**326**	**5**	**3**	**6**	**0**	**10**	**550**	**7**	**132**	**6**	**0**	**0**

Total Ammonia Nitrogen (May 1st - Nov 30th) Limit is 3.0 mg/L - Objective is 2.0 mg/L

Total Ammonia Nitrogen (Dec 1st - April 30th) Limit is 6.0 mg/L - Objective is 4.0 mg/L

UV Lights are shut "off" for the season (Dec 1st - March 31st)

NDOGEC - No Data: Overgrown with E-coli

NDOGN - No Data: Overgrown with Non-target Bacteria

2023 Weekly Analytical & Monthly Results

Petrolia WWTP
Operations Number: 110000579
Operating Authority: Jacobs
Town Of Petrolia

Month/Year: May/2023

ANALYST: SGS Laboratory & In-house analysis

	AERATION M.L.S.S.		RAW INFLUENT					FINAL EFFLUENT									
Test # Date	#1 Aeration MLSS	#2 Aeration MLSS	BOD5 mg/L	S. S. mg/L	TKN mg/L	Alkalinity CaCO3 mg/L	Total P mg/L	CBOD5 mg/L	S. S. mg/L	Total P mg/L	Ammonia NH3-N mg/L	E-Coli Per 100ml	Effluent pH	Alkalinity CaCO3 mg/L	Nitrate NO3 mg/L	Nitrite NO2 mg/L	Reactive P mg/L
1 May 2nd	O.O.S	2330	144	60	26.3	304	2.77	4.0	2.0	0.49	10.00	118	7.23	72	0.9	0.155	0.47
2 May 9th	O.O.S	3060	136	60	32.2	306	3.24	2.0	4.0	0.25	9.70	46	7.39	62	2.4	0.155	0.17
3 May 16th	O.O.S	3300	393	320	35.2	240	5.52	2.0	2.0	0.16	0.10	8	6.91	100	6.9	0.038	0.11
4 May 24th	O.O.S	3460	174	240	36.4	230	5.27	2.0	3.0	0.21	0.10	40	6.77	80	7.6	0.068	0.17
5 May 30th	O.O.S	2860	126	50	39.2	280	4.66	2.0	4.0	0.32	0.10	130	7.02	92	5.9	0.084	0.25
ECA Limits								**10**	**10**	**0.74**	**see below**	**200**	**6 - 9.5**				
Number of Tests			5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Monthly Average:			**195**	**146.0**	**33.9**	**272**	**4.29**	**2.4**	**3.0**	**0.29**	**4.00**	**47**	**7.06**	**81**	**4.7**	**0.10**	**0.23**
Monthly Min			**126**	**50**	**26**	**230**	**3**	**2**	**2**	**0**	**0**	**8**	**7**	**62**	**1**	**0**	**0**
Monthly Max			**393**	**320**	**39**	**306**	**6**	**4**	**4**	**0**	**10**	**130**	**7**	**100**	**8**	**0**	**0**

Total Ammonia Nitrogen (May 1st - Nov 30th) Limit is 3.0 mg/L - Objective is 2.0 mg/L

Total Ammonia Nitrogen (Dec 1st - April 30th) Limit is 6.0 mg/L - Objective is 4.0 mg/L

UV Lights are shut "off" for the season (Dec 1st - March 31st)

NDOGEC - No Data: Overgrown with E-coli

NDOGN - No Data: Overgrown with Non-target Bacteria

2023 Weekly Analytical & Monthly Results

Petrolia WWTP
Operations Number: 110000579
Operating Authority: Jacobs
Town Of Petrolia

Month/Year: June/2023

ANALYST: SGS Laboratory & In-house analysis

	AERATION M.L.S.S.		RAW INFLUENT					FINAL EFFLUENT									
Test # Date	#1 Aeration MLSS	#2 Aeration MLSS	BOD5 mg/L	S. S. mg/L	TKN mg/L	Alkalinity CaCO3 mg/L	Total P mg/L	CBOD5 mg/L	S. S. mg/L	Total P mg/L	Ammonia NH3-N mg/L	E-Coli Per 100ml	Effluent pH	Alkalinity CaCO3 mg/L	Nitrate NO3 mg/L	Nitrite NO2 mg/L	Reactive P mg/L
1 June 6th	O.O.S	2460	184	40	32.6	54	3.57	2.0	3.0	0.44	0.20	370	6.99	54	6.8	0.070	0.49
2 June 13th	O.O.S	2470	214	80	36.9	316	5.03	2.0	4.0	0.45	0.10	18	7.06	66	29.0	0.061	0.40
3 June 20th	O.O.S	2560	330	400	37.6	236	4.81	2.0	3.0	0.33	0.10	2	6.98	20	8.1	0.047	0.33
4 June 27th	O.O.S	2700	264	260	44.0	230	6.20	2.0	5.0	0.44	0.20	520	6.73	64	0.8	0.109	0.36
5	O.O.S																
ECA Limits								**10**	**10**	**0.74**	**see below**	**200**	**6 - 9.5**				
Number of Tests			4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Monthly Average:			**248**	**195.0**	**37.8**	**209**	**4.90**	**2.0**	**3.8**	**0.42**	**0.15**	**51**	**6.94**	**51**	**11.2**	**0.07**	**0.40**
Monthly Min			**184**	**40**	**33**	**54**	**4**	**2**	**3**	**0**	**0**	**2**	**7**	**20**	**1**	**0**	**0**
Monthly Max			**330**	**400**	**44**	**316**	**6**	**2**	**5**	**0**	**0**	**520**	**7**	**66**	**29**	**0**	**0**

Total Ammonia Nitrogen (May 1st - Nov 30th) Limit is 3.0 mg/L - Objective is 2.0 mg/L
Total Ammonia Nitrogen (Dec 1st - April 30th) Limit is 6.0 mg/L - Objective is 4.0 mg/L
UV Lights are shut "off" for the season (Dec 1st - March 31st)
NDOGEC - No Data: Overgrown with E-coli
NDOGN - No Data: Overgrown with Non-target Bacteria

2023 Weekly Analytical & Monthly Results

Petrolia WWTP
Operations Number: 110000579
Operating Authority: Jacobs
Town Of Petrolia

Month/Year: July/2023

ANALYST: SGS Laboratory & In-house analysis

	AERATION M.L.S.S.		RAW INFLUENT					FINAL EFFLUENT									
Test # Date	#1 Aeration MLSS	#2 Aeration MLSS	BOD5 mg/L	S. S. mg/L	TKN mg/L	Alkalinity CaCO3 mg/L	Total P mg/L	CBOD5 mg/L	S. S. mg/L	Total P mg/L	Ammonia NH3-N mg/L	E-Coli Per 100ml	Effluent pH	Alkalinity CaCO3 mg/L	Nitrate NO3 mg/L	Nitrite NO2 mg/L	Reactive P mg/L
1 July 5th	O.O.S	2700	121	50	28.0	326	2.94	2.0	3.0	0.40	0.20	1180	6.98	58	8.1	0.169	0.34
2 July 11th	O.O.S	2420	129	50	41.9	312	3.18	2.0	5.0	0.48	0.20	2	6.90	72	13.1	0.006	0.31
3 July 18th	O.O.S	2500	122	40	28.0	352	2.46	2.0	4.0	0.52	0.60	2	7.32	82	8.2	0.154	0.38
4 July 25th	O.O.S	2840	231	260	27.4	240	4.48	2.0	3.0	0.39	0.20	2	7.53	88	11.3	0.104	0.32
5	O.O.S																
ECA Limits								**10**	**10**	**0.74**	**see below**	**200**	**6 - 9.5**				
Number of Tests			4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Monthly Average:			**151**	**100.0**	**31.3**	**308**	**3.27**	**2.0**	**3.8**	**0.45**	**0.30**	**10**	**7.18**	**75**	**10.2**	**0.11**	**0.34**
Monthly Min			**121**	**40**	**27**	**240**	**2**	**2**	**3**	**0**	**0**	**2**	**7**	**58**	**8**	**0**	**0**
Monthly Max			**231**	**260**	**42**	**352**	**4**	**2**	**5**	**1**	**1**	**1180**	**8**	**88**	**13**	**0**	**0**

Total Ammonia Nitrogen (May 1st - Nov 30th) Limit is 3.0 mg/L - Objective is 2.0 mg/L

Total Ammonia Nitrogen (Dec 1st - April 30th) Limit is 6.0 mg/L - Objective is 4.0 mg/L

UV Lights are shut "off" for the season (Dec 1st - March 31st)

NDOGEC - No Data: Overgrown with E-coli

NDOGN - No Data: Overgrown with Non-target Bacteria

2023 Weekly Analytical & Monthly Results

Petrolia WWTP
Operations Number: 110000579
Operating Authority: Jacobs
Town Of Petrolia

Month/Year: August/2023

ANALYST: SGS Laboratory & In-house analysis

	AERATION M.L.S.S.		RAW INFLUENT					FINAL EFFLUENT											
Test # Date	#1 Aeration MLSS	#2 Aeration MLSS	BOD5 mg/L	S. S. mg/L	TKN mg/L	Alkalinity CaCO3 mg/L	Total P mg/L	CBOD5 mg/L	S. S. mg/L	Total P mg/L	Ammonia NH3-N mg/L	E-Coli Per 100ml	Effluent pH	Alkalinity CaCO3 mg/L	Nitrate NO3 mg/L	Nitrite NO2 mg/L	Reactive P mg/L	Lab Results Received	Int.
1 Aug 1st	O.O.S	3220	359	310	26.9	226	4.34	2.0	3.0	0.38	0.20	300	6.83	90	8.9	0.103	0.34	Aug 8th	CC
2 Aug 9th	O.O.S	2820	405	480	31.0	250	5.31	2.0	3.0	0.37	0.20	3	6.36	54	10.3	0.152	0.34	Aug 15th	CC
3 Aug 15th	O.O.S	2620	214	110	36.0	324	3.55	2.0	4.0	0.52	0.10	6800	6.72	64	10.9	0.123	0.54	Aug 21st	CC
4 Aug 22nd	O.O.S	2660	342	180	22.0	250	3.22	2.0	2.0	0.48	0.10	2	6.97	100	5.6	0.039	0.48	Aug 29th	CC
5 Aug 29th	O.O.S	3200	122	50	33.4	336	3.27	2.0	3.0	0.30	0.10	8	7.08	72	6.0	0.081	0.36	Sept 5th	CC
ECA Limits								**10**	**10**	**0.74**	**see below**	**200**	**6 - 9.5**						
Number of Tests			5	5	5	5	5	5	5	5	5	5	5	5	5	5	5		
Monthly Average:			**288**	**226.0**	**29.9**	**277**	**3.94**	**2.0**	**3.0**	**0.41**	**0.14**	**40**	**6.79**	**76**	**8.3**	**0.10**	**0.41**		
Monthly Min			**122**	**50**	**22**	**226**	**3**	**2**	**2**	**0**	**0**	**2**	**6**	**54**	**6**	**0**	**0**		
Monthly Max			**405**	**480**	**36**	**336**	**5**	**2**	**4**	**1**	**0**	**6800**	**7**	**100**	**11**	**0**	**1**		

Total Ammonia Nitrogen (May 1st - Nov 30th) Limit is 3.0 mg/L - Objective is 2.0 mg/L

Total Ammonia Nitrogen (Dec 1st - April 30th) Limit is 6.0 mg/L - Objective is 4.0 mg/L

UV Lights are shut "off" for the season (Dec 1st - March 31st)

NDOGEC - No Data: Overgrown with E-coli

NDOGN - No Data: Overgrown with Non-target Bacteria

2023 Weekly Analytical & Monthly Results

Petrolia WWTP
Operations Number: 110000579
Operating Authority: Jacobs
Town Of Petrolia

Month/Year: Sept/2023

ANALYST: SGS Laboratory & In-house analysis

	AERATION M.L.S.S.		RAW INFLUENT					FINAL EFFLUENT											
Test # Date	#1 Aeration MLSS	#2 Aeration MLSS	BOD5 mg/L	S. S. mg/L	TKN mg/L	Alkalinity CaCO3 mg/L	Total P mg/L	CBOD5 mg/L	S. S. mg/L	Total P mg/L	Ammonia NH3-N mg/L	E-Coli Per 100ml	Effluent pH	Alkalinity CaCO3 mg/L	Nitrate NO3 mg/L	Nitrite NO2 mg/L	Reactive P mg/L	Lab Results Received	Int.
1 Sept 6th	O.O.S	2830	138	30	28.9	326	3.14	2.0	3.0	0.23	0.10	2	6.98	72	12.2	0.191	0.32	Sept 18th	CC
2 Sept 11th	O.O.S	2580	280	100	30.5	226	4.82	2.0	3.0	0.23	0.10	2	6.96	30	13.8	0.182	0.18	Sept 19th	CC
3 Sept 18th	O.O.S	2590	107	50	31.3	282	3.10	2.0	6.0	0.19	0.10	1830	6.90	46	12.8	0.177	0.19	Sept 26th	CC
4 Sept 25th	O.O.S	880	173	60	35.2	308	4.93	3.0	8.0	0.33	0.30	see below	6.79	56	10.9	0.233	0.32	Oct 10th	CC
5 Sept 28th	O.O.S											3800							
ECA Limits								10	10	0.74	see below	200	6 - 9.5						
Number of Tests			4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
Monthly Average:			**175**	**60.0**	**31.5**	**286**	**4.00**	**2.3**	**5.0**	**0.25**	**0.15**	**73**	**6.91**	**51**	**12.4**	**0.20**	**0.25**		
Monthly Min			**107**	**30**	**29**	**226**	**3**	**2**	**3**	**0**	**0**	**2**	**7**	**30**	**11**	**0**	**0**		
Monthly Max			**280**	**100**	**35**	**326**	**5**	**3**	**8**	**0**	**0**	**3800**	**7**	**72**	**14**	**0**	**0**		

Total Ammonia Nitrogen (May 1st - Nov 30th) Limit is 3.0 mg/L - Objective is 2.0 mg/L
Total Ammonia Nitrogen (Dec 1st - April 30th) Limit is 6.0 mg/L - Objective is 4.0 mg/L
UV Lights are shut "off" for the season (Dec 1st - March 31st)
NDOGEC - No Data: Overgrown with E-coli
NDOGN - No Data: Overgrown with Non-target Bacteria

Sept 25th E-coli was past holding time (lab error, retained email) - resampled upon notification

2023 Weekly Analytical & Monthly Results

Petrolia WWTP
Operations Number: 110000579
Operating Authority: Jacobs
Town Of Petrolia

Month/Year: Oct/2023

ANALYST: SGS Laboratory & In-house analysis

	AERATION M.L.S.S.		RAW INFLUENT					FINAL EFFLUENT											
Test # Date	#1 Aeration MLSS	#2 Aeration MLSS	BOD5 mg/L	S. S. mg/L	TKN mg/L	Alkalinity CaCO3 mg/L	Total P mg/L	CBOD5 mg/L	S. S. mg/L	Total P mg/L	Ammonia NH3-N mg/L	E-Coli Per 100ml	Effluent pH	Alkalinity CaCO3 mg/L	Nitrate NO3 mg/L	Nitrite NO2 mg/L	Reactive P mg/L	Lab Results Received	Int.
1 Oct 2nd	O.O.S	2310	144	70	25.0	292	3.34	2.0	3.0	0.27	0.20	610	6.73	48	12.0	0.278	0.35	Oct 10th	CC
2 Oct 11th	O.O.S	3000	400	280	29.1	240	4.11	2.0	3.0	0.30	0.50	4	7.35	60	8.6	0.149	0.29	Oct 20th	CC
3 Oct 16th	O.O.S	3120	147	240	11.4	192	3.07	2.0	3.0	0.31	1.50	2	6.92	70	4.4	0.185	0.26	Oct 24th	CC
4 Oct 23rd	O.O.S	3040	152	400	29.7	230	3.79	2.0	5.0	0.31	0.40	6	7.04	84	5.2	0.156	0.26	Oct 31st	CC
5 Oct 30th	O.O.S	2980	227	340	26.8	242	4.17	2.0	2.0	0.30	0.20	30	7.52	80	7.2	0.101	0.26	Nov 8th	CC
ECA Limits								**10**	**10**	**0.74**	**see below**	**200**	**6 - 9.5**						
Number of Tests			5	5	5	5	5	5	5	5	5	5	5	5	5	5	5		
Monthly Average:			**214**	**266.0**	**24.4**	**239**	**3.70**	**2.0**	**3.2**	**0.30**	**0.56**	**15**	**7.11**	**68**	**7.5**	**0.17**	**0.28**		
Monthly Min			**144**	**70**	**11**	**192**	**3**	**2**	**2**	**0**	**0**	**2**	**7**	**48**	**4**	**0**	**0**		
Monthly Max			**400**	**400**	**30**	**292**	**4**	**2**	**5**	**0**	**2**	**610**	**8**	**84**	**12**	**0**	**0**		

Total Ammonia Nitrogen (May 1st - Nov 30th) Limit is 3.0 mg/L - Objective is 2.0 mg/L

Total Ammonia Nitrogen (Dec 1st - April 30th) Limit is 6.0 mg/L - Objective is 4.0 mg/L

UV Lights are shut "off" for the season (Dec 1st - March 31st)

NDOGEC - No Data: Overgrown with E-coli

NDOGN - No Data: Overgrown with Non-target Bacteria

2023 Weekly Analytical & Monthly Results

Petrolia WWTP
Operations Number: 110000579
Operating Authority: Jacobs
Town Of Petrolia

Month/Year: Nov/2023

ANALYST: SGS Laboratory & In-house analysis

	AERATION M.L.S.S.		RAW INFLUENT					FINAL EFFLUENT											
Test # Date	#1 Aeration MLSS	#2 Aeration MLSS	BOD5 mg/L	S. S. mg/L	TKN mg/L	Alkalinity CaCO3 mg/L	Total P mg/L	CBOD5 mg/L	S. S. mg/L	Total P mg/L	Ammonia NH3-N mg/L	E-Coli cfu 100ml	Effluent pH	Alkalinity CaCO3 mg/L	Nitrate NO3 mg/L	Nitrite NO2 mg/L	Reactive P mg/L	Lab Results Received	Int.
1 Nov 6th	O.O.S	2980	173	260	30.1	226	4.08	2.0	4.0	0.29	0.10	10	7.07	70	8.1	0.044	0.24	Nov 14th	CC
2 Nov 15th	O.O.S	2560	119	50	32.2	294	2.59	2.0	4.0	0.27	0.10	10	7.25	62	9.7	0.026	0.30	Nov 21st	CC
3 Nov 20th	O.O.S	2660	223	260	30.9	236	4.39	2.0	4.0	0.23	0.10	10	7.16	22	11.2	0.023	0.20	Nov 28th	CC
4 Nov 27th	O.O.S	2880	235	320	40.3	328	3.58	2.0	3.0	0.23	0.30	12	7.31	48	8.3	0.047	0.42	Dec 4th	CC
5	O.O.S																		CC
ECA Limits								**10**	**10**	**0.74**	**see below**	**200**	**6 - 9.5**						
Number of Tests			4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
Monthly Average:			**188**	**222.5**	**33.4**	**271**	**3.66**	**2.0**	**3.8**	**0.26**	**0.15**	**10**	**7.20**	**51**	**9.3**	**0.04**	**0.29**		
Monthly Min			**119**	**50**	**30**	**226**	**3**	**2**	**3**	**0**	**0**	**10**	**7**	**22**	**8**	**0**	**0**		
Monthly Max			**235**	**320**	**40**	**328**	**4**	**2**	**4**	**0**	**0**	**12**	**7**	**70**	**11**	**0**	**0**		

Total Ammonia Nitrogen (May 1st - Nov 30th) Limit is 3.0 mg/L - Objective is 2.0 mg/L
Total Ammonia Nitrogen (Dec 1st - April 30th) Limit is 6.0 mg/L - Objective is 4.0 mg/L
UV Lights are shut "off" for the season (Dec 1st - March 31st)
NDOGEC - No Data: Overgrown with E-coli
NDOGN - No Data: Overgrown with Non-target Bacteria

2023 Weekly Analytical & Monthly Results

Petrolia WWTP
Operations Number: 110000579
Operating Authority: Jacobs
Town Of Petrolia

Month/Year: Dec/2023

ANALYST: SGS Laboratory & In-house analysis

	AERATION M.L.S.S.		RAW INFLUENT					FINAL EFFLUENT											
Test # Date	#1 Aeration MLSS	#2 Aeration MLSS	BOD5 mg/L	S. S. mg/L	TKN mg/L	Alkalinity CaCO3 mg/L	Total P mg/L	CBOD5 mg/L	S. S. mg/L	Total P mg/L	Ammonia NH3-N mg/L	E-Coli cfu 100ml	Effluent pH	Alkalinity CaCO3 mg/L	Nitrate NO3 mg/L	Nitrite NO2 mg/L	Reactive P mg/L	Lab Results Received	Int.
1 Dec 4th	O.O.S	3120	152	280	17.2	280	2.26	2.0	4.0	0.26	0.30	6800	6.99	80	9.9	0.055	0.25	Dec 12th	CC
2 Dec 11th	O.O.S	3360	110	360	28.1	240	3.48	2.0	2.0	0.15	0.10	1800	6.98	60	13.6	0.014	0.16	Dec 19th	CC
3 Dec 18th	O.O.S	3260	272	280	33.2	256	3.24	2.0	4.0	0.28	2.80	9400	7.12	100	4.0	0.182	0.22	Jan-3-2024	CC
4 Dec 27th	O.O.S	3600	393	420	35.5	286	4.31	3.0	4.0	0.38	4.40	11200	7.19	1.4	3.8	0.209	0.39	Jan-4-2024	CC
5	O.O.S																		
ECA Limits								**10**	**10**	**0.74**	**see below**	**200**	**6 - 9.5**						
Number of Tests			4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
Monthly Average:			**232**	**335.0**	**28.5**	**266**	**3.32**	**2.3**	**3.5**	**0.27**	**1.90**	**5991**	**7.07**	**60**	**7.8**	**0.12**	**0.26**		
Monthly Min			**110**	**280**	**17**	**240**	**2**	**2**	**2**	**0**	**0**	**1800**	**7**	**1**	**4**	**0**	**0**		
Monthly Max			**393**	**420**	**36**	**286**	**4**	**3**	**4**	**0**	**4**	**11200**	**7**	**100**	**14**	**0**	**0**		

Total Ammonia Nitrogen (May 1st - Nov 30th) Limit is 3.0 mg/L - Objective is 2.0 mg/L

Total Ammonia Nitrogen (Dec 1st - April 30th) Limit is 6.0 mg/L - Objective is 4.0 mg/L

UV Lights are shut "off" for the season (Dec 1st - March 31st)

NDOGEC - No Data: Overgrown with E-coli

NDOGN - No Data: Overgrown with Non-target Bacteria

Dec 18th - Due to a Laboratory mis-labelling oversite - the Influent BOD5 & Effluent CBOD5 were analyzed after the recommended holding time of 7 days (email retained)

Pierce Services
& Solutions Inc.

45 Wilton Road
Guelph, ON N1E 7L6

Phone: 519.820.4853
Fax: 519.824.9402

Flowmeter Report

Verification: X Calibration:

Client: Jacobs
Description: Parshall Flume
Manufacturer: Pulsar
Model: Ultra 3

Location: Petrolia WPCP
Date: 31-Aug-31
Checked By: Greg Pierce
Serial No.: PBD/H9260190

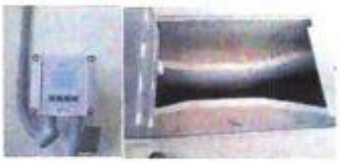
Tag No.: FIT 101 Range: 0 - 405 l/s

Input %	Theoretical	As Found	As Left	P/F
0%	0 l/s	0 l/s	0 l/s	Pass
25%	6.99 l/s	6.94 l/s	6.94 l/s	Pass
50%	39.33 l/s	39.27 l/s	39.27 l/s	Pass
75%	108.25 l/s	108.22 l/s	108.22 l/s	Pass
100%	222.2 l/s	222.16 l/s	222.16 l/s	Pass
0%	59 l/s	59 l/s	59 l/s	Pass

Confirmed Run Mode: X Returned to service:

Service Comments:

Flowmeter Information



Flow Unit: l/s
Flume Size: 60°
Constant 2.5
Pipe Thickness:
High Temperature: 64.7 C
Low Tempetature: -11.6 °C

Comments:
No Errors
Confirmed with Isco Open Channe Flow Measurement Handbook

Echo: 87%
Temp 20° C
Level: .56 ft
Flow 59.0 l/s
m/A 4.02m/A
% 0.01%

Signature:
Greg Pierce, CCST

FC_Petrolia_Aug3123_FIT 101

Pierce Services
& Solutions Inc.

45 Wilton Road
Guelph, ON N1E 7L6

Phone: 519.820.4853
Fax: 519.824.9402

Flowmeter Report

Verification: X **Calibration:**

Client:	Jacobs	Location:	Petrolia WPCP
Description:	Mag Meter	Date:	31-Aug-23
Manufacturer:	Endress Hauser	Checked By:	Greg Pierce
Model:	5L4C2F-4CR4/1	Serial No.:	M100E91600

Tag No.: FIT 102 Range: 0 - 50 l/s

Input %	Input	As Found	As Left	P/F
0%	0.00 l/s	0.00 l/s	0.00 l/s	Pass
50%	25.00 l/s	25.01 l/s	24.96 l/s	Pass
100%	50.00 l/s	50.00 l/s	50.00 l/s	Pass
	27.93 l/s	27.89 l/s	27.89 l/s	Pass
56%	28.06 l/s	28.06 l/s	28.06 l/s	Pass

Confirmed Run Mode: X Returned to service:

Service Comments:

Flowmeter Information

Flow Unit:	l/s
Meter Size:	8"
Pipe Material:	Cast
Pipe Thickness:	

Comments:
No Errors
WAS Meter

Signature:
Greg Pierce, CCST

Pierce Services
& Solutions Inc.

45 Wilton Road
Guelph, ON N1E 7L6

Phone: 519.820.4853
Fax: 519.824.9402

Flowmeter Report

Verification:	X	Calibration:	
Client:	Jacobs	Location:	Petrolia WPCP
Description:	Mag Meter	Date:	31-Aug-23
Manufacturer:	Endress Hauser	Checked By:	Greg Pierce
Model:	5L4C1F-77R0/0	Serial No.:	M1006C16000

Tag No.: FIT 103 Range: 0 - 50 l/s

Input %	Input	As Found	As Left	P/F
0%	0.00 l/s	0.00 l/s	0.00 l/s	Pass
50%	25.00 l/s	25.09 l/s	25.09 l/s	Pass
100%	50.00 l/s	50.00 l/s	50.00 l/s	Pass
	8.79 l/s	9.01 l/s	9.01 l/s	Pass
19.1%	9.54 l/s	9.54 l/s	9.54 l/s	Pass

Confirmed Run Mode: X Returned to service: _____

Service Comments:

Flowmeter Information

Flow Unit:	l/s
Meter Size:	6"
Pipe Material:	Cast
Pipe Thickness:	

Comments:
No Errors
RAS Meter

Signature: _____
Greg Pierce, CCST

FC_Petrolia2_Aug3123_ FIT 103

Pierce Services
& Solutions Inc.

45 Wilton Road
Guelph, ON N1E 7L6

Phone: 519.820.4853
Fax: 519.824.9402

Flowmeter Report

Verification: X **Calibration:**

Client:	Jacobs	Location:	Petrolia WPCP
Description:	Mag Meter	Date:	31-Aug-23
Manufacturer:	Endress Hauser	Checked By:	Greg Pierce
Model:	5L4C80-50W8/0	Serial No.:	M100D916000

Tag No.: FIT 104 Range: 0 - 25 l/s

Input %	Input	As Found	As Left	P/F
0%	0.00 l/s	0.00 l/s	0.00 l/s	Pass
50%	12.50 l/s	12.61 l/s	12.61 l/s	Pass
100%	25.00 l/s	25.00 l/s	25.00 l/s	Pass
	3.98 l/s	3.95 l/s	3.95 l/s	Pass
16%	4.03 l/s	4.02 l/s	4.02 l/s	Pass

Confirmed Run Mode: X Returned to service:

Service Comments:

Flowmeter Information

Flow Unit:	l/s
Meter Size:	3"
Pipe Material:	Stainless Steel
Pipe Thickness:	

Comments:
No Errors
Reject Meter

Signature:
Greg Pierce, CCST

FC_Petrolia3_Aug3123_FIT 104

Pierce Services & Solutions Inc.

45 Wilton Road
Guelph, ON N1E 7L6

Phone: 519.820.4853
Fax: 519.824.9402

Flowmeter Report

Verification: X Calibration:

Client: Jacobs
Description: Mag Meter
Manufacturer: Endress Hauser
Model: 5L4C80-5DN8/0

Location: Petrolia WPCP
Date: 31-Aug-23
Checked By: Greg Pierce
Serial No.: M100DA16000

Tag No.: FIT 105 Range: 0 - 25 l/s

Input %	Input	As Found	As Left	P/F
0%	0.00 l/s	0.00 l/s	0.00 l/s	Pass
50%	12.50 l/s	12.32 l/s	12.32 l/s	Pass
100%	25.00 l/s	25.00 l/s	25.00 l/s	Pass
	7.69 l/s	7.68 l/s	7.68 l/s	Pass
30%	7.39 l/s	7.39 l/s	7.39 l/s	Pass

Confirmed Run Mode: X Returned to service:

Service Comments:

Flowmeter Information

Flow Unit: l/s
Meter Size: 3"
Pipe Material: Stainless Steel
Pipe Thickness:

Comments:
No Errors
Effluent Meter

Signature:
Greg Pierce, CCST