Minden Wastewater Treatment Facility

Works # 110002390

Annual Wastewater Performance Report

Prepared For: The Township of Minden Hills

Reporting Period of January 1st – December 31st, 2023

Issued: March 28, 2024

Revision: 0

Operating Authority:

The Minden Hills Sewage Treatment Plant, unless noted within this report, complies with all requirements of the regulating authorities and operates under:

- Environmental Compliance Approval (ECA) No. 5475-BPYLDH issued October 2, 2020
- Environmental Compliance Approval (ECA) No. 246-W601 issued November 2, 2022

2023 Performance Report for the Minden Sewage Treatment Plant

In 2023, the Minden Sewage Treatment Plant operated under by Amended Environmental Compliance Approval (ECA) No. 5475-BPYLDH. Condition 11.4. of this ECA states, *"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 shall not be limited to, the following information pertaining to the reporting period:*

a) summary and interpretation of all Influent monitoring data, and a review of the historical trend of the sewage characteristics and flow rates;

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;

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

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;

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

f) 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;

g) 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 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;

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 locations to where

the sludge was disposed;

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

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

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

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.

m) 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.

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

The above information is incorporated in the following report format and submitted to the MECP District Manager of the Peterborough District Office of the Ministry of the Environment, Conservation and Parks as per the requirements of the ECA No. 5475-BPYLDH.

The Environmental Compliance Approval Number 246-W601 for the Minden Hills Sewage Collection System, stipulates that the operating authority for the following conditions shall maintain annual records:

Schedule E – Reporting (4.6)

a) a summary of all required monitoring data along with an interpretation of the data and any conclusion drawn from the data evaluation about the need for future modifications to the Authorized System or system operations.
b) a summary of any operating problems encountered and corrective actions taken.
c) a summary of all calibration, maintenance, and repairs carried out on any major structure, Equipment, apparatus, mechanism, or thing forming part of the Municipal Sewage Collection System.
d) a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.
e) a summary of all Alterations to the Authorized System within the reporting period that are authorized by this Approval including a list of Alterations that pose a Significant Drinking Water Threat.

f) a summary of all Collection System Overflow(s) and Spill(s) of Sewage, including:
    i. Dates;
    ii. Volumes and durations;
    iii. If applicable, loadings for total suspended solids, BOD, total phosphorus, and total Kjeldahl nitrogen, and sampling results for E.coli;
    iv. Disinfection, if any; and
    v. Any adverse impact(s) and any corrective actions, if applicable.
g) a summary of efforts made to reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses, including the following items, as applicable:
    i. A description of projects undertaken and completed in the Authorized System that result in overall overflow reduction or elimination including expenditures and proposed projects to eliminate overflows with estimated budget forecast for the year following that for which the report is submitted.
    ii. Details of the establishment and maintenance of a PPCP, including a summary of project progresses compared to the PPCP's timelines.
    iii. An assessment of the effectiveness of each action taken.
    iv. An assessment of the ability to meet Procedure F-5-1 or Procedure F-5-5 objectives (as applicable) and if able to meet the objectives, an overview of next steps and estimated timelines to meet the objectives.
    v. Public reporting approach including proactive efforts

Environmental Compliance Approval (ECA) No. 5475-BPYLDH

During the period of 2023, the Ontario Clean Water Agency (OCWA) operated the Minden STP, Invergordon Avenue Sewage Pumping Station (SPS) and 25 Orde Street SPS on behalf of the Corporation of the Township of Minden Hills. OCWA's goals have remained consistent during this period and remain consistent with the following priorities:

- provide quality assurance, safety and environmental compliance of facility operations;
- assist our clients in achieving compliance;
- provide advice on up-to-date technology in Operations and Maintenance service delivery.

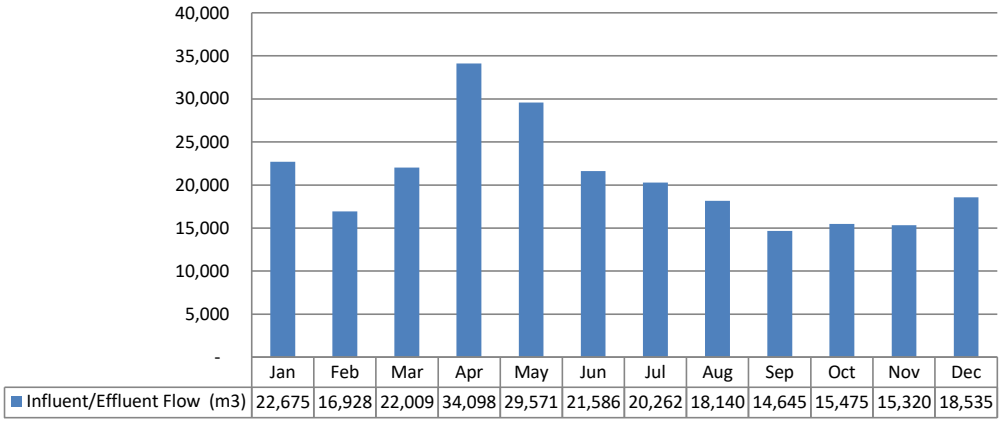
This report will show that the Ontario Clean Water Agency has made every attempt to achieve its goals through its operational performance. This performance was enhanced through the use of an electronic process data collection database, an electronic maintenance and work order database, an electronic operational excellence database, a training program focused on providing the right skills to staff - also captured and tracked by the use of an electronic database and a multi-skilled, flexible workforce.

a) Environmental Compliance Approval (ECA) No. 5475-BPYLDH requires a summary and interpretation of all Influent, and a review of the historical trend of the sewage characteristics and flow rates;

The Minden STP has a Rated Capacity of 945 m^3/day. Flows are continuously measured through the plant effluent flow meter (V-notch weir) on the effluent from the disinfection channel from the chlorine contact tank. The influent and effluent streams are considered not significantly different in flow rates and quantities so the effluent flow measurements are also used for influent flow measurements. ECA No. 5475-BPYLDH requires that everything practicable be undertaken to operate the STP so that the annual average daily influent is within the Rated Capacity. The 2023 annual average daily influent flow was 683 m^3/day or 72% of the Rated Capacity.

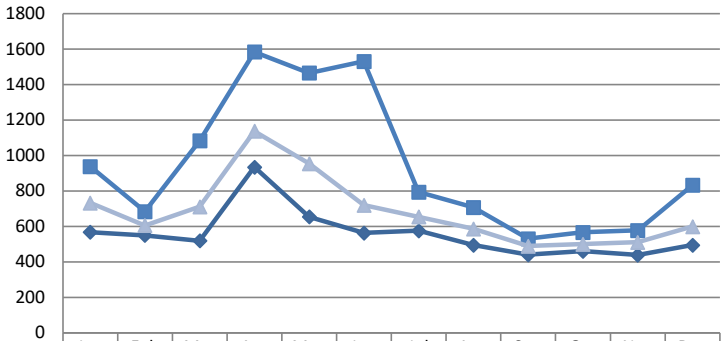
The total influent/effluent flow in 2023 was 249,244 m^3.

Graph 1: 2023 Influent/Effluent Flow Monthly Totals



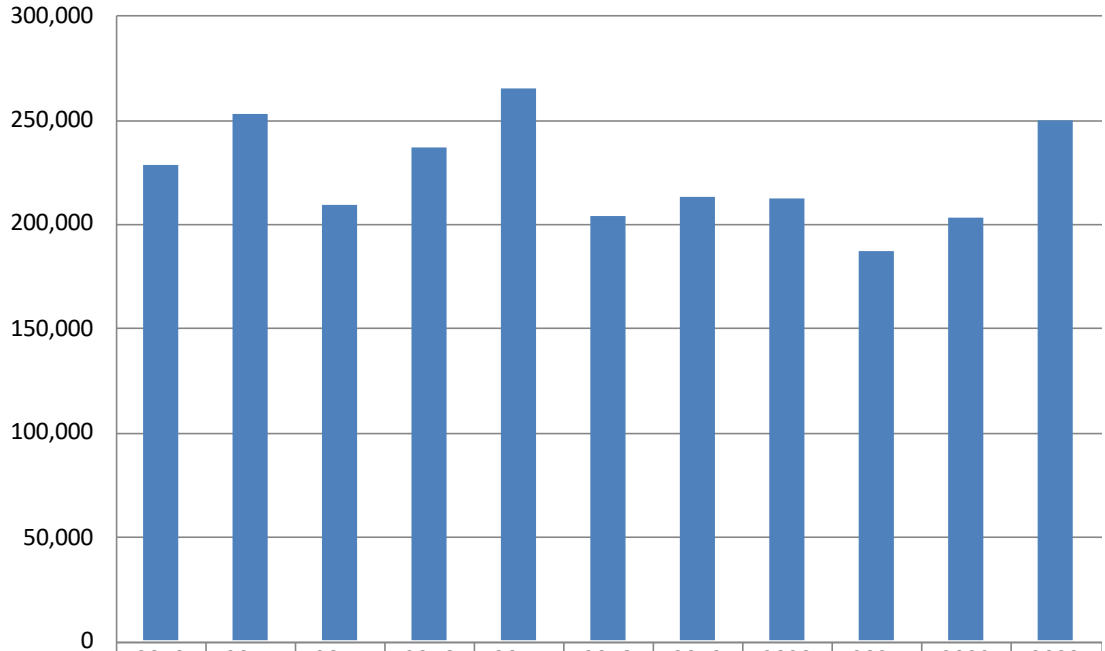
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Influent/Effluent Flow (m3)	22,675	16,928	22,009	34,098	29,571	21,586	20,262	18,140	14,645	15,475	15,320	18,535

Graph 2: Influent/Effluent Daily Minimum, Maximum and Average Flows



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min (m3/day)	567	549	518	934	653	562	575	494	440	460	438	494
Max (m3/day)	937	683	1082	1583	1464	1530	793	707	530	566	577	832
Avg(m3/day)	731	605	710	1137	954	720	654	585	488	499	511	598

Graph 3: Historical Influent/Effluent Flows from 2013 to 2023



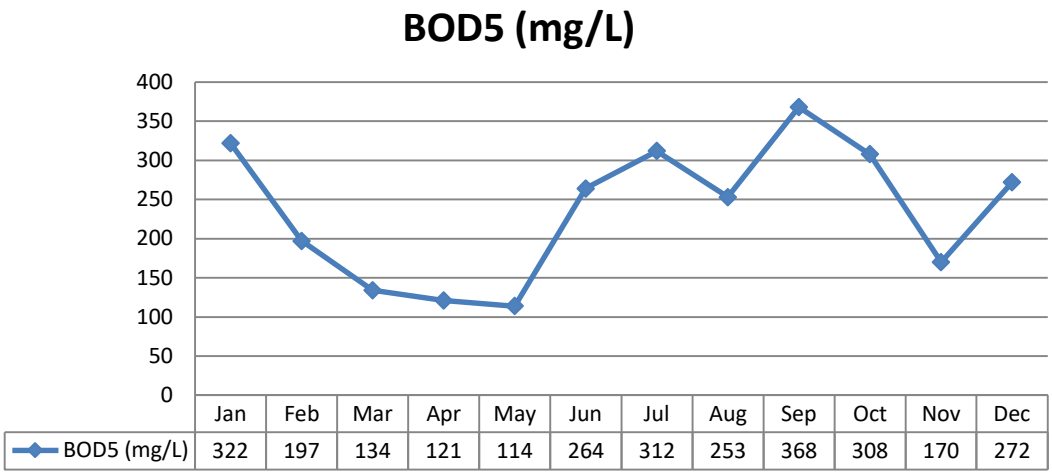
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Influent/Effluent Flow (m3)	228,12	252,47	208,98	236,20	264,47	203,31	212,40	211,88	186,47	202,61	249,24

Influent Monitoring - Sewage Characteristics

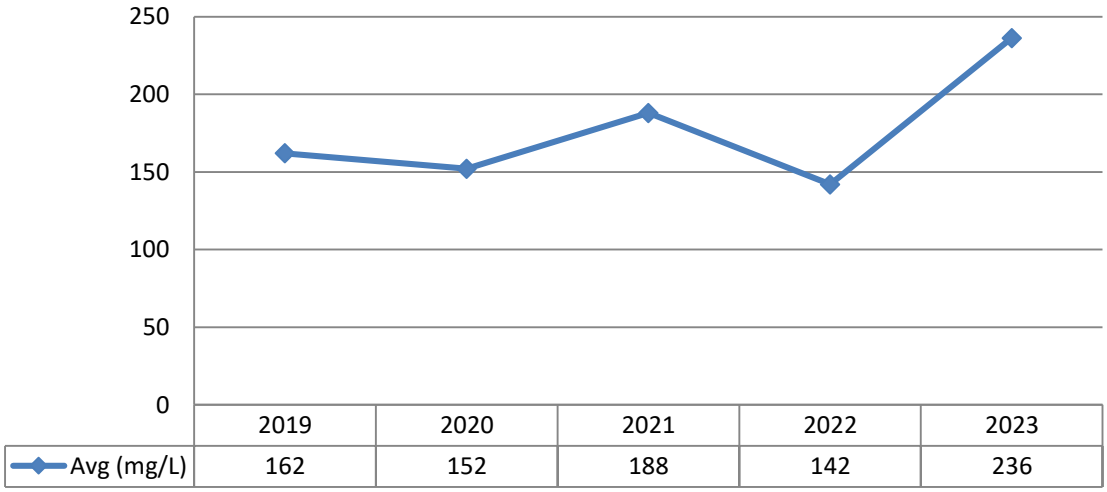
Biochemical Oxygen Demand (BOD5)

ECA No. 5475-BPYLDH requires at least one composite sample be collected and analyzed monthly for Biochemical Oxygen Demand (BOD5). The Biochemical Oxygen Demand (BOD5) monthly average results ranged from 114 mg/L to 368 mg/L.

Graph 4: 2023 Monthly BOD5 Influent Concentration Comparison



Graph 5: Historical BOD5 Influent Concentration Comparison



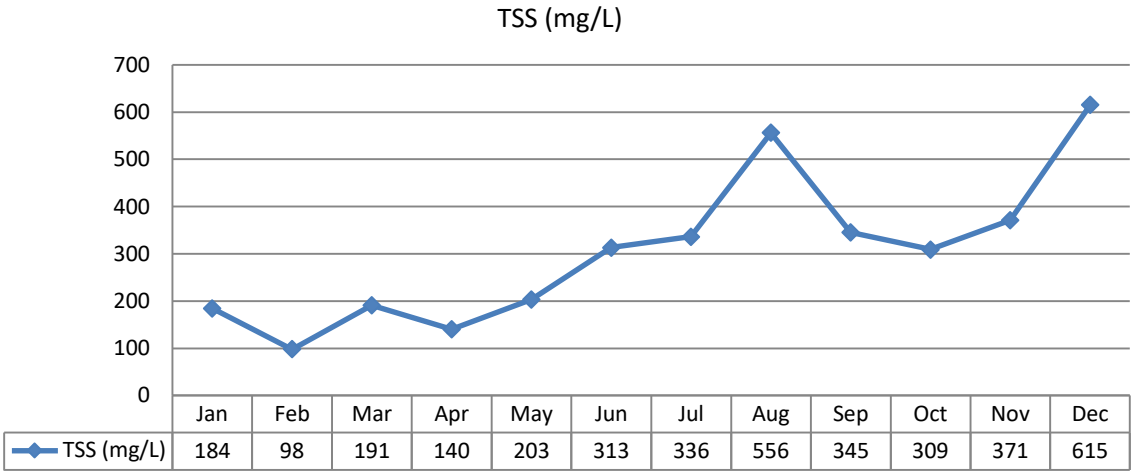
Biochemical Oxygen Demand Historical Trends

Historical trends are limited as the previous approvals for the Minden STP did not require influent BOD5 sampling until ECA No. 1926-BDRLK3 issued July 31st, 2019. BOD5 concentrations in the influent have averaged annually between 142 mg/L to 236 mg/L.

Total Suspended Solids

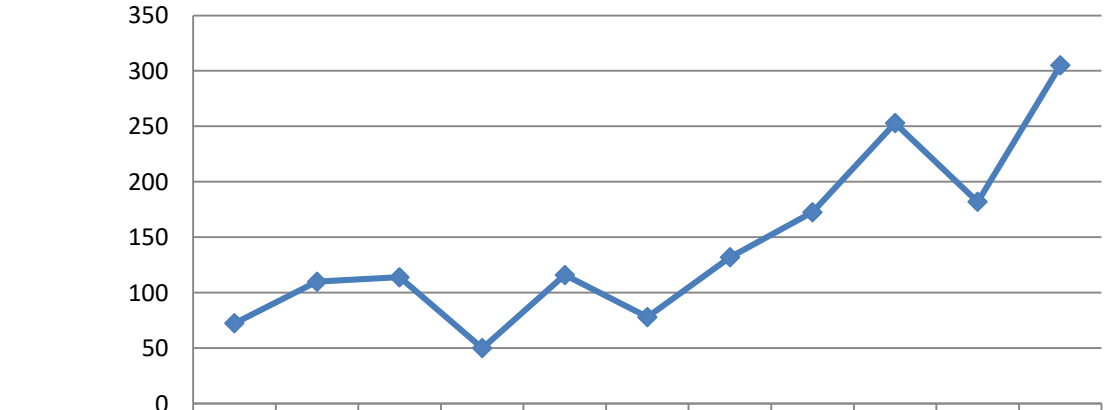
ECA No. 5475-BPYLDH requires at least one composite sample be collected and analyzed monthly for Total Suspended Solids. The monthly results ranged from 98 mg/L to 615 mg/L.

Graph 6: 2023 Monthly Total Suspended Solids Influent Concentration Comparisons



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TSS (mg/L)	184	98	191	140	203	313	336	556	345	309	371	615

Graph 7: Historical Influent Total Suspended Solids Concentration Comparisons



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Avg (mg/L)	73	110	114	50	116	78	132	173	253	182	305

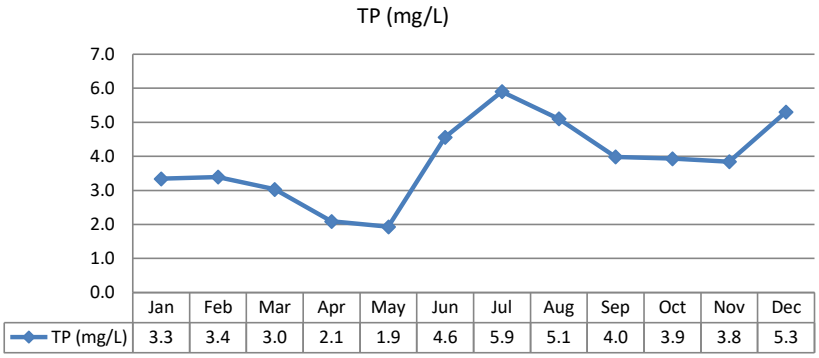
Total Suspended Solids Historical Review

The Total Suspended Solids annual average has been between 50 mg/L and 305 mg/L with the highest average occurring in 2023.

Total Phosphorus

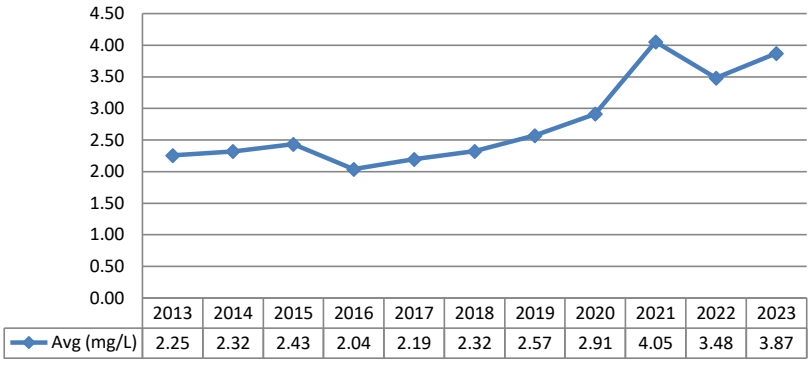
ECA No. 5475-BPYLDH requires at least one composite sample be collected and analyzed monthly for Total Phosphorus. The monthly average Total Phosphorus results ranged from 1.9 mg/L to 5.9 mg/L.

Graph 8: 2023 Monthly Total Phosphorus Influent Concentration Comparisons



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TP (mg/L)	3.3	3.4	3.0	2.1	1.9	4.6	5.9	5.1	4.0	3.9	3.8	5.3

Graph 9: Historical Influent Total Phosphorus Concentration Comparisons



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Avg (mg/L)	2.25	2.32	2.43	2.04	2.19	2.32	2.57	2.91	4.05	3.48	3.87

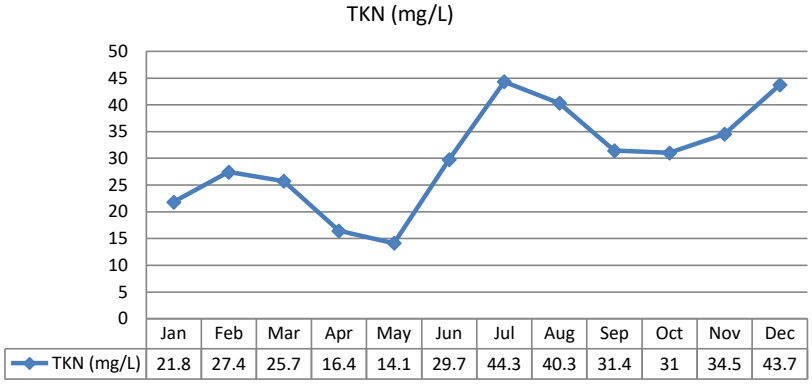
Total Phosphorus Historical Trends

The Total Phosphorus annual average increased up to 4.05 mg/L in 2021 and decreased slightly to 3.87 in 2023.

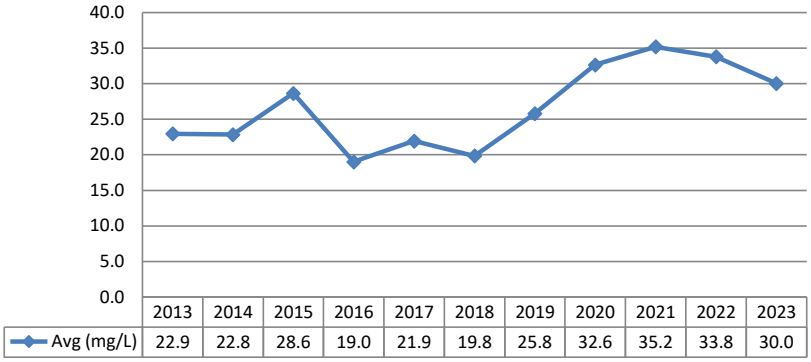
Total Kjeldahl Nitrogen (TKN)

ECA No. 5475-BPYLDH require at least one composite sample be collected and analyzed monthly for Total Kjeldahl Nitrogen. The monthly Total Kjeldahl Nitrogen results ranged from 14.1 mg/L to 44.3 mg/L.

Graph 10: 2023 Monthly Total Kjeldahl Nitrogen Influent Concentration Comparisons



Graph 11: Historical Influent Total Kjeldahl Nitrogen Concentration Comparisons



Total Kjeldahl Nitrogen Historical Review

The Total Kjeldahl Nitrogen annual average has remained fairly consistent but an upward trend has occurred since 2020 with a slight decrease in 2023.

Refer to Appendix I for the 2023 Performance Assessment Report for the Minden STP.

b. Environmental Compliance Approval (ECA) No. 5475-BPYLDH requires 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 Final Effluent Monitoring Data for 2023 is summarized below and compared to design objectives and compliance limits in ECA No. 5475-BPYLDH.

Flows are continuously measured through the plant effluent flow meter (V-notch weir) on the effluent from the disinfection channel from the chlorine contact tank. The influent and effluent streams are considered not significantly different in flow rates and quantities so the effluent flow measurements are also used for influent flow measurements.

The total influent/effluent flow in 2023 was 249,244 m3. The effluent flow summary and interpretation are included in a. above with the influent flow summary and interpretation.

In August 2022, the construction of the UV disinfection was completed. ECA No. 5475-BPYLDH includes limits and objectives for the final effluent for prior to completion and upon completion of construction of all Proposed Works. All the final effluent concentrations for 2023 will be compared to the limits and objectives listed for upon completion of construction of all Proposed Works.

Carbonaceous Biochemical Oxygen Demand (CBOD5) and Total Suspended Solids (TSS)

ECA No. 5475-BPYLDH has a monthly average concentration limit of 15 mg/L for CBOD5 and TSS upon completion of the Proposed Works. The results are presented in the following table. Please note that April 2023 TSS monthly average concentration was calculated using the flow-weighted arithmetic mean set out in Schedule F of the ECA. See calculation in Appendix V.

Table 1: CBOD5 and Suspended Solids 2023 Effluent Concentration Results Comparison to Limits			
Effluent Parameter	**Monthly Average Limit 15 mg/L**	**Monthly Average (mg/L)**	**Compliant Y/N**
CBOD5	January	<2.20	Y
	February	<2.00	Y
	March	<4.60	Y
	April	<4.12	Y
	May	<3.50	Y
	June	<2.00	Y
	July	<2.00	Y
	August	<2.00	Y
	September	<2.50	Y
	October	<2.00	Y
	November	<2.00	Y
	December	<3.50	Y
Total Suspended Solids	January	<2.40	Y
	February	<2.00	Y
	March	7.20	Y
	April	13.01	Y

	May	10.08	Y
	June	2.25	Y
	July	2.75	Y
	August	<3.60	Y
	September	<2.00	Y
	October	<2.00	Y
	November	<2.75	Y
	December	<2.00	Y

ECA No. 5475-BPYLDH has a monthly average concentration objective of 10 mg/L for CBOD5 and TSS upon completion of the Proposed Works. The results are presented in the following table.

Table 2: CBOD5 and Suspended Solids 2023 Effluent Concentration Results Comparison to Objective

Effluent Parameter	Monthly Average Objective 10 mg/L	Monthly Average (mg/L)	Compliant Y/N
CBOD5	January	<2.20	Y
	February	<2.00	Y
	March	<4.60	Y
	April	<4.12	Y
	May	<3.50	Y
	June	<2.00	Y
	July	<2.00	Y

	August	<2.00	Y
	September	<2.50	Y
	October	<2.00	Y
	November	<2.00	Y
	December	<3.50	Y
Total Suspended Solids	January	<2.40	Y
	February	<2.00	Y
	March	7.20	Y
	April	13.01	N
	May	10.08	N
	June	2.25	Y
	July	2.75	Y
	August	<3.60	Y
	September	<2.00	Y
	October	<2.00	Y
	November	<2.75	Y
	December	<2.00	Y

The TSS monthly objective for April and May was not met as two emergency sand filter bypass occurred April 1-14, 2023 & April 30-May 09, 2023. More information on the emergency sand filter bypasses is included in Appendix V.

ECA No. 5475-BPYLDH has a monthly average daily effluent loading limit of 14.18 kg/day for CBOD5 and TSS after the completion of the Proposed Works. The results for 2023 are presented in the following table.

Table 3: CBOD5 and Suspended Solids 2023 Effluent Loading Results Comparison to Limit			
Effluent Parameter	**Monthly Average Daily Loading Limit 14.18mg/L**	**Monthly Daily Average Loading (mg/L)**	**Compliant Y/N**
CBOD5	January	<1.61	Y
	February	<1.21	Y
	March	<3.27	Y
	April	<4.68	Y
	May	<3.34	Y
	June	<1.44	Y
	July	<1.31	Y
	August	<1.17	Y
	September	<1.22	Y
	October	<0.99	Y
	November	<1.02	Y
	December	<2.09	Y
Total Suspended Solids	January	<1.76	Y
	February	<1.21	Y
	March	<5.11	Y

	April	14.79	N
	May	9.62	Y
	June	<1.62	Y
	July	1.79	Y
	August	<2.11	Y
	September	<0.98	Y
	October	<0.99	Y
	November	<1.40	Y
	December	<1.19	Y

Please note that April 2023 TSS monthly average effluent loading was calculated using the flow-weighted arithmetic mean set out in Schedule F of the ECA. See calculation in Appendix V however; the TSS monthly loading limit for April was exceeded. Two emergency sand filter bypass occurred April 1– 14, 2023 & April 30- May 09, 2023. The exceedance was reported as required. More information on the emergency sand filter bypasses and the exceedance reporting is included in Appendix V.

Total Phosphorus (TP)

ECA No. 5475-BPYLDH has a monthly average concentration limit of 0.5 mg/L for Total Phosphorus. The monthly average results for 2023 are presented in the following table.

Table 4: Total Phosphorus 2023 Monthly Average Concentrations

Month	ECA No. 5475-BPYLDH Monthly Average Limit (mg/L)	Monthly Average (mg/L)	Compliant Y/N
January	0.5	0.06	Y
February	0.5	0.05	Y
March	0.5	0.13	Y
April	0.5	0.32	Y
May	0.5	0.25	Y
June	0.5	0.17	Y
July	0.5	0.18	Y

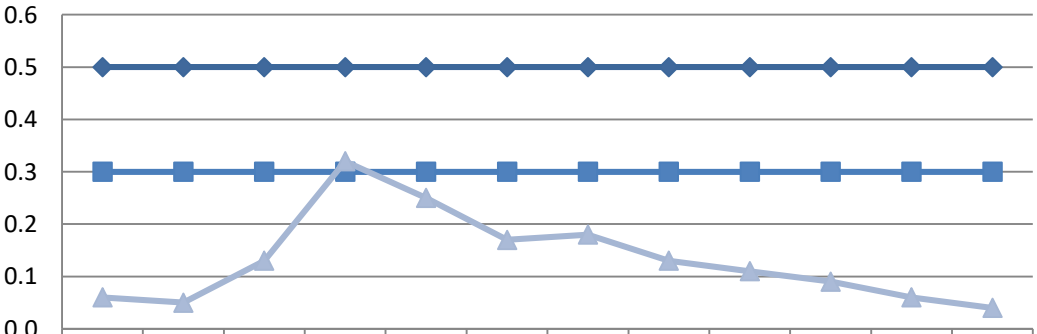
Table 4: Total Phosphorus 2023 Monthly Average Concentrations			
Month	**ECA No. 5475-BPYLDH Monthly Average Limit (mg/L)**	**Monthly Average (mg/L)**	**Compliant Y/N**
August	0.5	0.13	Y
September	0.5	0.11	Y
October	0.5	0.09	Y
November	0.5	0.06	Y
December	0.5	0.04	Y

ECA No. 5475-BPYLDH has a monthly average concentration objective of 0.3 mg/L for Total Phosphorus. The monthly average results for 2023 are presented in the following table.

Table 5: Total Phosphorus 2023 Monthly Average Concentrations			
Month	**Monthly Average Objective (mg/L)**	**Monthly Average (mg/L)**	**Objective Met Y/N**
January	0.3	0.06	Y
February	0.3	0.05	Y
March	0.3	0.13	Y
April	0.3	0.32	N
May	0.3	0.25	Y
June	0.3	0.17	Y
July	0.3	0.18	Y
August	0.3	0.13	Y
September	0.3	0.11	Y
October	0.3	0.09	Y
November	0.3	0.06	Y
December	0.3	0.04	Y

The Total Phosphorus result for April was greater than the objective as two emergency sand filter bypass events occurred April 1 – 14, 2023 and April 30-May 9, 2023. More information on the emergency sand filter bypasses is included in Appendix V.

Graph 12: 2023 Monthly Final Effluent Phosphorus Concentration Comparisons



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit (mg/L)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Objective (mg/L)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Avg (mg/L)	0.06	0.05	0.13	0.32	0.25	0.17	0.18	0.13	0.11	0.09	0.06	0.04

ECA No. 5475-BPYLDH has a monthly average daily effluent loading limit of 0.47 kg/day for Total Phosphorus. The loadings for 2023 are presented in the following table.

Table 6: Total Phosphorus 2023 Monthly Average Daily Effluent Loading

Month	Monthly Average Daily Effluent Loading Limit (kg/day)	Monthly Average Daily Effluent Loading Limit Result (kg/day)	Limit Met Y/N
January	0.47	0.05	Y
February	0.47	0.03	Y
March	0.47	0.09	Y
April	0.47	0.36	Y
May	0.47	0.24	Y
June	0.47	0.12	Y
July	0.47	0.12	Y
August	0.47	0.08	Y
September	0.47	0.06	Y
October	0.47	0.05	Y
November	0.47	0.03	Y
December	0.47	0.02	Y

Total Ammonia Nitrogen (TAN)

ECA No. 5475-BPYLDH has a Total Ammonia Nitrogen (TAN) average concentration loading limit based on monthly averages for seasonal limits for Oct 1 – Apr 30 and May 1 – Sep 30. The limits are applied monthly upon completion of construction of all Proposed Works. The monthly average results for 2023 are presented in Table 7. All effluent results were below the concentration and loading limits and objectives for TAN.

Table 7: Total Ammonia Nitrogen 2023 Monthly Average Concentrations and Loadings upon completion of construction of all Proposed Works			
Month	**Monthly Average Concentration Limit (mg/L)**	**Monthly Average (mg/L)**	**Compliant Y/N**
January	12.0	<0.10	Y
February	12.0	<0.10	Y
March	12.0	<0.10	Y
April	12.0	<0.11	Y
May	6.0	<0.45	Y
June	6.0	0.10	Y
July	6.0	<0.13	Y
August	6.0	<0.10	Y
September	6.0	<0.10	Y
October	12.0	<0.10	Y
November	12.0	<0.10	Y
December	12.0	<0.10	Y
Month	**Monthly Average Daily Effluent Loading Limit (kg/d)**	**Monthly Daily Effluent Loading Average (kg/d)**	**Compliant Y/N**
January	11.3	<0.07	Y
February	11.3	<0.06	Y
March	11.3	<0.07	Y
April	11.3	<0.12	Y
May	5.7	<0.43	Y
June	5.7	0.07	Y
July	5.7	<0.08	Y
August	5.7	<0.06	Y
September	5.7	<0.05	Y
October	11.3	<0.05	Y
November	11.3	<0.05	Y
December	11.3	<0.06	Y

ECA No. 5475-BPYLDH has a Total Ammonia Nitrogen (TAN) average concentration loading objective based on monthly averages for seasonal objectives for Oct 1 – Apr 30 and May 1 – Sep 30. The objectives are applied monthly upon completion of construction of all Proposed Works. The monthly average results for 2023 are presented in Table 8. All effluent results were below the concentration and loading limits and objectives for TAN.

Table 8: Total Ammonia Nitrogen 2023 Monthly Average Concentrations and Loadings upon completion of construction of all Proposed Works			
Month	**Monthly Average Concentration Objective (mg/L)**	**Monthly Average (mg/L)**	**Objective Met Y/N**
January	6.0	<0.10	Y
February	6.0	<0.10	Y
March	6.0	<0.10	Y
April	6.0	<0.11	Y
May	3.0	<0.45	Y
June	3.0	0.10	Y
July	3.0	<0.13	Y
August	3.0	<0.10	Y
September	3.0	<0.10	Y
October	6.0	<0.10	Y
November	6.0	<0.10	Y
December	6.0	<0.10	Y

Total Residual Chlorine (TRC)

ECA No. 5475-BPYLDH has a Total Residual Chlorine compliance limit of 0.02 mg/L and an objective of not detectable as measured by a method with a sensitivity of at least 0.02 mg/L for every single sample result.

The final effluent TRC measured in 2023 are provided in Appendix I and are compared to the limit and objective. The installation of the UV disinfection system was completed in August 2022 and is used for disinfection except when a sand filter bypass occurs and sodium hypochlorite is used for disinfection and sodium bisulphite for dechlorination.

Table 9: Total Residual Chlorine 2023 Results Comparison to Limits	
Limit 0.02mg/L	**Every Single Sample Result Compliant (Y/N)**
Results range: <0.02 – 0.05	N

There was one Total Residual Chlorine exceedance during the sand filter bypass that occurred March 17, 2023. The exceedance was reported as required. Please see summary letter in Appendix V.

ECA No. 5475-BPYLDH has a Total Residual Chlorine objective of Non-detectable. Appendix I includes a comparison of all results to the objectives. The following readings did not meet the objective.

Table 10: Total Residual Chlorine 2023 Results Outside of Objective of Non-Detectable					
Date	**Results**	**Single Sample Result Objective Met Y/N**	**Date**	**Results**	**Single Sample Result Objective Met Y/N**
03/17/23	0.05	N	05/01/23	0.01	N
03/18/23	0.01	N	05/02/23	0.01	N
04/01/23	0.01	N	05/04/23	0.01	N
04/02/23	0.01	N	05/05/23	0.01	N
04/06/23	0.01	N	05/06/23	0.01	N
04/07/23	0.01	N	05/07/23	0.01	N
04/09/23	0.01	N	05/08/23	0.01	N
04/10/23	0.01	N	05/09/23	0.01	N
04/13/23	0.01	N			

E. Coli

ECA No. 5475-BPYLDH has a compliance monthly geometric mean density limit of 200 cfu/100mL. Many wastewater treatment facilities must test for and report results using a 'Geometric Mean' (average) of all the test results obtained during a specific reporting period. The geometric mean calculation is different than a normal arithmetic mean (average) calculation and is considered to be a more accurate calculation. A geometric mean, unlike an arithmetic mean, tends to dampen the effect of very high or low values which might bias the mean if a straight average (arithmetic mean) were calculated.

The following provides monthly geometric mean density values of E. Coli in the final effluent for each month in 2023.

Table 11: E. Coli 2023 Results Comparison to Limit												
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Monthly Geometric Mean Density of E. Coli (cfu/100mL)	2.5	2.0	2.0	8.9	3.9	2.0	1.7	2.0	2.0	2.0	2.0	2.0
Compliant with Limit of 200 cfu/100 mL (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

ECA No. 5475-BPYLDH has a design objective of <200cfu/100mL.

Table 12: E. Coli 2023 Results Compared to Objective												
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Monthly Geometric Mean Density of E. Coli (cfu/100mL)	2.5	2.0	2.0	8.9	3.9	2.0	1.7	2.0	2.0	2.0	2.0	2.0
Objective of <200 cfu/100 mL Met (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

pH

ECA No. 5475-BPYLDH has a pH compliance limit with a range of 6.0 to 9.5, inclusive, for every single sample result. Every pH reading in 2023 was within the compliance limit. The summary of effluent pH, provided in Appendix I, provides all measurements recorded in 2023 and compares the results to the limits.

Table 13: Field pH 2023 Results Comparison to Limits	
Limit 6.0 – 9.5	**Every Single Sample Result Compliant (Y/N)**
Results range: 6.10 – 8.02	Y

ECA No. 5475-BPYLDH has a pH objective of 6.5 – 8.5 inclusive for every single sample result. Appendix I includes a comparison of all results to the objectives. The following readings were below the lower pH objective of 6.5 in 2023.

Table 14: Field pH 2023 Results Outsides of Objective					
Date	**Results**	**Single Sample Result Objective Met Y/N**	**Date**	**Results**	**Single Sample Result Objective Met Y/N**
01/03/23	6.27	N	03/17/23	6.19	N
01/04/23	6.44	N	03/20/23	6.17	N
01/06/23	6.44	N	03/21/23	6.15	N
01/09/23	6.35	N	03/22/23	6.38	N
01/10/23	6.27	N	03/23/23	6.32	N

Table 14: Field pH 2023 Results Outsides of Objective					
Date	**Results**	**Single Sample Result Objective Met Y/N**	**Date**	**Results**	**Single Sample Result Objective Met Y/N**
01/16/23	6.24	N	03/24/23	6.12	N
01/17/23	6.24	N	03/27/23	6.19	N
01/18/23	6.25	N	03/28/23	6.16	N
01/19/23	6.26	N	03/29/23	6.26	N
01/20/23	6.15	N	03/30/23	6.23	N
01/23/23	6.22	N	03/31/23	6.30	N
01/24/23	6.18	N	04/01/23	6.23	N
01/25/23	6.29	N	04/02/23	6.22	N
01/26/23	6.49	N	04/02/23	6.19	N
01/30/23	6.36	N	04/03/23	6.43	N
01/31/23	6.25	N	04/04/23	6.31	N
02/01/23	6.27	N	04/05/23	6.28	N
02/02/23	6.42	N	04/06/23	6.31	N
02/03/23	6.43	N	04/07/23	6.18	N
02/06/23	6.23	N	04/08/23	6.27	N
02/13/23	6.47	N	04/09/23	6.21	N
02/21/23	6.18	N	04/10/23	6.16	N
03/09/23	6.36	N	04/11/23	6.18	N
03/13/23	6.28	N	04/12/23	6.16	N
03/15/23	6.18	N	04/13/23	6.25	N
03/16/23	6.10	N	04/14/23	6.22	N

The results in the preceding tables show the limits for concentrations and loadings of the effluent CBOD5, Total Phosphorus and Total Ammonia Nitrogen were in compliance with both ECA No. 5475-BPYLDH in 2023. E. Coli monthly geomean results and all results for pH met the ECA's limits in 2023. The monthly average loading for Total Suspended Solids for April 2023 exceeded the ECA's limits along with a Total Residual Chlorine (TRC) result of 0.05 mg/L in March 2023. Both instances were reported and occurred while emergency sand filter bypasses were taking place, March 17-18, 2023 & April 1-14, 2023 & April 30-

May 09, 2023. More information on the emergency sand filter bypass is included in Appendix V.

Objectives were met for CBOD5, TP, TAN, and E. Coli. TSS monthly objective concentration for May was not met along with the monthly loading limit for TSS in April 2023, as emergency sand filter bypasses occurred April 1-14, 2023 & April 30-May 09, 2023. More information on the emergency sand filter bypass is included in Appendix V.

Total Residual Chlorine (TRC) had 17 out of the 28 TRC readings were detected at 0.01mg/L with one exceedance reading at 0.05mg/L. Fifty-two (52) of the 232 pH readings were below the objective set by the ECA.

Refer to Appendix I for Performance Assessment Report and Summaries of Effluent TRC, pH and E. Coli Results for 2023.

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

The following details describe all operating problems encountered during the reporting period and the corrective actions taken.

Table 15: Summary of Operating Issues

Date	Challenges	Corrective Actions
Mar 17- 18	High flows due to weather and warmer temperatures causing snow melt resulted in bypass of sand filters.	Township issued an alert on their website. Monitored flows and processes. Composite effluent samples collected. Effluent met concentration and loading limits and objectives with the exception of one total chlorine residual reading of 0.05 mg/L as previously mentioned in this report. Additional information included in Condition j.
Apr 1 - 14	High flows due to weather and warmer temperatures causing snow melt resulted in bypass of sand filters.	Township issued an alert on their website. Monitored flows and processes. Composite effluent samples collected. Effluent met concentration and loading limits and objectives with the exception of not meeting the TSS loading limit for the month of April 2023. Additional information included in Condition j.
Apr 30 – May 09	High flows due to weather and warmer temperatures causing snow melt resulted in bypass of sand filters.	Township issued an alert on their website. Monitored flows and processes. Composite effluent samples collected. Effluent met concentration and loading limits and objectives with the exception of not meeting the TSS loading limit for the month of April 2023. Additional information included in Condition j

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;

OCWA uses a Work Maintenance System (WMS) to schedule normal maintenance activities and track repairs. WMS is a maintenance tracking system that can generate work orders as well as give summaries of completed and scheduled work. During the year, the operating authority at the facility generates scheduled work orders on a weekly, monthly and annual basis. The service work is recorded in the work order history. This ensures routine and preventive maintenance is carried out and assets are maintained to manufacturer's and/or industry standards. Emergency and capital repair maintenance is completed and added to the system.

Refer to Appendix II for work order and maintenance summary.

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

Effluent quality assurance is maintained in several ways. Laboratory samples are sent to accredited laboratory (SGS Lakefield) for analysis of all effluent parameters. Sampling calendars issued to the operator denote frequency of sampling and these calendars are submitted to the Process Compliance Technician at the end of each month. Raw and effluent samples were collected as per ECA No. 5475-BPYLDH and the results are reviewed on a regular basis to ensure compliance with the site's objectives and limits.

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

Work orders are scheduled through OCWA's asset maintenance management system to ensure preventative and corrective maintenance is completed and recorded by operations staff. A summary is attached as Appendix II. Flow meters are calibrated annually and the 2023 calibration report is provided in Appendix III.

OCWA conducts internal audits of facilities and develops Action Plans to ensure deficiencies are identified and corrected. OCWA has developed comprehensive manuals detailing operations, maintenance, instrumentation and emergency procedures. To ensure facilities are operated in compliance with applicable legal requirements, facility staff has access to a network of compliance and support professionals at the hub, region and corporate level.

Continuous phosphorus removal is achieved with the dosing of aluminum sulphate. A summary of its use and dosing rates for 2023 is provided in the following table.

Table 16: Coagulant Use and Dosing 2023

Month	Aluminum Sulphate (kg)	Aluminum Sulphate Average Dosage (mg/L)
January	775	35.0
February	700	41.5
March	775	37.0
April	750	22.4
May	843	33.1
June	818	39.5
July	845	42.0
August	845	47.0
September	818	56.0
October	845	54.8
November	818	53.6
December	845	46.4

f. 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;

Refer to Appendix III for 2023 calibration reports.

g. 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 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;

Continuous efforts were made to meet the Effluent Objectives in 2023:

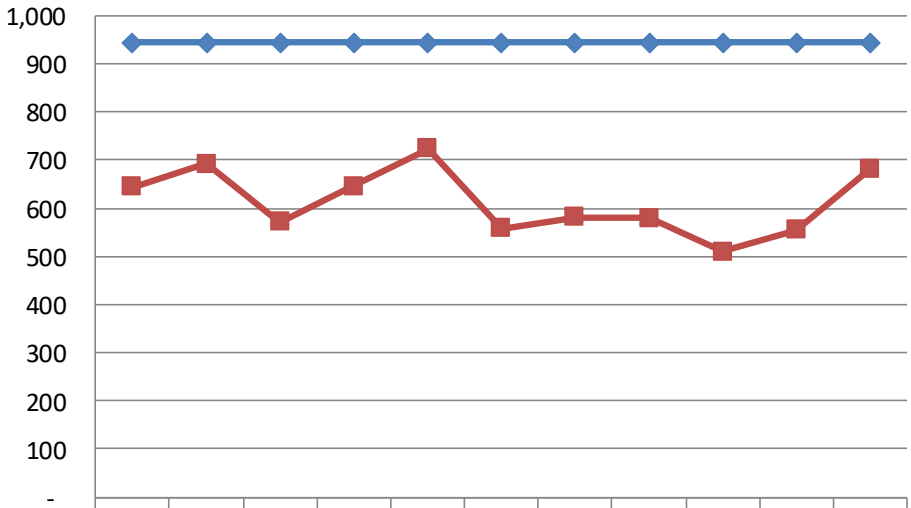
1. Development of the sampling plan which meets or exceeds the minimum sample requirements as required in the ECA;
2. Visual Inspection of the entire process while performing rounds;
3. Influent monitoring;
4. Ensuring that chemicals are being dosed as required;
5. Calibration of lab equipment;
6. Annual calibration of flow meters;
7. Performing preventative maintenance activities in accordance with work order schedules;
8. Performing in-house lab tests;
9. Monitoring treatment processes by performing regular laboratory analysis and reviewing of lab results;
10. Biosolids monitoring

Effluent design objectives were met more than 50% of the time.

The ECA states the plant has a Rated Capacity of 945m^3/day. The Rated Capacity means the Average Daily Flow for which the plant is approved to treat. The Average Daily Flow is determined by the cumulative total sewage flow into the plant during a calendar year, which is then divided by the number of days during which sewage flowed into the plant. The annual average daily influent flow is 682.86 m^3/day or 72% of the Rated Capacity.

The following graph shows the plant has been operating within the Rated Capacity for the past ten years.

Graph 13: Average Sewage Flow and Rated Capacity Comparisons



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Rated Capacity m3/day	945	945	945	945	945	945	945	945	945	945	945
Average Sewage Flow (m3/day)	644	692	572	646	724	558	582	579	510	555	683

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 locations to where the sludge was disposed;

Attached is Appendix IV: Sludge/Biosolids Summary that contains quantities of organics, inorganics, e-coli and volumes of Biosolids/sludge generated for the reporting period - which was a total of 1,476.78 m^3. This is a decrease from 2022 when 1,600.42 m^3 of biosolids were generated and hauled. The anticipated volume for the next reporting period is not expected to be appreciably different from this reporting period.

Biosolids from the Minden STP were hauled, stored and land applied by Shepherds Enterprises Inc. in 2023 and will be again in 2024. The biosolids are hauled to fields with a valid NASM Plan or to A710160 Shepherds Environmental Storage Structure and then applied to fields with valid NASM Plans. The majority of Minden's STP biosolids is stored because of the small volumes the plant generates. The certified fields which received biosolids for land application directly from the Minden STP in 2023 are listed in the following table.

Table 17: Summary of Biosolids Land Application 2023

Date	Amount m^3	Location
August 10	87.3	NASM Plan 23771
October 31	87.3	NASM Plan 23771
November 20	87.3	NASM Plan 23771

i. a summary of any complaints received and any steps taken to address the complaints

Table 18: Complaints Received Summary for 2023

Date	Issue	Actions Taken
July 25, 2023	Service Problem. A resident was unable to flush a toilet.	An operator checked manholes near the addresses. The manholes showed constant flow. Operator gave the resident contact information for a contractor. The issue was on the resident's side.

j. a summary of all Bypasses, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events;

The following table summarizes all Bypasses, Overflows and spills and abnormal discharge events that occurred in 2023. The Operations Event Forms and sampling results for these events are provided in Appendix V. The events were reported to MOH, MECP and the Township.

Table 19: 2023 Summary of Events as per Condition 11.4.j.					
Date	**Type of Event**	**Total Volume (m3)**	**Disinfect (Y/N)**	**Samples Collected (Y/N)**	**Reason**
March 17-18	Sand Filter Bypass	819	Y	Y	Weather
April 1-14	Sand Filter Bypass	15,730	Y	Y	Weather
April 30-May 9	Sand Filter Bypass	10,455	Y	Y	Weather

ECA No. 5475-BPYLDH requires submission of quarterly summary reports of any Bypass Events and Overflows Events. Copies of these reports are provided in Appendix V.

ECA No. 5475-BPYLDH includes a Peak Daily Flow Rate which is the overall design capacity of the sewage treatment plant of 3,410m^3/d. A one-day flow total, greater than this Peak Daily Flow Rate, will trigger additional sampling as per Condition 9.2 for situations outside of Normal Operating Conditions. The maximum daily flow in 2023 was 1,583 m^3.

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

Appendix VI provides an update on the Notice of Modification for Fleming College's Centre for Advancement of Water and Wastewater Technologies (CAWT) pilot facility. This pilot facility will serve as an important expansion of the research and testing capabilities in the Province of Ontario.

This project experienced a number of delays since March 2020 due to the COVID-19 pandemic. The original LOF expired July 30, 2021 but has been extended to October 2, 2024.

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.

2023 efforts included collection system flushing, manhole repairs and spot manhole inspections.

The estimated budget forecast for 2024 includes the following:

- Collection System Flushing – $10,000
- Manhole/piping - $100,000
- Sand Filter Rehabilitation - $50,000
- UV Service/Maintenance - $6,000
- Unplanned Repairs for plant and collection system - $30,000

m. 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.

Proposed works for the Minden STP include modifications to the existing sand filter effluent channel to install a UV disinfection system and a dechlorination system. This work was completed in August 2022. A copy of the Professional Engineer's statement of completion of works was included in the 2022 Annual Report.

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

Summary of Influent and Effluent Monitoring and Recording Results

ECA No. 5475-BPYLDH Schedule D describes the requirement for sample collection at the following locations, frequencies and by means of the specified sample type and analyzed for each parameter listed and all results recorded:

Table 20:Influent Monitoring Program		
Parameter	Type of Sample	Minimum Sampling Frequency
BOD_5	24 hour composite	Monthly
Total Suspended Solids	24 hour composite	Monthly
Total Phosphorus	24 hour composite	Monthly
Total Kjeldahl Nitrogen	24 hour composite	Monthly

Table 21: Final Effluent – Monitoring Program		
Parameter	Type of Sample	Minimum Sampling Frequency
$CBOD_5$	24 hour composite	Weekly
Total Suspended Solids	24 hour composite	Weekly
Total Phosphorus	24 hour composite	Weekly
Total Ammonia Nitrogen	24 hour composite	Weekly
Total Kjeldahl Nitrogen	24 hour composite	Weekly
Nitrate as Nitrogen	24 hour composite	Weekly
Nitrite as Nitrogen	24 hour composite	Weekly
E. Coli	Grab	Weekly
Total Residual Chlorine	Grab/Analyzer	Weekly (prior to commissioning the proposed UV disinfection system) Daily (if chlorination or superchlorination is employed in the liquid train post to the commissioning of the proposed UV disinfection system)
Dissolved Oxygen (DO)***	Grab/Probe/Analyzer	Weekly (Daily if dechlorination is employed)
pH*	Grab/Probe/Analyzer	Weekly
Temperature*	Grab/Probe/Analyzer	Weekly
Un-ionized Ammonia**	As Calculated	Weekly

*pH and temperature of the Final Effluent shall be determined in the field at the time of sampling for Total Ammonia Nitrogen.
** The concentration of un-ionized ammonia shall be calculated using the total ammonia concentration, pH and temperature using the methodology stipulated in ”Ontario’s Provincial Water Quality Objectives” dated July 1994, as amended.
***The Owner shall monitor and record DO in the Final Effluent as outlined in the table above for a period of not shorter than two (2) years as of January 1, 2021. The Owner shall, within three (3) months after the 2-year term, submit to the District Manager a set of raw data of DO monitoring results as well as the review of the DO variation in relation to the plant disinfection practice for this 2-year term (I.e. routine UV disinfection vs. occasional chlorination and dechlorination during filter bypass events as well as in the sand filter superchlorination events). The monitoring frequencies with respect to DO may be modified at the discretion of the District Manager in Writing, upon conclusion of his / her review of the required submission.

Dissolved Oxygen (DO) was monitored as required in the Final Effluent as outlined in the monitoring program for two years (January 2021-January 2023) in ECA 5475-BPYLDH. The DO monitoring results over the two year period were submitted in the required timeframe to the District Manager. The monitoring frequency proposed in the letter to the District

Manager was to remain the same as outlined in Schedule D-Final Effluent in the ECA for continued data collection while the UVs are providing disinfection. Please see Appendix VIII.

The following tables provide a summary of the number of samples collected each month for those parameters required for analysis.

Influent Sample Collection Summary

Table 22: Minden STP - Number of Influent Parameters Tested in 2023

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
BOD_5	1	1	1	1	1	1	1	1	1	1	1	1
TSS	1	1	1	1	1	1	1	1	1	1	1	1
Total P	1	1	1	1	1	1	1	1	1	1	1	1
TKN	1	1	1	1	1	1	1	1	1	1	1	1

Final Effluent Sample Collection Summary

Table 23: Minden STP - Number of Final Effluent Parameters Tested in 2023

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
$cBOD_5$	5	4	5	17	12	4	4	5	4	5	4	4
TSS	5	4	5	17	12	4	4	5	4	5	4	4
Total P	5	4	5	17	12	4	4	5	4	5	4	4
Total Ammonia Nitrogen	5	4	5	17	12	4	4	5	4	5	4	4
TKN	5	4	4	6	5	4	4	5	4	5	4	4
Nitrite as N	5	4	4	6	5	4	4	5	4	5	4	4
Nitrate as N	5	4	4	6	5	4	4	5	4	5	4	4
E. Coli	5	4	5	5	6	4	4	5	4	5	4	4
Total Chlorine Residual	0	0	2	17	9	0	0	0	0	0	0	0
pH	21	18	23	27	23	19	20	20	16	15	17	14
Temp ^oC	21	18	23	27	23	19	19	20	16	15	17	14
DO	11	8	17	22	16	8	16	19	16	15	17	14
Unionized Ammonia	5	4	4	6	5	4	4	5	4	5	4	4

The required number of influent and final effluent samples were collected at the specified locations and frequencies during the reporting period as per ECA No. 5475-BPYLDH Schedule D. The following samples were deviations from the 2023 sampling schedule:

- Due to National Day for Truth and Reconciliation on September 30, weekly final effluent sample scheduled for October 3, collected October 4 due to the new Statutory Holiday on October 02, 2023.

During sand filter bypass events, additional sampling was completed as required.

Summary of Sludge/Biosolids and Recording Results

Table 24: Sludge Solids – holding tank/truck loading bay - Monitoring Program		
Parameter	Type of Sample	Minimum Sampling Frequency
Total Solids	Grab	Quarterly
Total Phosphorus	Grab	Quarterly
Total Ammonia Nitrogen	Grab	Quarterly
Nitrate as Nitrogen	Grab	Quarterly
Potassium	Grab	Quarterly
Metal Scan - Arsenic - Cadmium - Cobalt - Chromium - Copper - Lead - Mercury - Molybdenum - Nickel - Potassium - Selenium - Zinc	Grab	Quarterly

Table 25: Minden STP - Number of Sludge/Biosolids Parameters Tested in 2023												
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Total Solids	1	1	2	1	1	2	1	1	2	2	1	1
TP	1	1	2	1	1	2	1	1	2	2	1	1
TAN	1	1	2	1	1	2	1	1	2	2	1	1
Nitrate as Nitrogen	1	1	2	1	1	2	1	1	2	2	1	1
Arsenic	1	1	2	1	1	2	1	1	2	2	1	1
Cadmium	1	1	2	1	1	2	1	1	2	2	1	1
Cobalt	1	1	2	1	1	2	1	1	2	2	1	1
Chromium	1	1	2	1	1	2	1	1	2	2	1	1
Copper	1	1	2	1	1	2	1	1	2	2	1	1
Lead	1	1	2	1	1	2	1	1	2	2	1	1

Table 25: Minden STP - Number of Sludge/Biosolids Parameters Tested in 2023												
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Mercury	1	1	2	1	1	2	1	1	2	2	1	1
Molyb-denum	1	1	2	1	1	2	1	1	2	2	1	1
Nickel	1	1	2	1	1	2	1	1	2	2	1	1
Potassium	1	1	2	1	1	2	1	1	2	2	1	1
Selenium	1	1	2	1	1	2	1	1	2	2	1	1
Zinc	1	1	2	1	1	2	1	1	2	2	1	1

Sludge/biosolids samples are collected typically once per month when sludge/biosolids are hauled from the facility. This meets the required minimum number of samples at the specified location and frequency during the reporting period as required by the ECA. 2023 Sludge/Biosolids results are provided in Appendix IV.

For the 2024 sample schedule refer to Appendix VII.

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4.6 (a) a summary of all required monitoring data along with an interpretation of the data and any conclusion drawn from the data evaluation about the need for future modifications to the Authorized System or system operations.

The Minden Hills Sewage Collection System consists of works for the collection and transmission of sewage, consisting of trunk sewers, normally separate sewers, 2 sewage pumping stations, and a forcemain, with discharge into the Minden Sewage Treatment Plant.

Raw Sewage flow data from sewage received from the Pumping Stations is captured in Appendix I and section a of this report along with an interpretation of the data and any conclusions drawn from the data evaluation.

4.6 (b) a summary of any operating problems encountered and corrective actions taken.

There were no operating problems encountered in the Minden Hills Sewage Collection System in 2023.

4.6 (c) a summary of all calibration, maintenance, and repairs carried out on any major structure, Equipment, apparatus, mechanism, or thing forming part of the Municipal Sewage Collection System.

A regular scheduled calibration and maintenance program has been kept up to date as scheduled on a daily, weekly, semi-annual and annual basis. All equipment calibration & maintenance scheduling and standard procedures are provided by Maximo Computerized Maintenance System.

Attached is Appendix II: Maintenance Summary, a Work Order Summary report, showing all preventive and corrective maintenance activities performed at the Minden Hills Sewage Treatment Plant, including the collection system, during 2023.

Attached is Appendix III: Calibration Report, flow meters are calibrated annually.

4.6 (d) a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.

Complaints related to the Minden Hills Sewage Collection System and steps taken to address the complaints from 2023 are included in Table 18: Summary of Community Complaints.

4.6 (e) a summary of all Alterations to the Authorized System within the reporting period that are authorized by this Approval including a list of Alterations that pose a Significant Drinking Water Threat.

There were no Alterations made to the Minden Hills Sewage Collection System in 2023.

4.6 (f) a summary of all Collection System Overflow(s) and Spill(s) of Sewage, including:

i) Dates;
ii) Volumes and durations;
iii) If applicable, loadings for total suspended solids, BOD, total phosphorus, and total Kjeldahl nitrogen, and sampling results for E.coli;
iv) Disinfection, if any; and
v) Any adverse impact(s) and any corrective actions, if applicable.

The Minden Hills Collection system did not experience any collection system Overflows or Spills in 2023.

4.6 (g) a summary of efforts made to reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses, including the following items, as applicable:

i) A description of projects undertaken and completed in the Authorized System that result in overall overflow reduction or elimination including expenditures and proposed projects to eliminate overflows with estimated budget forecast for the year following that for which the report is submitted.

Refer to section I above for prosed projects.

ii) Details of the establishment and maintenance of a PPCP, including a summary of project progresses compared to the PPCP's timelines.

The Minden Hills Sewage Collection system does not contain combined sewers and therefore is not required to complete a Pollution Prevention and Control Plan (PPCP).

iii) An assessment of the effectiveness of each action taken.

None to report at this time.

iv) An assessment of the ability to meet Procedure F-5-1 or Procedure F-5-5 objectives (as applicable) and if able to meet the objectives, an overview of next steps and estimated timelines to meet the objectives.

Not applicable

v) Public reporting approach including proactive efforts.

The Township of Minden Hills utilizes their website to post Media Releases. Residents have the ability to subscribe to receive Media Releases from the Township of Minden Hills to an email address.

Appendix I

Performance Assessment Report

TRC Results Comparison to Limit and Objective

Field pH Results

Un-ionized Ammonia Results

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Performance Assessment Report Standard ECA

From 1/1/2023 to 12/31/2023

5839 MINDEN WASTEWATER TREATMENT FACILITY 110002390

	1 / 2023	2/ 2023	3/ 2023	4/ 2023	5/ 2023	6/ 2023	7/ 2023	8/ 2023	9/ 2023	10/ 2023	11/ 2023	12/ 2023	<--Total-->	<--Avg-->	<--Max-->
Flows															
Raw Flow: Total - Raw m³/d	22,675.00	16,928.00	22,009.00	34,098.00	29,571.00	21,586.00	20,262.00	18,140.00	14,645.00	15,475.00	15,320.00	18,535.00	249,244.00		
Raw Flow: Avg - Raw m³/d	731.45	604.57	709.97	1,136.60	953.90	719.53	653.61	585.16	488.17	499.19	510.67	597.90		682.86	
Raw Flow: Max - Raw m³/d	937.00	683.00	1,082.00	1,583.00	1,464.00	1,530.00	793.00	707.00	530.00	566.00	577.00	832.00			1,583.00
Raw Flow: Count - Raw m³/d	31.00	28.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	365.00		
Eff. Flow: Total - Eff m³/d	22,675.00	16,928.00	22,009.00	34,098.00	29,571.00	21,586.00	20,262.00	18,140.00	14,645.00	15,475.00	15,320.00	18,535.00	249,244.00		
Eff. Flow: Avg - Eff m³/d	731.45	604.57	709.97	1,136.60	953.90	719.53	653.61	585.16	488.17	499.19	510.67	597.90		682.86	
Eff. Flow: Max - Eff m³/d	937.00	683.00	1,082.00	1,583.00	1,464.00	1,530.00	793.00	707.00	530.00	566.00	577.00	832.00			1,583.00
Eff Flow: Count - Eff m³/d	31.00	28.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	365.00		
Biochemical Oxygen Demand: BOD5															
Raw: Avg BOD5 - Raw mg/L	322.00	197.00	134.00	121.00	114.00	264.00	312.00	253.00	368.00	308.00	170.00	272.00		236.25	368.00
Raw: # of samples of BOD5 - Raw mg/L	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00		114.00
Carbonaceous Biochemical Oxygen Demand: CBOD															
Eff: Avg cBOD5 - Final Effluent including Bypass mg/L	< 2.20	< 2.00	< 4.60	< 4.12	< 3.50	< 2.00	< 2.00	< 2.00	< 2.50	< 2.00	< 2.00	< 3.50		< 3.04	< 4.60
Eff.Flow : Weighted Avg cBOD5 - Final Effluent including Bypass mg/L	0.00	0.00	< 7.69	< 3.39	< 2.75	< 2.00	< 2.00	0.00	0.00	0.00	0.00	0.00		< 2.61	< 7.69
Eff: # of samples of cBOD5 - Final Effluent including Bypass mg/L	5.00	4.00	5.00	17.00	12.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	73.00		
Loading: cBOD5 - Final Effluent including Bypass kg/d	< 1.609	< 1.209	< 3.266	< 4.680	< 3.339	< 1.439	< 1.307	< 1.170	< 1.220	< 0.998	< 1.021	< 2.093		< 2.08	< 4.68
Loading Flow Weighted: cBOD5 - Final Effluent including Bypass kg/d	0.000	0.000	< 5.458	< 3.853	< 2.625	< 1.439	< 1.307	0.000	0.000	0.000	0.000	0.000		< 1.78	< 5.46
Total Suspended Solids: TSS															
Raw: Avg TSS - Raw mg/L	184.00	98.00	191.00	140.00	203.00	313.00	336.00	556.00	345.00	309.00	371.00	615.00		305.08	615.00
Raw: # of samples of TSS - Raw mg/L	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00		98.00
Eff: Avg TSS - Final Effluent including Bypass mg/L	< 2.40	< 2.00	< 7.20	< 18.65	< 10.08	< 2.25	< 2.75	< 3.60	< 2.00	< 2.00	< 2.75	< 2.00		< 7.79	< 18.65
Eff.Flow : Weighted Avg TSS - Final Effluent including Bypass mg/L	0.00	0.00	< 12.78	< 13.01	6.88	2.25	2.75	0.00	0.00	0.00	0.00	0.00		< 5.12	< 13.01
Eff: # of samples of TSS - Final Effluent including Bypass mg/L	5.00	4.00	5.00	17.00	12.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	73.00		
Loading: TSS - Final Effluent including Bypass kg/d	< 1.755	< 1.209	< 5.112	< 21.194	9.619	< 1.619	< 1.797	< 2.107	< 0.976	< 0.998	< 1.404	< 1.196		< 5.32	< 21.19
Loading Flow Weighted: TSS - Final Effluent including Bypass kg/d	0.000	0.000	< 9.074	< 14.791	6.565	1.619	1.797	0.000	0.000	0.000	0.000	0.000		< 3.50	< 14.79
Total Phosphorus: TP															
Raw: Avg TP - Raw mg/L	3.34	3.39	3.03	2.09	1.93	4.56	5.90	5.10	3.98	3.93	3.84	5.30		3.87	5.90
Raw: # of samples of TP - Raw mg/L	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00		
Eff: Avg TP - Final Effluent including Bypass mg/L	< 0.06	< 0.05	0.13	0.32	0.25	0.17	0.18	0.13	0.11	0.09	0.06	< 0.04		< 0.18	< 0.32
Eff.Flow : Weighted Avg TP - Final Effluent including Bypass mg/L	0.00	0.00	0.21	0.23	0.19	0.17	0.18	0.00	0.00	0.00	0.00	0.00		0.14	0.23
Eff: # of samples of TP - Final Effluent including Bypass mg/L	5.00	4.00	5.00	17.00	12.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	73.00		
Loading: TP - Final Effluent including Bypass kg/d	< 0.047	< 0.032	0.095	0.364	0.242	0.122	0.119	0.077	0.055	0.047	0.028	< 0.021		< 0.10	< 0.36
Loading Flow Weighted: TP - Final Effluent including Bypass kg/d	0.000	0.000	0.151	0.267	0.180	0.122	0.119	0.000	0.000	0.000	0.000	0.000		0.09	0.27
Nitrogen Series															
Raw: Avg TKN - Raw mg/L	21.80	27.40	25.70	16.40	14.10	29.70	44.30	40.30	31.40	31.00	34.50	43.70		30.03	44.30
Raw: # of samples of TKN - Raw mg/L	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00		
Eff: Avg TAN - Final Effluent including Bypass mg/L	< 0.10	< 0.10	< 0.10	< 0.11	< 0.45	0.10	< 0.13	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.16	< 0.45
Eff.Flow : Weighted Avg TAN - Final Effluent including Bypass mg/L	0.00	0.00	< 0.10	< 0.10	< 0.41	< 0.10	< 0.13	0.00	0.00	0.00	0.00	0.00		< 0.15	< 0.41
Eff: # of samples of TAN - Final Effluent including Bypass mg/L	5.00	4.00	5.00	17.00	12.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	73.00		
Loading: TAN - Final Effluent including Bypass kg/d	< 0.073	< 0.060	< 0.071	< 0.120	< 0.429	0.072	< 0.082	< 0.059	< 0.049	< 0.050	< 0.051	< 0.060		< 0.11	< 0.43
Loading Flow Weighted: TAN - Final Effluent including Bypass kg/d	0.000	0.000	< 0.071	< 0.118	< 0.390	< 0.072	< 0.082	0.000	0.000	0.000	0.000	0.000		< 0.10	< 0.39
Eff: Avg NO3-N - Eff mg/L	14.86	19.38	17.53	11.80	11.66	14.85	14.78	15.26	18.68	20.66	21.23	18.33		16.58	21.23
Eff: # of samples of NO3-N - Eff mg/L	5.00	4.00	4.00	6.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	54.00		
Eff: Avg NO2-N - Eff mg/L	0.08	0.06	< 0.05	< 0.15	0.70	1.60	1.95	1.93	1.74	0.78	0.12	< 0.09		0.77	1.95
Eff: # of samples of NO2-N - Eff mg/L	5.00	4.00	4.00	6.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	54.00		
Disinfection															
Eff: GMD E. Coli - Eff cfu/100mL	2.49	2.00	2.00	8.99	3.99	2.00	1.68	2.00	2.00	2.00	2.00	2.00			
Eff: # of samples of E. Coli - Eff cfu/100mL	5.00	4.00	5.00	5.00	6.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	55.00		

Minden STP - Total Chlorine Residual Results for 2023 Comparison to Limit and Objective

Date (mm/dd/yy)	Total Cl Residual mg/L	Limit 0.02 mg/L	Objective- Not Detected Y/N
03/17/23	0.05	N	N
03/18/23	0.01	Y	N
04/01/23	0.01	Y	N
04/02/23	0.01	Y	N
04/02/23	0.00	Y	Y
04/02/23	0.00	Y	Y
04/03/23	0.00	Y	Y
04/04/23	0.00	Y	Y
04/05/23	0.00	Y	Y
04/06/23	0.01	Y	N
04/07/23	0.01	Y	N
04/08/23	0.00	Y	Y
04/09/23	0.01	Y	N
04/10/23	0.01	Y	N
04/11/23	0.00	Y	N
04/12/23	0.00	Y	Y
04/13/23	0.01	Y	N
04/14/23	0.00	Y	Y
04/30/23	0.00	Y	Y
05/01/23	0.01	Y	N
05/02/23	0.01	Y	N
05/03/23	0.00	Y	Y
05/04/23	0.01	Y	N
05/05/23	0.01	Y	N
05/06/23	0.01	Y	N
05/07/23	0.01	Y	N
05/08/23	0.01	Y	N
05/09/23	0.01	Y	N

Minden STP 2023 Final Effluent Field pH Results

Date (mm/dd/yy)	pH	Date (mm/dd/yy)	pH	Date (mm/dd/yy)	pH	Date (mm/dd/yy)	pH	Date (mm/dd/yy)	pH	Date (mm/dd/yy)	pH
01/03/23	6.27	03/08/23	6.57	05/01/23	7.54	07/06/23	7.13	09/13/23	7.28	12/05/23	7.27
01/04/23	6.44	03/09/23	6.36	05/02/23	7.75	07/07/23	7.19	09/15/23	7.24	12/06/23	6.70
01/05/23	6.53	03/10/23	6.62	05/03/23	7.63	07/10/23	6.95	09/18/23	7.38	12/11/23	6.91
01/06/23	6.44	03/13/23	6.28	05/04/23	7.69	07/11/23	7.04	09/19/23	7.02	12/12/23	7.37
01/09/23	6.35	03/14/23	6.64	05/05/23	6.74	07/12/23	7.15	09/20/23	7.22	12/13/23	6.89
01/10/23	6.27	03/15/23	6.18	05/06/23	6.97	07/13/23	7.15	09/21/23	7.71	12/15/23	6.94
01/11/23	6.53	03/16/23	6.10	05/07/23	6.92	07/14/23	7.20	09/25/23	7.55	12/18/23	7.00
01/12/23	6.64	03/17/23	6.19	05/08/23	7.13	07/17/23	7.14	09/26/23	7.49	12/19/23	7.03
01/13/23	6.53	03/20/23	6.17	05/09/23	7.11	07/18/23	7.25	09/27/23	7.07	12/20/23	7.04
01/16/23	6.24	03/21/23	6.15	05/10/23	7.06	07/19/23	7.15	09/28/23	7.15	12/21/23	7.45
01/17/23	6.24	03/22/23	6.38	05/12/23	7.25	07/20/23	7.19	10/03/23	7.70	12/22/23	6.95
01/18/23	6.25	03/23/23	6.32	05/15/23	6.94	07/21/23	7.10	10/04/23	6.91	12/27/23	7.40
01/19/23	6.26	03/24/23	6.12	05/16/23	7.14	07/24/23	7.18	10/05/23	6.77		
01/20/23	6.15	03/27/23	6.19	05/17/23	7.17	07/25/23	7.12	10/10/23	7.80		
01/23/23	6.22	03/28/23	6.16	05/18/23	7.24	07/26/23	7.08	10/11/23	7.26		
01/24/23	6.18	03/29/23	6.26	05/19/23	7.28	07/27/23	7.10	10/13/23	7.27		
01/25/23	6.29	03/30/23	6.23	05/23/23	7.32	07/28/23	7.09	10/16/23	7.70		
01/26/23	6.49	03/31/23	6.30	05/24/23	7.26	07/31/23	7.29	10/17/23	7.68		
01/27/23	6.54	04/01/23	6.23	05/25/23	7.32	08/01/23	7.28	10/18/23	6.74		
01/30/23	6.36	04/02/23	6.22	05/26/23	7.22	08/02/23	7.21	10/20/23	7.01		
01/31/23	6.25	04/02/23	6.88	05/29/23	7.34	08/03/23	7.01	10/23/23	7.76		
02/01/23	6.27	04/02/23	6.19	05/30/23	7.32	08/04/23	7.18	10/24/23	7.55		
02/02/23	6.42	04/03/23	6.43	05/31/23	7.19	08/08/23	7.10	10/25/23	7.30		
02/03/23	6.43	04/04/23	6.31	06/01/23	7.20	08/09/23	7.21	10/30/23	7.93		
02/06/23	6.23	04/05/23	6.28	06/05/23	7.44	08/10/23	7.20	10/31/23	7.61		
02/07/23	6.57	04/06/23	6.31	06/06/23	7.31	08/11/23	7.27	11/01/23	7.06		
02/08/23	6.75	04/07/23	6.18	06/07/23	7.02	08/14/23	7.24	11/03/23	7.20		
02/09/23	6.55	04/08/23	6.27	06/08/23	7.29	08/15/23	7.26	11/06/23	8.02		
02/10/23	6.57	04/09/23	6.21	06/09/23	7.05	08/16/23	7.27	11/07/23	7.99		
02/13/23	6.47	04/10/23	6.16	06/12/23	6.95	08/18/23	7.25	11/08/23	7.31		
02/14/23	6.56	04/11/23	6.18	06/13/23	7.12	08/21/23	7.34	11/09/23	7.30		
02/15/23	6.53	04/12/23	6.16	06/14/23	7.26	08/22/23	7.28	11/10/23	7.69		
02/16/23	6.60	04/13/23	6.25	06/15/23	7.23	08/24/23	7.30	11/14/23	7.88		
02/21/23	6.15	04/14/23	6.22	06/16/23	7.20	08/25/23	7.03	11/15/23	7.50		
02/22/23	6.64	04/17/23	7.52	06/19/23	7.15	08/28/23	7.21	11/16/23	6.90		
02/23/23	6.74	04/18/23	7.00	06/20/23	7.23	08/29/23	7.25	11/17/23	6.94		
02/24/23	6.64	04/19/23	7.17	06/21/23	7.14	08/30/23	7.21	11/20/23	7.40		
02/27/23	6.52	04/20/23	7.02	06/26/23	7.09	08/31/23	7.21	11/21/23	7.33		
02/28/23	6.63	04/21/23	7.11	06/27/23	7.13	09/05/23	7.09	11/22/23	7.24		
03/01/23	6.85	04/24/23	7.60	06/28/23	7.18	09/06/23	7.19	11/23/23	7.23		
03/02/23	6.77	04/25/23	7.51	06/29/23	7.17	09/07/23	7.09	11/27/23	7.39		
03/03/23	6.61	04/26/23	7.54	06/30/23	7.19	09/08/23	7.23	11/28/23	7.37		
03/06/23	6.66	04/27/23	7.37	07/04/23	7.12	09/11/23	7.43	12/01/23	7.11		
03/07/23	6.54	04/28/23	7.61	07/05/23	7.14	09/12/23	7.32	12/04/23	7.17		

Minden STP 2023 Final Effluent Un-Ionized Ammonia Results

Date (mm/dd/yy)	Total Ammonia Nitrogen (mg/L)	Field pH	Field Temp (ºC)	Un-ionized Ammonia (mg/L)
01/04/23	0.10	6.58	11.80	<0.001
01/10/23	0.10	6.27	10.30	<0.001
01/17/23	<0.1	6.24	10.1	<0.001
01/24/23	<0.1	6.18	11.40	<0.001
01/31/23	<0.1	6.25	9.20	<0.001
02/07/24	0.10	6.57	10.50	0.001
02/14/23	<0.10	6.56	10.50	<0.001
02/22/23	<0.1	6.64	11.10	<0.001
02/28/23	<0.1	6.63	9.20	<0.001
03/07/23	<0.1	6.54	10.40	<0.001
03/14/23	<0.1	6.64	10.40	<0.001
03/21/23	<0.1	6.15	9.50	<0.001
03/28/23	<0.1	6.16	10.20	<0.001
04/04/23	<0.1	6.31	11.30	<0.001
04/12/23	<0.1	6.16	10.90	<0.001
04/18/23	<0.1	7.00	12.40	<0.001
04/25/23	<0.1	7.51	11.40	<0.001
05/02/23	0.80	7.63	13.00	0.008
05/09/23	0.40	7.11	13.20	0.001
05/16/23	0.2	7.14	12.80	<0.001
05/24/23	<0.1	7.26	14.20	<0.001
05/30/23	<0.1	7.32	14.70	<0.001
06/06/23	0.10	7.32	14.80	<0.001
06/13/23	0.10	7.12	16.10	<0.001
06/20/23	0.10	7.23	16.90	<0.001
06/27/23	0.10	7.13	17.00	<0.001
07/05/23	0.1	7.14	17.50	<0.001
07/11/23	0.20	7.04	17.40	<0.001
07/18/23	<0.1	7.25	17.20	<0.001
07/25/23	<0.1	7.12	17.60	<0.001
08/01/23	<0.1	7.28	17.10	<0.001
08/09/23	<0.1	7.21	18.10	<0.001
08/15/23	<0.1	7.26	19.10	<0.001
08/22/23	<0.1	7.28	18.20	<0.001
08/29/23	<0.1	7.25	18.00	<0.001
09/06/23	<0.1	7.19	19.50	<0.001
09/12/23	<0.1	7.32	18.80	<0.001
09/19/23	<0.1	7.02	17.30	<0.001

09/26/23	<0.1	7.49	16.90	<0.001
10/03/23	0.10	6.91	18.20	<0.001
10/11/23	0.1	7.26	15.30	<0.001
10/17/23	<0.1	7.68	14.30	<0.001
10/24/23	<0.1	7.55	15.00	<0.001
10/31/23	<0.1	7.61	14	<0.001
11/07/23	<0.1	7.99	14.20	<0.001
11/15/23	0.1	7.50	12.40	<0.001
11/21/23	<0.1	7.33	13.20	<0.001
11/28/23	<0.1	7.37	12.90	<0.001
12/05/23	<0.1	7.27	13.00	<0.001
12/12/23	<0.1	7.37	12.90	<0.001
12/19/23	<0.1	7.03	12.80	<0.001
12/28/23	<0.1	7.08	12.00	<0.001

Appendix II

Work Order and Maintenance Summary

Minden STP 2023 Maintenance Work Order Summary

Work Order	Description	Asset	Status	Work Type	Classification	Reported Date
3108264	5839, Minden WWT, Effluent Flow Meter, Replace	0000168343	CLOSE	CORR	REFURBISH/REPLACE	1/1/23 00:00:00
3068234	DEFERRED 5839, Minden WWT, Lighting Ballasts, Repair		CLOSE	CORR	REFURBISH/REPLACE	1/1/23 00:00:00
1102561	DEFERRED, 5839, Minden WWT, Install Cement Pad for Portable Generator	0000192276	CLOSE	CAP	REFURBISH/REPLACE	1/1/23 00:00:00
3153429	Building and Grounds Maintenance (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	1/1/23 01:27:50
3153431	Corporate Facility Workplace H & S Inspection (3m) - 5839 - KTN		CLOSE	OPER	HEALTH AND SAFETY	1/1/23 01:27:52
3153443	Alarm Dialer Testing (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	1/1/23 01:28:01
3153450	Engine Diesel (1m) - 5839 Minden WWTP Portable - KTN	0000192276	CLOSE	PM	INSPECTION	1/1/23 01:28:08
3158035	Engine Diesel (1m) - 5839 Orde SPS - KTN	0000327388	CLOSE	PM	INSPECTION	1/1/23 02:47:26
3169413	Grinder Comminutor Inspection (1m) - 5839 - KTN	0000306019	CLOSE	PM	INSPECTION	1/1/23 06:14:34
3172731	Blower Aeration Route Inspection (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	1/1/23 06:58:12
3178187	Chemical Feed System Insp (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	1/1/23 08:17:20
3179157	Tank Alum Inspection (1m) - 5839 - KTN	0000168297	CLOSE	PM	REFURBISH/REPLACE	1/1/23 08:31:14
3179785	HS03 H & S Equipment Check (1m) - 5839 - KTN		CLOSE	PM	HEALTH AND SAFETY	1/1/23 08:40:02
3182627	Operator PDM Entry & Review (1m) - 5839 - KTN		CLOSE	OPER	COMPLIANCE	1/1/23 09:19:29
3201160	5839, Minden WWT, Filter High Level, Alarm		CLOSE	CALL	COMPLIANCE	1/3/23 06:29:21
3202138	5839, SPS 1, Test Generator, Alarms	0000327389	CLOSE	CORR	REFURBISH/REPLACE	1/6/23 07:59:08
3205196	5839, Minden WWT, Cellular Internet Evaluation, Installation	0000158722	CLOSE	CORR	REFURBISH/REPLACE	1/20/23 09:02:01
3205469	5839, SPS 1, Generator Fuel Work	0000327389	CLOSE	CORR	REFURBISH/REPLACE	1/23/23 08:04:17
3209409	Building and Grounds Maintenance (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	2/1/23 00:52:12
3209411	Alarm Dialer Testing (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	2/1/23 00:52:17
3209418	Engine Diesel (1m) - 5839 Minden WWTP Portable - KTN	0000192276	CLOSE	PM	INSPECTION	2/1/23 00:52:24
3212551	Engine Diesel (1m) - 5839 Orde SPS - KTN	0000327388	CLOSE	PM	INSPECTION	2/1/23 01:51:41
3220764	Grinder Comminutor Inspection (1m) - 5839 - KTN	0000306019	CLOSE	PM	INSPECTION	2/1/23 04:01:30
3222499	Blower Aeration Route Inspection (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	2/1/23 04:33:21
3226931	Chemical Feed System Insp (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	2/1/23 06:22:33
3227322	Portable Gas Detector & Bump Station Calibration/Service (1y) - 5839 Minden WW - KTN		CLOSE	PM	CALIBRATION	2/1/23 06:28:22
3227461	Tank Alum Inspection (1m) - 5839 - KTN	0000168297	CLOSE	PM	REFURBISH/REPLACE	2/1/23 06:30:17
3227835	HS03 H & S Equipment Check (1m) - 5839 - KTN		CLOSE	PM	HEALTH AND SAFETY	2/1/23 06:35:36
3229648	Operator PDM Entry & Review (1m) - 5839 - KTN		CLOSE	OPER	COMPLIANCE	2/1/23 07:02:44
3244729	5839, Minden WWT, Basement Flood, Alarm		CLOSE	CALL	COMPLIANCE	2/7/23 02:30:00
3250316	Building and Grounds Maintenance (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	3/1/23 00:59:53
3250318	Alarm Dialer Testing (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	3/1/23 00:59:59
3250325	Engine Diesel (1m) - 5839 Minden WWTP Portable - KTN	0000192276	CLOSE	PM	INSPECTION	3/1/23 01:00:06

3254048	Engine Diesel (1m) - 5839 Orde SPS - KTN	0000327388	CLOSE	PM	INSPECTION	3/1/23 02:09:00
3263000	Grinder Comminutor Inspection (1m) - 5839 - KTN	0000306019	CLOSE	PM	INSPECTION	3/1/23 04:36:41
3264914	Blower Aeration Route Inspection (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	3/1/23 05:42:05
3269863	Chemical Feed System Insp (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	3/1/23 07:02:51
3270251	Portable Gas Detector Inspection/Calibration (3m) - 5839 Minden WWT - KTN	0000305986	CLOSE	PM	INSPECTION	3/1/23 07:09:54
3270375	Tank Alum Inspection (1m) - 5839 - KTN	0000168297	CLOSE	PM	REFURBISH/REPLACE	3/1/23 07:11:45
3270776	HS03 H & S Equipment Check (1m) - 5839 - KTN		CLOSE	PM	HEALTH AND SAFETY	3/1/23 07:17:47
3272578	Operator PDM Entry & Review (1m) - 5839 - KTN		CLOSE	OPER	COMPLIANCE	3/1/23 07:42:08
3290301	5839, Minden WWT, Sand Filter Bypass, SAC Incident #: 1-32XC9R		CLOSE	CORR	COMPLIANCE	3/20/23 08:50:51
3291306	5839, Minden WWT, Motion, Alarm		CLOSE	CALL	REFURBISH/REPLACE	3/27/23 08:52:57
3291777	5839, Minden WWT, IT Equipment, Alarm	0000158722	CLOSE	CALL	REFURBISH/REPLACE	3/30/23 08:08:40
3294640	Building and Grounds Maintenance (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	4/1/23 00:50:04
3294642	Corporate Facility Workplace H & S Inspection (3m) - 5839 - KTN		CLOSE	OPER	HEALTH AND SAFETY	4/1/23 00:50:06
3294649	Alarm Dialer Testing (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	4/1/23 00:50:11
3294656	Engine Diesel (1m) - 5839 Minden WWTP Portable - KTN	0000192276	CLOSE	PM	INSPECTION	4/1/23 00:50:15
3296780	FEP Site Plan Review (1y) - 5839 - KTN		CLOSE	PM	COMPLIANCE	4/1/23 01:18:46
3298954	Engine Diesel (1m) - 5839 Orde SPS - KTN	0000327388	CLOSE	PM	INSPECTION	4/1/23 01:47:54
3308432	Grinder Comminutor Inspection (1m) - 5839 - KTN	0000306019	CLOSE	PM	INSPECTION	4/1/23 03:40:55
3310601	Blower Aeration Route Inspection (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	4/1/23 04:07:04
3316163	Chemical Feed System Insp (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	4/1/23 05:47:00
3316825	Tank Alum Inspection (1m) - 5839 - KTN	0000168297	CLOSE	PM	REFURBISH/REPLACE	4/1/23 05:55:30
3317397	HS03 H & S Equipment Check (1m) - 5839 - KTN		CLOSE	PM	HEALTH AND SAFETY	4/1/23 06:02:21
3319660	Operator PDM Entry & Review (1m) - 5839 - KTN		CLOSE	OPER	COMPLIANCE	4/1/23 06:28:42
3319940	Tank Wetwell Cleaning/Inspection (6m) - 5839 SPS 1 - KTN	0000168308	CLOSE	PM	REFURBISH/REPLACE	4/1/23 06:32:00
3319955	Tank Wetwell Cleaning/Inspection (6m) - 5839 SPS 2 - KTN	0000168316	CLOSE	PM	REFURBISH/REPLACE	4/1/23 06:32:09
3325715	UPS Inspection/Service (1y) - 5839 - KTN		CLOSE	PM	INSPECTION	4/1/23 07:46:58
3328153	ESA Inspection By Contractor (6m) - 5839- KTN		CLOSE	PM	CALIBRATION	4/1/23 08:19:27
3337918	5839, Minden WWT, Sand filter Bypass-SAC #: 1-346QHJ		CLOSE	CALL	COMPLIANCE	4/3/23 07:38:06
3338715	5839 Minden WWTP & PS, Flow Total Calculation Programming		CLOSE	CORR	REFURBISH/REPLACE	4/6/23 13:49:22
3341321	5839, SPS 2, Pump Submersible 02 SPS2, Replacement	0000208216	CLOSE	CORR	REFURBISH/REPLACE	4/24/23 09:17:18
3344671	Building and Grounds Maintenance (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	5/1/23 00:56:04
3344673	Alarm Dialer Testing (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	5/1/23 00:56:06
3344680	Engine Diesel (1m) - 5839 Minden WWTP Portable - KTN	0000192276	CLOSE	PM	INSPECTION	5/1/23 00:56:11
3346126	Valve Backflow Preventer Testing/Inspection by Contractor (1y) - 5839 - KTN		CLOSE	PM	REFURBISH/REPLACE	5/1/23 01:18:09
3348189	Engine Diesel (1m) - 5839 Orde SPS - KTN	0000327388	CLOSE	PM	INSPECTION	5/1/23 01:47:52
3353689	Lifting Devices & Fall Arrest Inspection by Contractor (1y) - 5839 - KTN		CLOSE	PM	INSPECTION	5/1/23 02:54:42
3357466	Grinder Comminutor Inspection (1m) - 5839 - KTN	0000306019	CLOSE	PM	INSPECTION	5/1/23 03:44:05

3357469	Grinder Comminutor Inspection (1y) - 5839 - KTN	0000306019	CLOSE	PM	REFURBISH/REPLACE	5/1/23 03:44:08
3359392	Blower Aeration Route Inspection (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	5/1/23 04:09:39
3359399	Blower Aeration #1 Inspection/Service (6m/1y/2y) - 5839 - KTN		CLOSE	PM	REFURBISH/REPLACE	5/1/23 04:09:44
3359409	Blower Aeration #2 Inspection/Service (6m/1y/2y) - 5839 - KTN		CLOSE	PM	REFURBISH/REPLACE	5/1/23 04:09:51
3364253	Chemical Feed System Insp (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	5/1/23 05:51:15
3364827	Tank Alum Inspection (1m) - 5839 - KTN	0000168297	CLOSE	PM	REFURBISH/REPLACE	5/1/23 05:59:01
3365146	HS03 H & S Equipment Check (1m) - 5839 - KTN		CLOSE	PM	HEALTH AND SAFETY	5/1/23 06:03:21
3365342	Collection System Manhole Inspection (1y) - 5839 - KTN		CLOSE	PM	INSPECTION	5/1/23 06:06:00
3365346	Collection System Sewer Flushing (1y) - 5839 - KTN		CLOSE	PM	REFURBISH/REPLACE	5/1/23 06:06:03
3367055	Operator PDM Entry & Review (1m) - 5839 - KTN		CLOSE	OPER	COMPLIANCE	5/1/23 06:28:01
3368189	Drive VFD Inspection (1y) - 5839 Blower #1 - KTN	0000306015	CLOSE	PM	REFURBISH/REPLACE	5/1/23 06:43:27
3368195	Drive VFD Inspection (1y) - 5839 Blower #2 - KTN	0000306162	CLOSE	PM	REFURBISH/REPLACE	5/1/23 06:43:32
3368237	Pump Cent Inspection (1y) - 5839 Filter Backwash - KTN		CLOSE	PM	INSPECTION	5/1/23 06:44:09
3368244	Pump Cent Inspection (1y) - 5839 Filter Skimmer - KTN		CLOSE	PM	INSPECTION	5/1/23 06:44:15
3368251	Pump Cent Inspection (1y) - 5839 Effluent - KTN		CLOSE	PM	INSPECTION	5/1/23 06:44:20
3369822	5839, Minden WWT, Sand Filter Bypass-SAC #: 1-3FQYX6		CLOSE	CALL	COMPLIANCE	5/1/23 07:13:46
3374466	Air Conditioning Unit Service by Contractor (1y) - 5839 - KTN	0000347761	CLOSE	PM	REFURBISH/REPLACE	5/1/23 08:32:08
3390350	Building and Grounds Maintenance (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	6/1/23 00:53:36
3390352	Alarm Dialer Testing (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	6/1/23 00:53:38
3390359	Engine Diesel (1m) - 5839 Minden WWTP Portable - KTN	0000192276	CLOSE	PM	INSPECTION	6/1/23 00:53:43
3391837	Online Process Equipment Calibration Service by Contractor (1y) - 5839 - KTN		CLOSE	PM	CALIBRATION	6/1/23 01:15:05
3394019	Engine Diesel (1m) - 5839 Orde SPS - KTN	0000327388	CLOSE	PM	INSPECTION	6/1/23 01:46:51
3402781	Grinder Comminutor Inspection (1m) - 5839 - KTN	0000306019	CLOSE	PM	INSPECTION	6/1/23 03:37:52
3404949	Blower Aeration Route Inspection (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	6/1/23 04:05:51
3411176	Chemical Feed System Insp (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	6/1/23 06:03:34
3411752	Portable Gas Detector Inspection/Calibration (3m) - 5839 Minden WWT - KTN	0000305986	CLOSE	PM	INSPECTION	6/1/23 06:11:40
3411930	Tank Alum Inspection (1m) - 5839 - KTN	0000168297	CLOSE	PM	REFURBISH/REPLACE	6/1/23 06:14:03
3412506	HS03 H & S Equipment Check (1m) - 5839 - KTN		CLOSE	PM	HEALTH AND SAFETY	6/1/23 06:22:09
3414344	Operator PDM Entry & Review (1m) - 5839 - KTN		CLOSE	OPER	COMPLIANCE	6/1/23 06:49:24
3439173	Building and Grounds Maintenance (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	7/1/23 01:03:15
3439175	Corporate Facility Workplace H & S Inspection (3m) - 5839 - KTN		CLOSE	OPER	HEALTH AND SAFETY	7/1/23 01:03:17
3439182	Alarm Dialer Testing (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	7/1/23 01:03:22
3439189	Engine Diesel (1m) - 5839 Minden WWTP Portable - KTN	0000192276	CLOSE	PM	INSPECTION	7/1/23 01:03:27
3441065	Contact Chamber Clean Out (1y) - 5839 - KTN		CLOSE	PM	REFURBISH/REPLACE	7/1/23 01:29:54
3442823	Engine Diesel (1m) - 5839 Orde SPS - KTN	0000327388	CLOSE	PM	INSPECTION	7/1/23 01:53:49
3451546	Grinder Comminutor Inspection (1m) - 5839 - KTN	0000306019	CLOSE	PM	INSPECTION	7/1/23 03:42:47
3453754	Blower Aeration Route Inspection (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	7/1/23 04:09:36

3458747	Chemical Feed System Insp (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	7/1/23 05:47:23
3459330	Tank Alum Inspection (1m) - 5839 - KTN	0000168297	CLOSE	PM	REFURBISH/REPLACE	7/1/23 05:56:10
3459898	HS03 H & S Equipment Check (1m) - 5839 - KTN		CLOSE	PM	HEALTH AND SAFETY	7/1/23 06:03:18
3462045	Operator PDM Entry & Review (1m) - 5839 - KTN		CLOSE	OPER	COMPLIANCE	7/1/23 06:30:17
3481497	5839, Minden WWT, Ballast, Replacement		CLOSE	CORR	REFURBISH/REPLACE	7/12/23 10:16:26
3481718	5839, Minden WWT, Sludge Hauling Hose, Replacement		CLOSE	CORR	REFURBISH/REPLACE	7/13/23 09:32:37
3486770	Building and Grounds Maintenance (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	8/1/23 00:52:50
3486776	Alarm Dialer Testing (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	8/1/23 00:52:55
3486783	Engine Diesel (1m) - 5839 Minden WWTP Portable - KTN	0000192276	CLOSE	PM	INSPECTION	8/1/23 00:53:01
3488352	Engine Diesel Inspection/Service by Contractor (1y) - 5839 Minden WWTP Portable - KTN	0000192276	CLOSE	PM	REFURBISH/REPLACE	8/1/23 01:15:07
3490121	Engine Diesel (1m) - 5839 Orde SPS - KTN	0000327388	CLOSE	PM	INSPECTION	8/1/23 01:41:09
3490140	Engine Diesel Inspection/Service by Contractor (1y) - 5839 Orde St SPS - KTN	0000327388	CLOSE	PM	REFURBISH/REPLACE	8/1/23 01:41:23
3498093	Grinder Comminutor Inspection (1m) - 5839 - KTN	0000306019	CLOSE	PM	INSPECTION	8/1/23 03:30:30
3499898	Blower Aeration Route Inspection (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	8/1/23 03:53:24
3504811	Chemical Feed System Insp (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	8/1/23 04:59:34
3505321	Tank Alum Inspection (1m) - 5839 - KTN	0000168297	CLOSE	PM	REFURBISH/REPLACE	8/1/23 05:44:52
3505657	HS03 H & S Equipment Check (1m) - 5839 - KTN		CLOSE	PM	HEALTH AND SAFETY	8/1/23 05:51:27
3507362	Operator PDM Entry & Review (1m) - 5839 - KTN		CLOSE	OPER	COMPLIANCE	8/1/23 06:15:11
3522696	5839, Minden WWT, Process, Secondary Treatment, Aeration, Blower Low Air Pressure		CLOSE	CALL	REFURBISH/REPLACE	8/2/23 14:42:05
3530193	Building and Grounds Maintenance (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	9/1/23 00:53:40
3530195	Alarm Dialer Testing (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	9/1/23 00:53:42
3530202	Engine Diesel (1m) - 5839 Minden WWTP Portable - KTN	0000192276	CLOSE	PM	INSPECTION	9/1/23 00:53:52
3531641	Heater Unit Insp. (1y) - 5839 - KTN		CLOSE	PM	REFURBISH/REPLACE	9/1/23 01:15:21
3532172	HS09 Chemical Review (1y) - 5839 - KTN		CLOSE	PM	HEALTH AND SAFETY	9/1/23 01:23:07
3534497	Engine Diesel (1m) - 5839 Orde SPS - KTN	0000327388	CLOSE	PM	INSPECTION	9/1/23 01:57:37
3542857	Grinder Comminutor Inspection (1m) - 5839 - KTN	0000306019	CLOSE	PM	INSPECTION	9/1/23 03:58:11
3544705	Blower Aeration Route Inspection (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	9/1/23 04:24:32
3550288	Chemical Feed System Insp (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	9/1/23 06:25:17
3550855	Tank Alum Inspection (1m) - 5839 - KTN	0000168297	CLOSE	PM	REFURBISH/REPLACE	9/1/23 06:33:15
3551271	HS03 H & S Equipment Check (1m) - 5839 - KTN		CLOSE	PM	HEALTH AND SAFETY	9/1/23 06:39:17
3553306	Operator PDM Entry & Review (1m) - 5839 - KTN		CLOSE	OPER	COMPLIANCE	9/1/23 07:12:52
3554731	Corporate Facility Workplace H & S Inspection (1y) - 5839 - KTN		CLOSE	OPER	HEALTH AND SAFETY	9/1/23 07:31:59
3578723	Building and Grounds Maintenance (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	10/1/23 00:55:06
3578725	Corporate Facility Workplace H & S Inspection (3m) - 5839 - KTN		CLOSE	OPER	HEALTH AND SAFETY	10/1/23 00:55:08
3578732	Alarm Dialer Testing (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	10/1/23 00:55:13

3578739	Engine Diesel (1m) - 5839 Minden WWTP Portable - KTN	0000192276	CLOSE	PM	INSPECTION	10/1/23 00:55:17
3583137	Engine Diesel (1m) - 5839 Orde SPS - KTN	0000327388	CLOSE	PM	INSPECTION	10/1/23 01:55:20
3591323	Grinder Comminutor Inspection (1m) - 5839 - KTN	0000306019	CLOSE	PM	INSPECTION	10/1/23 03:47:15
3593329	Blower Aeration Route Inspection (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	10/1/23 04:14:02
3598764	Chemical Feed System Insp (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	10/1/23 06:03:26
3599709	Tank Alum Inspection (1m) - 5839 - KTN	0000168297	CLOSE	PM	REFURBISH/REPLACE	10/1/23 06:15:42
3600314	HS03 H & S Equipment Check (1m) - 5839 - KTN		CLOSE	PM	HEALTH AND SAFETY	10/1/23 06:23:16
3602676	Operator PDM Entry & Review (1m) - 5839 - KTN		CLOSE	OPER	COMPLIANCE	10/1/23 06:52:56
3603001	Tank Wetwell Cleaning/Inspection (6m) - 5839 SPS 1 - KTN	0000168308	CLOSE	PM	REFURBISH/REPLACE	10/1/23 06:56:52
3603016	Tank Wetwell Cleaning/Inspection (6m) - 5839 SPS 2 - KTN	0000168316	CLOSE	PM	REFURBISH/REPLACE	10/1/23 06:57:02
3625378	5839, Minden Wastewater Collection - Service Line Back Up 54 Windover		CLOSE	CALL	REFURBISH/REPLACE	10/30/23 14:55:20
3627947	Building and Grounds Maintenance (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	11/1/23 00:55:58
3627949	Alarm Dialer Testing (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	11/1/23 00:56:01
3627956	Engine Diesel (1m) - 5839 Minden WWTP Portable - KTN	0000192276	CLOSE	PM	INSPECTION	11/1/23 00:56:10
3631194	Engine Diesel (1m) - 5839 Orde SPS - KTN	0000327388	CLOSE	PM	INSPECTION	11/1/23 01:49:08
3638990	Grinder Comminutor Inspection (1m) - 5839 - KTN	0000306019	CLOSE	PM	INSPECTION	11/1/23 03:40:27
3640666	Blower Aeration Route Inspection (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	11/1/23 04:02:54
3644460	Chemical Feed System Insp (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	11/1/23 04:56:49
3645393	Tank Alum Inspection (1m) - 5839 - KTN	0000168297	CLOSE	PM	REFURBISH/REPLACE	11/1/23 05:29:24
3645738	HS03 H & S Equipment Check (1m) - 5839 - KTN		CLOSE	PM	HEALTH AND SAFETY	11/1/23 05:36:12
3647464	Operator PDM Entry & Review (1m) - 5839 - KTN		CLOSE	OPER	COMPLIANCE	11/1/23 05:58:14
3669164	Building and Grounds Maintenance (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	12/1/23 00:49:34
3669166	Alarm Dialer Testing (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	12/1/23 00:49:36
3669173	Engine Diesel (1m) - 5839 Minden WWTP Portable - KTN	0000192276	CLOSE	PM	INSPECTION	12/1/23 00:49:42
3672330	Engine Diesel (1m) - 5839 Orde SPS - KTN	0000327388	CLOSE	PM	INSPECTION	12/1/23 01:39:01
3680533	Grinder Comminutor Inspection (1m) - 5839 - KTN	0000306019	CLOSE	PM	INSPECTION	12/1/23 03:35:02
3682624	Blower Aeration Route Inspection (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	12/1/23 04:04:09
3686392	Chemical Feed System Insp (1m) - 5839 - KTN		CLOSE	PM	INSPECTION	12/1/23 05:13:04
3686882	Tank Alum Inspection (1m) - 5839 - KTN	0000168297	CLOSE	PM	REFURBISH/REPLACE	12/1/23 05:27:24
3687248	HS03 H & S Equipment Check (1m) - 5839 - KTN		CLOSE	PM	HEALTH AND SAFETY	12/1/23 05:32:44
3688914	Operator PDM Entry & Review (1m) - 5839 - KTN		CLOSE	OPER	COMPLIANCE	12/1/23 05:55:19
3705729	5839, Minden WWT, Firetronics Unrestored, Alarms		CLOSE	CALL	COMPLIANCE	12/15/23 08:30:00
3705730	5839, Minden WWT, Firetronics Unrestored, Alarms		CLOSE	CALL	COMPLIANCE	12/15/23 08:36:25

Appendix III

Calibration Report

Franklin Empire Inc,
550 Braidwood Ave.
Peterborough ON K9J 1W1, CANADA

Tel: (705) 745-1626
Fax: (705) 745-3493

OCWA Kawartha

2023 Calibrations Minden WWTP

CALIBRATION REPORT

Report No.:	K 2023 FIT-Clarifier
Date:	7-Jun-23

SITE:	Minden Hills WWTP	**SERVICE DATE:**	6/7/2023
PROCESS AREA:	Effluent Flow		
INSTR. TAG:	FIT-Clarifier	**TECHNICIAN:**	M Manley
MANUFACTURER:	Siemens		
MODEL:	MR200 HMI	**JOB REFERENCE:**	K 2023
SERIAL No.:	PBD-P7220013		
INSTR. RANGE:	0000329171		

Input	**(Test)**	**Output**	**(Display)**	**(Process)**
Type:	meters	**Type or EGU:**	m3/day	m3/hr
Min:	0.00	**Min:**	0.00	0.00
Max:	0.33	**Max:**	2000.00	83.30
V notch (Deg.)	30			
Constant	1344			

			Before Calibration		**After Calibration**	
Input (m)	**Calc. Flow m3/hr**	**Display Flow m3/d**	**Output**	**%Error**	**Output**	**%Error**
4mA	0.00	0.00	1	0.00%	1	0.00%
0.2030	24.94	598.67	610	1.89%	610	1.89%
8.5 inches						
20mA		2000	2001	0.05%	2001	0.05%

Calibration Equipment			
Type:	Tape Measure	DMM	
Manufacturer:		Fluke	
Model:		Model 87	
Serial No.:		13440128	
Last Cal. Date:		Feb. 17, 2023	

Comments: Actual process conditions were used. The weir plate is facing the wrong way (180 degrees on the Y-axis). The sharp edge of the plate should be upstream of the beveled edge. The small amout of error this introduces is not known.
Span unchanged, Empty distance set to 746mm

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

CERTIFIED BY: 

FRANKLIN EMPIRE

CALIBRATION REPORT

Report No.: K 2023 FIT-N

Date: 7-Jun-23

SITE:	Minden Hills WWTP	**SERVICE DATE:**	6/7/2023
PROCESS AREA:	NORTH SUTRO WEIR - RAW FLOW	**TECHNICIAN:**	M Manley
INSTR. TAG:	FIT-N	**JOB REFERENCE:**	K 2023
MANUFACTURER:	Milltronics multiranger 100		
MODEL:	MULTIRANGER 100		
SERIAL No.:	PBD/L9260085 (METER)		
OCWA CODE:	0000204794 (METER) / 0000306117 (TRANSDUCER)		

Input	**(Test)**
Type:	Head meters
Min:	0.0000
Max:	0.1335
Weir Angle	180
exponent	1
constant	2000.0000

Output	**(Process)**	**(Signal)**
Type or EGU:	mA	m3/day
Min:	4.00	0.00
Max:	20.00	2000.00

			Before Calibration		**After Calibration**	
Input (m)	**Calc flow (m3/day)**	**mA**	**Flow**	**%Error**	**Flow**	**%Error**
almost zero flow			-1		-1	
meas	Calc flow (m3/day)					
0.100	1498	15.98	1508	0.69%	1508	1.14%
20 mA	2000	20.00	1999	-0.05%	1999	-0.05%

Calibration Equipment

Type:	Tape Measure	DMM	
Manufacturer:		Fluke	
Model:		Model 87	
Serial No.:		13440128	
Last Cal. Date:		Feb. 17, 2023	

Comments: ED 0.677

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

CERTIFIED BY:

FRANKLIN EMPIRE

CALIBRATION REPORT

Report No.: K 2023 FIT-S

Date: 7-Jun-23

SITE:	Minden Hills WWTP	**SERVICE DATE:**	6/7/2023
PROCESS AREA:	SOUTH SUTRO WEIR RAW FLOW	**TECHNICIAN:**	M Manley
INSTR. TAG:	FIT-S	**JOB REFERENCE:**	K 2023
MANUFACTURER:	Milltronics multiranger 200		
MODEL:	MULTIRANGER 200		
SERIAL No.:	PBD/U4030303 (METER)		
OCWA CODE:	0000204794 (METER) / '0000192286 (TRANSDUCER)		

Input	**(Test)**	**Output**	**(Process)**	**(Signal)**
Type:	Head meters	**Type or EGU:**	mA	m3/day
Min:	0.0000	**Min:**	0.00	0.00
Max:	0.1335	**Max:**	2000.00	2000.00
Weir Angle	180			
exponent	1			
constant	2000.0000			

			Before Calibration		**After Calibration**	
Input (m)	**Calc flow (m3/day)**	**Calc. O/P (mA)**	**Flow**	**%Error**	**Flow**	**%Error**
0.000	0.000	4.00	1	0.00%	1	0.00%
meas	Calc flow (m3/day)					
0.120	1797	18.38	1772	-1.40%	1772	-0.50%
20 mA	2000.000	20.00	2002	0.10%	2002	-0.05%

Calibration Equipment

Type:	Tape Measure	DMM	
Manufacturer:		Fluke	
Model:		Model 87	
Serial No.:		13440128	
Last Cal. Date:		Feb. 17, 2023	

Comments:

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

CERTIFIED BY:

CALIBRATION REPORT

Report No.: K 2023 QIR-1

Date: 7-Jun-23

SITE:	Minden WWTP
PROCESS AREA:	E&H Videograph
INSTR. TAG:	QIR-1
MANUFACTURER:	E&H Videograph
MODEL:	RSG40
SERIAL No.:	F4003A04267
OCWA CODE:	0000204816

SERVICE DATE:	6/7/2023
TECHNICIAN:	M Manley
JOB REFERENCE:	K 2023

Input	**(Test)**		**Output**	**(Signal)**	**(Process)**
Type:	mA		**Type or EGU:**	mA	
Min:			**Min:**	4.00	
Max:			**Max:**	20.00	

			Before Calibration		**After Calibration**	
			Display		**Display**	
FIN OUT	m3/day	0	1		1	
	0-2000	2000	2001		2001	
North in	m3/day	0	-2		-2	
	0-2000	2000	1999		1999	
South in	m3/day	0	0		0	
	0-2000	2000	2002		2002	

Calibration Equipment			
Type:		DMM	
Manufacturer:		Fluke	
Model:		Model 87	
Serial No.:		13440128	
Last Cal. Date:		Feb. 17, 2023	

Comments:

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

CERTIFIED BY: 

Appendix IV

Sludge/Biosolids Summary

Ontario Clean Water Agency
Biosolids
Solids and Nutrients

Facility: MINDEN WASTEWATER TREATMENT FACILITY
Works: 5839
Period: 01/01/2023 to 12/01/2023
Facility Owner: *Municipality: Township of Minden Hills*
Facility Classification: *Class 2 Wastewater Treatment*

Month	Total Sludge Hauled (m3)	Avg. Total Solids (mg/L)	Avg. Total Phosphorus (mg/L)	Ammonia (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia + Nitrate (mg/L)	Potassium (mg/L)
Parameter Short Name	**HauledVol**	**TS**	**TP**	**NH3p_NH4p_N**	**NO3-N**	**NO2-N**	**TKN**	**calculation in report - no T/S**	**K**
T/s	**IH Month.Total**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**		**Lab Published Month Mean**
Jan	87.300	20,500.000	390.000	107.000	0.300	1.000	1,140.000	53.650	67.000
Feb	87.300	22,300.000	460.000	204.000	0.300	2.000	2,030.000	102.150	110.000
Mar	174.600	37,750.000	840.500	272.000	1.650	1.100	2,330.000	136.825	137.000
Apr	87.300	38,300.000	1,000.000	225.000	1.000	1.900	2,490.000	113.000	149.000
May	87.300	45,800.000	1,230.000	309.000	3.000	1.400	2,010.000	156.000	189.000
Jun	174.600	24,900.000	581.500	259.500	3.000	3.000	1,201.500	131.250	86.500
Jul	87.300	21,300.000	482.000	156.000	3.000	3.000	1,080.000	79.500	57.000
Aug	174.600	18,050.000	370.000	71.500	3.000	3.000	968.000	37.250	49.000
Sep	174.600	17,500.000	406.000	41.350	3.000	3.000	967.500	22.175	53.000
Oct	174.600	20,100.000	540.000	82.700	3.000	3.000	1,044.000	42.850	62.000
Nov	87.300	26,300.000	696.000	165.000	3.000	3.000	1,460.000	84.000	90.000
Dec	79.980	24,700.000	592.000	95.000	3.000	3.000	1,160.000	49.000	92.000
Average	123.065	26,458.333	632.333	165.671	2.271	2.367	1,490.083	83.971	95.125
Total	1,476.780	317,500.000	7,588.000	1,988.050	27.250	28.400	17,881.000	1,007.650	1,141.500

Ontario Clean Water Agency
Biosolids
Metals and Criteria

Facility: MINDEN WASTEWATER TREATMENT FACILITY
Works: 5839
Period: 01/01/2023 to 12/01/2023

Month	Arsenic (mg/L)	Cadmium (mg/L)	Cobalt (mg/L)	Chromium (mg/L)	Copper (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Lead (mg/L)	Selenium (mg/L)	Zinc (mg/L)
Parameter Short Name	**As**	**Cd**	**Co**	**Cr**	**Cu**	**Hg**	**Mo**	**Ni**	**Pb**	**Se**	**Zn**
T/s	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**
Jan	0.100	0.008	0.030	0.190	4.000	0.008	0.090	0.220	0.200	0.100	6.000
Feb	0.100	0.010	0.050	0.230	4.300	0.012	0.100	0.260	0.200	0.100	7.000
Mar	0.100	0.018	0.100	0.435	7.700	0.018	0.175	0.465	0.350	0.100	14.000
Apr	0.100	0.024	0.170	0.620	9.700	0.028	0.190	0.670	0.600	0.200	18.000
May	0.100	0.033	0.260	0.820	11.000	0.031	0.240	0.780	0.600	0.200	20.000
Jun	0.100	0.013	0.110	0.350	4.900	0.014	0.110	0.320	0.300	0.100	9.000
Jul	0.100	0.010	0.070	0.250	4.000	0.025	0.100	0.220	0.200	0.100	7.000
Aug	0.100	0.010	0.045	0.195	3.400	0.007	0.070	0.190	0.300	0.100	6.000
Sep	0.100	0.010	0.040	0.200	3.700	0.008	0.080	0.200	0.150	0.100	6.500
Oct	0.100	0.012	0.040	0.255	4.450	0.013	0.090	0.220	0.200	0.100	8.000
Nov	0.100	0.015	0.050	0.300	5.700	0.019	0.110	0.290	0.300	0.100	10.000
Dec	0.100	0.013	0.050	0.310	5.700	0.023	0.120	0.300	0.300	0.100	9.000
Average	0.100	0.015	0.085	0.346	5.713	0.017	0.123	0.345	0.308	0.117	10.042
Max. Permissible Metal Concentrations (mg/kg of Solids)	170.000	34.000	340.000	2,800.000	1,700.000	11.000	94.000	420.000	1,100.000	34.000	4,200.000
Metal Concentrations in Sludge (mg/kg)	3.780	0.548	3.197	13.087	215.906	0.643	4.646	13.024	11.654	4.409	379.528

Appendix V

Bypass & Overflow Reports
ECA Limit Exceedence Reporting

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Box 279
Bobcaygeon, ON
K0M 1A0

May 12, 2023

David Bradley, District Manager
Peterborough District Office
Ministry of Environment, Conservation and Parks
300 Water Street South, 2nd Floor, South Tower
Peterborough ON K9J 3C7

Dear David Bradley:

Re: Minden STP Q1 2023 Bypass and Overflow Event Report

Amended Environmental Compliance Approval #5475-BPYLDH Conditions 4 and 5 issued October 2, 2020, for the Minden STP require Bypass and Overflow quarterly reports be submitted to the District Manager. These reports are to be submitted no later than February 15, May 15, August 15, and November 15 each year for Events that occurred during the preceding quarter.

There was one Bypass of the Post-Secondary Sand Filters that occurred during the first quarter of 2023. Details of this Event are attached.

There was no occurrence of Overflow at the Minden STP during the first quarter of 2023.

Please contact me if you have any questions or comments.

Best regards,

Christine Craig
Process & Compliance Technician
Ontario Clean Water Agency
Kawartha Hub
(705) 731-9579

Attachments

cc: J. Manning, Sr. Operations Manager, OCWA Kawartha-Trent Regional Hub
M. Timmins, Director of Public Works, Township of Minden Hills
W. Henneberry, Safety, Process & Compliance Manager, OCWA Kawartha-Trent
G. Redden, General Manager, OCWA Kawartha-Trent Regional Hub
K. Lorente, Regional Hub Manager, OCWA Kawartha-Trent Region Hub
C. Biswanger, Water Inspector, MECP – Peterborough District Office

Minden STP - Quarterly Bypass Report

Environmental Compliance Approval #5475-BPYLDH

Year: 2023

Q1 = January, February and March

Did a Bypass occur during this quarter:

Yes☑ No ☐

Condition 4. Bypasses		Event
4.3	a. the type of the Bypass (emergency or planned)	SAC # 1-32XC9R - emergency post-secondary treatment sand filter bypass due to weather
	b. the date and time of the beginning of the Bypass	Started March 17, 2023 at 10:45
	c. the treatment process(es) gone through prior to the Bypass and the treatment process(es) bypassed;	Primary, Secondary, and Disinfection
	d. the effort(s) done to maximize the flow through the downstream treatment process(es) and the reason(s) why the Bypass was not avoided.	Monitored flows and processes - bypass due to heavy rain and some snow melt which caused the sand filters to become hydraulically overloaded.
4.4	a. the date and time of the end of the Bypass;	Ended March 18, 2023 at 10:05
	b. the estimated or measured volume of Bypass.	819 m^3 estimate
4.5	For any Bypass Event, the Owner shall collect daily sample(s) of the Final Effluent, inclusive of the Event and analyze for all effluent parameters outlined in Compliance Limits condition that require composite samples following the same protocol specified in the Monitoring and Recording condition for the regular samples. The sample(s) shall be in addition to the regular Final Effluent samples required under the monitoring and recording condition. If the Event occurs on a scheduled monitoring day, the regular sampling requirements prevail. If representative sample for the effluent parameter(s) that require grab sample cannot be obtained, they shall be collected after the Event at the earliest time when situation returns to normal.	Composite sample collected March 18, 2023. Operations Event Form Summary and lab report attached.
4.6	. …The summary reports shall contain, at a minimum, the types of information set out in Paragraphs (3), (4) and (5) and either a statement of compliance or a summary of the non-compliance notifications submitted as required under Paragraph 1 of Condition 11. If there is no Bypass Event during a quarter, a statement of no occurrence of Bypass is deemed sufficient.	One non-compliant handheld sample collected for Total Residual Chlorine on March 17, 2023 during the sand filter bypass. The chemical dosage was adjusted and the sample collected the following day on March 18, 2023 was below the limit. Remainder of parameters compliant with ECA. Monthly limits met for March 2023 -See attached March 2023 PAR and Exceedance letter.

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Operations Event Form Summary

Project: Minden STP – Works # 110002390
Location: 73 Orde St., Minden, ON
Date: March 17/2023- March 18/2023

Nature of Event: Emergency Sand Filter Bypass

Details of Event: Heavy rain and warmer temperatures caused snow melt creating high flows which caused the sand filters to become hydraulically overloaded - secondary treatment provided and disinfection; however, sand filters required bypassing. Receiving water is Gull River.

Call SAC: 1-800-268-6060

Time SAC notified: 11:06 March 17/2023 **SAC Incident Number:** 1-32XC9R

Name of Person at SAC: Anastasia

District Health Unit Notified (time): 11:18 March 17/2023 – left message

Name of Person at Health Unit: Brittany PHI called at 12:29

Other Contacts (Managers, Client, MECP, MOH): OCWA Sr. Operations Manager J. Manning, Owner-Township of Minden Hills notified, appropriate OCWA staff

Volume of Partial Sand Filter Bypass: Estimated volume based upon flow meter readings: ~819m^3

Start: March 17/2023 @ 10:45 **Finish:** March 18/2023 @ 10:05 **Duration:** 23 hours 20 minutes

SAC contacted at end of event on March 18/2023 @ 11:45 – spoke with Jonathan

MOH contacted at end of event on March 18/2023 @ 11:35 – left a message, Jordan Shorey called back at 11:46

Samples: Final Effluent – composite sample for: CBOD, TSS, Total Phos, NH3+NH4; grab samples for: Total Residual Chlorine, Dissolved Oxygen, pH & temperature

Corrective Action Taken:

- Flows & process monitored throughout the event

Prepared By: C. Craig

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

Works #: 110002390
Project : PO#017018

27-March-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 21 March 2023
LR Report: **CA13786-MAR23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent - comp
Sample Date & Time					18-Mar-23 10:55
Temperature Upon Receipt [°C]	---	---	---	---	9.0
Field pH [no unit]	---	---	---	---	6.20
Field Temperature [celcius]	---	---	---	---	5.5
Field Dissolved O2 [mg/L]					7.75
Total Chlorine [mg/L]					0.01
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	22-Mar-23	17:13	27-Mar-23	14:58	15
Total Suspended Solids [mg/L]	22-Mar-23	08:08	23-Mar-23	15:10	26
Phosphorus (total) [mg/L]	21-Mar-23	21:04	22-Mar-23	08:36	0.40
Ammonia+Ammonium (N) [as N mg/L]	21-Mar-23	18:07	23-Mar-23	12:38	0.1

Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003278675

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Performance Assessment Report Standard ECA
March 2023

5839 MINDEN WASTEWATER TREATMENT FACILITY 110002390				
		3 / 2023		<-Criteria->
Flows				
Raw Flow: Total - Raw m³/d		22,009.00		
Raw Flow: Avg - Raw m³/d		709.97		
Raw Flow: Max - Raw m³/d		1,082.00		
Raw Flow: Count - Raw m³/d		31.00		
Eff. Flow: Total - Eff m³/d		22,009.00		
Eff. Flow: Avg - Eff m³/d		709.97		
Eff. Flow: Max - Eff m³/d		1,082.00		
Eff Flow: Count - Eff m³/d		31.00		
Biochemical Oxygen Demand: BOD5				
Raw: Avg BOD5 - Raw mg/L		134.00		
Raw: # of samples of BOD5 - Raw mg/L		1.00		
Carbonaceous Biochemical Oxygen Demand: CBOD				
Eff: Avg cBOD5 - Final Effluent including Bypass mg/L	<	4.60		15.00
Eff: # of samples of cBOD5 - Final Effluent including Bypass mg/L		5.00		
Loading: cBOD5 - Final Effluent including Bypass kg/d	<	3.266		14.18
Total Suspended Solids: TSS				
Raw: Avg TSS - Raw mg/L		191.00		
Raw: # of samples of TSS - Raw mg/L		1.00		
Eff: Avg TSS - Final Effluent including Bypass mg/L	<	7.20		15.00
Eff: # of samples of TSS - Final Effluent including Bypass mg/L		5.00		
Loading: TSS - Final Effluent including Bypass kg/d	<	5.112		14.18
Total Phosphorus: TP				
Raw: Avg TP - Raw mg/L		3.03		
Raw: # of samples of TP - Raw mg/L		1.00		
Eff: Avg TP - Final Effluent including Bypass mg/L		0.13		0.50
Eff: # of samples of TP - Final Effluent including Bypass mg/L		5.00		
Loading: TP - Final Effluent including Bypass kg/d		0.095		0.47
Nitrogen Series				
Raw: Avg TKN - Raw mg/L		25.70		
Raw: # of samples of TKN - Raw mg/L		1.00		
Eff: Avg TAN - Final Effluent including Bypass mg/L	<	0.10		6.00
Eff: # of samples of TAN - Final Effluent including Bypass mg/L		5.00		
Loading: TAN - Final Effluent including Bypass kg/d	<	0.071		5.700
Eff: Avg NO3-N - Eff mg/L		17.53		
Eff: # of samples of NO3-N - Eff mg/L		4.00		
Eff: Avg NO2-N - Eff mg/L	<	0.05		
Eff: # of samples of NO2-N - Eff mg/L		4.00		

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Performance Assessment Report Standard ECA
March 2023

Disinfection

Eff: GMD E. Coli - Eff cfu/100mL		2.00		200.00
Eff: # of samples of E. Coli - Eff cfu/100mL		5.00		

Eff: Total Residuals Chlorine (mg/L)

Minimum		0.01		
Maximum		0.05		0.02

Eff: pH Field

Eff: pH field Min		6.10		6.00
Eff. pH field Max		6.85		9.50

TRC & pH limits apply to every single sample result

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

March 20, 2023

David Bradley
District Manager, Peterborough District Office
Ministry of the Environment, Conservation and Parks
300 Water Street South, 2nd Floor, South Tower
Peterborough, ON
K9J 3C7

Dear David Bradley:

Re: Minden STP Total Residual Chlorine Exceedance – March 17, 2023

Further to our conversation on March 17, 2023, I am submitting written notification of the exceedance of the final effluent total chlorine residual as required ECA No. 5475-BPYLDH, issued October 2, 2020 for the Minden STP. The ECA sets a limit of 0.02mg/L for total residual chlorine and during the sand filter bypass (SAC Incident # 1-32XC9R) the total residual chlorine single sample result on Friday, March 17, 2023 was 0.05mg/L. The total chlorine residual sample on Saturday, March 18, 2023 was below the limit.

Please do not hesitate to contact me with any questions.

Best regards,

Christine Craig
Process & Compliance Technician
Ontario Clean Water Agency
Kawartha Hub
(705) 731-9579

cc: J. Manning, OCWA – Sr. Operations Manager
G. Redden, OCWA - General Manager
K. Lorente, OCWA- Regional Hub Manager
W. Henneberry, OCWA – Safety, Process & Compliance Mgr.
M. Timmins, Township of Minden Hills
C. Biswanger, Water Inspector, MECP Peterborough

Minden STP - Quarterly Overflow Report

Environmental Compliance Approval #5475-BPYLDH

Year: 2023

Q1 = January, February and March

Did an Overflow occur during this quarter:

Yes☐ No ☑

Condition 5. Overflow		Event
5.3	a. the type of the Overflow (emergency or planned)	
	b. the date and time of the beginning of the Overflow	
	c. the point of the Overflow from the Works, the treatment process(es) gone through prior to the Overflow, the disinfection status of the Overflow and whether the Overflow is discharged through the effluent disposal facilities or an alternate location;	
	d. the effort(s) done to maximize the flow through the downstream treatment process(es) and Bypasses and the reason(s) why the Overflow was not avoided.	
5.4	a. the date and time of the end of the Overflow;	
	b. the estimated or measured volume of Overflow.	
5.5	a. Overflow event in Sewage Treatment Plant, grab sample(s) of the Overflow, one near the beginning of the Event and one every eight (8) hours for the duration of the Event, and have them analyzed at least for CBOD5, total suspended solids, total phosphorus, total ammonia nitrogen, nitrate as N, nitrite as N, total Kjeldahl nitrogen, E. coli., except that raw sewage and primary treated effluent Overflow shall be analyzed for BOD5, total suspended solids, total phosphorus and total Kjeldahl nitrogen only.	
	b. at a sewage pumping station in the collection system, at least one (1) grab sample representative of the Overflow Event and have it analyzed for BOD5, total suspended solids, total phosphorus and total Kjeldahl nitrogen	
5.6	…The summary report shall contain, at a minimum, the types of information set out in Paragraphs (3), (4) and (5). If there is no Overflow Event during a quarter, a statement of no occurrence of Overflow is deemed sufficient.	No Occurrence of Overflow.

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Box 279
Bobcaygeon, ON
K0M 1A0

August 02, 2023

David Bradley, District Manager
Peterborough District Office
Ministry of Environment, Conservation and Parks
300 Water Street South, 2nd Floor, South Tower
Peterborough ON K9J 3C7

Dear David Bradley:

Re: Minden STP Q2 2023 Bypass and Overflow Event Report

Amended Environmental Compliance Approval #5475-BPYLDH Conditions 4 and 5 issued October 2, 2020, for the Minden STP require Bypass and Overflow quarterly reports be submitted to the District Manager. These reports are to be submitted no later than February 15, May 15, August 15, and November 15 each year for Events that occurred during the preceding quarter.

There were two Bypasses of the Post-Secondary Sand Filters that occurred during the second quarter of 2023. Details of these Events are attached.

There was no occurrence of Overflow at the Minden STP during the second quarter of 2023.

Please contact me if you have any questions or comments.

Best regards,

Christine Craig
Process & Compliance Technician
Ontario Clean Water Agency
Kawartha Hub
(705) 731-9579

Attachments

cc: J. Manning, Sr. Operations Manager, OCWA Kawartha-Trent Regional Hub
M. Timmins, Director of Public Works, Township of Minden Hills
J. Mulligan, Safety, Process & Compliance Manager (A), OCWA Kawartha Hub
G. Redden, General Manager, OCWA Kawartha-Trent Regional Hub
W. Henneberry, Regional Hub Manager (A), OCWA Kawartha-Trent Region Hub
C. Biswanger, Water Inspector, MECP – Peterborough District Office

Minden STP - Quarterly Bypass Report

Environmental Compliance Approval #5475-BPYLDH

Year: 2023

Q2 = April, May and June

Did a Bypass occur during this quarter:

Yes☑ No ☐

Condition 4. Bypasses		Event
4.3	a. the type of the Bypass (emergency or planned)	SAC # 1-346QHJ - emergency post-secondary treatment sand filter bypass due to weather
	b. the date and time of the beginning of the Bypass	Started April 1, 2023 at 12:20
	c. the treatment process(es) gone through prior to the Bypass and the treatment process(es) bypassed;	Primary, Secondary, and Disinfection
	d. the effort(s) done to maximize the flow through the downstream treatment process(es) and the reason(s) why the Bypass was not avoided.	Monitored flows and processes - bypass due to heavy rain and some snow melt which caused the sand filters to become hydraulically overloaded.
4.4	a. the date and time of the end of the Bypass;	Ended April 14, 2023 at 10:15
	b. the estimated or measured volume of Bypass.	15 730 m^3 estimate
4.5	For any Bypass Event, the Owner shall collect daily sample(s) of the Final Effluent, inclusive of the Event and analyze for all effluent parameters outlined in Compliance Limits condition that require composite samples following the same protocol specified in the Monitoring and Recording condition for the regular samples. The sample(s) shall be in addition to the regular Final Effluent samples required under the monitoring and recording condition. If the Event occurs on a scheduled monitoring day, the regular sampling requirements prevail. If representative sample for the effluent parameter(s) that require grab sample cannot be obtained, they shall be collected after the Event at the earliest time when situation returns to normal.	Composite sample collected every 24 hours from April 2, 2023 to April 14, 2023. Operations Event Form Summary and lab reports attached.
4.6	. …The summary reports shall contain, at a minimum, the types of information set out in Paragraphs (3), (4) and (5) and either a statement of compliance or a summary of the non-compliance notifications submitted as required under Paragraph 1 of Condition 11. If there is no Bypass Event during a quarter, a statement of no occurrence of Bypass is deemed sufficient.	One exceedance for April 2023 monthly TSS loading exceeded the ECA limit. The monthly average effluent concentration for TSS was met using the using Schedule F Methodology for Calculating and Reporting Monthly Average Effluent Concentration. The remainder of monthly limits were met for April 2023 -See attached Minden STP April 2023 PAR, Exceedance letter and Schedule F calculations.

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Operations Event Form Summary

Project: Minden STP – Works # 110002390
Location: 73 Orde St., Minden, ON
Date: April 1, 2023- April 14, 2023

Nature of Event: Emergency Sand Filter Bypass

Details of Event: Heavy rain events and warmer temperatures caused snow melt creating high flows which caused the sand filters to become hydraulically overloaded - secondary treatment provided and disinfection; however, sand filters required bypassing. Receiving water is Gull River.

Call SAC: 1-800-268-6060

Time SAC notified: 12:59 April 1, 2023 **SAC Incident Number:** 1-346QHJ

Name of Person at SAC: Julian

District Health Unit Notified (time): 12:54 April 1, 2023 – left message

Name of Person at Health Unit: Neha Gandi, PHI called back at 13:11

Other Contacts (Managers, Client, MECP, MOH): OCWA Sr. Operations Manager J. Manning, Owner-Township of Minden Hills notified, appropriate OCWA staff

Volume of Partial Sand Filter Bypass: Estimated volume based upon flow meter readings: ~15 730 m^3

Start: April 1, 2023 @ 12:20 **Finish:** April 14, 2023 @ 10:15 **Duration:** 309 hours 55 minutes

MOH contacted at end of event on April 14, 2023 @ 10:55 – left a message. Neha Gandi, PHI called back at 12:04

SAC contacted at end of event on April 14, 2023 @ 10:58– spoke with Peter

Samples: Final Effluent – composite sample for: CBOD, TSS, Total Phos, Total Ammonia Nitrogen; grab samples for: Total Residual Chlorine, Dissolved Oxygen, pH & temperature

Corrective Action Taken:

- Flows & process monitored throughout the event

Prepared By: C. Craig

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

Works #: 110002390
Project : PO#017018

11-April-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 04 April 2023
LR Report: **CA13056-APR23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent
Sample Date & Time					02-Apr-23 12:20
Temperature Upon Receipt [°C]	---	---	---	---	11.0
Field pH [no unit]	---	---	---	---	6.88
Field Temperature [celcius]	---	---	---	---	4.8
Field Dissolved O2 [mg/L]					8.50
Total Chlorine [mg/L]					0.01
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	05-Apr-23	18:08	10-Apr-23	16:36	5
Total Suspended Solids [mg/L]	05-Apr-23	15:18	06-Apr-23	16:12	27
Phosphorus (total) [mg/L]	05-Apr-23	17:30	06-Apr-23	12:55	0.29
Ammonia+Ammonium (N) [as N mg/L]	04-Apr-23	21:44	05-Apr-23	11:08	< 0.1

Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003294916

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

Works #: 110002390
Project : PO#017018

11-April-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 05 April 2023
LR Report: **CA12154-APR23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent-Comp
Sample Date & Time					03-Apr-23 15:22
Temperature Upon Receipt [°C]	---	---	---	---	7.0
Field pH [no unit]	---	---	---	---	6.43
Field Temperature [celcius]	---	---	---	---	10.6
Field Dissolved O2 [mg/L]					7.71
Total Chlorine [mg/L]					0.00
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	06-Apr-23	16:57	11-Apr-23	14:17	5
Total Suspended Solids [mg/L]	06-Apr-23	13:47	10-Apr-23	14:31	30
Phosphorus (total) [mg/L]	06-Apr-23	15:04	10-Apr-23	11:21	0.44
Ammonia+Ammonium (N) [as N mg/L]	05-Apr-23	16:23	06-Apr-23	11:28	< 0.1

Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003295672

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

Works #: 110002390
Project : PO#017018

10-April-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 05 April 2023
LR Report: **CA12153-APR23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Eff Eff-Final Effluent-Bacti
Sample Date & Time					04-Apr-23 07:20
Temperature Upon Receipt [°C]	---	---	---	---	7.0
Field pH [no unit]	---	---	---	---	6.31
Field Temperature [celcius]	---	---	---	---	11.3
Field Dissolved O2 [mg/L]	---	---	---	---	7.55
Total Chlorine [mg/L]	---	---	---	---	0.00
E. Coli [cfu/100mL]	05-Apr-23	17:17	10-Apr-23	10:31	8

Hawley Anderson, Hon.B.Sc
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003293335

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

Works #: 110002390
Project : PO#017018

13-April-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 06 April 2023
LR Report: **CA12240-APR23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent
Sample Date & Time					05-Apr-23 15:22
Temperature Upon Receipt [°C]	---	---	---	---	7.0
Field pH [no unit]	---	---	---	---	6.28
Field Temperature [celcius]	---	---	---	---	10.1
Field Dissolved O2 [mg/L]					8.41
Total Chlorine [mg/L]					0.00
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	06-Apr-23	16:57	11-Apr-23	14:26	6
Total Suspended Solids [mg/L]	11-Apr-23	13:15	12-Apr-23	13:21	44
Phosphorus (total) [mg/L]	11-Apr-23	14:23	13-Apr-23	07:31	0.71
Ammonia+Ammonium (N) [as N mg/L]	11-Apr-23	15:27	12-Apr-23	11:09	< 0.1

Hawley Anderson, Hon.B.Sc
Project Specialist,
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OnLine LIMS

0003297804

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Phone: 705-652-2000 FAX: 705-652-6365

Works #: 110002390
Project : PO#017018

18-April-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 11 April 2023
LR Report: **CA13332-APR23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent - Comp
Sample Date & Time					06-Apr-23 15:22
Temperature Upon Receipt [°C]	---	---	---	---	7.0
Field pH [no unit]	---	---	---	---	6.31
Field Temperature [celcius]	---	---	---	---	9.5
Field Dissolved O2 [mg/L]	---	---	---	---	7.95
Total Chlorine [mg/L]	---	---	---	---	0.01
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	12-Apr-23	17:20	17-Apr-23	16:08	< 4
Total Suspended Solids [mg/L]	12-Apr-23	11:27	13-Apr-23	14:27	5
Phosphorus (total) [mg/L]	13-Apr-23	14:40	14-Apr-23	11:52	0.10
Ammonia+Ammonium (N) [as N mg/L]	13-Apr-23	15:47	14-Apr-23	11:04	0.1

Hawley Anderson, Hon.B.Sc
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003302504

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Phone: 705-652-2000 FAX: 705-652-6365

Works #: 110002390
Project : PO#017018

18-April-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 11 April 2023
LR Report: **CA13328-APR23**

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent - Comp
Sample Date & Time					07-Apr-23 15:22
Temperature Upon Receipt [°C]	---	---	---	---	7.0
Field pH [no unit]	---	---	---	---	6.18
Field Temperature [celcius]	---	---	---	---	10
Field Dissolved O2 [mg/L]	---	---	---	---	7.70
Total Chlorine [mg/L]	---	---	---	---	0.01
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	12-Apr-23	17:20	17-Apr-23	16:08	4
Total Suspended Solids [mg/L]	13-Apr-23	12:50	14-Apr-23	13:07	42
Phosphorus (total) [mg/L]	13-Apr-23	14:40	14-Apr-23	11:52	0.47
Ammonia+Ammonium (N) [as N mg/L]	13-Apr-23	15:47	14-Apr-23	11:04	< 0.1

Hawley Anderson, Hon.B.Sc
Project Specialist,
Environment, Health & Safety

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0003302498

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Phone: 705-652-2000 FAX: 705-652-6365

Works #: 110002390
Project : PO#017018

18-April-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 11 April 2023
LR Report: **CA13329-APR23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent - Comp
Sample Date & Time					08-Apr-23 15:22
Temperature Upon Receipt [°C]	---	---	---	---	7.0
Field pH [no unit]	---	---	---	---	6.27
Field Temperature [celcius]	---	---	---	---	10.2
Field Dissolved O2 [mg/L]	---	---	---	---	7.40
Field Phosphorus [mg/L]	---	---	---	---	0.27
Total Chlorine [mg/L]	---	---	---	---	0.00
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	12-Apr-23	17:20	17-Apr-23	16:08	6
Total Suspended Solids [mg/L]	13-Apr-23	12:50	14-Apr-23	13:07	3
Phosphorus (total) [mg/L]	13-Apr-23	14:40	14-Apr-23	11:52	0.10
Ammonia+Ammonium (N) [as N mg/L]	13-Apr-23	15:47	14-Apr-23	11:04	< 0.1

Hawley Anderson

Hawley Anderson, Hon.B.Sc
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003302500

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Phone: 705-652-2000 FAX: 705-652-6365

Works #: 110002390
Project : PO#017018

18-April-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 11 April 2023
LR Report: **CA13334-APR23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent - Comp
Sample Date & Time					09-Apr-23 15:22
Temperature Upon Receipt [°C]	---	---	---	---	7.0
Field pH [no unit]	---	---	---	---	6.21
Field Temperature [celcius]	---	---	---	---	9.4
Field Dissolved O2 [mg/L]	---	---	---	---	7.92
Field Phosphorus [mg/L]	---	---	---	---	0.22
Total Chlorine [mg/L]	---	---	---	---	0.01
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	12-Apr-23	17:20	17-Apr-23	16:09	< 2
Total Suspended Solids [mg/L]	13-Apr-23	12:50	14-Apr-23	13:07	5
Phosphorus (total) [mg/L]	12-Apr-23	15:01	13-Apr-23	13:11	0.08
Ammonia+Ammonium (N) [as N mg/L]	13-Apr-23	17:41	14-Apr-23	09:13	< 0.1

Hawley Anderson

Hawley Anderson, Hon.B.Sc
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003302512

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

Works #: 110002390
Project : PO#017018

18-April-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 11 April 2023
LR Report: **CA13333-APR23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent - Comp
Sample Date & Time					10-Apr-23
Temperature Upon Receipt [°C]	---	---	---	---	7.0
Field pH [no unit]	---	---	---	---	6.16
Field Temperature [celcius]	---	---	---	---	9.7
Field Dissolved O2 [mg/L]	---	---	---	---	7.65
Field Phosphorus [mg/L]	---	---	---	---	0.22
Total Chlorine [mg/L]	---	---	---	---	0.01
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	12-Apr-23	17:20	17-Apr-23	16:09	3
Total Suspended Solids [mg/L]	13-Apr-23	12:50	14-Apr-23	13:07	5
Phosphorus (total) [mg/L]	13-Apr-23	14:40	14-Apr-23	11:52	0.08
Ammonia+Ammonium (N) [as N mg/L]	13-Apr-23	15:47	14-Apr-23	11:04	< 0.1

Hawley Anderson, Hon.B.Sc
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003302509

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

Works #: 110002390
Project : PO#017018

20-April-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 13 April 2023
LR Report: **CA12543-APR23**

Copy: #2

CERTIFICATE OF ANALYSIS
Final Report - Revised

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent - Comp
Sample Date & Time					11-Apr-23 15:22
Temperature Upon Receipt [°C]	---	---	---	---	12.0
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	14-Apr-23	17:09	19-Apr-23	13:18	9
Total Suspended Solids [mg/L]	15-Apr-23	11:08	17-Apr-23	14:29	59
Phosphorus (total) [mg/L]	17-Apr-23	15:37	18-Apr-23	10:56	1.14
Field pH	---	---	---	---	6.18
Field Temperature [celcius]	---	---	---	---	11.0
Field Dissolved O2 [mg/L]	---	---	---	---	8.53
Total Chlorine [mg/L]	---	---	---	---	0.00
Ammonia+Ammonium (N) [as N mg/L]	17-Apr-23	16:09	18-Apr-23	13:33	< 0.1

*Report revised - client file corrected.

Hawley Anderson, Hon.B.Sc
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003304998

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

Works #: 110002390
Project : PO#017018

21-April-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 13 April 2023
LR Report: **CA12590-APR23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent-Comp	6: Eff Eff-Final Effluent-Comp	7: Eff Eff-Final Effluent-Bacti
Sample Date & Time					12-Apr-23 15:22	12-Apr-23 15:22	12-Apr-23 15:22
Temperature Upon Receipt [°C]	---	---	---	---	14.0	14.0	14.0
Field pH [no unit]	---	---	---	---	6.16	6.16	---
Field Temperature [celcius]	---	---	---	---	10.9	10.9	---
Field Dissolved O2 [mg/L]	---	---	---	---	7.89	---	---
Total Chlorine [mg/L]	---	---	---	---	0.00	---	---
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	14-Apr-23	17:09	19-Apr-23	13:21	5	---	---
Total Suspended Solids [mg/L]	17-Apr-23	10:47	18-Apr-23	14:36	37	---	---
Phosphorus (total) [mg/L]	19-Apr-23	14:59	21-Apr-23	12:55	0.61	---	---
Total Kjeldahl Nitrogen [as N mg/L]	18-Apr-23	18:52	20-Apr-23	13:40	---	0.8	---
Unionized Ammonia [mg/L as N]	17-Apr-23	21:28	19-Apr-23	15:24	---	< 0.001	---
Ammonia+Ammonium (N) [as N mg/L]	17-Apr-23	21:28	19-Apr-23	15:24	< 0.1	0.1	---
Nitrite (as N) [mg/L]	18-Apr-23	12:55	21-Apr-23	15:03	---	< 0.03	---
Nitrate (as N) [mg/L]	18-Apr-23	12:55	21-Apr-23	15:03	---	10.6	---
Nitrate + Nitrite (as N) [mg/L]	18-Apr-23	12:55	21-Apr-23	15:03	---	10.6	---
E. Coli [cfu/100mL]	13-Apr-23	16:22	17-Apr-23	15:45	---	---	920

Note: Provincial unionized ammonia calculated from field pH and temperature provided on the chain of custody form.

OnLine LIMS

0003308502

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

Works #: 110002390
Project : PO#017018
LR Report : **CA12590-APR23**

Hawley Anderson, Hon.B.Sc
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003308502

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

Works #: 110002390
Project : PO#017018

25-April-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 18 April 2023
LR Report: **CA12678-APR23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent-Comp
Sample Date & Time					13-Apr-23 15:22
Temperature Upon Receipt [°C]	---	---	---	---	11.0
Field pH [no unit]	---	---	---	---	6.25
Field Temperature [celcius]	---	---	---	---	12.7
Field Dissolved O2 [mg/L]	---	---	---	---	7.70
Total Chlorine [mg/L]	---	---	---	---	0.01
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	18-Apr-23	16:49	24-Apr-23	13:09	< 4
Total Suspended Solids [mg/L]	18-Apr-23	13:56	19-Apr-23	14:08	3
Phosphorus (total) [mg/L]	21-Apr-23	15:00	25-Apr-23	11:13	0.10
Ammonia+Ammonium (N) [as N mg/L]	22-Apr-23	13:30	24-Apr-23	10:40	0.1

Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003310661

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

Works #: 110002390
Project : PO#017018

25-April-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 18 April 2023
LR Report: **CA12677-APR23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent-Comp
Sample Date & Time					14-Apr-23 15:22
Temperature Upon Receipt [°C]	---	---	---	---	11.0
Field pH [no unit]	---	---	---	---	6.22
Field Temperature [celcius]	---	---	---	---	10.6
Field Dissolved O2 [mg/L]					7.31
Total Chlorine [mg/L]					0.00
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	18-Apr-23	16:49	24-Apr-23	13:09	< 4
Total Suspended Solids [mg/L]	19-Apr-23	07:31	19-Apr-23	15:01	2
Phosphorus (total) [mg/L]	21-Apr-23	15:00	24-Apr-23	10:14	0.06
Ammonia+Ammonium (N) [as N mg/L]	24-Apr-23	13:01	25-Apr-23	10:04	0.2

Hawley Anderson, Hon.B.Sc
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003310522

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

May 05, 2023

David Bradley
District Manager, Peterborough District Office
Ministry of the Environment, Conservation and Parks
300 Water Street South, 2nd Floor, South Tower
Peterborough, ON
K9J 3C7

Dear David Bradley:

Re: Minden STP Total Suspended Solids Monthly Average Daily Effluent Loading Exceedance – April 2023

Further to our conversation earlier today, May 05, 2023, I am submitting written notification of the exceedance of the total suspended solids monthly average daily effluent loading as required by ECA No. 5475-BPYLDH, issued October 2, 2020 for the Minden STP. The ECA sets a limit of 14.18 kg/d for total suspended solids monthly average daily effluent loading. Completing the calculation using the flow-weighted arithmetic mean set out in Schedule F of the ECA, the April 2023 monthly average daily effluent loading is: 14.79 kg/d.

Using the same methodology for calculating the monthly average effluent concentration for total suspended solids it is below the limit of 15.0mg/L set out in the ECA for April 2023, with a monthly average effluent concentration of: 13.01mg/L for total suspended solids.

The Minden STP experienced a sand filter bypass from April 1-14, 2023 due to high flows from rainfall events and some snow melt. The flows and process were monitored throughout the event.

Please do not hesitate to contact me with any questions.

Best regards,

Christine Craig
Process & Compliance Technician
Ontario Clean Water Agency
Kawartha Hub
(705) 731-9579

cc: J. Manning, OCWA – Sr. Operations Manager
G. Redden, OCWA - General Manager
K. Lorente, OCWA- Regional Hub Manager
W. Henneberry, OCWA – Safety, Process & Compliance Mgr.
M. Timmins, Township of Minden Hills
C. Biswanger, Water Inspector, MECP Peterborough

Minden STP - Monthly Average Effluent Concentration Flow Weighted Arithmetic Mean for Total Suspended Solids April 2023

Monthly TSS Concentration Limit = 15mg/L NBPD = Non Bypass Days BPD = Bypass Days

Date	Flow [m³/d] NBPD	BPD	Date	NBPD	BPD
04/01/23		1,165.00	04/02/23		27
04/02/23		1,073.00	04/03/23		30
04/03/23		1,019.00	04/04/23		46
04/04/23		1,019.00	04/05/23		44
04/05/23		1,470.00	04/06/23		5
04/06/23		1,583.00	04/07/23		42
04/07/23		1,420.00	04/08/23		3
04/08/23		1,265.00	04/09/23		5
04/09/23		1,161.00	04/10/23		5
04/10/23		1,161.00	04/11/23		59
04/11/23		1,222.00	04/12/23		37
04/12/23		1,207.00	04/13/23		3
04/13/23		1,207.00	04/14/23		2
04/14/23		1,144.00	04/18/23	3	
04/15/23	1,042.00		04/25/23	2	
04/16/23	1,007.00		04/26/23	2	
04/17/23	1,171.00		04/27/23	2	
04/18/23	1,171.00				
04/19/23	1,016.00				
04/20/23	1,016.00				
04/21/23	972				
04/22/23	1,218.00				
04/23/23	1,066.00				
04/24/23	994				
04/25/23	994				
04/26/23	935		Monthly Average:	2.3	23.7
04/27/23	935				
04/28/23	934				
04/29/23	1,226.00				
04/30/23	1,285.00				
	16982	17116			

[(Monthly Average NBPD Effluent Concentration x Total Monthly NBPD Flow) + (Monthly Average BPD Effluent Concentration x Total Monthly BPD Flow)] / (Total Monthly NBPD Flow + Total Monthly BPD Flow)

Monthly ave NBPD eff concentration x Total Monthly NBPD Flow =	38209.50
Monthly ave BPD eff concentration x Total Monthly BPD Flow =	405517.54
add above together	443727.04
Total Monthly NBPD flow + Total Monthly BPD Flow =	34098.00

divide by total flows Apr flow weighted ave: 13.01 ECA Limit = 15 mg/L

Apr ave daily flow: 1136.60 Apr monthly average daily loading: 14.79 ECA Limit = 14.18 kg/d

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Performance Assessment Report

APRIL 2023

5839 MINDEN WASTEWATER TREATMENT FACILITY 110002390

		4 / 2023		<-Criteria->
Flows				
Raw Flow: Total - Raw m³/d		34,098.00		
Raw Flow: Avg - Raw m³/d		1,136.60		
Raw Flow: Max - Raw m³/d		1,583.00		
Raw Flow: Count - Raw m³/d		30.00		
Eff. Flow: Total - Eff m³/d		34,098.00		
Eff. Flow: Avg - Eff m³/d		1,136.60		
Eff. Flow: Max - Eff m³/d		1,583.00		
Eff Flow: Count - Eff m³/d		30.00		
Biochemical Oxygen Demand: BOD5				
Raw: Avg BOD5 - Raw mg/L		121.00		
Raw: # of samples of BOD5 - Raw mg/L		1.00		
Carbonaceous Biochemical Oxygen Demand: CBOD				
Eff: Avg cBOD5 - Final Effluent including Bypass mg/L	<	4.12	<	15.00
Eff.Flow : Weighted Avg cBOD5 - Final Effluent including Bypass mg/L	<	3.39	<	15.00
Eff: # of samples of cBOD5 - Final Effluent including Bypass mg/L		17.00		
Loading: cBOD5 - Final Effluent including Bypass kg/d	<	4.680	<	14.18
Loading Flow Weighted: cBOD5 - Final Effluent including Bypass kg/d	<	3.853	<	14.18
Total Suspended Solids: TSS				
Raw: Avg TSS - Raw mg/L		140.00		
Raw: # of samples of TSS - Raw mg/L		1.00		
Eff: Avg TSS - Final Effluent including Bypass mg/L	<	18.65		15.00
Eff.Flow : Weighted Avg TSS - Final Effluent including Bypass mg/L	<	13.01		15.00
Eff: # of samples of TSS - Final Effluent including Bypass mg/L		17.00		
Loading: TSS - Final Effluent including Bypass kg/d	<	21.194		14.18
Loading Flow Weighted: TSS - Final Effluent including Bypass kg/d	<	14.791		14.18
Total Phosphorus: TP				
Raw: Avg TP - Raw mg/L		2.09		
Raw: # of samples of TP - Raw mg/L		1.00		
Eff: Avg TP - Final Effluent including Bypass mg/L		0.32		0.50
Eff.Flow : Weighted Avg TP - Final Effluent including Bypass mg/L		0.23		0.50
Eff: # of samples of TP - Final Effluent including Bypass mg/L		17.00		
Loading: TP - Final Effluent including Bypass kg/d		0.364		0.47
Loading Flow Weighted: TP - Final Effluent including Bypass kg/d		0.267		0.47
Nitrogen Series				
Raw: Avg TKN - Raw mg/L		16.40		
Raw: # of samples of TKN - Raw mg/L		1.00		
Eff: Avg TAN - Final Effluent including Bypass mg/L	<	0.11	<	12.00

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Performance Assessment Report

APRIL 2023

Eff.Flow : Weighted Avg TAN - Final Effluent including Bypass mg/L	<	0.10	<	12.00
Eff: # of samples of TAN - Final Effluent including Bypass mg/L		17.00		
Loading: TAN - Final Effluent including Bypass kg/d	<	0.120	<	11.300
Loading Flow Weighted: TAN - Final Effluent including Bypass kg/d	<	0.118	<	11.300
Eff: Avg NO3-N - Eff mg/L		11.80		
Eff: # of samples of NO3-N - Eff mg/L		6.00		
Eff: Avg NO2-N - Eff mg/L	<	0.15		
Eff: # of samples of NO2-N - Eff mg/L		6.00		

Disinfection

Eff: GMD E. Coli - Eff cfu/100mL		8.99		200.00
Eff: # of samples of E. Coli - Eff cfu/100mL		5.00		

Eff: Total Residuals Chlorine (mg/L)

Minimum		0.00		
Maximum		0.01		0.02

Eff: pH Field

Eff: pH field Min		6.16		6.00
Eff. pH field Max		7.61		9.50

TRC & pH limits apply to every single sample result

Minden STP - Quarterly Bypass Report

Environmental Compliance Approval #5475-BPYLDH

Year: 2023

Q2 = April, May and June

Did a Bypass occur during this quarter:

Yes☑ No ☐

Condition 4. Bypasses		Event
4.3	a. the type of the Bypass (emergency or planned)	SAC # 1-3FQYX6 - emergency post-secondary treatment sand filter bypass due to weather
	b. the date and time of the beginning of the Bypass	Started April 30, 2023 at 21:10
	c. the treatment process(es) gone through prior to the Bypass and the treatment process(es) bypassed;	Primary, Secondary, and Disinfection
	d. the effort(s) done to maximize the flow through the downstream treatment process(es) and the reason(s) why the Bypass was not avoided.	Monitored flows and processes - bypass due to heavy rain events which caused the sand filters to become hydraulically overloaded.
4.4	a. the date and time of the end of the Bypass;	Ended May 09, 2023 at 10:45
	b. the estimated or measured volume of Bypass.	10455 m^3 estimate
4.5	For any Bypass Event, the Owner shall collect daily sample(s) of the Final Effluent, inclusive of the Event and analyze for all effluent parameters outlined in Compliance Limits condition that require composite samples following the same protocol specified in the Monitoring and Recording condition for the regular samples. The sample(s) shall be in addition to the regular Final Effluent samples required under the monitoring and recording condition. If the Event occurs on a scheduled monitoring day, the regular sampling requirements prevail. If representative sample for the effluent parameter(s) that require grab sample cannot be obtained, they shall be collected after the Event at the earliest time when situation returns to normal.	Composite sample collected every 24 hours from May 1, 2023 to May 9, 2023. Operations Event Form Summary and lab report attached.
4.6	. …The summary reports shall contain, at a minimum, the types of information set out in Paragraphs (3), (4) and (5) and either a statement of compliance or a summary of the non-compliance notifications submitted as required under Paragraph 1 of Condition 11. If there is no Bypass Event during a quarter, a statement of no occurrence of Bypass is deemed sufficient.	Compliant with ECA. Monthly limits met for May 2023. See the attached Minden STP May 2023 PAR.

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Operations Event Form Summary

Project: Minden STP – Works # 110002390
Location: 73 Orde St., Minden, ON
Date: April 30, 2023- May 9, 2023

Nature of Event: Emergency Sand Filter Bypass

Details of Event: Heavy rain events created high flows which caused the sand filters to become hydraulically overloaded - secondary treatment provided and disinfection; however, sand filters required bypassing. Receiving water is Gull River.

Call SAC: 1-800-268-6060

Time SAC notified: 21:55 April 30, 2023 **SAC Incident Number:** 1-3FQYX6

Name of Person at SAC: Justin Chin

District Health Unit Notified (time): 21:52 April 30, 2023 – left message

Name of Person at Health Unit: Kevin Hall, PHI called back at 22:07

Other Contacts (Managers, Client, MECP, MOH): OCWA Sr. Operations Manager J. Manning, Owner-Township of Minden Hills notified, appropriate OCWA staff

Volume of Partial Sand Filter Bypass: Estimated volume based upon flow meter readings: ~10 455 m^3

Start: April 30, 2023 @ 21:10 **Finish:** May 09, 2023 @ 10:45 **Duration:** 205 hours 35 minutes

MOH contacted at end of event on May 9, 2023 @ 11:10 – left a message & sent a summary email. Kevin Hall, PHI called back on May 10, 2023 at 09:43.

SAC contacted at end of event on May 9, 2023 @ 11:12– spoke with Candice McKay

Samples: Final Effluent – composite sample for: CBOD, TSS, Total Phos, Total Ammonia Nitrogen; grab samples for: Total Residual Chlorine, Dissolved Oxygen, pH & temperature

Corrective Action Taken:

- Flows & process monitored throughout the event

Prepared By: C. Craig

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

Works #: 110002390
Project : PO#017018

10-May-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 03 May 2023
LR Report: **CA12171-MAY23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent-Comp
Sample Date & Time					01-May-23 21:25
Temperature Upon Receipt [°C]	---	---	---	---	10.0
Field pH [no unit]	---	---	---	---	7.54
Field Temperature [celcius]	---	---	---	---	13.7
Field Dissolved O2 [mg/L]					6.55
Total Chlorine [mg/L]					0.01
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	04-May-23	17:22	09-May-23	16:18	< 4
Total Suspended Solids [mg/L]	05-May-23	08:13	08-May-23	13:28	30
Phosphorus (total) [mg/L]	04-May-23	14:42	05-May-23	11:42	0.70
Ammonia+Ammonium (N) [as N mg/L]	04-May-23	19:47	09-May-23	09:36	2.3

Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003327512

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

Works #: 110002390
Project : PO#017018

11-May-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 04 May 2023
LR Report: **CA13175-MAY23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-final Effluent-Comp	6: Eff Eff-Final Effluent-Comp	7: Eff Eff-Final Effluent-Bacti
Sample Date & Time					02-May-23 21:25	02-May-23 21:25	03-May-23 08:26
Temperature Upon Receipt [°C]	---	---	---	---	11.0	11.0	11.0
Field pH [no unit]	---	---	---	---	---	7.63	---
Field Temperature [celcius]	---	---	---	---	---	13.0	---
Field Dissolved O2 [mg/L]					---	7.31	---
Total Chlorine [mg/L]					---	0.00	---
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	05-May-23	15:15	10-May-23	16:18	6	---	---
Total Suspended Solids [mg/L]	08-May-23	07:46	08-May-23	16:22	26	---	---
Phosphorus (total) [mg/L]	09-May-23	14:49	10-May-23	09:45	0.16	---	---
Total Kjeldahl Nitrogen [as N mg/L]	09-May-23	06:40	10-May-23	08:44	---	0.9	---
Unionized Ammonia [mg/L as N]	05-May-23	16:46	10-May-23	10:35	---	0.008	---
Ammonia+Ammonium (N) [as N mg/L]	05-May-23	16:46	10-May-23	10:35	0.8	0.8	---
Nitrite (as N) [mg/L]	05-May-23	15:59	09-May-23	09:22	---	0.18	---
Nitrate (as N) [mg/L]	05-May-23	15:59	09-May-23	09:22	---	8.68	---
Nitrate + Nitrite (as N) [mg/L]	05-May-23	15:59	09-May-23	09:22	---	8.86	---
E. Coli [cfu/100mL]	04-May-23	16:59	08-May-23	11:03	---	---	126

Note: Provincial unionized ammonia calculated from field pH and temperature provided on the chain of custody form.

OnLine LIMS

0003329014

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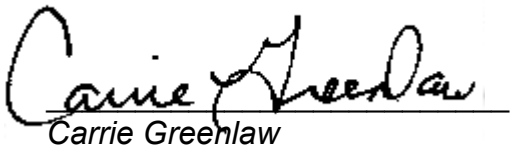
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Works #: 110002390
Project : PO#017018
LR Report : **CA13175-MAY23**



Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003329014

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

Works #: 110002390
Project : PO#017018

15-May-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 05 May 2023
LR Report: **CA12302-MAY23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent - comp
Sample Date & Time					03-May-23 21:25
Temperature Upon Receipt [°C]	---	---	---	---	10.0
Field pH [no unit]					7.63
Field Temperature [celcius]					13.0
Field Dissolved O2 [mg/L]					7.31
Total Chlorine [mg/L]					0.00
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	08-May-23	17:10	15-May-23	11:06	< 4
Total Suspended Solids [mg/L]	09-May-23	11:03	10-May-23	13:52	17
Phosphorus (total) [mg/L]	08-May-23	15:22	09-May-23	12:39	0.42
Ammonia+Ammonium (N) [as N mg/L]	09-May-23	18:55	10-May-23	12:53	1.0

Hawley Anderson, Hon.B.Sc
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003333089

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

Works #: 110002390
Project : PO#017018

11-May-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 05 May 2023
LR Report: **CA12336-MAY23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent - comp
Sample Date & Time					04-May-23 21:15
Temperature Upon Receipt [°C]	---	---	---	---	12.0
Field pH [no unit]	---	---	---	---	7.69
Field Temperature [celcius]	---	---	---	---	13.6
Field Dissolved O2 [mg/L]					7.28
Total Chlorine [mg/L]					0.01
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	05-May-23	15:15	10-May-23	16:17	2
Total Suspended Solids [mg/L]	10-May-23	09:23	11-May-23	11:01	6
Phosphorus (total) [mg/L]	08-May-23	15:22	09-May-23	12:40	0.19
Ammonia+Ammonium (N) [as N mg/L]	09-May-23	18:55	10-May-23	12:54	0.1

Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003329410

SGS Canada Inc.
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Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Works #: 110002390
Project : PO#017018

15-May-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 09 May 2023
LR Report: **CA13310-MAY23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent-comp
Sample Date & Time					05-May-23 21:25
Temperature Upon Receipt [°C]	---	---	---	---	9.0
Field pH [no unit]	---	---	---	---	6.74
Field Temperature [celcius]	---	---	---	---	11.9
Field Dissolved O2 [mg/L]					6.44
Total Chlorine [mg/L]					0.01
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	09-May-23	16:27	15-May-23	12:57	< 4
Total Suspended Solids [mg/L]	12-May-23	07:56	12-May-23	16:11	2
Phosphorus (total) [mg/L]	10-May-23	14:51	11-May-23	13:05	0.17
Ammonia+Ammonium (N) [as N mg/L]	09-May-23	16:45	10-May-23	10:37	< 0.1

Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003333180

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

Works #: 110002390
Project : PO#017018

16-May-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 09 May 2023
LR Report: **CA13316-MAY23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent-comp
Sample Date & Time					06-May-23 21:25
Temperature Upon Receipt [°C]	---	---	---	---	9.0
Field pH [no unit]	---	---	---	---	6.97
Field Temperature [celcius]	---	---	---	---	15.5
Field Dissolved O2 [mg/L]					6.20
Total Chlorine [mg/L]					0.01
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	10-May-23	18:16	15-May-23	15:05	< 4
Total Suspended Solids [mg/L]	12-May-23	09:30	12-May-23	16:16	2
Phosphorus (total) [mg/L]	10-May-23	14:51	11-May-23	13:05	0.16
Ammonia+Ammonium (N) [as N mg/L]	10-May-23	17:51	11-May-23	11:53	< 0.1

Hawley Anderson, Hon.B.Sc
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003334242

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

Works #: 110002390
Project : PO#017018

16-May-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 09 May 2023
LR Report: **CA13311-MAY23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent-comp
Sample Date & Time					07-May-23 21:25
Temperature Upon Receipt [°C]	---	---	---	---	9.0
Field pH [no unit]	---	---	---	---	6.92
Field Temperature [celcius]	---	---	---	---	12.2
Field Dissolved O2 [mg/L]					5.71
Total Chlorine [mg/L]					0.01
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	09-May-23	16:27	15-May-23	12:58	< 4
Total Suspended Solids [mg/L]	12-May-23	14:26	15-May-23	15:22	8
Phosphorus (total) [mg/L]	10-May-23	14:51	11-May-23	13:05	0.22
Ammonia+Ammonium (N) [as N mg/L]	09-May-23	16:45	10-May-23	10:37	< 0.1

Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003334102

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

Works #: 110002390
Project : PO#017018

16-May-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 10 May 2023
LR Report: **CA12506-MAY23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent-comp
Sample Date & Time					08-May-23 21:25
Temperature Upon Receipt [°C]	---	---	---	---	16.0
Field pH [no unit]	---	---	---	---	7.13
Field Temperature [celcius]	---	---	---	---	14.0
Field Dissolved O2 [mg/L]					6.69
Total Chlorine [mg/L]					0.01
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	10-May-23	18:16	15-May-23	14:58	< 4
Total Suspended Solids [mg/L]	15-May-23	09:53	15-May-23	16:21	8
Phosphorus (total) [mg/L]	12-May-23	06:50	12-May-23	14:33	0.34
Ammonia+Ammonium (N) [as N mg/L]	11-May-23	17:28	15-May-23	13:34	0.1

Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003334077

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

Works #: 110002390
Project : PO#017018

19-May-2023

OCWA-Kawartha (Minden WPCP)
Attn : Christine Craig

1 Orde St.
Minden, ON
KOM 2K0, Canada

Phone: 705-286-1142
Fax:

Date Rec. : 11 May 2023
LR Report: **CA13428-MAY23**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: TeBy TeBy-Final Effluent-Comp	6: Eff Eff-Final Effluent-Comp
Sample Date & Time					09-May-23 21:25	09-May-23 21:25
Temperature Upon Receipt [°C]	---	---	---	---	13.0	13.0
Field pH [no unit]	---	---	---	---	7.11	7.11
Field Temperature [celcius]	---	---	---	---	13.2	13.2
Field Dissolved O2 [mg/L]					7.02	---
Total Chlorine [mg/L]					0.01	---
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	12-May-23	17:56	17-May-23	16:02	< 4	---
Total Suspended Solids [mg/L]	15-May-23	13:55	16-May-23	14:47	11	---
Phosphorus (total) [mg/L]	12-May-23	15:00	15-May-23	11:25	0.32	---
Total Kjeldahl Nitrogen [as N mg/L]	12-May-23	16:07	15-May-23	14:20	---	1.0
Unionized Ammonia [mg/L as N]	15-May-23	17:48	15-May-23	13:36	---	0.001
Ammonia+Ammonium (N) [as N mg/L]	15-May-23	17:48	15-May-23	13:36	0.4	0.4
Nitrite (as N) [mg/L]	13-May-23	09:38	19-May-23	10:45	---	0.20
Nitrate (as N) [mg/L]	13-May-23	09:38	19-May-23	10:45	---	10.4
Nitrate + Nitrite (as N) [mg/L]	13-May-23	09:38	19-May-23	10:45	---	10.6

Note: Provincial unionized ammonia calculated from field pH and temperature provided on the chain of custody form.

Hawley Anderson, Hon.B.Sc
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003338961

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Performance Assessment Report
MAY 2023

5839 MINDEN WASTEWATER TREATMENT FACILITY 110002390

		5/ 2023		<-Criteria->
Flows				
Raw Flow: Total - Raw m³/d		29,571.00		
Raw Flow: Avg - Raw m³/d		953.90		
Raw Flow: Max - Raw m³/d		1,464.00		
Raw Flow: Count - Raw m³/d		31.00		
Eff. Flow: Total - Eff m³/d		29,571.00		
Eff. Flow: Avg - Eff m³/d		953.90		
Eff. Flow: Max - Eff m³/d		1,464.00		
Eff Flow: Count - Eff m³/d		31.00		
Biochemical Oxygen Demand: BOD5				
Raw: Avg BOD5 - Raw mg/L		114.00		
Raw: # of samples of BOD5 - Raw mg/L		1.00		
Carbonaceous Biochemical Oxygen Demand: CBOD				
Eff: Avg cBOD5 - Final Effluent including Bypass mg/L	<	3.50		15.00
Eff.Flow : Weighted Avg cBOD5 - Final Effluent including Bypass mg/L	<	2.75		15.00
Eff: # of samples of cBOD5 - Final Effluent including Bypass mg/L		12.00		
Loading: cBOD5 - Final Effluent including Bypass kg/d	<	3.339		14.18
Loading Flow Weighted: cBOD5 - Final Effluent including Bypass kg/d	<	2.625		14.18
Total Suspended Solids: TSS				
Raw: Avg TSS - Raw mg/L		203.00		
Raw: # of samples of TSS - Raw mg/L		1.00		
Eff: Avg TSS - Final Effluent including Bypass mg/L		10.08		15.00
Eff.Flow : Weighted Avg TSS - Final Effluent including Bypass mg/L		6.88		15.00
Eff: # of samples of TSS - Final Effluent including Bypass mg/L		12.00		
Loading: TSS - Final Effluent including Bypass kg/d		9.619		14.18
Loading Flow Weighted: TSS - Final Effluent including Bypass kg/d		6.565		14.18
Total Phosphorus: TP				
Raw: Avg TP - Raw mg/L		1.93		
Raw: # of samples of TP - Raw mg/L		1.00		
Eff: Avg TP - Final Effluent including Bypass mg/L		0.25		0.50
Eff.Flow : Weighted Avg TP - Final Effluent including Bypass mg/L		0.19		0.50
Eff: # of samples of TP - Final Effluent including Bypass mg/L		12.00		
Loading: TP - Final Effluent including Bypass kg/d		0.242		0.47
Loading Flow Weighted: TP - Final Effluent including Bypass kg/d		0.180		0.47
Nitrogen Series				
Raw: Avg TKN - Raw mg/L		14.10		
Raw: # of samples of TKN - Raw mg/L		1.00		
Eff: Avg TAN - Final Effluent including Bypass mg/L	<	0.45		6.00

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Performance Assessment Report
MAY 2023

Eff.Flow : Weighted Avg TAN - Final Effluent including Bypass mg/L	<	0.41		6.00
Eff: # of samples of TAN - Final Effluent including Bypass mg/L		12.00		
Loading: TAN - Final Effluent including Bypass kg/d	<	0.429		5.700
Loading Flow Weighted: TAN - Final Effluent including Bypass kg/d	<	0.390		5.700
Eff: Avg NO3-N - Eff mg/L		11.66		
Eff: # of samples of NO3-N - Eff mg/L		5.00		
Eff: Avg NO2-N - Eff mg/L		0.70		
Eff: # of samples of NO2-N - Eff mg/L		5.00		

Disinfection

Eff: GMD E. Coli - Eff cfu/100mL		3.99		200.00
Eff: # of samples of E. Coli - Eff cfu/100mL		6.00		

Eff: Total Residuals Chlorine (mg/L)

Minimum		0.00		
Maximum		0.01		0.02

Eff: pH Field

Eff: pH field Min		6.74		6.00
Eff. pH field Max		7.75		9.50

TRC & pH limits apply to every single sample result

Minden STP - Quarterly Overflow Report

Environmental Compliance Approval #5475-BPYLDH

Year: 2023

Q2 = April, May and June

Did an Overflow occur during this quarter:

Yes☐ No ☑

Condition 5. Overflow		Event
5.3	a. the type of the Overflow (emergency or planned)	
	b. the date and time of the beginning of the Overflow	
	c. the point of the Overflow from the Works, the treatment process(es) gone through prior to the Overflow, the disinfection status of the Overflow and whether the Overflow is discharged through the effluent disposal facilities or an alternate location;	
	d. the effort(s) done to maximize the flow through the downstream treatment process(es) and Bypasses and the reason(s) why the Overflow was not avoided.	
5.4	a. the date and time of the end of the Overflow;	
	b. the estimated or measured volume of Overflow.	
5.5	a. Overflow event in Sewage Treatment Plant, grab sample(s) of the Overflow, one near the beginning of the Event and one every eight (8) hours for the duration of the Event, and have them analyzed at least for CBOD5, total suspended solids, total phosphorus, total ammonia nitrogen, nitrate as N, nitrite as N, total Kjeldahl nitrogen, E. coli., except that raw sewage and primary treated effluent Overflow shall be analyzed for BOD5, total suspended solids, total phosphorus and total Kjeldahl nitrogen only.	
	b. at a sewage pumping station in the collection system, at least one (1) grab sample representative of the Overflow Event and have it analyzed for BOD5, total suspended solids, total phosphorus and total Kjeldahl nitrogen	
5.6	…The summary report shall contain, at a minimum, the types of information set out in Paragraphs (3), (4) and (5). If there is no Overflow Event during a quarter, a statement of no occurrence of Overflow is deemed sufficient.	No Occurrence of Overflow.

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Box 279
Bobcaygeon, ON
K0M 1A0

November 06, 2023

David Bradley, District Manager
Peterborough District Office
Ministry of Environment, Conservation and Parks
300 Water Street South, 2nd Floor, South Tower
Peterborough ON K9J 3C7

Dear David Bradley:

Re: Minden STP Q3 2023 Bypass and Overflow Event Report

Amended Environmental Compliance Approval #5475-BPYLDH Conditions 4 and 5 issued October 2, 2020, for the Minden STP require Bypass and Overflow quarterly reports be submitted to the District Manager. These reports are to be submitted no later than February 15, May 15, August 15, and November 15 each year for Events that occurred during the preceding quarter.

No Bypass or Overflow Events occurred at the Minden STP during the third quarter of 2023 – reports are attached.

Please contact me if you have any questions or comments.

Best regards,

Christine Craig
Process & Compliance Technician
Ontario Clean Water Agency
Kawartha Hub
(705) 731-9579

Attachments

cc: J. Manning, Sr. Operations Manager, OCWA Kawartha-Trent Regional Hub
M. Timmins, Director of Public Works, Township of Minden Hills
J. Mulligan, Safety, Process & Compliance Manager (A), OCWA Kawartha Hub
G. Redden, General Manager, OCWA Kawartha-Trent Regional Hub
W. Henneberry, Regional Hub Manager (A), OCWA Kawartha-Trent Regional Hub
C. Biswanger, Water Inspector, MECP – Peterborough District Office

Minden STP - Quarterly Bypass Report

Environmental Compliance Approval #5475-BPYLDH

Year: 2023

Q3 = July, August, September

Did a Bypass occur during this quarter:

Yes☐ No ☑

Condition 4. Bypasses		Event
4.3	a. the type of the Bypass (emergency or planned)	
	b. the date and time of the beginning of the Bypass	
	c. the treatment process(es) gone through prior to the Bypass and the treatment process(es) bypassed;	
	d. the effort(s) done to maximize the flow through the downstream treatment process(es) and the reason(s) why the Bypass was not avoided.	
4.4	a. the date and time of the end of the Bypass;	
	b. the estimated or measured volume of Bypass.	
4.5	For any Bypass Event, the Owner shall collect daily sample(s) of the Final Effluent, inclusive of the Event and analyze for all effluent parameters outlined in Compliance Limits condition that require composite samples following the same protocol specified in the Monitoring and Recording condition for the regular samples. The sample(s) shall be in addition to the regular Final Effluent samples required under the monitoring and recording condition. If the Event occurs on a scheduled monitoring day, the regular sampling requirements prevail. If representative sample for the effluent parameter(s) that require grab sample cannot be obtained, they shall be collected after the Event at the earliest time when situation returns to normal.	No Occurrence of Bypass
4.6	. …The summary reports shall contain, at a minimum, the types of information set out in Paragraphs (3), (4) and (5) and either a statement of compliance or a summary of the non-compliance notifications submitted as required under Paragraph 1 of Condition 11. If there is no Bypass Event during a quarter, a statement of no occurrence of Bypass is deemed sufficient.	

Minden STP - Quarterly Overflow Report

Environmental Compliance Approval #5475-BPYLDH

Year: 2023

Q3 = July, August, September

Did an Overflow occur during this quarter:

Yes☐ No ☑

Condition 5. Overflow		Event
5.3	a. the type of the Overflow (emergency or planned)	
	b. the date and time of the beginning of the Overflow	
	c. the point of the Overflow from the Works, the treatment process(es) gone through prior to the Overflow, the disinfection status of the Overflow and whether the Overflow is discharged through the effluent disposal facilities or an alternate location;	
	d. the effort(s) done to maximize the flow through the downstream treatment process(es) and Bypasses and the reason(s) why the Overflow was not avoided.	
5.4	a. the date and time of the end of the Overflow;	
	b. the estimated or measured volume of Overflow.	
5.5	a. Overflow event in Sewage Treatment Plant, grab sample(s) of the Overflow, one near the beginning of the Event and one every eight (8) hours for the duration of the Event, and have them analyzed at least for CBOD5, total suspended solids, total phosphorus, total ammonia nitrogen, nitrate as N, nitrite as N, total Kjeldahl nitrogen, E. coli., except that raw sewage and primary treated effluent Overflow shall be analyzed for BOD5, total suspended solids, total phosphorus and total Kjeldahl nitrogen only.	
	b. at a sewage pumping station in the collection system, at least one (1) grab sample representative of the Overflow Event and have it analyzed for BOD5, total suspended solids, total phosphorus and total Kjeldahl nitrogen	
5.6	…The summary report shall contain, at a minimum, the types of information set out in Paragraphs (3), (4) and (5). If there is no Overflow Event during a quarter, a statement of no occurrence of Overflow is deemed sufficient.	No Occurrence of Overflow.

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Box 279
Bobcaygeon, ON
K0M 1A0

January 15, 2024

David Bradley, District Manager
Peterborough District Office
Ministry of Environment, Conservation and Parks
300 Water Street South, 2nd Floor, South Tower
Peterborough ON K9J 3C7

Dear David Bradley:

Re: Minden STP Q4 2023 Bypass and Overflow Event Report

Amended Environmental Compliance Approval #5475-BPYLDH Conditions 4 and 5 issued October 2, 2020, for the Minden STP require Bypass and Overflow quarterly reports be submitted to the District Manager. These reports are to be submitted no later than February 15, May 15, August 15, and November 15 each year for Events that occurred during the preceding quarter.

No Bypass or Overflow Events occurred at the Minden STP during the fourth quarter of 2023 – reports are attached.

Please contact me if you have any questions or comments.

Best regards,

Christine Craig
Process & Compliance Technician
Ontario Clean Water Agency
Kawartha Hub
(705) 731-9579

Attachments

cc: J. Manning, Sr. Operations Manager, OCWA Kawartha-Trent Regional Hub
M. Timmins, Director of Public Works, Township of Minden Hills
J. Mulligan, Safety, Process & Compliance Manager (A), OCWA Kawartha Hub
G. Redden, General Manager, OCWA Kawartha-Trent Regional Hub
W. Henneberry, Regional Hub Manager (A), OCWA Kawartha-Trent Regional Hub
C. Biswanger, Water Inspector, MECP – Peterborough District Office

Minden STP - Quarterly Bypass Report

Environmental Compliance Approval #5475-BPYLDH

Year: 2023

Q4 = October, November, December

Did a Bypass occur during this quarter:

Yes☐ No ☑

Condition 4. Bypasses		Event
4.3	a. the type of the Bypass (emergency or planned)	
	b. the date and time of the beginning of the Bypass	
	c. the treatment process(es) gone through prior to the Bypass and the treatment process(es) bypassed;	
	d. the effort(s) done to maximize the flow through the downstream treatment process(es) and the reason(s) why the Bypass was not avoided.	
4.4	a. the date and time of the end of the Bypass;	
	b. the estimated or measured volume of Bypass.	
4.5	For any Bypass Event, the Owner shall collect daily sample(s) of the Final Effluent, inclusive of the Event and analyze for all effluent parameters outlined in Compliance Limits condition that require composite samples following the same protocol specified in the Monitoring and Recording condition for the regular samples. The sample(s) shall be in addition to the regular Final Effluent samples required under the monitoring and recording condition. If the Event occurs on a scheduled monitoring day, the regular sampling requirements prevail. If representative sample for the effluent parameter(s) that require grab sample cannot be obtained, they shall be collected after the Event at the earliest time when situation returns to normal.	No Occurrence of Bypass
4.6	. …The summary reports shall contain, at a minimum, the types of information set out in Paragraphs (3), (4) and (5) and either a statement of compliance or a summary of the non-compliance notifications submitted as required under Paragraph 1 of Condition 11. If there is no Bypass Event during a quarter, a statement of no occurrence of Bypass is deemed sufficient.	

Minden STP - Quarterly Overflow Report

Environmental Compliance Approval #5475-BPYLDH

Year: 2023

Q4 = October, November, December

Did an Overflow occur during this quarter:

Yes☐ No ☑

Condition 5. Overflow		Event
5.3	a. the type of the Overflow (emergency or planned)	
	b. the date and time of the beginning of the Overflow	
	c. the point of the Overflow from the Works, the treatment process(es) gone through prior to the Overflow, the disinfection status of the Overflow and whether the Overflow is discharged through the effluent disposal facilities or an alternate location;	
	d. the effort(s) done to maximize the flow through the downstream treatment process(es) and Bypasses and the reason(s) why the Overflow was not avoided.	
5.4	a. the date and time of the end of the Overflow;	
	b. the estimated or measured volume of Overflow.	
5.5	a. Overflow event in Sewage Treatment Plant, grab sample(s) of the Overflow, one near the beginning of the Event and one every eight (8) hours for the duration of the Event, and have them analyzed at least for CBOD5, total suspended solids, total phosphorus, total ammonia nitrogen, nitrate as N, nitrite as N, total Kjeldahl nitrogen, E. coli., except that raw sewage and primary treated effluent Overflow shall be analyzed for BOD5, total suspended solids, total phosphorus and total Kjeldahl nitrogen only.	
	b. at a sewage pumping station in the collection system, at least one (1) grab sample representative of the Overflow Event and have it analyzed for BOD5, total suspended solids, total phosphorus and total Kjeldahl nitrogen.	
5.6	…The summary report shall contain, at a minimum, the types of information set out in Paragraphs (3), (4) and (5). If there is no Overflow Event during a quarter, a statement of no occurrence of Overflow is deemed sufficient.	No Occurrence of Overflow.

Appendix VI

Notice of Modification CAWT Fleming College Update

centre for advancement of water and wastewater technologies

FLEMING

Minden Testing Facility

Background & Current Status

Industry demand in Ontario presented a need for a certification body to host testing and certification of the CAN/BNQ standards required for onsite residential wastewater treatment systems, and specifically the CAN/BNQ 3680-600, and CAN/BNQ 3680-910 standards. These standards are currently required for all residential treatment technologies in Ontario, they establish treatment requirements and include 6 months of cold climate testing. In response to this demand and interest, Fleming College's Centre for Advancement of Water and Wastewater Technologies (CAWT) began discussions with NSF International to become a host facility for certification testing. Through this process the Minden Hills Wastewater Treatment Plant was identified by the CAWT as an ideal location to create a facility to test and certify treatment technologies, primarily due to its location and having little industrial wastewater inflow. Throughout the planning process, agreements with the Township of Minden Hills were signed and approvals for site preparation and operation were obtained (Environmental Compliance Approval by the Ministry of the Environment, Conservation and Parks (MOECP), and a Notice of Modifications to Sewage Works by MOECP).

Following agreements with the Township of Minden Hills and obtaining MOECP approvals in 2019, the CAWT began working on obtaining funding to make this vision a reality. To demonstrate the effort and commitment the CAWT and Fleming College have invested into the success of this site, the following presents an itemized list of the accomplishments since our agreements were signed:

- In 2019 the CAWT secured $93K of funding through the Rural Innovation Initiative of Eastern Ontario (Regional Stream, Haliburton) as well as $150K in NSERC ARTI funding for equipment purchases and installation at the Minden facility, to support our work.

- As of October 2019, construction of the testing facility was completed, and the facility became operational.
  - Construction included excavations for water lines and septic tank, installation of facility equipment, and troubleshooting equipment, blockages or leaks. Electrical services, ventilation and temperature control units were installed within the facility. These services were completed by Fleming College's Physical Resources Department, along with local companies/contractors.

- A site audit by NSF International was completed in November 2019. This was the final step required by NSF to permit the use of this facility as an operational site for certification testing. The audit process involved a two-day in-person inspection. NSF was very impressed with the design and build of the testing facility. The facility was approved (conditional on completion of three action items), becoming the only testing facility certified to perform CAN/BNQ 3860 in Ontario and one of only two certified facilities in Canada. The NSF audit provided feedback in the form of three actions items requiring a response, of which only one item remains outstanding with ongoing monitoring to address it.

- In 2019 we began investigating wastewater characterization and sharing data with NSF to address an action item outlined in the previously performed audit. We worked closely with NSF on determining the most optimal ways to meet the standard requirements; dosing requirements for urea, settling solids for increasing solid content, etc. Following many trials it was determined that under the

designed operating conditions the influent meets all required concentrations with the exception of total phosphorus (TP). In April 2022 our wastewater characteristics were approved by NSF and we received permission to move forward with certifications at the Minden facility, except for TP.

- In December 2019 we installed our first technology at the Minden facility. We completed validation testing for that partner in 2021. Since that time, we have worked with 3 additional industry partners on full-scale research projects at this location.

- Since 2021 we have been monitoring and maintaining wastewater concentrations, creating a database of quality and characteristics. This is an important measure for our partners and demonstrates our active commitment to the success of the site and the research we perform there.

- From September to November 2023, we completed major renovations of our field site. These included Engineered drawings by Cambium to design a site that would simultaneously allow our industry partners to install and remove technologies more efficiently, while ensuring ease of operation by our centre's staff. Importantly, the infrastructure and upgrades included designs and components that would ensure longer term sustainability and safety of the site. The site was completed with 6 well defined plots for full-scale technology installations, including all electrical and plumbing connections. Excavation and construction were completed by Francis Thomas Contracting.

Minden Township Agreement

On December 9, 2022 the agreement between Minden township and Fleming College was approved at the Council meeting. Given that this site is intended to be operated on a long-term basis, and under the recommendation of the township, the agreement was changed from an extension to a renewal. Of importance is that this agreement now will automatically renew on January 1st of each year until one party gives notice to the other of termination. That notice would be a formal written notice of 90 days.

Environmental Compliance Approval (ECA) with Limited Operational Flexibility (LOF) renewal

Our ECA LOF was first issued on October 02, 2020. ECA LOFs require renewal every 2 years from the date they are issued. Following the extension of our agreement with the Minden Township our ECA LOF was submitted to the Ministry of the Environment, Conservation and Parks (MECP) in February 2022 and approved. Our next renewal is due by October 02, 2024.

Next Steps

Currently we have all 6 plots committed to industry partners, with contracts already in place or in the final stages of development. Of the 6 projects, 3 are for research and development purposes and 3 are for certification. We continue to receive a great deal of interest in this site, performing numerous tours to industry partners and stakeholders, and are already growing a waitlist for site occupancy. We anticipate that most of our current projects will take 14 months to complete (from installation to decommission).

To ensure ample resources and staffing to support this work, the CAWT is in the process of hiring new positions, including student support workers and Research Technologists who will oversee the operations and maintenance of the site, under the guidance and leadership of the CAWT Manager and Research Scientist.

Appendix VII

Minden STP 2023 Sample Schedule

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Sample Calendar

MINDEN WPCP – org 5839 – works # 110002390

Samples must be collected on the day indicated on Calendar. If day has to be switched (i.e. composite sampler failed), the reason must be noted in the logbook and an email sent to the ORO, PCT and Sr. Ops Manager.

Weekly: Final composite – CBOD, TSS, Total Phos, Total Ammonia Nitrogen (TAN), TKN, Nitrate, Nitrite, Un-ionized Ammonia
Final grab - E.coli
pH & temperature to be collected with final effluent composite to calculate un-ionized ammonia
Dissolved Oxygen

Monthly:Raw composite – BOD, TSS, Total Phos, TKN
Federal Wastewater Systems Effluent Regulations
Final Effluent – CBOD, TSS, Total Residual Chlorine (TRC only if bypass occurs)

Quarterly: Sludge grab – TS, Total Phos, TAN, Nitrate, E. Coli, metals scan – As, Cd, Co, Cr, Cu, Hg, K, Mo, Ni, Pb, Se, Zn & E.coli
(note: regulatory requirement is quarterly, may collect monthly for operational purposes)

DAILY ONLY DURING A BYPASS - Final Effluent: Daily DO & Daily Total Residual Chlorine

OPERATOR SIGN-OFF: _____ DATE: _____
(all collection and submission complete as per ECA, Federal Reg's etc. + any special requirements)

January 2024

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
	1 New Year's Day Stat	2	3 ☐ Weekly ☐ Monthly	4	5	6
7	8	9	10 ☐ Weekly	11	12	13
14	15	16	17 ☐ Weekly	18	19	20
21	22	23	24 ☐ Weekly	25	26	27
28	29	30	31 ☐ Weekly		Sample Collection Time Frames (Days)	Weekly >5 & <10 Monthly >20 & <40

Ontario Clean Water Agency
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Final grab - E.coli
pH & temperature to be collected with final effluent composite to calculate un-ionized ammonia
Dissolved Oxygen

Monthly:Raw composite – BOD, TSS, Total Phos, TKN
Federal Wastewater Systems Effluent Regulations
Final Effluent – CBOD, TSS, Total Residual Chlorine (TRC only if bypass occurs)

Quarterly: Sludge grab – TS, Total Phos, TAN, Nitrate, E. Coli, metals scan – As, Cd, Co, Cr, Cu, Hg, K, Mo, Ni, Pb, Se, Zn & E.coli
(note: regulatory requirement is quarterly, may collect monthly for operational purposes)

DAILY ONLY DURING A BYPASS - Final Effluent: Daily DO & Daily Total Residual Chlorine

OPERATOR SIGN-OFF: DATE:
(all collection and submission complete as per ECA, Federal Reg's etc. + any special requirements)

February 2024

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
Sample Collection Time Frames (Days)	Weekly >5 & <10 Monthly >20 & <40			1	2	3
4	5	6	7 ☐ Weekly ☐ Monthly	8	9	10
11	12	13	14 ☐ Weekly	15	16	17
18	19 Family Day Stat	20	21 ☐ Weekly	22	23	24
25	26	27	28 ☐ Weekly	29		

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Sample Calendar

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Samples must be collected on the day indicated on Calendar. If day has to be switched (i.e. composite sampler failed), the reason must be noted in the logbook and an email sent to the ORO, PCT and Sr. Ops Manager.

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pH & temperature to be collected with final effluent composite to calculate un-ionized ammonia
Dissolved Oxygen

Monthly:Raw composite – BOD, TSS, Total Phos, TKN
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Final Effluent – CBOD, TSS, Total Residual Chlorine (TRC only if bypass occurs)

Quarterly: Sludge grab – TS, Total Phos, TAN, Nitrate, E. Coli, metals scan – As, Cd, Co, Cr, Cu, Hg, K, Mo, Ni, Pb, Se, Zn & E.coli
(note: regulatory requirement is quarterly, may collect monthly for operational purposes)

DAILY ONLY DURING A BYPASS - Final Effluent: Daily DO & Daily Total Residual Chlorine

OPERATOR SIGN-OFF: _____ DATE: _____
(all collection and submission complete as per ECA, Federal Reg's etc. + any special requirements)

March 2024

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
Sample Collection Time Frames (Days)	Weekly >5 & <10 Monthly >20 & <40				1	2
3	4	5	6 ☐ Weekly ☐ Monthly	7	8	9
10	11	12	13 ☐ Weekly	14	15	16
17	18	19	20 ☐ Weekly	21	22	23
24	25	26	27 ☐ Weekly	28	29 Good Friday Stat	30
31						

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Sample Calendar

MINDEN WPCP – org 5839 – works # 110002390

Samples must be collected on the day indicated on Calendar. If day has to be switched (i.e. composite sampler failed), the reason must be noted in the logbook and an email sent to the ORO, PCT and Sr. Ops Manager.

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Final grab - E.coli
pH & temperature to be collected with final effluent composite to calculate un-ionized ammonia
Dissolved Oxygen

Monthly:Raw composite – BOD, TSS, Total Phos, TKN
Federal Wastewater Systems Effluent Regulations
Final Effluent – CBOD, TSS, Total Residual Chlorine (TRC only if bypass occurs)

Quarterly: Sludge grab – TS, Total Phos, TAN, Nitrate, E. Coli, metals scan – As, Cd, Co, Cr, Cu, Hg, K, Mo, Ni, Pb, Se, Zn & E.coli
(note: regulatory requirement is quarterly, may collect monthly for operational purposes)

DAILY ONLY DURING A BYPASS - Final Effluent: Daily DO & Daily Total Residual Chlorine

OPERATOR SIGN-OFF: DATE:
(all collection and submission complete as per ECA, Federal Reg's etc. + any special requirements)

April 2024

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
	1 Easter Monday Stat	2	3 ☐ Weekly ☐ Monthly	4	5	6
7	8	9	10 ☐ Weekly	11	12	13
14	15	16	17 ☐ Weekly	18	19	20
21	22	23	24 ☐ Weekly	25	26	27
28	29	30		Sample Collection Time Frames (Days)	Weekly >5 & <10 Monthly >20 & <40	

Ontario Clean Water Agency
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Sample Calendar

MINDEN WPCP – org 5839 – works # 110002390

Samples must be collected on the day indicated on Calendar. If day has to be switched (i.e. composite sampler failed), the reason must be noted in the logbook and an email sent to the ORO, PCT and Sr. Ops Manager.

Weekly: Final composite – CBOD, TSS, Total Phos, Total Ammonia Nitrogen (TAN), TKN, Nitrate, Nitrite, Un-ionized Ammonia
Final grab - E.coli
pH & temperature to be collected with final effluent composite to calculate un-ionized ammonia
Dissolved Oxygen

Monthly:Raw composite – BOD, TSS, Total Phos, TKN
Federal Wastewater Systems Effluent Regulations
Final Effluent – CBOD, TSS, Total Residual Chlorine (TRC only if bypass occurs)

Quarterly: Sludge grab – TS, Total Phos, TAN, Nitrate, E. Coli, metals scan – As, Cd, Co, Cr, Cu, Hg, K, Mo, Ni, Pb, Se, Zn & E.coli
(note: regulatory requirement is quarterly, may collect monthly for operational purposes)

DAILY ONLY DURING A BYPASS - Final Effluent: Daily DO & Daily Total Residual Chlorine

OPERATOR SIGN-OFF: _____ DATE: _____
(all collection and submission complete as per ECA, Federal Reg's etc. + any special requirements)

May 2024

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
Sample Collection Time Frames (Days)	Weekly >5 & <10 Monthly >20 & <40		1 ☐ Weekly ☐ Monthly	2	3	4
5	6	7	8 ☐ Weekly	9	10	11
12	13	14	15 ☐ Weekly	16	17	18
19	20 Victoria Day Stat	21	22 ☐ Weekly	23	24	25
26	27	28	29 ☐ Weekly	30	31	

Ontario Clean Water Agency
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Sample Calendar

MINDEN WPCP – org 5839 – works # 110002390

Samples must be collected on the day indicated on Calendar. If day has to be switched (i.e. composite sampler failed), the reason must be noted in the logbook and an email sent to the ORO, PCT and Sr. Ops Manager.

Weekly: Final composite – CBOD, TSS, Total Phos, Total Ammonia Nitrogen (TAN), TKN, Nitrate, Nitrite, Un-ionized Ammonia
Final grab - E.coli
pH & temperature to be collected with final effluent composite to calculate un-ionized ammonia
Dissolved Oxygen

Monthly:Raw composite – BOD, TSS, Total Phos, TKN
Federal Wastewater Systems Effluent Regulations
Final Effluent – CBOD, TSS, Total Residual Chlorine (TRC only if bypass occurs)

Quarterly: Sludge grab – TS, Total Phos, TAN, Nitrate, E. Coli, metals scan – As, Cd, Co, Cr, Cu, Hg, K, Mo, Ni, Pb, Se, Zn & E.coli
(note: regulatory requirement is quarterly, may collect monthly for operational purposes)

DAILY ONLY DURING A BYPASS - Final Effluent: Daily DO & Daily Total Residual Chlorine

OPERATOR SIGN-OFF: _____ DATE: _____
(all collection and submission complete as per ECA, Federal Reg's etc. + any special requirements)

June 2024

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
						1
2	3	4	5 ☐ Weekly ☐ Monthly	6	7	8
9	10	11	12 ☐ Weekly	13	14	15
16	17	18	19 ☐ Weekly	20	21	22
23	24	25	26 ☐ Weekly	27	28	29
30				Sample Collection Time Frames (Days)	Weekly >5 & <10 Monthly >20 & <40	

Ontario Clean Water Agency
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Sample Calendar

MINDEN WPCP – org 5839 – works # 110002390

Samples must be collected on the day indicated on Calendar. If day has to be switched (i.e. composite sampler failed), the reason must be noted in the logbook and an email sent to the ORO, PCT and Sr. Ops Manager.

Weekly: Final composite – CBOD, TSS, Total Phos, Total Ammonia Nitrogen (TAN), TKN, Nitrate, Nitrite, Un-ionized Ammonia
Final grab - E.coli
pH & temperature to be collected with final effluent composite to calculate un-ionized ammonia
Dissolved Oxygen

Monthly:Raw composite – BOD, TSS, Total Phos, TKN
Federal Wastewater Systems Effluent Regulations
Final Effluent – CBOD, TSS, Total Residual Chlorine (TRC only if bypass occurs)

Quarterly: Sludge grab – TS, Total Phos, TAN, Nitrate, E. Coli, metals scan – As, Cd, Co, Cr, Cu, Hg, K, Mo, Ni, Pb, Se, Zn & E.coli
(note: regulatory requirement is quarterly, may collect monthly for operational purposes)

DAILY ONLY DURING A BYPASS - Final Effluent: Daily DO & Daily Total Residual Chlorine

OPERATOR SIGN-OFF: _____ DATE: _____
(all collection and submission complete as per ECA, Federal Reg's etc. + any special requirements)

July 2024

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
	1 Canada Day Stat	2	3 ☐ Weekly ☐ Monthly	4	5	6
7	8	9	10 ☐ Weekly	11	12	13
14	15	16	17 ☐ Weekly	18	19	20
21	22	23	24 ☐ Weekly	25	26	27
28	29	30	31 ☐ Weekly	Sample Collection Time Frames (Days)	Weekly >5 & <10 Monthly >20 & <40	

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Sample Calendar

MINDEN WPCP – org 5839 – works # 110002390

Samples must be collected on the day indicated on Calendar. If day has to be switched (i.e. composite sampler failed), the reason must be noted in the logbook and an email sent to the ORO, PCT and Sr. Ops Manager.

Weekly: Final composite – CBOD, TSS, Total Phos, Total Ammonia Nitrogen (TAN), TKN, Nitrate, Nitrite, Un-ionized Ammonia
Final grab - E.coli
pH & temperature to be collected with final effluent composite to calculate un-ionized ammonia
Dissolved Oxygen

Monthly:Raw composite – BOD, TSS, Total Phos, TKN
Federal Wastewater Systems Effluent Regulations
Final Effluent – CBOD, TSS, Total Residual Chlorine (TRC only if bypass occurs)

Quarterly: Sludge grab – TS, Total Phos, TAN, Nitrate, E. Coli, metals scan – As, Cd, Co, Cr, Cu, Hg, K, Mo, Ni, Pb, Se, Zn & E.coli
(note: regulatory requirement is quarterly, may collect monthly for operational purposes)

DAILY ONLY DURING A BYPASS - Final Effluent: Daily DO & Daily Total Residual Chlorine

OPERATOR SIGN-OFF: _____ DATE: _____
(all collection and submission complete as per ECA, Federal Reg's etc. + any special requirements)

August 2024

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
	Sample Collection Time Frames (Days)	Weekly >5 & <10 Monthly >20 & <40		1	2	3
4	5 Civic Holiday Stat	6	7 ☐ Weekly ☐ Monthly	8	9	10
11	12	13	14 ☐ Weekly	15	16	17
18	19	20	21 ☐ Weekly	22	23	24
25	26	27	28 ☐ Weekly	29	30	31

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Sample Calendar

MINDEN WPCP – org 5839 – works # 110002390

Samples must be collected on the day indicated on Calendar. If day has to be switched (i.e. composite sampler failed), the reason must be noted in the logbook and an email sent to the ORO, PCT and Sr. Ops Manager.

Weekly: Final composite – CBOD, TSS, Total Phos, Total Ammonia Nitrogen (TAN), TKN, Nitrate, Nitrite, Un-ionized Ammonia
Final grab - E.coli
pH & temperature to be collected with final effluent composite to calculate un-ionized ammonia
Dissolved Oxygen

Monthly:Raw composite – BOD, TSS, Total Phos, TKN
Federal Wastewater Systems Effluent Regulations
Final Effluent – CBOD, TSS, Total Residual Chlorine (TRC only if bypass occurs)

Quarterly: Sludge grab – TS, Total Phos, TAN, Nitrate, E. Coli, metals scan – As, Cd, Co, Cr, Cu, Hg, K, Mo, Ni, Pb, Se, Zn & E.coli
(note: regulatory requirement is quarterly, may collect monthly for operational purposes)

DAILY ONLY DURING A BYPASS - Final Effluent: Daily DO & Daily Total Residual Chlorine

OPERATOR SIGN-OFF: _____ DATE: _____
(all collection and submission complete as per ECA, Federal Reg's etc. + any special requirements)

September 2024

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
1	2 Labour Day Stat	3	4 ☐ Weekly ☐ Monthly	5	6	7
8	9	10	11 ☐ Weekly	12	13	14
15	16	17	18 ☐ Weekly	19	20	21
22	23	24	25 ☐ Weekly	26	27	28
29	30 National Day for Truth & Reconciliation Stat				Sample Collection Time Frames (Days)	Weekly >5 & <10 Monthly >20 & <40

Ontario Clean Water Agency
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Sample Calendar

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Samples must be collected on the day indicated on Calendar. If day has to be switched (i.e. composite sampler failed), the reason must be noted in the logbook and an email sent to the ORO, PCT and Sr. Ops Manager.

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(note: regulatory requirement is quarterly, may collect monthly for operational purposes)

DAILY ONLY DURING A BYPASS - Final Effluent: Daily DO & Daily Total Residual Chlorine

OPERATOR SIGN-OFF: DATE:
(all collection and submission complete as per ECA, Federal Reg's etc. + any special requirements)

October 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
Sample Collection Time Frames (Days)	Weekly >5 & <10 Monthly >20 & <40	1	2 ☐ Weekly ☐ Monthly	3	4	5
6	7	8	9 ☐ Weekly	10	11	12
13	14 Thanksgiving Day Stat	15	16 ☐ Weekly	17	18	19
20	21	22	23 ☐ Weekly	24	25	26
27	28	29	30 ☐ Weekly	31		

Ontario Clean Water Agency
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Sample Calendar

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Samples must be collected on the day indicated on Calendar. If day has to be switched (i.e. composite sampler failed), the reason must be noted in the logbook and an email sent to the ORO, PCT and Sr. Ops Manager.

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(note: regulatory requirement is quarterly, may collect monthly for operational purposes)

DAILY ONLY DURING A BYPASS - Final Effluent: Daily DO & Daily Total Residual Chlorine

OPERATOR SIGN-OFF: _____ DATE: _____
(all collection and submission complete as per ECA, Federal Reg's etc. + any special requirements)

November 2024

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
Sample Collection Time Frames (Days)	Weekly >5 & <10 Monthly >20 & <40				1	2
3	4	5	6 ☐ Weekly ☐ Monthly	7	8	9
10	11 Remembrance Day Stat	12	13 ☐ Weekly	14	15	16
17	18	19	20 ☐ Weekly	21	22	23
24	25	26	27 ☐ Weekly	28	29	30

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Sample Calendar

MINDEN WPCP – org 5839 – works # 110002390

Samples must be collected on the day indicated on Calendar. If day has to be switched (i.e. composite sampler failed), the reason must be noted in the logbook and an email sent to the ORO, PCT and Sr. Ops Manager.

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Final Effluent – CBOD, TSS, Total Residual Chlorine (TRC only if bypass occurs)

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(note: regulatory requirement is quarterly, may collect monthly for operational purposes)

DAILY ONLY DURING A BYPASS - Final Effluent: Daily DO & Daily Total Residual Chlorine

OPERATOR SIGN-OFF: _____ DATE: _____
(all collection and submission complete as per ECA, Federal Reg's etc. + any special requirements)

December 2024

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
1	2	3	4 ☐ Weekly ☐ Monthly	5	6	7
8	9	10	11 ☐ Weekly	12	13	14
15	16	17	18 ☐ Weekly	19	20	21
22 *Please review SGS's Holiday schedule prior to sampling	23	24 ☐ Weekly	25 Christmas Day Stat	26 Boxing Day Stat	27	28
29	30	31			Sample Collection Time Frames (Days)	Weekly >5 & <10 Monthly >20 & <40

Appendix VIII

DO Study & Letter

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Box 279
Bobcaygeon, ON
K0M 1A0

March 31, 2023

David Bradley, District Manager
Peterborough District Office
Ministry of Environment, Conservation and Parks
300 Water Street South, 2nd Floor, South Tower
Peterborough ON K9J 3C7

Dear David Bradley:

Re: Minden STP 2023 Final Effluent DO Study

Amended Environmental Compliance Approval #5475-BPYLDH Schedule D Monitoring Program Final Effluent issued October 2, 2020, for the Minden STP includes the following:

Final Effluent *– Final Effluent sampling point*

Parameters	***Sample Type***	***Minimum Frequency***
*Dissolved Oxygen (DO)****	*Grab/Probe/Analyzer*	*Weekly (Daily if dechlorination is employed)*

****The Owner shall monitor and record DO in the Final Effluent as outlined in the table above for a period of not shorter than two (2) years as of January 1, 2021. The Owner shall, within three (3) months after the 2-year term, submit to the District Manager a set of raw data of DO monitoring results as well as the review of the DO variation in relation to the plant disinfection practice for this 2-year term (i.e. routine UV disinfection vs. occasional chlorination and dechlorination during filter bypass events as well as in the sand filter superchlorination events). The monitoring frequencies with respect to DO may be modified at the discretion of the District Manager in writing, upon conclusion of his / her review of the required submission*

Raw data of the DO monitoring from January 1, 2021 to January 31, 2023 is attached along with a graph depicting the DO results while chlorination and dechlorination were used for disinfection and when UV was used for disinfection.

The construction of the disinfection system, as listed under Proposed Works in the ECA, did not reach completion until August of 2022 largely due to challenges arising from the pandemic. Consequently, chlorination and dechlorination were utilized for disinfection for the majority of the study period.

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Box 279
Bobcaygeon, ON
K0M 1A0

At this time, we propose no changes to the DO sampling requirements listed in the ECA under Schedule D-Final Effluent for continued data collection while the UVs are providing disinfection.

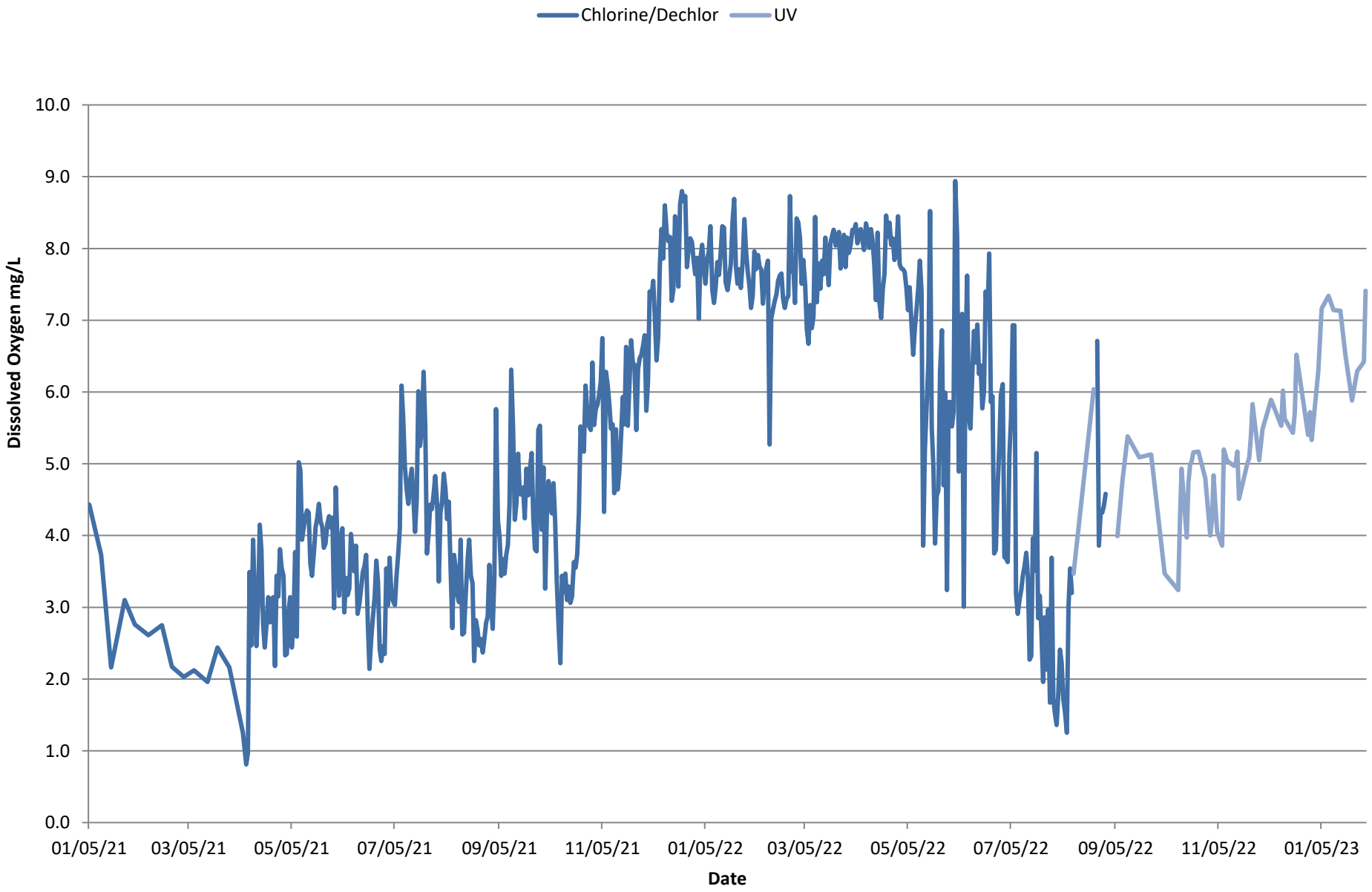
Please contact me if you have any questions or comments.

Best regards,

Christine Craig
Process & Compliance Technician
Ontario Clean Water Agency
North Cluster, Kawartha Trent
(705) 731-9579

cc: J. Manning, Sr. Operations Manager, OCWA Kawartha-Trent Regional Hub
M. Timmins, Director of Public Works, Township of Minden Hills
G. Redden, General Manager, OCWA Kawartha-Trent Regional Hub
K. Lorente, Regional Hub Manager, OCWA Kawartha-Trent Region Hub
W. Henneberry, Safety, Process & Compliance Manager, OCWA Kawartha-Trent Regional Hub
C. Biswanger, Water Inspector, MECP – Peterborough District Office

Minden STP Final Effluent Dissolved Oxygen Results January 1, 2021 - January 31, 2023



Minden STP Final Effluent Dissolved Oxygen

Disinfection:	Chlorine/Dechlor	UV
Date	DO mg/L	DO mg/L
01/05/21	4.43	
01/12/21	3.73	
01/18/21	2.16	
01/26/21	3.1	
02/01/21	2.76	
02/09/21	2.61	
02/17/21	2.75	
02/23/21	2.17	
03/02/21	2.03	
03/08/21	2.12	
03/16/21	1.96	
03/22/21	2.44	
03/29/21	2.16	
04/06/21	1.25	
04/08/21	0.81	
04/09/21	0.97	
04/10/21	3.49	
04/11/21	2.47	
04/12/21	3.94	
04/13/21	3.11	
04/14/21	2.46	
04/15/21	3.04	
04/16/21	4.15	
04/17/21	3.79	
04/18/21	2.77	
04/19/21	2.44	
04/20/21	2.74	
04/21/21	3.14	
04/22/21	2.79	
04/23/21	3.11	
04/24/21	3.14	
04/25/21	2.18	
04/26/21	3.44	
04/27/21	3.15	
04/28/21	3.81	
04/29/21	3.55	
04/30/21	3.44	
05/01/21	2.33	
05/02/21	2.35	
05/03/21	2.94	
05/04/21	3.14	
05/05/21	2.44	
05/06/21	2.76	
05/07/21	3.77	
05/08/21	2.59	
05/09/21	5.02	
05/10/21	4.91	

Minden STP Final Effluent Dissolved Oxygen

Disinfection:	Chlorine/Dechlor	UV
Date	DO mg/L	DO mg/L
05/11/21	3.94	
05/12/21	4.11	
05/13/21	4.26	
05/14/21	4.35	
05/15/21	4.32	
05/16/21	3.61	
05/17/21	3.44	
05/18/21	3.76	
05/19/21	4.11	
05/20/21	4.24	
05/21/21	4.44	
05/22/21	4.2	
05/23/21	4.12	
05/24/21	3.83	
05/25/21	3.89	
05/26/21	4.15	
05/27/21	4.27	
05/28/21	4.11	
05/29/21	4.25	
05/30/21	2.99	
05/31/21	4.67	
06/01/21	3.92	
06/02/21	3.16	
06/03/21	3.94	
06/04/21	4.1	
06/05/21	2.93	
06/06/21	3.41	
06/07/21	3.17	
06/08/21	3.26	
06/09/21	4.02	
06/10/21	3.76	
06/11/21	3.5	
06/12/21	3.86	
06/13/21	2.91	
06/14/21	3.06	
06/15/21	3.27	
06/16/21	3.49	
06/17/21	3.57	
06/18/21	3.73	
06/19/21	2.79	
06/20/21	2.14	
06/21/21	2.54	
06/22/21	2.84	
06/23/21	3.15	
06/24/21	3.65	
06/25/21	3.35	
06/26/21	2.42	

Minden STP Final Effluent Dissolved Oxygen

Disinfection:	Chlorine/Dechlor	UV
Date	DO mg/L	DO mg/L
06/27/21	2.25	
06/28/21	2.46	
06/29/21	2.35	
06/30/21	3.54	
07/01/21	3.03	
07/02/21	3.69	
07/03/21	3.14	
07/04/21	3.08	
07/05/21	3.03	
07/06/21	3.44	
07/07/21	3.74	
07/08/21	4.11	
07/09/21	6.09	
07/10/21	5.65	
07/11/21	4.97	
07/12/21	4.63	
07/13/21	4.44	
07/14/21	4.76	
07/15/21	4.93	
07/16/21	4.53	
07/17/21	4.05	
07/18/21	4.5	
07/19/21	6.01	
07/20/21	5.25	
07/21/21	5.5	
07/22/21	6.28	
07/23/21	5.52	
07/24/21	3.75	
07/25/21	4.02	
07/26/21	4.43	
07/27/21	4.37	
07/28/21	4.57	
07/29/21	4.83	
07/30/21	4.42	
07/31/21	3.36	
08/01/21	4.32	
08/02/21	4.48	
08/03/21	4.86	
08/04/21	4.65	
08/05/21	4.23	
08/06/21	4.47	
08/07/21	3.63	
08/08/21	2.71	
08/09/21	3.73	
08/10/21	3.55	
08/11/21	3.17	
08/12/21	3.07	

Minden STP Final Effluent Dissolved Oxygen

Disinfection:	Chlorine/Dechlor	UV
Date	DO mg/L	DO mg/L
08/13/21	3.94	
08/14/21	2.62	
08/15/21	2.64	
08/16/21	3.15	
08/17/21	3.65	
08/18/21	3.94	
08/19/21	3.44	
08/20/21	3.34	
08/21/21	2.25	
08/22/21	2.82	
08/23/21	2.69	
08/24/21	2.47	
08/25/21	2.56	
08/26/21	2.37	
08/27/21	2.56	
08/28/21	2.78	
08/29/21	2.87	
08/30/21	3.59	
08/31/21	3.05	
09/01/21	2.7	
09/02/21	3.44	
09/03/21	5.76	
09/04/21	4.21	
09/05/21	3.98	
09/06/21	3.44	
09/07/21	3.67	
09/08/21	3.47	
09/09/21	3.73	
09/10/21	3.87	
09/11/21	4.44	
09/12/21	6.31	
09/13/21	5.47	
09/14/21	4.22	
09/15/21	4.45	
09/16/21	5.14	
09/17/21	4.58	
09/18/21	4.57	
09/19/21	4.67	
09/20/21	4.24	
09/21/21	4.93	
09/22/21	4.56	
09/23/21	4.93	
09/24/21	5.15	
09/25/21	4.25	
09/26/21	3.81	
09/27/21	3.78	
09/28/21	5.47	

Minden STP Final Effluent Dissolved Oxygen

Disinfection:	Chlorine/Dechlor	UV
Date	DO mg/L	DO mg/L
09/29/21	5.53	
09/30/21	4.08	
10/01/21	4.95	
10/02/21	3.26	
10/03/21	4.28	
10/04/21	4.76	
10/05/21	4.56	
10/06/21	4.31	
10/07/21	4.73	
10/08/21	4.19	
10/09/21	3.35	
10/10/21	2.7	
10/11/21	2.22	
10/12/21	3.44	
10/13/21	3.21	
10/14/21	3.47	
10/15/21	3.1	
10/16/21	3.29	
10/17/21	3.06	
10/18/21	3.15	
10/19/21	3.63	
10/20/21	3.55	
10/21/21	3.74	
10/22/21	4.32	
10/23/21	5.52	
10/24/21	5.21	
10/25/21	5.17	
10/26/21	6.09	
10/27/21	5.74	
10/28/21	5.53	
10/29/21	5.47	
10/30/21	6.41	
10/31/21	5.54	
11/01/21	5.76	
11/02/21	5.82	
11/03/21	5.96	
11/04/21	6.14	
11/05/21	6.75	
11/06/21	4.33	
11/07/21	6.28	
11/08/21	6.1	
11/09/21	5.84	
11/10/21	5.49	
11/11/21	5.55	
11/12/21	4.59	
11/13/21	5.48	
11/14/21	4.64	

Minden STP Final Effluent Dissolved Oxygen

Disinfection:	Chlorine/Dechlor	UV
Date	DO mg/L	DO mg/L
11/15/21	4.87	
11/16/21	5.41	
11/17/21	5.93	
11/18/21	5.55	
11/19/21	6.63	
11/20/21	5.53	
11/21/21	6.12	
11/22/21	6.72	
11/23/21	6.41	
11/24/21	6.38	
11/25/21	5.47	
11/26/21	6.31	
11/27/21	6.47	
11/28/21	6.52	
11/29/21	6.64	
11/30/21	6.79	
12/01/21	5.74	
12/02/21	6.15	
12/03/21	7.4	
12/04/21	7.32	
12/05/21	7.55	
12/06/21	7.03	
12/07/21	6.44	
12/08/21	6.77	
12/09/21	7.77	
12/10/21	8.27	
12/11/21	7.86	
12/12/21	8.6	
12/13/21	8.21	
12/14/21	8.1	
12/15/21	8.16	
12/16/21	7.27	
12/17/21	7.43	
12/18/21	8.45	
12/19/21	7.9	
12/20/21	7.47	
12/21/21	8.61	
12/22/21	8.8	
12/23/21	8.66	
12/24/21	8.73	
12/25/21	7.74	
12/26/21	8	
12/27/21	8.14	
12/28/21	8.09	
12/29/21	7.84	
12/30/21	7.64	
12/31/21	7.87	

Minden STP Final Effluent Dissolved Oxygen

Disinfection:	Chlorine/Dechlor	UV
Date	DO mg/L	DO mg/L
01/01/22	7.02	
01/02/22	7.86	
01/03/22	8.05	
01/04/22	7.74	
01/05/22	7.51	
01/06/22	7.83	
01/07/22	7.96	
01/08/22	8.31	
01/09/22	7.42	
01/10/22	7.24	
01/11/22	7.46	
01/12/22	7.81	
01/13/22	7.63	
01/14/22	7.93	
01/15/22	8.31	
01/16/22	8.29	
01/17/22	7.53	
01/18/22	7.42	
01/19/22	7.59	
01/20/22	7.79	
01/21/22	8.37	
01/22/22	8.69	
01/23/22	7.76	
01/24/22	7.51	
01/25/22	7.71	
01/26/22	7.45	
01/27/22	7.84	
01/28/22	8.41	
01/29/22	7.96	
01/30/22	7.68	
01/31/22	7.49	
02/01/22	7.17	
02/02/22	7.34	
02/03/22	7.96	
02/04/22	7.71	
02/05/22	7.91	
02/06/22	7.74	
02/07/22	7.71	
02/08/22	7.23	
02/09/22	7.53	
02/10/22	7.72	
02/11/22	7.83	
02/12/22	5.27	
02/13/22	7.02	
02/14/22	7.16	
02/15/22	7.27	
02/16/22	7.36	

Minden STP Final Effluent Dissolved Oxygen

Disinfection:	Chlorine/Dechlor	UV
Date	DO mg/L	DO mg/L
02/17/22	7.55	
02/18/22	7.62	
02/19/22	7.65	
02/20/22	7.3	
02/21/22	7.17	
02/22/22	7.29	
02/23/22	7.34	
02/24/22	8.73	
02/25/22	7.68	
02/26/22	7.76	
02/27/22	7.24	
02/28/22	8.42	
03/01/22	8.36	
03/02/22	8.15	
03/03/22	7.51	
03/04/22	7.84	
03/05/22	7.49	
03/06/22	6.87	
03/07/22	6.67	
03/08/22	7.21	
03/09/22	6.89	
03/10/22	7.06	
03/11/22	8.44	
03/12/22	7.25	
03/13/22	7.79	
03/14/22	7.44	
03/15/22	7.83	
03/16/22	7.64	
03/17/22	8.15	
03/18/22	7.79	
03/19/22	7.49	
03/20/22	8.07	
03/21/22	8.17	
03/22/22	8.26	
03/23/22	8.04	
03/24/22	8.08	
03/25/22	8.23	
03/26/22	7.72	
03/27/22	7.95	
03/28/22	8.19	
03/29/22	7.74	
03/30/22	8.15	
03/31/22	7.94	
04/01/22	8.06	
04/02/22	8.26	
04/03/22	8.24	
04/04/22	8.34	

Minden STP Final Effluent Dissolved Oxygen

Disinfection:	Chlorine/Dechlor	UV
Date	DO mg/L	DO mg/L
04/05/22	8.07	
04/06/22	8.21	
04/07/22	8.27	
04/08/22	8.11	
04/09/22	7.98	
04/10/22	8.35	
04/11/22	8.24	
04/12/22	8.01	
04/13/22	8.27	
04/14/22	8.1	
04/15/22	7.78	
04/16/22	7.28	
04/17/22	8.22	
04/18/22	7.27	
04/19/22	7.03	
04/20/22	7.44	
04/21/22	7.64	
04/22/22	8.46	
04/23/22	8.16	
04/24/22	8.36	
04/25/22	8.05	
04/26/22	8.14	
04/27/22	7.84	
04/28/22	7.95	
04/29/22	8.45	
04/30/22	7.78	
05/01/22	7.72	
05/02/22	7.71	
05/03/22	7.67	
05/04/22	7.46	
05/05/22	7.14	
05/06/22	7.46	
05/07/22	6.93	
05/08/22	6.52	
05/09/22	6.89	
05/10/22	7.15	
05/11/22	7.44	
05/12/22	7.83	
05/13/22	7.4	
05/14/22	3.86	
05/15/22	5.18	
05/16/22	5.85	
05/17/22	6.42	
05/18/22	8.52	
05/19/22	5.51	
05/20/22	4.96	
05/21/22	3.89	

Minden STP Final Effluent Dissolved Oxygen

Disinfection:	Chlorine/Dechlor	UV
Date	DO mg/L	DO mg/L
05/22/22	4.55	
05/23/22	4.63	
05/24/22	6.28	
05/25/22	6.86	
05/26/22	4.7	
05/27/22	5.99	
05/28/22	3.24	
05/29/22	5.86	
05/30/22	5.86	
05/31/22	5.52	
06/01/22	5.73	
06/02/22	8.94	
06/03/22	8.15	
06/04/22	4.89	
06/05/22	5.69	
06/06/22	7.09	
06/07/22	3.01	
06/08/22	6.43	
06/09/22	7.62	
06/10/22	5.65	
06/11/22	5.49	
06/12/22	6.29	
06/13/22	6.85	
06/14/22	6.41	
06/15/22	6.94	
06/16/22	6.25	
06/17/22	6.37	
06/18/22	5.77	
06/19/22	6.01	
06/20/22	7.4	
06/21/22	7.03	
06/22/22	7.93	
06/23/22	5.86	
06/24/22	5.94	
06/25/22	3.75	
06/26/22	3.8	
06/27/22	4.63	
06/28/22	5.2	
06/29/22	5.96	
06/30/22	6.11	
07/01/22	3.7	
07/02/22	3.68	
07/03/22	3.63	
07/04/22	5.11	
07/05/22	5.64	
07/06/22	6.93	
07/07/22	6.93	

Minden STP Final Effluent Dissolved Oxygen

Disinfection:	Chlorine/Dechlor	UV
Date	DO mg/L	DO mg/L
07/08/22	3.18	
07/09/22	2.91	
07/10/22	3.11	
07/11/22	3.24	
07/12/22	3.45	
07/13/22	3.57	
07/14/22	3.76	
07/15/22	3.42	
07/16/22	2.27	
07/17/22	2.32	
07/18/22	3.96	
07/19/22	3.51	
07/20/22	5.15	
07/21/22	2.85	
07/22/22	3.16	
07/23/22	2.66	
07/24/22	1.96	
07/25/22	2.86	
07/26/22	2.13	
07/27/22	2.97	
07/28/22	1.67	
07/29/22	3.69	
07/30/22	1.73	
07/31/22	1.52	
08/01/22	1.36	
08/02/22	1.79	
08/03/22	2.41	
08/04/22	2.23	
08/05/22	1.72	
08/06/22	1.52	
08/07/22	1.25	
08/08/22	3.02	
08/09/22	3.54	
08/10/22	3.2	
08/11/22		3.47
08/23/22		6.04
08/25/22	6.71	
08/26/22	3.86	
08/27/22	4.31	
08/28/22	4.32	
08/29/22	4.41	
08/30/22	4.58	
09/06/22		3.99
09/09/22		4.76
09/12/22		5.38
09/19/22		5.09
09/26/22		5.13

Minden STP Final Effluent Dissolved Oxygen

Disinfection:	Chlorine/Dechlor	UV
Date	DO mg/L	DO mg/L
10/04/22		3.47
10/12/22		3.24
10/13/22		4.17
10/14/22		4.93
10/17/22		3.97
10/18/22		4.74
10/19/22		4.98
10/20/22		5.04
10/21/22		5.16
10/24/22		5.17
10/28/22		4.8
10/31/22		4
11/01/22		4.22
11/02/22		4.84
11/03/22		4.45
11/04/22		4.05
11/07/22		3.86
11/08/22		5.2
11/09/22		5.12
11/10/22		5.04
11/14/22		4.97
11/15/22		5
11/16/22		5.17
11/17/22		4.51
11/22/22		5
11/23/22		5.08
11/24/22		5.37
11/25/22		5.83
11/29/22		5.05
12/01/22		5.48
12/06/22		5.89
12/12/22		5.53
12/13/22		6.02
12/14/22		5.63
12/19/22		5.43
12/20/22		5.71
12/21/22		6.52
12/28/22		5.4
12/29/22		5.72
12/30/22		5.33
01/03/23		6.29
01/05/23		7.16
01/09/23		7.34
01/12/23		7.14
01/16/23		7.13
01/19/23		6.52
01/23/23		5.88

Minden STP Final Effluent Dissolved Oxygen

Disinfection:	Chlorine/Dechlor	UV
Date	DO mg/L	DO mg/L
01/25/23		6.17
01/26/23		6.29
01/30/23		6.42
01/31/23		7.41