pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0027006**
Facility Type	**Municipal**	APS ID	**480064**
Major / Minor	**Major**	Authorization ID	**1144225**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Borough of Tamaqua**	Facility Name	**Borough of Tamaqua WWTP**
Applicant Address	320 East Broad Street	Facility Address	Sewage Plant Road
	Tamaqua, PA 18252		Tamaqua, PA 18252
Applicant Contact	Kevin Steigerwalt	Facility Contact	Richard Baddick
Applicant Phone	(570) 668-3444	Facility Phone	(570) 668-0669
Client ID	62429	Site ID	253253
Ch 94 Load Status	Not Overloaded	Municipality	Tamaqua Borough & Walker Township
Connection Status	No Limitations	County	Schuylkill
Date Application Received	June 30, 2016	EPA Waived?	No
Date Application Accepted	July 7, 2016	If No, Reason	Major Facility

Purpose of Application: Renewal of existing NPDES permit.

Summary of Review

The applicant is requesting renewal of an NPDES permit to discharge 2.6 MGD of treated sewage to the Little Schuylkill River, a CWF/MF designated receiving stream in state water plan basin 03-A (Upper Schuylkill River). As per the Department's current existing use list, the receiving stream does not have an existing use classification that is more protective than its designated use.

A Total Maximum Daily Load (TMDL) for the Little Schuylkill River Watershed was approved by the EPA on March 27, 2007 and was later revised in February 2014. The TMDL addresses metals (Iron, Manganese, and Aluminum) and depressed pH associated with acid mine drainage (AMD) along with siltation. The TMDL load allocations apply to nonpoint sources of pollution and several point sources; there are no Waste Load Allocations (WLAs) for the WWTP. In comments on the TMDL, dated December 11, 2008, the EPA questioned whether a WLA for the WWTP is necessary in the TMDL since Iron, Manganese and Aluminum have been shown to be present in the discharge. Quarterly monitoring requirements for Total Iron, Total Manganese, and Total Aluminum were added to the previous permit to monitor these pollutants of concern.

In the table below, the last 2 years of DMR data was used to find the average pollutant concentration for the TMDL metals of concern. The TMDL Allowable Load was obtained from a location on the Little Schuylkill River approximately 0.75 miles upstream from Outfall 001 (LS11 in the TMDL document). As shown on the table, Tamaqua's contribution of metals to the Little Schuylkill River does not warrant a revision to the existing TMDL document. The analysis suggests that Tamaqua's loads are de minimus (i.e., less than one percent) compared to the allowable loads at Station LS11. The Tamaqua WWTP loads were calculated assuming a 2.6 MGD discharge. Monitoring for these parameters will remain in the permit with the required monitoring frequency adjusted from 1/quarter to 1/year.

Approve	Deny	Signatures	Date
X		*Brian Burden* Brian Burden, E.I.T. / Project Manager	January 14, 2022
X		Amy M. Bellanca (signed) Amy M. Bellanca, P.E. / Environmental Engineer Manager	1-18-22

Summary of Review

Parameter	Average Concentration (mg/L)	TMDL Allowable Load (lbs/day)	Tamaqua's Load (lbs/day)
Aluminum	0.060	229.78	1.3
Iron	0.083	451.36	1.8
Manganese	0.104	254.40	2.2

Data from upstream stream gage 01469500 (Little Schuylkill River at Tamaqua, PA) was previously used to model the discharge, resulting in a low flow yield (LFY) of 0.126 cfs/mi^2. The gage is approximately 2 miles upstream from Outfall 001. Flow data was obtained from USGS's Open-File Report 2011-1070. During the previous permit renewal, a comment letter from the applicant (dated December 19, 2008) referred to a site-specific mixing study conducted in 1997 showing that use of the low flow yield method produced erroneously low values due to the effects of deep mining on groundwater distribution in the area. The study showed the ratio of measured flow in the stream at the discharge point to flow calculated by use of gage 01469500 averaged 2.72. This ratio was applied to the $Q_{7\text{-}10}$ to obtain an estimated flow of 14.7 cfs. For this renewal, the $Q_{7\text{-}10}$ value of 14.7 cfs (LFY = 0.249 cfs/mi^2) is the most appropriate site-specific flow estimate and is used for modeling. For modeling inputs, RMI values were obtained using the "PA Historic Streams" feature of eMapPA as well as the "measure" tool. Drainage areas were delineated using USGS's StreamStats Interactive Map and elevations were obtained using the USGS's The National Map (see Watershed Information attachment).

The pH, $CBOD_5$, TSS and Fecal Coliform limits are technology-based limits carried over from the previous permit. The water quality-based summertime Ammonia-Nitrogen limitations are carried over from the previous permit. Monthly wintertime monitoring/reporting for Ammonia-Nitrogen is included in this renewal. WQM modeling (attached) did not recommend more stringent limitations.

1.0 mg/L monthly average and 2.34 mg/L IMAX limitations for Total Residual Chlorine (TRC) were included in the previously issued permit. As per PA Code 92a.47(a)(8) (which refers to PA Code 92a.48(b)(2)), a monthly average TRC facility-specific BAT effluent limit of 0.5 mg/L and an IMAX limit of 1.6 mg/L is applied to this permit renewal. The permittee will be required to meet the new technology-based limits starting one year after the effective date of the permit. The TRC Calculation Spreadsheet (attached) recommended more stringent water quality-based limitations (0.31 mg/L monthly average, 1.02 mg/L IMAX). The permittee will be required to meet the new water quality-based limits starting four years after the effective date of the permit. The permittee may conduct site-specific studies to alter the new TRC limitations (see Part C.VI). Several factors can change the recommended TRC limitations as calculated by the spreadsheet, such as the chlorine demand of stream and the chlorine demand of discharge. Default values for chlorine demand were used to develop the limitations (0.3 mg/L for stream demand, 0 mg/L for discharge demand). Partial mixing factors were obtained from Toxics Management Spreadsheet modeling.

Pollutant group sampling results submitted with the permit application were modeled with the Toxics Management Spreadsheet. Monitoring requirements were recommended for Total Copper. The highest reported Total Copper concentration was 9.5 µg/L and the most stringent WQBEL is 27.2 µg/L. Quarterly monitoring/reporting is added to the permit for Total Copper. Limitations were recommended for Total Zinc since the highest reported concentration was 122 µg/L and the most stringent WQBEL is 233 µg/L. Total Zinc limitations will come into effect 4 years after the permit effective date and is to be monitored 1/week. Until the limitations come into effect, monthly monitor/report requirements are added to the permit for Total Zinc.

Limitations were also recommended for Heptachlor since the only detectable sample result was 0.019 µg/L and the most stringent WQBEL is 0.0001 µg/L. Heptachlor is an insecticide that was banned from use by the EPA in 1988 (except to treat fire ants in underground transformers and other rare uses). The permittee was offered a chance to resample for this pollutant, however, the additional sample results submitted on July 31, 2018 utilized MDLs of 0.5 µg/L. Although the resampling results were non-detect, the use of a higher MDL offers no new information about the presence of Heptachlor in the effluent. Quarterly monitoring/reporting is added to the permit for Heptachlor. Data gathered during this permit cycle will determine whether monitoring requirements will continue or cease in future permit renewals. The permittee shall utilize the Department's target QL when analyzing Heptachlor (target QL 0.05 µg/L is found in the most current application instructions document, doc. No. 3800-PM-BCW0009a).

Summary of Review

Monitoring/reporting requirements for Bis(2-Ethylhexyl)Phthalate were recommended. The highest reported concentration was 2 µg/L and the most stringent WQBEL is 6.51 µg/L. Quarterly monitor/report requirements are included in the permit for Bis(2-Ethylhexyl)Phthalate.

Monthly monitoring/reporting is added to the permit for Total Phosphorus and Total Nitrogen to monitor nutrient concentrations and loadings. To calculate Total Nitrogen, monthly monitoring/reporting requirements for Total Kjeldahl Nitrogen and Nitrate+Nitrite as N are added to the permit.

Monthly influent monitoring for BOD_5 and TSS are added to the permit to determine if the removal percentages meet secondary treatment standards. The standard ratio of 6 BOD_5 : 5 $CBOD_5$ will be used to make that determination.

Monthly monitoring/reporting is added to the permit for E. Coli as per DEP guidance.

The monitoring frequencies for all parameters with limitations conform with the monitoring frequencies recommended in the Department's Technical Guidance for the Development and Specification of Effluent Limitations (doc. no. 362-0400-001). As per the same guidance document, all composite samples are 24-hour composite samples.

Tamaqua was required to conduct Whole Effluent Toxicity (WET) testing in the final 18 months of their previous permit cycle. As per J.R. Holtsmaster, an Aquatic Biologist Supervisor at PA DEP: "The biologist section reviewed the WET tests dated July 2015, September 2017, November 2017 and February 2018. The September, November, and February WET tests passed survival, growth and reproduction tests for the fathead minnow and the water flea. The July 2015 conducted by Eurofins QC has to be reviewed according to central office guidance." As per guidance, the permittee must complete one extra WET test in addition to the regular WET testing requirements. The extra WET test must be completed within one year of the permit effective date.

The standard Part C condition, Whole Effluent Toxicity – No Permit Limits, has been added to the permit. WET testing shall be conducted annually during the upcoming permit cycle, at a minimum. The WET Analysis spreadsheet (see attached) shows the permittee must generate chronic survival and reproduction data for *Ceriodaphnia dubia*, and chronic survival and growth data for *Pimephales promelas*. The permittee shall perform testing using the following dilution series: 5%, 11%, 21%, 61%, and 100% effluent, with a control, where 21% effluent is the facility-specific Target In-Stream Waste Concentration (TIWC).

The permit renewal application identifies one Categorical Industrial User (CIU) and two other Significant Industrial Users (SIUs) discharging to the WWTP:

- CIU, subject to 40 CFR Part 414. Gellner & Co., 105 Tide Rd., Tamaqua, PA 18252. Manufacturer of plastic pellets (plastics, synthetic resins, and non-vulcanizable elastomers). Total wastewater flows are approximately 500 gpd.

- SIU. Silberline Manufacturing Company, Inc. (two locations), 130 Lincoln Drive & 36 Progress Ave., Tamaqua, PA 18252. Supplier of aluminum pigments for coatings, inks, plastics, and cosmetic applications. Total wastewater flows are approximately 15,250 gpd.

- SIU. Transwestern Polymer, 31 Progress Ave., Tamaqua, PA 18252. Manufacturer of plastic bags (i.e. trash bags, bread bags). Total wastewater flows are approximately 6,500 gpd.

A 12/15/2021 inspection of the WWTP (DEP inspection ID No. 3295612) was conducted in response to a malodor complaint and revealed several issues at the WWTP, including:

- a strong sewage odor was present.

- The plant operator said the WWTP has been receiving batches of an unidentified toxic slug from somewhere within the collection and believed it was coming from one of the industrial users but nothing was confirmed.

- The entire treatment process turned a gray color (see Inspection Report attachment for pictures). The operator said very little bug life was present in the activated sludge when viewed through a microscope.

Summary of Review

- The source of the toxic substance was not identified.

- Tamaqua Borough WWTP staff first observed the toxic substance at the WWTP on December 2, 2021. The operator said an unusually high fecal coliform result was reported as well as a very high chlorine demand.

- Tamaqua Borough did not notify the Department of the incident causing or threatening pollution which is a violation of the NPDES permit.

DEP requested sampling results for the Pollutant Group 1 – 6 parameters in subsequent inspections as described in Part B.I.C.1 of existing NPDES permit PA0027006.

A January 11, 2022 email from the borough's consultant states:

"The Borough has taken a 4-pronged approach to addressing the issue:

1. *Source Identification*
    a. *Borough staff systematically worked upstream starting at the WWTP and inspected various manholes throughout the collection system looking for any signs of unusual discharges throughout December.*
    b. *Staff found a white material on the side walls of the troughs of some manholes and traced this up to the Rush Township connection point.*
    c. *Borough staff contacted the Rush Township Sewer Department to inform them of the on-going issues and make them aware that a slug load appeared to come from a discharger in their collection system.*
    d. *Rush Township staff visited the Tide Industrial Park (the site of most of the industrial dischargers to the collection system) and inspected manholes for signs of unusual discharge. Township staff noted a while discharge in the manhole where Gellner Industrial discharges (see attached photo).*
    e. *Borough and Township staff visited the site and talked to a representative from Gellner Industrial about their operations.*
    f. *The Borough has determined that Gellner Industrial in the Tide Industrial Park most likely discharged a slug load of raw material or waste material into the sanitary sewer system that caused the plant upset.*

2. *Source Control*
    a. *The current intermunicipal agreement between the Borough and Rush Township does not allow the Borough the ability to inspect, permit, sample, or fine any individual dischargers within Rush Township. The Township is simply considered a "bulk discharger" and billed based on total metered flow contribution to the WWTP.*
    b. *The Borough has been in discussions with the Authority's solicitor to evaluate the intermunicipal agreement and consider revisions that would allow the Borough to inspect, permit, sample, and fine non-residential dischargers in the Township.*
    c. *The Borough hopes to work with the Township to revise the intermunicipal agreement to allow greater Borough control to regulate the non-residential dischargers within the Township's collection system.*

3. *WWTP Biological Treatment Process Recovery*
    a. *The slug load disrupted the biological treatment process at the WWTP throughout December. Operators noted a decrease in the number and type of microorganisms in the MLSS under the microscope over the past month and the effluent was turbid.*
    b. *To rebuild the microorganism population, several tanker truck loads of seed sludge were brought in from the Greater Hazleton Joint Sewer Authority's WWTP. Approximately 7,000 gallons of Return Activated Sludge (at 1% TS) was introduced to the system last week and the Borough has plans to bring in another 7,000 gallons of additional seed sludge this week.*
    c. *The microlife appears to be recovering and plant operators have noted that the MLSS concentration are slowly increasing (from about 1,500 mg/L last week to 1,800 mg/L this week). Operators are seeing more microorganisms under the microscope as well.*

4. *Final Effluent Monitoring*
    a. *As requested by DEP, the Borough is collecting sets of final effluent sampling for analysis of Pollutant Groups 1 through 6. The first set was collected the week of 12/27 and the second set was collected last week."*

Summary of Review

A Notice of Violation was sent to the permittee via email on January 12, 2022 that addresses the toxic slug issue and several other issues at the WWTP (attached).

There were 12 permitted combined sewer overflow (CSO) regulators and outfalls in the WWTP collection system during the previous permit renewal. As per the latest CSO Status Report, CSO Regulator 015 (Columbia St. & East End Ave.) was permanently sealed in September 2016. Outfall 015 is removed from the permit and there are now 11 active CSO outfalls.

To attain water quality standards within the CSO receiving streams, Tamaqua has chosen the presumptive approach as defined in EPA's CSO Control Policy. Under the presumptive approach, Tamaqua would be required to implement CSO controls that meet one of the following three criteria:

a.) No more than an average of four overflow events per year;

b.) The elimination or the capture for treatment of no less than eighty-five percent by volume of the combined sewage collected in the CSS during precipitation events on a system-wide annual average basis; or

c.) The elimination or removal of no less than the mass of the pollutants identified as causing water quality impairment through the sewer system characterization, monitoring, and modeling effort for the volumes that would be eliminated or captured for treatment under presumptive criteria b. above.

Upon completing implementation of the LTCP, Tamaqua has chosen to achieve the performance standard of no more than an average of four overflow events per year.

The previously issued permit contained the following CSO-related milestones:

- **By December 31, 2012:** Develop sewer index map of Tamaqua combined sewer system identifying catch basins and stormwater inlets connected to the combined system.
- **By December 31, 2013:** Install monitoring devices on all active CSO Outfalls to measure the time and duration of overflow events, except Outfall Regulator No. 003.
- **By December 31, 2013:** Evaluate data collected from preceding tasks to determine if any CSOs can be permanently closed without causing system flooding.
- **By June 30, 2014:** Adjust CSO Regulators based on findings of data evaluation.
- **Within 180 days of PennDOT's completion of its Route 309 Center Street Bridge Replacement Project:** Install monitoring device on CSO Outfall Regulator No. 003 to measure the time and duration of overflow events.
- **By December 31, 2014:** Submit updated LTCP to PA DEP.

As per the most recent CSO Status report, all the above milestones have been completed. The updated 2014 LTCP includes goals to be met over a 25-year timetable. The timetable takes into consideration the borough's calculated financial status as "high burden". Within the short-term goals of the LTCP, the borough plans to make improvements to the WWTP and to some CSO regulators to increase flows through the WWTP during wet weather events. Implementation of a downspout disconnection program is also included as a short-term goal. Long-term goals of the plan include continuous monitoring of the system as well as sewer separation and green infrastructure projects.

For improvements to the WWTP, the borough plans to utilize two unused 233,000-gallon aeration basins to convert to on-site storage tanks. Currently, there are four unused aeration basins at the WWTP. Captured combined wastewater would then be pumped to secondary treatment after the downstream processes can hydraulically manage the flow. Additional grit handling facilities may be required as well and other in-kind replacements due to the age of existing equipment. A Water Quality Management permit application shall be submitted to the Department before undertaking these projects.

Summary of Review

Improvements to the CSO regulators, including potential adjustments to the drop pipes and weir plates, are also discussed for implementation in the initial phase of the LTCP. After the WWTP and CSO regulator improvements, continuous monitoring will help determine more appropriate locations for potential sewer separation and green infrastructure projects.

DEP review of the permittee's LTCP revealed the following information:

- Some areas in the collection system are separated sanitary sewer. The locations of the dedicated sanitary sewers are not well documented. Field smoke tests were proposed in the LTCP to determine the extent of the combined and separated systems.

- Several CSO regulators are equipped with flow meters that record the duration of overflow and the overflow volume, but the measurements are inconsistent and of unknown accuracy. Borough staff manually inspect the CSO chambers and record the number of CSO events.

- The LTCP includes the implementation schedule pictured below. If 2015 is considered Year 1 then 2022 is considered Year 8 on the implementation schedule.

TABLE 7. PROJECT IMPLEMENTATION SCHEDULE

	Year Of Program																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
WWTP Improvements																									
CSO Regulator Improvements																									
Implement Downspout Disconnection Program																									
Monitoring																									
Develop a Sewer Separation and Green Infrastructure Plan																									
Sewer Separation and Green Infrastructure																									

Recent inspections conducted by DEP found the following:

- It couldn't be confirmed in all CSO outfalls had signs to notify the public of their presence. Signs are required to be placed at all CSO outfalls to notify the public of their potential health effects.

- Only using 2 of 6 aeration tanks and 2 of 3 secondary clarifiers were being utilized. It was recommended the facility should investigate using all treatment units during wet weather events to reduce bypassing/CSO discharge and maximize flow through the treatment plant.

- The North Secondary Digestor was offline and inoperable which is an operation and maintenance violation of the NPDES Permit.

- Facility does not keep a daily operations log, maintenance log or repair log. Department recommended on several occasions keeping a daily operations log to record visual observations of the treatment plant, process control adjustments and problems/concerns. It was also recommended to keep written records of maintenance and repair activities.

- 24-hour composite samples for compliance purposes are still being collected manually. The facility manually grabs samples every 3 hours during the 4am to 11pm staffing shifts and combines them into a composite sample. The Department has recommended acquiring an automatic composite sampler that is flow paced to be used for compliance samples on several occasions.

- It was noted during an inspection by the two WWTP operators that Tamaqua Borough is no longer implementing their street sweeping program which is causing an excessive build-up of grit in the catch basins, collection system and headworks of the wastewater treatment plant. This is in violation the Part C permit requirement for "Continued Implementation of Technology Based Nine Minimum Controls".

Summary of Review

After review of the 2014 LTCP, CSO annual status reports, inspection reports and other materials, the following LTCP implementation milestones are included in Part C.III:

- **Within 6 months of the permit effective date:** Repair any defective CSO discharge monitoring devices and/or install tethered wooden blocks or other floats atop the overflow weirs in each CSO regulator to measure discharge occurrences. Other simple flow detection methods can be utilized, such as: chalk board, chalk spray, bottle boards. A CSO discharge monitoring program shall be submitted to DEP as well as a plan for controlling solid/floatable materials from entering the receiving stream.

- **Within 12 months of the permit effective date:** Submit to DEP a written street sweeping and sewer system solids removal program. Records of work and the amount of debris removed shall be included in the Municipal Wasteload Management Reports and kept on site. A High Flow Management Plan shall be completed and submitted to DEP.

- **Within 18 months of the permit effective date:** Submit to DEP a written downspout disconnection program. Upon initiation of the program, results shall be documented in the borough's annual Municipal Wasteload Management Reports and kept on site.

- **Within 24 months of the permit effective date:** Submit to DEP a written program for encouraging the use of green infrastructure in the borough. Upon initiation of the program, results shall be documented in the borough's annual Municipal Wasteload Management Reports and kept on site.

- **Within 30 months of the permit effective date:** Submit to DEP a Water Quality Management (WQM) permit application for the conversion of the two existing unused aeration tanks. The application shall include any planned modifications to the grit handling facilities or any other facilities. If the permittee decides not to convert the two existing unused aeration tanks for the purpose of storing excess influent, then an alternative plan for any unused tanks shall be submitted to the Department.

- **Within 36 months of the permit effective date:** Adjust the drop pipes and weir plates in the applicable CSO regulators. All work done on the CSO regulators shall be documented in the borough's annual Municipal Wasteload Management Reports and kept on site.

- **Within 42 months of the permit effective date:** Complete investigation of separate and combined sewer systems. Submit complete sewer system infrastructure mapping to DEP.

- **Within 48 months of the permit effective date:** Submit a CSO project feasibility study to DEP. Potential projects for helping reduce the number of CSO activations include: sewer separation, green infrastructure, additional onsite/offsite storage tanks and additional treatment facilities. The study should include any grant, loan, bond, or other funding opportunities available to the permittee.

- **Within 54 months of the permit effective date:** Submit updated LTCP to DEP that details progress made implementing the plan.

- **By December 31, 2042:** Long Term Control Plan final compliance.

The LTCP goes into some detail about changes in WWTP operation during wet weather events. To ensure detailed documentation of the wet weather protocols, the standard Part C condition requiring the development of a High Flow Management Plan (HFMP) is added to the permit (see Part C.I.E.). The HFMP shall contain a process for treating the maximum amount of flow through the plant while protecting the components of the treatment plant and minimizing the potential impact to the receiving stream. The HFMP shall be submitted to DEP within one year of the effective date of this permit for DEP review. Thereafter, the HFMP shall be reviewed and updated as part of each NPDES permit renewal application.

The borough's LTCP states: "To confirm the hydraulic restriction reported by the WWTP personnel, a hydraulic model was created. The model was used to determine the headloss through the treatment system in order to locate areas of hydraulic restraint. The model was analyzed under different operating conditions with various units out of service and was field verified by measuring the water level at a few weir locations after a wet weather event. The model provided evidence that with all

Summary of Review

units in service the WWTP can hydraulically manage 7.8 mgd without overtopping any concrete tank walls. However, with only two (2) aeration tanks in service and all primary clarifiers in service, the hydraulic capacity is reduced to approximately **3.8 mgd**."

Part C.II (Maximizing Treatment at the Existing POTW) is added to the permit and states the following:

> "A CSO-related bypass of the secondary treatment portion of the POTW treatment plant is authorized only when (1) the permittee is implementing Nine Minimum Controls and a Long Term Control Plan and the bypass is part of the operational plan for implementing Nine Minimum Controls and the Long Term Control Plan, (2) it is in accordance with the provision of 40 CFR 122.41 (m) and (3) the flow rate to the POTW treatment plant, as a result of a precipitation or snow-melt events, exceeds **3.8 MGD**. Bypasses that occur when the flow at the time of the bypass is less than the above specified flow rate are not authorized under this condition.
>
> In the event of a CSO-related bypass authorized under this condition, the permittee shall minimize the discharge of pollutants to the receiving water. At a minimum, the CSO-related bypass flows must receive primary clarification, solids and floatables removal, and disinfection. The bypass may not cause the effluent from the POTW either to exceed the effluent limits contained in its permit or to cause or contribute to a violation of water quality standards. The permittee shall report any substantial changes in the volume or character of pollutants being introduced into the POTW or that may be present in the CSO-related bypass. Authorization of CSO-related bypasses under this provision may be modified or terminated when there is a substantial change in the volume or character of pollutants being introduced to the POTW or in the bypassed flow. The permittee shall provide notice to the permitting authority of bypasses authorized under this condition within 24 hours of occurrence of the bypass."

There are no current or projected overloads at the treatment plant. No antidegradation analysis is required since the watershed is not high quality or exceptional value. None of the existing effluent limitations have been made less stringent, therefore, the antibacksliding requirement has been met. No stormwater outfalls were identified in the permit application.

DRBC Docket No. D-90-60 CP was issued for this facility on January 16, 1991 (attached). The docket refers to NPDES limitations that were included in the DER permit issued on March 5, 1990. The limitations had been modified due to results from the mixing study performed in 1997. This docket was not viewable on DRBC's interactive docket holder map.

The previously issued permit expired on December 31, 2016 and the application for permit renewal was submitted on time. There are nineteen open WPC NPDES violations for this client that could warrant withholding the issuance of this permit (see attached).

DMR review over the past two years revealed the following limitation violation:

- November 2020: Fecal Coliform – 35,000 No./100mL IMAX (limitation was 10,000 No./100mL)

As per the most recently submitted Sewage Sludge / Biosolids Production and Disposal supplemental DMR form (for November 2021), dewatered biosolids are hauled to Commonwealth Environmental Landfill by Waste Management.

The WWTP, Outfall 001 and Outfall 014 are located in Walker Township and the rest of the CSO outfalls are located in Tamaqua Borough.

Note: The Toxics Management Spreadsheet suggests establishing limitations for the non-detect 2,3,7,8-TCDD when using the QL of 0.5 µg/L as the pollutant concentration. The most stringent WQBEL derived from modeling is 0.0001 µg/L. Since the permittee's laboratory met every other current target QL for the Pollutant Group parameters submitted with the permit application back in 2016, re-testing of this parameter will not be required at this time and the parameter is not considered to be present in the discharge.

Summary of Review

Watershed Information.pdf
WQM Modeling 1.pdf
WQM Modeling 2.pdf
WQM Modeling 3.pdf
WQM Modeling 4.pdf
WQM Modeling 5.pdf
WQM Modeling 6.pdf
TMS PA0027006.pdf
WET Spreadsheet.pdf
TRC Calculation.pdf
Tamaqua 2014 LTCP.pdf
Tamaqua Borough NOV.pdf
DRBC Docket.pdf

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	2.6
Latitude	40º 47' 2"	Longitude	-75º 57' 48"
Quad Name	Tamaqua	Quad Code	1238
Wastewater Description:	Sewage Effluent		

Receiving Waters	Little Schuylkill River (CWF/MF)	Stream Code	2202
NHD Com ID	25998346	RMI	21.85
Drainage Area	59 mi^2	Yield (cfs/mi^2)	0.249
Q_{7-10} Flow (cfs)	14.7	Q_{7-10} Basis	Site-specific study
Elevation (ft)	753	Slope (ft/ft)	0.0043
Watershed No.	3-A	Chapter 93 Class.	CWF/MF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired		
Cause(s) of Impairment	Flow Regime Modification, Habitat Alterations, Metals, pH, Siltation, Total Suspended Solids		
Source(s) of Impairment	Acid Mine Drainage, Channelization, Dam or Impoundment, Urban Runoff / Storm Sewers		
TMDL Status	Final	Name	Little Schuylkill River

Background/Ambient Data		Data Source
pH (SU)	-	-
Temperature (°F)	-	-
Hardness (mg/L)	-	-
Other:	-	-

Nearest Downstream Public Water Supply Intake	Pottstown Borough Water Authority		
PWS Waters	Schuylkill River	Flow at Intake (cfs)	261 (using same LFY)
PWS RMI	57	Distance from Outfall (mi)	~67

Treatment Facility Summary

Treatment Facility Name: Borough of Tamaqua WWTP

WQM Permit No.	Issuance Date
5496403	July 1996

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Design Flow (MGD)
Sewage	Secondary	Activated Sludge	Gas Chlorine	2.43

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
2.6	2,724	Not Overloaded	Anaerobic Digestion	Landfill

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 2.6
Latitude 40º 47' 2" **Longitude** -75º 57' 48"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25.0	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40.0	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
	50.0	IMAX	-	-
Total Suspended Solids	30.0	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45.0	Average Weekly	133.102(b)(2)	92a.47(a)(2)
	60.0	IMAX	-	-
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)
	1.6	IMAX	-	-

Comments: The TRC limitations above come into effect 1 year after the permit effective date.

Water Quality-Based Limitations

The following limitations were determined through water quality modeling (output files attached):

Parameter	Limit (mg/l)	SBC	Model
Ammonia-Nitrogen (5/1 – 10/31)	10.7	Average Monthly	Previous Modeling
	21.5	IMAX	
Total Residual Chlorine	0.31	Average Monthly	2022 TRC Calculation Spreadsheet
	1.02	IMAX	
Total Zinc	0.23	Average Monthly	2022 TMS
	0.36	Daily Maximum	

Comments: The TRC and Total Zinc limitations above come into effect 4 years after the permit effective date.

Whole Effluent Toxicity (WET)

For Outfall 001, ☐ **Acute** ☒ **Chronic** WET Testing was completed:

☒ For the permit renewal application (4 tests).
☐ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☐ Other:

The dilution series used for the tests was: 100%, 61%, 21%, 11%, and 5%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 21%.

Summary of Four Most Recent Test Results

TST Data Analysis

Test Date	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
February 2018	Pass	Pass	Pass	Pass
November 2017	Pass	Pass	Pass	Pass
September 2017	Pass	Pass	Pass	Pass
July 2015	Eurofins QC	Eurofins QC	Eurofins QC	Eurofins QC

***** *A "passing" result is that in which the replicate data for the TIWC is not statistically significant from the control condition. This is exhibited when the calculated t value ("T-Test Result") is greater than the critical t value. A "failing" result is exhibited when the calculated t value ("T-Test Result") is less than the critical t value.*

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).*

☐ **YES** ☒ **NO**

Evaluation of Test Type, IWC and Dilution Series for Renewed Permit

Acute Partial Mix Factor (PMFa): **0.572** Chronic Partial Mix Factor (PMFc): **1.0**

1. Determine IWC – Acute (IWCa):

$(Q_d \times 1.547) / ((Q_{7\text{-}10} \times PMFa) + (Q_d \times 1.547))$

[(2.6 MGD x 1.547) / ((14.7 cfs x 0.572) + (2.6 MGD x 1.547))] x 100 = **32%**

Is IWCa < 1%? ☐ **YES** ☒ **NO**

If the discharge is to the tidal portion of the Delaware River, indicate how the type of test was determined: **N/A**

Type of Test for Permit Renewal: **Chronic**

2b. Determine Target IWCc (If Chronic Tests Required)

$(Q_d \times 1.547) / (Q_{7\text{-}10} \times PMFc) + (Q_d \times 1.547)$

[(2.6 MGD x 1.547) / ((14.7 cfs x 1) + (2.6 MGD x 1.547))] x 100 = **21%**

3. Determine Dilution Series

(NOTE – check Attachment C of WET SOP for dilution series based on TIWCa or TIWCc, whichever applies).

Dilution Series = 100%, 61%, 21%, 11%, and 5%.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

Will WET limits be established in the permit? ☐ YES ☒ NO