pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0061034**
Facility Type	**Municipal**	APS ID	**508381**
Major / Minor	**Minor**	Authorization ID	**1108116**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Waverly Township**	Facility Name	**Waverly Township WWTP**
Applicant Address	P.O. Box 8	Facility Address	Lake Henry Drive
	Waverly, PA 18471-0008		Waverly, PA 18471
Applicant Contact	Ronald Whitaker	Facility Contact	Thomas James
Applicant Phone	(570) 586-0111	Facility Phone	(570) 586-9579
Client ID	87532	Site ID	250886
Ch 94 Load Status	See below	Municipality	Waverly Township
Connection Status	No prohibitions	County	Lackawanna
Date Application Received	February 16, 2016	EPA Waived?	No
Date Application Accepted	February 16, 2016	If No, Reason	Significant CB Discharge

Purpose of Application: Renewal of existing NPDES permit.

Summary of Review

The applicant is requesting renewal of an NPDES permit to discharge 0.5 MGD of treated sewage to Tributary 28835 to Ackerly Creek, a CWF/MF designated receiving stream in state water plan basin 04-F (Tunkhannock Creek). 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. The receiving stream is not considered a naturally reproducing wild trout stream as per the PA Fish and Boat Commission.

Data from stream gage 01534000 (Tunkhannock Creek at Tunkhannock, PA) was used to model the discharge in previous modeling, resulting in a low flow yield (LFY) of 0.041 cfs/mi^2. There are large differences between the basin tributary to gage 01534000 and the basin tributary to Outfall 001 (e.g., 383 mi^2 drainage area vs. 0.53 mi^2 drainage area). Since no other nearby gages appear to be representative of the conditions at Outfall 001, it was decided to utilize the default LFY of 0.1 cfs/mi^2 to model the discharge.

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 elevation profile feature of StreamStats (see Watershed Information attachment).

Limitations for pH and Fecal Coliform are carried over from the previous permit. More stringent limitations were recommended for Ammonia-Nitrogen (see WQM Modeling attachment) during the summertime months (1.5 mg/L monthly average, 3.0 mg/L IMAX). The standard 3x multiplier was used to develop new wintertime limitations (4.5 mg/L monthly average, 9.0 mg/L IMAX). The updated Ammonia-Nitrogen limitations will come into effect 4 years after the permit effective date.

The design discharge-to-streamflow ratio at Outfall 001 is approximately 0.5 MGD : 0.053 cfs (0.034 MGD) or approximately 14.5 parts discharge to 1 part streamflow using the default LFY of 0.1 cfs/mi^2. Since Tributary 28835 is listed as impaired for

Approve	Deny	Signatures	Date
X		/s/ Brian Burden, E.I.T. / Project Manager	December 14, 2018
X		/s/ Amy M. Bellanca, P.E. / Environmental Engineer Manager	December 14, 2018

Summary of Review

suspended solids (from this municipal point source) as well as organic enrichment / low DO (also from this municipal point source) as per the 2014 PA Integrated Water Quality Monitoring and Assessment Report, the standards in the Department's *Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers* (doc. no. 391-2000-014) for $CBOD_5$ and TSS is incorporated in this permit renewal. $CBOD_5$ and TSS monthly average limitations are reduced to 10 mg/L for both parameters. The weekly average and IMAX limitations are calculated as per guidelines in document 362-0400-001 (1.5x average weekly multiplier and 2.0x IMAX multiplier). Over the past 2 years, the highest reported average monthly concentrations for both $CBOD_5$ and TSS were 9 mg/L and 22 mg/L. Monthly and weekly mass loading limitations are included in the permit for $CBOD_5$ and TSS. The new $CBOD_5$ and TSS limitations will come into effect 4 years after the permit effective date.

The TRC Calculation spreadsheet (see attached) recommended a lower monthly average limitation of 0.02 mg/L and a lower IMAX limitation of 0.06 mg/L. Since 0.02 mg/L is the target QL for TRC, Part C special condition "TRC Limitation at Quantitation Limit" is added to the permit. This condition requires the permittee to analyze TRC concentrations using sufficiently sensitive test methods. These water quality-based limitations will come into effect four years after the permit effective date. The permittee may conduct site-specific studies to alter the new TRC limitations (see Part C.IV). Several factors can change the recommended TRC limitations as calculated by the spreadsheet, such as: chlorine demand of stream, chlorine demand of discharge, and stream flow. Default values for chlorine demand were used to develop the limitations (0.3 mg/L for stream demand, 0 mg/L for discharge demand). The stream flow value was determined by multiplying the drainage area (delineated using USGS's StreamStats) by the default LFY of 0.1 cfs/mi^2.

In addition to the water quality-based TRC limitations, PA Code 92a.48(b)(2), which is referred to by PA Code 92a.47(a)(8), requires dischargers to meet a 0.5 mg/L monthly average limitation for TRC. This technology-based requirement (and a 1.6 mg/L IMAX) will come into effect one year after the permit effective date and will continue until the water quality-based TRC limitations come into effect.

To quantify nutrient reduction needs, maximum nutrient loads (cap loads) for each major watershed tributary to the Chesapeake Bay were established. This included allocation of cap loads for Total Nitrogen (TN) and Total Phosphorus (TP) in Pennsylvania for the Potomac and Susquehanna watersheds. Pennsylvania's overall cap loads for TN and TP were further divided into cap loads for point and non-point sources. The method used to allocate the point source portion of the load was developed after DEP conducted an extensive stakeholder process with sewage treatment plants in 2006. The workgroup recommendation made the allocations based on the design annual average daily flow, and concentrations of 6 mg/L TN and 0.8 mg/L TP. Based on this methodology, the allocations for TN and TP for this facility are 9,132 lbs/yr and 1,218 lbs/yr, respectively. The Waverly Township WWTP is considered a Phase 3 facility in the Department's *Phase 2 Watershed Implementation Plan Wastewater Supplement (revised 10/25/2018)*. Part C condition "Chesapeake Bay Nutrient Requirements" is included in the permit.

As per the most recently submitted Chapter 94 report (received March 29, 2018), organic overloads occurred in January 2016 and June 2017. The following explanation was provided to justify the latest exceedance: "The computer-generated indication of an existing organic overload is misleading. It arises from one influent BOD grab sample in 2017. One June 19, 2017, an influent grab sample for BOD resulted in a concentration of 682 mg/L. In a stable residential community these results are due to the variability to be expected with grab sampling and are not indicative of an organic overload condition. Replacing the June 2017 loading with the highest annual average of 247 lbs/day over the past 4 years, no projected overloads exist."

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. The monthly influent sampling will also provide more accurate organic loading numbers for Chapter 94 reporting.

The monitoring frequencies for all parameters with effluent limitations conform with the monitoring frequencies recommended in Table 6-3 of the Department's Technical Guidance for the Development and Specification of Effluent Limitations (doc. no. 362-0400-001).

The most recently submitted Sewage Sludge / Biosolids Production Information supplemental DMR form (submitted 10/26/2018) indicates that sludge is usually hauled to Wyoming Valley Sanitary Authority's WWTP in Hanover, PA via Koberlein Incorporated. However, on 9/13/2018, the sludge was hauled to Greater Hazleton Joint Sewer Authority's WWTP in West Hazleton, PA via Koberlein Incorporated.

Summary of Review

The following list summarizes DMR exceedances over the past 2 years:

- September 2018: Ammonia-Nitrogen 6.3 mg/L monthly average (limitation is 4.0 mg/L)
- September 2018: Ammonia-Nitrogen 42.1 lbs/day monthly average (limitation is 16.7 lbs/day)
- August 2018: Ammonia-Nitrogen 11.5 mg/L monthly average (limitation is 4.0 mg/L)
- August 2018: Ammonia-Nitrogen 56.2 lbs/day monthly average (limitation is 16.7 lbs/day)
- July 2018: Fecal Coliform 1299.7 CFU/100mL IMAX (limitation is 1000 CFU/100mL)
- February 2018: Total Suspended Solids 68 mg/L weekly average (limitation is 45 mg/L)
- January 2018: Ammonia-Nitrogen 13.5 mg/L monthly average (limitation is 12.0 mg/L)

The previously issued permit expired on July 31, 2016 and the application for permit renewal was not submitted on time. There are no open violations for this client that would warrant withholding the issuance of this permit. None of the existing effluent limitations have been made less stringent, therefore, the antibacksliding requirement has been met.


WQM Modeling.pdf


TRC Calculation.pdf


Watershed Information.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)	0.5
Latitude	41º 31' 49"	Longitude	-75º 42' 38"
Quad Name	Dalton	Quad Code	0640
Wastewater Description:	Sewage Effluent		

Receiving Waters	Tributary 28835 to Ackerly Creek	Stream Code	28835
NHD Com ID	66405861	RMI	1.6
Drainage Area	0.53 mi^2	Yield (cfs/mi^2)	0.1
Q_{7-10} Flow (cfs)	0.053	Q_{7-10} Basis	Default LFY
Elevation (ft)	1127	Slope (ft/ft)	0.02
Watershed No.	4-F	Chapter 93 Class.	CWF/MF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired		
Cause(s) of Impairment	Organic Enrichment / Low D.O., Suspended Solids, Metals		
Source(s) of Impairment	Municipal Point Source, Urban Runoff/Storm Sewers		
TMDL Status	-	Name	-

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

Nearest Downstream Public Water Supply Intake	Danville Municipal Water Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	1123
PWS RMI	122.5	Distance from Outfall (mi)	~100

Treatment Facility Summary

Treatment Facility Name: Waverly Township WWTP

WQM Permit No.	Issuance Date
3584403	1984

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Lagoons + Amphidrome filters	Sodium Hypochlorite	0.203 (2015)

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.5	507	See above (page 2)	Settled	Hauled to other WWTPs

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.5
Latitude 41º 31' 49" **Longitude** -75º 42' 38"
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: Technology-based limitations for $CBOD_5$ and TSS (above) will be in effect from the permit effective until 4 years after the permit effective date. The technology-based limitations for TRC (above) will be in effect 1 year after the permit effective date until 4 years after the permit effective date.

Water Quality-Based Limitations

The following limitations were determined through water quality modeling:

Parameter	Limit (mg/l)	SBC	Model / Basis
$CBOD_5$	10.0	Average Monthly	Guidance document 391-2000-014
	15.0	Average Weekly	
	20.0	IMAX	
Total Suspended Solids	10.0	Average Monthly	Guidance document 391-2000-014
	15.0	Average Weekly	
	20.0	IMAX	
Ammonia-Nitrogen (5/1 – 10/31)	1.5	Average Monthly	2018 WQM 7.0 Modeling
	3.0	IMAX	
Ammonia-Nitrogen (11/1 – 4/30)	4.5	Average Monthly	2018 WQM 7.0 Modeling
	9.0	IMAX	
Dissolved Oxygen	6.0	Minimum	Previous Modeling
Total Residual Chlorine	0.02	Average Monthly	2018 TRC Calculation Spreadsheet
	0.06	IMAX	
Net Total Nitrogen (lbs)	9,132	Total Annual	Chesapeake Bay TMDL
Net Total Phosphorus (lbs)	1,218	Total Annual	Chesapeake Bay TMDL

Comments: Mass limitations for $CBOD_5$, TSS and Ammonia-Nitrogen are based on the design flow of 0.5 MGD.