pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0038865**
Facility Type	**Municipal**	APS ID	**1012712**
Major / Minor	**Minor**	Authorization ID	**1307797**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Zerbe Township Municipal Authority**	Facility Name	**Zerbe Township Wastewater Treatment Plant**
Applicant Address	800 Mahanoy Street Trevorton, PA 17881-1106	Facility Address	1350 Susquehanna Street Trevorton, PA 17881
Applicant Contact	Michael Schwartz	Facility Contact	Ed Reed
Applicant Phone	(570) 797-1974	Facility Phone	(570) 797-1974
Client ID	78932	Site ID	255403
Ch 94 Load Status	Not Overloaded	Municipality	Zerbe Township
Connection Status	No Limitations	County	Northumberland
Date Application Received	March 4, 2020	EPA Waived?	No
Date Application Accepted	March 10, 2020	If No, Reason	Significant CB Discharge
Purpose of Application	Renewal of an existing NPDES permit for the discharge of treated sewage.		

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.

Approve	Deny	Signatures	Date
X		*Derek S. Garner* Derek S. Garner / Project Manager	10/22/2020
X		*Nicholas W. Hartranft* Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	10/22/2020

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.5
Latitude	40º 47' 44.19"	Longitude	-76º 41' 19.09"
Quad Name	Trevorton	Quad Code	1232
Wastewater Description:	Sewage Effluent		
Receiving Waters	Zerbe Run	Stream Code	17639
NHD Com ID	54963747	RMI	6.55
Drainage Area	8.25	Yield (cfs/mi^2)	0.061
Q_{7-10} Flow (cfs)	0.5	Q_{7-10} Basis	Streamgage No. 1555500
Elevation (ft)	710	Slope (ft/ft)	n/a
Watershed No.	6-B	Chapter 93 Class.	CWF, MF
Existing Use	n/a	Existing Use Qualifier	n/a
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, pH		
Source(s) of Impairment	Abandoned mine drainage		
TMDL Status	Final	Name	Mahanoy Creek TMDL

Nearest Downstream Public Water Supply Intake	SUEZ Water		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	2,610
PWS RMI	76.73	Distance from Outfall (mi)	50

Treatment Facility Summary

The Zerbe Township Wastewater Treatment Plant ("WWTP"), WQM Permit No. 4911401 issued 5/15/12, is a sequencing batch reactor ("SBR") plant with a hydraulic design capacity of 0.5 MGD and an organic capacity of 751 lbs/day. Treatment at the facility consists of:

- One (1) micro-screen w/ manual bar screen overflow
- Two (2) 266,048-gal SBRs
- One (1) open channel UV disinfection system
- Two (2) sludge processing tanks (43,700-gal holding tank, 69,700-gal aerobic digester)
  - Sludge is either hauled to the Lycoming County Landfill or the Ralpho Township Municipal Authority Wastewater Treatment Plant (NPDES Permit No. PA0028738).

Disinfected effluent is ultimately discharged via Outfall 001 to Zerbe Run.

Compliance History

The facility was most recently administratively inspected by DEP on March 20, 2020. No operational issues were reported.

One effluent violation, below, occurred during the existing permit's term:

Monitoring Period Begin Date	Monitoring Period End Date	Non-Compliance Category	Parameter	Sample Value	Violation Condition	Permit Value	Unit	SBC
6/1/2017	6/30/2017	Conc. 3 Effluent Violation	Fecal Coliform	> 2420	>	1000	No./100 ml	IMAX

Since there does not appear to be a chronic problem meeting the permit's effluent limits, the above violation will not impact how effluent limits are developed during this renewal.

There are no open violations associated with the permittee.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.5
Latitude 40º 46' 54.71" **Longitude** -76º 41' 20.38"
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	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
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)
Fecal Coliform (5/1 – 9/30)	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)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)

Water Quality-Based Limitations

Historically, water quality-based effluent limits were not applied to the discharge at Zerbe Run in accordance with 25 Pa. Code § 95.5(a)(1), which states that sewage discharges to waters impaired by abandoned mine drainage ("AMD") so that water quality criteria are not being met and designated water uses are not being achieved to the extent that aquatic communities are essentially excluded must only treat to secondary technology standards. Instead, a point of first use was designated downstream at the confluence of Zerbe Run and Mahanoy Creek.

A TMDL for the Mahanoy Creek watershed, which includes Zerbe Run, was finalized on March 13, 2007. The purpose of the TMDL is to address the watershed's impairment caused by AMD. When a TMDL is in place, it can be reasonably assumed that water quality throughout the watershed will significantly improve. Under this assumption, in accordance with § 95.5(b)(1) and (2), DEP no longer believes the application of § 95.5(a)(1) is appropriate. Additionally, the TMDL states, p. 4, that sewage in the watershed is contributing to impairments but is generally being masked by the AMD. Accordingly, water quality-based effluent limits, if applicable, will be applied at Outfall 001 on Zerbe Run.

The applicability of WQBELs was evaluated using DEP's WQM 7.0 v1.0b and the Toxics Management Spreadsheet ("TSM"). WQM 7.0 is a multiple source discharge model that is used to determine NPDES effluent limits for ammonia-nitrogen, CBOD5, and dissolved oxygen, if applicable. The TMS is a single discharge model that is used to determine NPDES effluent limits and monitoring requirements for toxics, if applicable. All model input/output data and supporting documentation is attached.

Reaches were created in WQM 7.0 along Zerbe Run starting at Outfall 001 until a recovery in dissolved oxygen was observed. Discharge concentration input values of 25 mg/l were used for CBOD5 and ammonia-n, and a discharge concentration of 3 mg/l was assumed for dissolved oxygen.

Parameter	Effluent Limit (mg/l)		
	Average Monthly	Maximum	Minimum
CBOD5	12.94	-	-
Ammonia-nitrogen	3.56	7.12	-
Dissolved Oxygen	-	-	5

Based on the above model output, WQBELs for CBOD5, ammonia-n, and dissolved oxygen are appropriate. Since these are newly proposed limits, DEP evaluated whether a compliance schedule would be necessary to avoid immediate noncompliance. A review of eDMR data indicates that during the existing permit's term, there would have been zero CBOD5 or ammonia-n exceedances. Accordingly, a compliance schedule is not necessary.

For the TMS, input concentrations were taken from sample results included with the renewal application. The TMS output results are as follows:

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Chloride (PWS)	Report	Report	Report	Report	Report	mg/L	N/A	N/A	Discharge Conc > 10% WQBEL (no RP) (1)
Sulfate (PWS)	Report	Report	Report	Report	Report	mg/L	N/A	N/A	Discharge Conc > 10% WQBEL (no RP) (1)
Total Copper	0.062	0.096	14.8	23.1	37.0	µg/L	14.8	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	127	AFC	Discharge Conc > 10% WQBEL (no RP)

(1) There is no public water supply on Zerbe Run; therefore, PWS criterion is not applicable.

TMDL Impairment

The fact sheet developed for the most recent renewal, dated April 2015, summarizes two years' worth of effluent sample results for aluminum, iron, and manganese to address the watershed's impairment from AMD. The fact sheet concluded that since all sample results were below Chapter 93 criteria, there is no reasonable potential to exceed water quality criteria and further monitoring or limits are not necessary.

Best Professional Judgment (BPJ) Limitations

Raw sewage influent monitoring for BOD5 and TSS is proposed to remain in the permit to continue to help with Chapter 94 reporting.

Chesapeake Bay

The Wastewater Supplement to Phase 3 of Pennsylvania's Chesapeake Bay Watershed Implementation Plan ("WIP") identifies the Zerbe Township WWTP as a Phase 3 facility with cap loads of 7,306 lbs/year of total nitrogen and 974 lbs/year of total phosphorus. These cap loads were established in the most recent renewal of the permit. Since there has not been any changes to the WIP or the facility to warrant changes to the existing Chesapeake Bay requirements, the existing requirements will remain in the permit.

Anti-Backsliding

No limits are proposed to be made less stringent than the existing permit. Anti-backsliding is not applicable.

Existing Effluent Limitations and Monitoring Requirements

The existing effluent limitations and monitoring requirements are as follows:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	Report	XXX	XXX	XXX	1/day	Grab
CBOD5	104	166	XXX	25	40 Wkly Avg	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids	125	187	XXX	30	45	60	1/week	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
Ammonia-Nitrogen	XXX	XXX	XXX	Report	Report	XXX	2/week	8-Hr Composite
UV Dosage (mjoules/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Grab

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	100	150	XXX	24.0	36.0	48	1/week	8-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	50	75	XXX	12.0	18.0	24	1/week	8-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids	125	185	XXX	30.0	45.0	60	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	43	65	XXX	10.5	15.6	21.3	2/week	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	14	21	XXX	3.5	5.2	7.1	2/week	8-Hr Composite

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/week	8-Hr Composite
Copper, Total (ug/L)	0.062	0.096 Daily Max	XXX	14.8	23.1 Daily Max	37	1/week	8-Hr Composite
Zinc, Total (ug/L)	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/month	8-Hr Composite
Ultraviolet light dosage (mjoules/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Grab

Compliance Sampling Location: Outfall 001

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	8-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	8-Hr Composite
Net Total Nitrogen	XXX	7306	XXX	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	974	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: Outfall 001

Q7-10 Determination


Streamgage


Streamstats 001


Streamstats Node 1


DFLOW


Q710 Calc

WQM Modeling Input/Output


WQM Input


WQM Hydrodynamic Outp


WQM Modeling Specifications


WQM WLA


WQM DO Simulation


WQM Effluent Limits

Toxics Management Spreadsheet


Toxics Management Spreadsheet