

Application Type Renewal
Facility Type Municipal
Major / Minor Minor

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0051748
APS ID 1452
Authorization ID 1208395

Applicant and Facility Information

Applicant Name	<u>Tulpehocken Area School District</u>	Facility Name	<u>Tulpehocken High School</u>
Applicant Address	<u>27 Rehersburg Road</u> <u>Bethel, PA 19507-9737</u>	Facility Address	<u>55 Pearl Road</u> <u>Bernville, PA 19506-8939</u>
Applicant Contact	<u>Rick Triest</u>	Facility Contact	<u>Paul Zerbe</u>
Applicant Phone	<u>(717) 933-4611</u>	Facility Phone	<u>(484) 645-3912</u>
Client ID	<u>76765</u>	Site ID	<u>451567</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Jefferson Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Berks</u>
Date Application Received	<u>November 13, 2017</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>December 5, 2017</u>	If No, Reason	<u></u>
Purpose of Application	<u>NPDES Renewal.</u>		

Summary of Review

Tulpehocken Area School District (TASD) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on August 12, 2013 and became effective on September 1, 2013. The permit expired on August 31, 2018 but the terms and conditions of the permit have been administratively extended since that time.

Based on the review, it is recommended that the permit be drafted.

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
		Jinsu Kim / Environmental Engineering Specialist	November 27, 2019
		Daniel W. Martin, P.E. / Environmental Engineer Manager	
		Maria D. Bebenek, P.E. / Program Manager	

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.0216
Latitude	40° 27' 22.02"	Longitude	-76° 10' 52.03"
Quad Name	Strausstown	Quad Code	1536
Wastewater Description: Sewage Effluent			
Receiving Waters	Unnamed Tributary to Little Northkill Creek (CWF)	Stream Code	01908
NHD Com ID	25997438	RMI	2.34
Drainage Area	2.74 sq.mi.	Yield (cfs/mi ²)	0.37
Q7-10 Flow (cfs)	1.014	Q7-10 Basis	Gage Station no. 01470779
Elevation (ft)	420	Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	CWF
Existing Use	None	Existing Use Qualifier	None
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired		
Cause(s) of Impairment	PATHOGENS		
Source(s) of Impairment	AGRICULTURE		
TMDL Status	Name		
Nearest Downstream Public Water Supply Intake	Western Berks Water Authority		
PWS Waters	Tulpehocken Creek	Flow at Intake (cfs)	
PWS RMI	15	Distance from Outfall (mi)	

Drainage Area

The discharge is to unnamed Tributary to Little Northkill Creek at RM 2.34. A drainage area upstream of the point of discharge is estimated to be 2.74 sq.mi., according to USGS StreamStats available at <https://streamstats.usgs.gov/ss/>.

Streamflow

USGS StreamStats produced a Q7-10 flow of 0.0667 cfs at the point of discharge. However, the estimated drainage area of 2.74 sq.mi. is outside the suggested range; resulted in unknown errors in calculating the Q7-10 flow. Consequently, a nearby gage station no. 01470779 on Tulpehocken Creek near Bernville, PA was used to estimate the Q7-10 flow instead. The calculation is shown below:

$$\begin{aligned} \text{Low Flow Yield} &= \text{Q7-10}_{\text{gage}} / \text{Drainage Area}_{\text{gage}} = 24.6 \text{ cfs} / 66.5 \text{ sq.mi.} = 0.37 \text{ cfs/sq.mi} \\ \text{Q7-10}_{\text{site}} &= \text{Low Flow Yield} * \text{Drainage Area}_{\text{site}} = 0.37 \text{ cfs/sq.mi.} * 2.74 \text{ sq.mi.} = 1.014 \text{ cfs.} \end{aligned}$$

Unnamed Tributary to Little Northkill Creek

Under 25 Pa Code §93.9f, the entire basin of Little Northkill Creek from I-78 Bridge to Slackwater of Blue Marsh Reservoir is designated as cold water fishes and supports migratory fishes. No special protection water is impacted by this discharge. No Class A Wild Trout fishery is impacted by this discharge. DEP's latest integrated water quality report prepared in 2016 showed that the receiving stream is not impaired for aquatic life use but is impaired for recreational uses. This impairment was caused by pathogens as a result of agricultural activities.

Public Water Supply Intake

The nearest downstream water supply intake is the Western Berks Water Authority located in Lower Heidelberg Township on the Tulpehocken Creek, approximately 15 miles downstream. Based on the nature of the discharge (i.e., no public water supply contaminants are of concern) and the distance from the public water supply, the discharge is not expected to affect the water supply.

Treatment Facility Summary				
Treatment Facility Name: Tulpehocken High School				
WQM Permit No.	Issuance Date			
0615403	07/05/2016			
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Chlorine	0.0216
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0216	36.7	Not Overloaded	Digestion	Other WWTP

TASD owns and operates a sanitary wastewater treatment plant serving Tulpehocken Junior-Senior High School. The facility is located at 55 Pearl Road, Bernville PA 19506. The facility has an annual average design flow and hydraulic design capacity of 0.0216 MGD with an organic design capacity of 36.7 lbs BOD5/day. The facility utilizes an extended aeration activated sludge treatment process consisting of a comminutor, bar screen, aeration tank, clarifier, chlorine contact tank and outfall structure. Two (2) sludge holding tanks are available. Sodium Hypochlorite is used for disinfection, aluminum sulfate is used for pH adjustment and settling, and lime is used for pH adjustment.

Compliance History	
Summary of DMRs:	A summary of past 12-month DMR is presented on the next page.
Summary of Inspections:	12/19/2018: Kevin Buss, DEP Compliance Specialist, conducted a routine inspection. No issues were found at the time of inspection. 07/31/2018: Kevin Buss conducted a routine inspection. No issues were found at the time of inspection.
Other Comments:	DEP's database revealed that there is no open violation associated with this facility or permittee.

Effluent Data

DMR Data for Outfall 001 (from October 1, 2018 to September 30, 2019)

Parameter	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18
Flow (MGD) Average Monthly	0.003244	0.00158		0.00155	0.00301 1	0.00322	0.00258 1	0.00254 1	0.00246	0.00226 0	0.00239 1	0.00305 8
Flow (MGD) Daily Maximum	0.005817	0.00444 1		0.00493 2	0.00488 7	0.00647 9	0.00442 8	0.00471 7	0.00658	0.00487 8	0.00437 3	0.00711 3
pH (S.U.) Minimum	6.8	6.83		6.88	6.89	6.84	6.96	6.86	6.88	6.74	6.9	6.74
pH (S.U.) Maximum	7.29	7.58		7.24	7.2	7.35	7.32	7.41	7.4	7.44	7.3	7.41
DO (mg/L) Minimum	6.65	6.25		5.37	5.03	5.76	6.38	7.98	7.4	6.75	6.9	6.07
TRC (mg/L) Average Monthly	0.27	0.27		0.34	0.429	0.4	0.5	0.4	0.301	0.33	0.4357	0.219
TRC (mg/L) Instantaneous Maximum	0.55	1.0		0.6	0.9	0.83	0.74	0.73	1.0	0.57	1.0	0.47
CBOD5 (mg/L) Average Monthly	< 2	< 2		< 2	< 2	< 2	< 2.5	4.5	< 2	< 2	< 2	< 2
CBOD5 (mg/L) Instantaneous Maximum	< 2	< 2		< 2	< 2	2	3	5	2	< 2	< 2	< 2
TSS (mg/L) Average Monthly	5	7.5		< 2	4.5	6	5	5	2.5	4.5	11	< 1.5
TSS (mg/L) Instantaneous Maximum	9	10		3	5	8	6	7	4	5	13	2
Fecal Coliform (CFU/100 ml) Geometric Mean	8.24	< 2		7.3	< 10	< 6	< 2.45	102	< 63.24	10.95	3.434	5.099
Fecal Coliform (CFU/100 ml) IMAX	34	< 2		18	48	20	3	2100	2000	15	6	13
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1		< 0.1	< 0.1							< 0.1
Ammonia (mg/L) Instantaneous Maximum	< 0.1	< 0.1		< 0.1	< 0.1							< 0.1
Total Phosphorus (mg/L) Average Monthly	0.47	0.36		0.545	0.64	0.9	0.61	0.8	0.565	0.435	0.44	0.82
Total Phosphorus (mg/L) Instantaneous Maximum	0.5	0.38		0.57	0.74	0.93	0.61	0.9	0.57	0.53	0.48	0.82

Existing Effluent Limits and Monitoring Requirements

A table below summarizes effluent limits and monitoring requirements specified in the current permit.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	5/week	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	5/week	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	5/week	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	5/week	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	Grab
TSS	XXX	XXX	XXX	30	XXX	60	2/month	Grab
Fecal Coliform Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	20	XXX	40	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	1.0	XXX	2.0	2/month	Grab

Development of Effluent Limitations

Outfall No. <u>001</u>	Design Flow (MGD) <u>.0216</u>
Latitude <u>40° 27' 22.00"</u>	Longitude <u>-76° 10' 52.00"</u>
Wastewater Description: <u>Sewage Effluent</u>	

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)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Water Quality-Based Limitations

WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate permit requirements for CBOD₅, NH₃-N and DO. DEP's guidance no. 391-2000-007 provides the technical methods contained in WQM 7.0 for conducting wasteload allocation and for determining recommended NPDES effluent limits for point source discharges. The model output indicates that existing effluent limits are still protective of water quality. No changes are therefore recommended for this permit renewal. However, a routine monitoring for NH₃-N is recommended during winter periods. This approach is consistent with DEP's SOP no. BCW-PMT-033

Toxics

DEP's permit renewal application for minor sewage facilities less than 0.1 MGD does not require sampling of toxic pollutants. Further, this facility only receives sanitary wastewater from the school. No water quality analysis is needed for toxic pollutants for this discharge.

Total Residual Chlorine

DEP's TTRC_CALC worksheet was utilized to determine if existing TRC effluent limits are still appropriate. The worksheet does not recommend any more stringent limits. No change is therefore recommended.

Best Professional Judgment (BPJ) Limitations

Dissolved Oxygen

The existing minimum DO effluent limit is the current cold water fishery water quality criterion for DO listed in 25 Pa Code §93.7(a). It is recommended that this limit be maintained in the permit to ensure the protection of water quality standards. This approach is consistent with DEP's current Standard Operating Procedure (SOP) no. BPNPSM-PMT-033 and has been applied to other point source dischargers throughout the state.

Total Phosphorus

Previously, average monthly limit of 1.0 mg/L was included in the permit based on the lake survey (i.e., lake model) prepared in 1987. Since this is more stringent than the recommended limit specified in 25 PA Code § 96.5(c), the existing average

monthly limit will remain in the permit (anti-backsliding policy). Also, existing point sources with phosphorus controls shall continue to operate them at present levels as recommended by *Implementation Guidance for Section 95.9 Phosphorus discharges to Free Flowing Streams (391-2000-018)*.

Additional Considerations

Flow Monitoring

The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii).

Chesapeake Bay TMDL

The discharge is not located within the Chesapeake Bay watershed; therefore, no Chesapeake Bay TMDL has been taken into consideration during this review.

Delaware River Basin Commission:

The discharge is not located within Special Protection Waters nor is greater than 0.05 MGD. No docket has been issued by DRBC for this facility.

Class A Wild Trout

No Class A Wild Trout Fishery is impacted by this discharge.

Antidegradation Requirements

All effluent limitations and monitoring requirements have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected.

Anti-backsliding Requirements

Unless stated otherwise in this fact sheet, all permit requirements proposed in this fact sheet are at least as stringent as those specified in the existing permit.



attachment

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) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	5/week	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	5/week	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	5/week	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	5/week	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	Grab
TSS	XXX	XXX	XXX	30	XXX	60	2/month	Grab
Fecal Coliform Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	20	XXX	40	2/month	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	1.0	XXX	2.0	2/month	Grab

Tools and References Used to Develop Permit	
<input type="checkbox"/>	WQM for Windows Model (see Attachment [redacted])
<input type="checkbox"/>	PENTOXSD for Windows Model (see Attachment [redacted])
<input type="checkbox"/>	TRC Model Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Temperature Model Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Toxics Screening Analysis Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
<input type="checkbox"/>	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
<input type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 385-2000-011, 9/08.
<input type="checkbox"/>	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
<input type="checkbox"/>	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
<input type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
<input type="checkbox"/>	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
<input type="checkbox"/>	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
<input type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
<input type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
<input type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
<input type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
<input type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
<input type="checkbox"/>	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
<input type="checkbox"/>	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
<input type="checkbox"/>	Design Stream Flows, 391-2000-023, 9/98.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
<input type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input type="checkbox"/>	SOP: [redacted]
<input type="checkbox"/>	Other: [redacted]