

Application Type Renewal
Facility Type Municipal
Major / Minor Minor

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0248185
APS ID 583487
Authorization ID 1489620

Applicant and Facility Information

Applicant Name	<u>Jackson Township Authority</u>	Facility Name	<u>Jackson Township STP</u>
Applicant Address	<u>60 N Ramona Road</u> <u>Myerstown, PA 17067-2149</u>	Facility Address	<u>100 Authority Drive</u> <u>Myerstown, PA 17067-3149</u>
Applicant Contact	<u>Dean Wagner</u>	Facility Contact	<u>Dean Wagner</u>
Applicant Phone	<u>(717) 866-4771</u>	Facility Phone	<u>(717) 866-4771</u>
Client ID	<u>248329</u>	Site ID	<u>672092</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Jackson Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Lebanon</u>
Date Application Received	<u>June 21, 2024</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>June 24, 2024</u>	If No, Reason	<u></u>
Purpose of Application	<u>NPDES permit renewal for discharge of treated sewage.</u>		

Summary of Review

1.0 General Discussion

This fact sheet supports the renewal of an existing NPDES permit for discharge of treated sewage from a wastewater treatment plant that serves Jackson Township. Jackson Township Authority (Authority) owns, maintains and operates the wastewater treatment plant located in Jackson Township, Lebanon County. The treatment system is sequential batch reactor (SBR) treatment system. The collection system has no combined sewers, and no bypasses or overflows are authorized in the collection system. The facility has a design annual average flow/hydraulic design capacity of 0.5 MGD. The Authority received planning approval for a discharge of up to 1MGD if needed. Portions of the Township's flow go to Myerstown Borough sewage Treatment plant. The organic design capacity is 1,042lbs/day. The SBR discharges treated municipal wastewater to an unnamed tributary to Tulpehocken Creek which is classified for Cold Water Fishes (CWF). The existing NPDES permit was issued on December 26, 2019, with an effective date of January 1, 2020, and expiration date of December 31, 2024. The permit was amended on June 16, 2020, to revise UV monitoring requirement. The applicant submitted a timely NPDES permit renewal application to the Department and is currently operating under the terms and conditions in the existing permit under administrative extension provisions pending Department action on the renewal application. Topographical Map showing the discharge location is presented in attachment A and process flow diagram is presented in attachment D.

1.1 Sludge use and disposal description and location(s):

Digested sludge is hauled off site periodically by a license hauler to Annville Township wastewater treatment plant.

Approve	Deny	Signatures	Date
X		<i>J. Pascal Kwedza</i> J. Pascal Kwedza, P.E. / Environmental Engineer	May 20, 2025
X		<i>Maria D. Bebenek for</i> Daniel W. Martin, P.E. / Environmental Engineer Manager	June 12, 2025
X		<i>Maria D. Bebenek</i> Maria D. Bebenek, P.E. / Program Manager	June 12, 2025

Summary of Review

1.2 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.

1.3 Changes to the existing Permit

Quarterly monitoring of E. coli has been added to the permit.

1.4 Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>.5</u>
Latitude	<u>40° 22' 2"</u>	Longitude	<u>-76° 20' 21"</u>
Quad Name	<u>Richland</u>	Quad Code	<u>1635</u>
Wastewater Description: <u>Sewage Effluent</u>			
Receiving Waters	<u>Unnamed Tributary to Tulpehocken Creek (CWF)</u>	Stream Code	<u>01974</u>
NHD Com ID	<u>25993498</u>	RMI	<u>0.45</u>
Drainage Area	<u>2.3 sq. mi</u>	Yield (cfs/mi ²)	<u>0.22</u>
Q ₇₋₁₀ Flow (cfs)	<u>0.51</u>	Q ₇₋₁₀ Basis	<u>USGS Gage Station</u>
Elevation (ft)	<u>465</u>	Slope (ft/ft)	<u></u>
Watershed No.	<u>3-C</u>	Chapter 93 Class.	<u>CWF</u>
Existing Use	<u></u>	Existing Use Qualifier	<u></u>
Exceptions to Use	<u></u>	Exceptions to Criteria	<u></u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Siltation</u>		
Source(s) of Impairment	<u>Agriculture, erosion from derelict land (barren land)</u>		
TMDL Status	<u></u>	Name	<u></u>
Background/Ambient Data		Data Source	
pH (SU)	<u></u>	<u></u>	
Temperature (°F)	<u></u>	<u></u>	
Hardness (mg/L)	<u></u>	<u></u>	
Other:	<u></u>	<u></u>	
Nearest Downstream Public Water Supply Intake	<u>Western Berks Water Auth</u>		
PWS Waters	<u>Tulpehocken Creek</u>	Flow at Intake (cfs)	<u></u>
PWS RMI	<u></u>	Distance from Outfall (mi)	<u>30</u>

Changes Since Last Permit Issuance: None

1.4.1 Water Supply Intake

The nearest water supply intake is 30 miles downstream at Lower Heidelberg, Sinking Springs on Tulpehocken Creek by the Western Berks Water Authority. No impact is expected from this discharge

1.5 Discharge, Receiving Waters and Water Supply Information			
Outfall No.	<u>Secondary receiving stream</u>	Design Flow (MGD)	<u>0</u>
Latitude	_____	Longitude	_____
Quad Name	_____	Quad Code	_____
Wastewater Description: <u>Sewage effluent</u>			
Secondary Receiving Waters	<u>Tulpehocken Creek (TSF)</u>	Stream Code	<u>01846</u>
NHD Com ID	<u>25993498</u>	RMI	<u>35.8</u>
Drainage Area	<u>9.8</u>	Yield (cfs/mi ²)	<u>0.22</u>
Q ₇₋₁₀ Flow (cfs)	_____	Q ₇₋₁₀ Basis	_____
Elevation (ft)	_____	Slope (ft/ft)	_____
Watershed No.	<u>3-C</u>	Chapter 93 Class.	<u>TSF</u>
Existing Use	_____	Existing Use Qualifier	_____
Exceptions to Use	_____	Exceptions to Criteria	_____
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Siltation, nutrients</u>		
Source(s) of Impairment	<u>Agriculture, erosion from derelict land (barren land)</u>		
TMDL Status	_____	Name	_____
Background/Ambient Data		Data Source	
pH (SU)	_____	_____	
Temperature (°F)	_____	_____	
Hardness (mg/L)	_____	_____	
Other:	_____	_____	
Nearest Downstream Public Water Supply Intake _____			
PWS Waters	_____	Flow at Intake (cfs)	_____
PWS RMI	_____	Distance from Outfall (mi)	_____

Changes Since Last Permit Issuance: None

Other Comments: Tulpehocken Creek is impaired due to Siltation, and before reaching Blue Marsh Reservoir, Tulpehocken Creek also impaired for nutrients. TMDL development is pending.

1.6 Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>101</u>	Design Flow (MGD)	<u>0</u>
Latitude	<u>40° 22' 10.62"</u>	Longitude	<u>-76° 20' 27.10"</u>
Quad Name	_____	Quad Code	_____
Wastewater Description: <u>Stormwater</u>			
Receiving Waters	<u>Unnamed Tributary to Tulpehocken Creek (CWF)</u>	Stream Code	_____
NHD Com ID	<u>25993498</u>	RMI	_____
Drainage Area	_____	Yield (cfs/mi ²)	_____
Q ₇₋₁₀ Flow (cfs)	_____	Q ₇₋₁₀ Basis	_____
Elevation (ft)	_____	Slope (ft/ft)	_____
Watershed No.	<u>3-C</u>	Chapter 93 Class.	<u>CWF</u>
Existing Use	_____	Existing Use Qualifier	_____
Exceptions to Use	_____	Exceptions to Criteria	_____
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Siltation</u>		
Source(s) of Impairment	<u>Agriculture, erosion from derelict land (barren land)</u>		
TMDL Status	_____	Name	_____
Background/Ambient Data		Data Source	
pH (SU)	_____	_____	
Temperature (°F)	_____	_____	
Hardness (mg/L)	_____	_____	
Other:	_____	_____	
Nearest Downstream Public Water Supply Intake			
PWS Waters	<u>Tulpehocken Creek</u>	Flow at Intake (cfs)	_____
PWS RMI	_____	Distance from Outfall (mi)	<u>20</u>

Changes Since Last Permit Issuance: None

Other Comments: The stormwater is directed to a holding basin whose outfall is connected to the STP's outfall. This outfall has been included in the existing permit and will continue with BMP conditions in Part C. See stormwater section of the report for additional information.

2.0 Treatment Facility Summary				
Treatment Facility Name: Jackson Township Authority				
WQM Permit No.		Issuance Date		
3806404		07/24/2007		
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia And Phosphorus	Sequencing Batch Reactor	Ultraviolet	0.5
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.5	1042	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: None

2.1 Treatment Facility Description

The treatment system consists of an influent pump station with comminutor and bypass bar screen, two SBR reactors, two aerobic digesters, a post-SBR flow equalization tank, and two UV disinfection system each capable of treating 1.2 mgd of flow. Aluminum Sulfate is used for Total Phosphorus removal and Soda Ash is used for pH adjustment if needed.

3.0 Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ 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	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
CBOD5 Nov 1 - Apr 30	104	167	XXX	25	40	50	1/week	24-Hr Composite
CBOD5 May 1 - Oct 31	67	104	XXX	16	25	32	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	125	187	XXX	30	45	60	1/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000.0 Avg Qrtly	XXX	2000	1/quarter	24-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
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Calculation
Ammonia Nov 1 - Apr 30	21	XXX	XXX	5.1	XXX	10.2	1/week	24-Hr Composite
Ammonia May 1 - Oct 31	7.1	XXX	XXX	1.7	XXX	3.4	1/week	24-Hr Composite
Total Phosphorus	4.1	XXX	XXX	1.0	XXX	2	1/week	24-Hr Composite

3.1 Compliance History

3.1.1 DMR Data for Outfall 001 (from April 1, 2024 to March 31, 2025)

Parameter	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24
Flow (MGD) Average Monthly	0.145	0.159	0.14	0.144	0.128	0.121	0.132	0.156	0.124	0.133	0.145	0.254
Flow (MGD) Daily Maximum	0.21	0.283	0.19	0.208	0.17	0.147	0.172	0.38	0.151	0.166	0.276	0.752
pH (S.U.) Instant. Minimum	7.0	6.85	6.94	7.15	6.45	7.43	7.27	7.0	7.04	7.4	7.17	7.06
pH (S.U.) Instant. Maximum	7.71	7.6	8.0	8.0	8.1	8.04	8.15	8.47	8.25	7.96	8.08	7.72
DO (mg/L) Daily Minimum	5.87	6.56	6.09	7.9	6.34	6.31	5.45	5.79	5.92	5.91	5.24	6.02
CBOD5 (lbs/day) Average Monthly	3	5	3	2	< 3	2	3	< 3	5	6	4	< 5
CBOD5 (lbs/day) Weekly Average	4	7	4	3	6	3	5	3	6	7	5	12
CBOD5 (mg/L) Average Monthly	2.8	3.7	2.7	2.3	< 3.6	2.5	3.7	< 2.6	4.6	5.4	3.4	< 2.4
CBOD5 (mg/L) Weekly Average	3.6	4.7	3	2.6	6.9	3.2	5.7	3.3	6	7.0	4.4	3.4
BOD5 (lbs/day) Raw Sewage Influent Ave. Monthly	225	313	152	212	202	155	188	351	439	482	358	< 642
BOD5 (mg/L) Raw Sewage Influent Ave. Monthly	192	237	164	197	228	177	203	230.7	428	453	286	< 226.9
TSS (lbs/day) Average Monthly	< 6	< 6	< 4	< 4	< 4	< 4	< 4	< 4	7	5	7	< 9
TSS (lbs/day) Raw Sewage Influent Ave. Monthly	158	260	56	152	142	94	197	203	242	651	259	752
TSS (lbs/day) Weekly Average	9	7	< 5	< 5	4	6	5	< 6	11	6	10	16
TSS (mg/L) Average Monthly	< 5.3	< 4.5	< 4	< 4	< 4.5	< 4.7	< 4.7	< 4	7.3	4.9	5.5	< 4.5
TSS (mg/L) Raw Sewage Influent Ave. Monthly	136	198	61.3	141.9	163	106.7	211.8	135.3	237	614	196	268.5
TSS (mg/L) Weekly Average	7	5	< 4	4	5	6.8	5.8	4	10.2	6.0	7.5	4.4

Total Dissolved Solids (mg/L) Average Quarterly	495.0			556.0			568.0			425.0		
Fecal Coliform (No./100 ml) Geometric Mean	7	< 4	< 4	6	9	< 2	2	4	< 4	< 2	< 3	< 1
Fecal Coliform (No./100 ml) Instant. Maximum	15	29	22	15	32	4	9	5	14	20	10	< 1
UV Transmittance (%) Instant. Minimum	588	649.4	662.15	622.55	591.8	619.55	635.55	497.5	413.8	498.6	403.7	547.4
Total Nitrogen (mg/L) Daily Maximum	8.75			19.3			16.9			7.39		
Ammonia (lbs/day) Average Monthly	< 0.1	< 0.2	< 0.1	< 0.1	< 0.09	< 0.09	< 0.09	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2
Ammonia (mg/L) Average Monthly	< 0.1	< 0.16	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Phosphorus (lbs/day) Ave. Monthly	0.3	0.4	0.3	0.4	0.5	0.5	0.5	0.7	1.0	0.5	0.6	0.6
Total Phosphorus (mg/L) Ave. Monthly	0.24	0.32	0.29	0.34	0.58	0.52	0.52	0.64	0.98	0.46	0.46	0.36

3.2 Summary of DMRs:

Discharge Monitoring Reports (DMRs) review for the facility for the last 12 months of operation presented in section 3.1.1 indicate permit limits have been met consistently. No permit violation noted on DMRs during the period reviewed.

3.3 Summary of Inspections:

The facility has been inspected a couple of times during last permit cycle. No effluent violations noted during plant inspections. The facility is operated and maintained well.

4.0 Development of Effluent Limitations

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>.5</u>
Latitude	<u>40° 22' 2.00"</u>	Longitude	<u>-76° 20' 21.00"</u>
Wastewater Description: <u>Sewage Effluent</u>			

4.1 Basis for Effluent Limitations

In general, the Clean Water Act (CWA) requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits

4.1.1 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)

Comments: TRC limitation not required, the facility utilizes UV for disinfection.

4.2 Mass-Based Limits

The federal regulation at 40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, if possible. The regulation at 40 CFR 122.45(b) requires that effluent limitations for POTWs be calculated based on the design flow of the facility. The mass-based limits are expressed in pounds per day and are calculated as follows:

$$\text{Mass based limit (lb/day)} = \text{concentration limit (mg/L)} \times \text{design flow (mgd)} \times 8.34$$

4.3 Water Quality-Based Limitations

4.3.1 WQM 7.0 Stream Model

WQM 7.0 is a water quality model DEP utilizes to establish appropriate effluent limits for CBOD₅, NH₃-N and DO in permits. The model simulates mixing and degradation of NH₃-N in the stream and compares calculated instream NH₃-N concentrations to NH₃-N water quality criteria and also simulates mixing and consumption of D.O. in the stream due to the degradation of CBOD₅ and NH₃-N and compares calculated instream D.O. concentrations to D.O. water quality criteria and recommends effluent limits

4.3.2 Receiving Stream

The receiving stream is Unnamed Tributary to Tulpehocken Creek. According to 25 PA § 93.9f, this stream is protected for Cold Water Fishes (CWF). It is located in Drainage List F and State Watershed 3-C. It has been assigned stream code 01974. According to the Department's Integrated Water Quality Monitoring and Assessment Report, this segment of the stream is impaired and not attaining its designated uses due to siltation from agricultural activities and pathogens from unknown sources

4.3.3 Stream flows

Streamflows flows were determined by correlating with the yield of USGS gage station No. 01471000 on Tulpehocken Creeek near Reading. The Q_{7-10} and drainage area at the gage is 46.8ft³/s and 211mi² respectively. The resulting yields are as follows:

- $Q_{7-10} = (46.8\text{ft}^3/\text{s})/211 \text{ mi}^2 = 0.22 \text{ ft}^3/\text{s}/ \text{mi}^2$
- $Q_{30-10} / Q_{7-10} = 1.23$
- $Q_{1-10} / Q_{7-10} = 0.84$

The drainage area at discharge taken from the previous permit= 2.3 mi²

The Q_{7-10} at discharge = 2.31 mi² x 0.22 ft³/s/mi² = 0.5 ft³/s.

4.3.4 NH₃N Calculations

NH₃N calculations will be based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the instream NH₃N criteria used in the attached model result of the stream:

STP pH	=	7.0 (DMR median from July-September.)
STP Temp	=	25°C (Default)
Stream pH	=	7.0 (Default)
Stream Temp	=	20°C (Default)
Background NH ₃ N	=	0 mg/l (Assumed)

4.3.5 WQM Model

The WQM 7.0 model was run with Myerstown STP due to its proximity to Jackson Township's STP. The discharges are on two different stream segments with different stream codes for Tulpehocken Creek and the unnamed tributary. The stream code for Tulpehocken Creek 01846 was used to run the model since the model does not accept 2 stream codes in one run. Myerstown STP is located at 32.5 RMI on Tulpehocken.Creek and Jackson Township is assumed at 36.2 RMI on Tulpehocken Creek (35.8 RMI is the confluence of UNT 01974 with Tulpehocken. Creek. + 0.4 RMI on the UNT 01974)

4.3.6 CBOD₅

The attached results of WQM 7.0 stream model (attachments B & C) indicate that a monthly average limit (AML) of 16mg/l CBOD₅ for summer months and an AML of 25mg/l for winter months are required to protect the water quality of the stream. These limits are consistent with the existing permit. Past DMRs and inspection reports show the STP has been consistently achieving below these limitations. Therefore, an AML of 16mg/l, a weekly average limit (AWL) of 22mg/l and instantaneous maximum (IMAX) of 32mg/l is required for summer months. For winter months AML of 25mg/l, AWL of 40mg/l and IMAX of 50mg/l is required. Mass limits are calculated for AMLs and AWLs following the formula listed in section 4.2 above.

4.3.7 NH₃-N

The attached results of the WQM 7.0 stream model (attachment B&C) also indicate that a summer limitation of mg/l 2.85 NH₃-N and winter limitation of mg/l 7.67 NH₃-N as AMLs are necessary to protect the aquatic life from toxicity effects. These limits are slightly less stringent than the existing summer limit of 1.7mg/l, and winter limit of 5.1mg/l. Due to anti-backsliding restrictions, the existing limits will remain in the permit. DMR and inspection reports indicate the facility is meeting the limitation. Associated mass limits are calculated following the formula listed in section 4.2 above.

4.3.8 Dissolved Oxygen

The existing permit contains a limit of 5 mg/l for Dissolved Oxygen (DO). DEP's Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001, 10/97) suggests that either the adopted minimum stream D.O. criteria for the receiving stream or the effluent level determined through water quality modeling be used for the limit. Since the WQM 7.0 model was run using a minimum D.O. of 5.0 mg/l, this limit will be continued in the renewed permit with a daily monitoring requirement.

4.3.9 Phosphorus

The Phosphorus limits in the existing permit was as a result of a 1987 PA DEP study of the Blue Marsh Reservoir. It was recommended that a phosphorus limit of 1.0 mg/l be included in all permits for facilities which discharged upstream of the Reservoir. The limit will be continued in the current permit renewal.

4.3.10 Total Residual Chlorine:

The discharge does not have any reasonable potential to cause or contribute to a water quality standards violation for total residual chlorine since the permittee utilizes UV instead of chlorine for wastewater disinfection. Therefore, the proposed permit does not contain effluent limits for total residual chlorine. The permittee may use chlorine-based chemicals for cleaning and is required to optimize chlorine usage to prevent negative impacts on receiving stream. Daily UV transmittance monitoring in % will be required in the permit to ensure efficiency of the UV unit.

4.3.11 Total Suspended Solids (TSS):

There is no water quality criteria for TSS. The existing limit of 30 mg/l AML based on the minimum level of effluent quality attainable by secondary treatment as defined in 40 CFR 133.102b(1) and 25 PA § 92a.47(a)(1) and an AWL of 45mg/L per 40CFR 133.102(b)(2) and 25 PA § 92a.47(a)(2) with their associated mass limit remain in the permit.

4.3.12 Toxics

The facility treats mainly domestic sewage, there are no parameters of concern associated with this discharge.

4.3.13 Fecal Coliform and E. Coli

The existing Fecal Coliform limit is consistent with the technology limits recommended in 92a.47(a)(4) and (a)(5) and will remain in the permit. In March of 2021, EPA approved DEP's Triennial Review of Water Quality Standards, which included a new swimming season criterion for E. coli. As a result, DEP is including monitoring requirements for E. Coli in new and renewed sewage permits above 2000gpd. Monitoring frequency is based on annual average flow as follows: 1/month for design flows \geq 1 MGD, 1/quarter for design flows \geq 0.05 and $<$ 1 MGD and 1/year for design flows of 0.002 and $<$ 0.05 MGD. Your discharge of 0.5 MGD requires 1/quarter monitoring as included in the permit.

4.3.14 Nutrient Monitoring

Quarterly monitoring of Total Nitrogen is included in the current permit to obtain data for discharges to Delaware River watershed. The discharge is located outside of the Chesapeake Bay watershed, therefore no Chesapeake Bay TMDL requirement was considered.

4.3.15 Delaware River Basin Commission (DRBC) Requirements

DRBC regulations and policies are applicable to all NPDES permits for facilities within the Delaware River basin. The requirements of the most recent Docket No. D-2007-004 CP-4 for this facility which was approved on September 7, 2023 with expiration date of December 31, 2029, will be applied to the permit. All parameters required in the Docket in were in included in the existing permit and will continue during the current permit renewal. The facility is not a direct discharger to the Schuylkill River: PCB monitoring is not required. A copy of the draft permit will be forwarded to DRBC.

4.3.16 Influent BOD and TSS Monitoring

The permit will include influent BOD5 and TSS monitoring at the same frequency as is done for effluent in order to implement Chapter 94.12 and assess percent removal requirements.

4.3.17 Industrial Users

Jackson Township's STP does not receive wastewater from any significant industrial users.

4.3.18 Pretreatment Requirements

The design annual average flow of the treatment plant is 0.5 MGD and the facility receives no flow from significant Industrial users. EPA does not require development of pretreatment program for facilities with design flow less than 5MGD. However, the permit contains standard conditions requiring the permittee to monitor and control industrial users if applicable

5.0 Other Requirements

5.1 The permit contains the following special conditions:

Stormwater Prohibition, Approval Contingencies, Proper Waste/solids Management and Restriction on receipt of hauled in waste under certain conditions and batch discharge condition.

5.2 Stormwater

There is a stormwater outfall in the permit identified as outfall 101. Stormwater from the treatment plant site is directed to a holding basin whose outfall is connected to the STP's outfall. The facility does not meet the requirement for stormwater monitoring requirement located in 40CFR 122.26(b)(14)(ix), however the outfall will remain in the permit with BMP conditions in Part C. BMPs and conditions includes: a Preparedness, Prevention and Contingency (PPC) Plan, annual visual inspection at a minimum, and the completion of DEP's Annual Inspection Form

5.3 Anti-backsliding

Not applicable to this permit

5.4 Antidegradation (93.4):

The effluent limits for this discharge 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. No High-Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

5.5 Class A Wild Trout Fisheries:

No Class A Wild Trout Fisheries are impacted by this discharge.

5.6 303d listed stream

The discharge is located on a 303d listed stream segment. The receiving stream unnamed tributary of Tulpehocken creek is impaired due to siltation from agricultural activities, erosion from derelict land and pathogens from unknown source. The secondary receiving stream Tulpehocken Creek is also impaired due to Siltation and nutrients. TMDL development is pending. A total phosphorus limit of 1mg/l has been established to protect Blue Mash reservoir until TMDL is developed. The facility has been complying with the phosphorus limitation.

5.7 Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional

effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs).

5.8 Effluent Monitoring Frequency

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) and if the Method Detection Limits are less than the effluent limits. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

7.0 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” (386-0400-001), 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	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
CBOD5 Nov 1 - Apr 30	104	167	XXX	25	40	50	1/week	24-Hr Composite
CBOD5 May 1 - Oct 31	67	104	XXX	16	25	32	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	125	187	XXX	30	45	60	1/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000.0 Avg Qrtly	XXX	2000	1/quarter	24-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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded

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

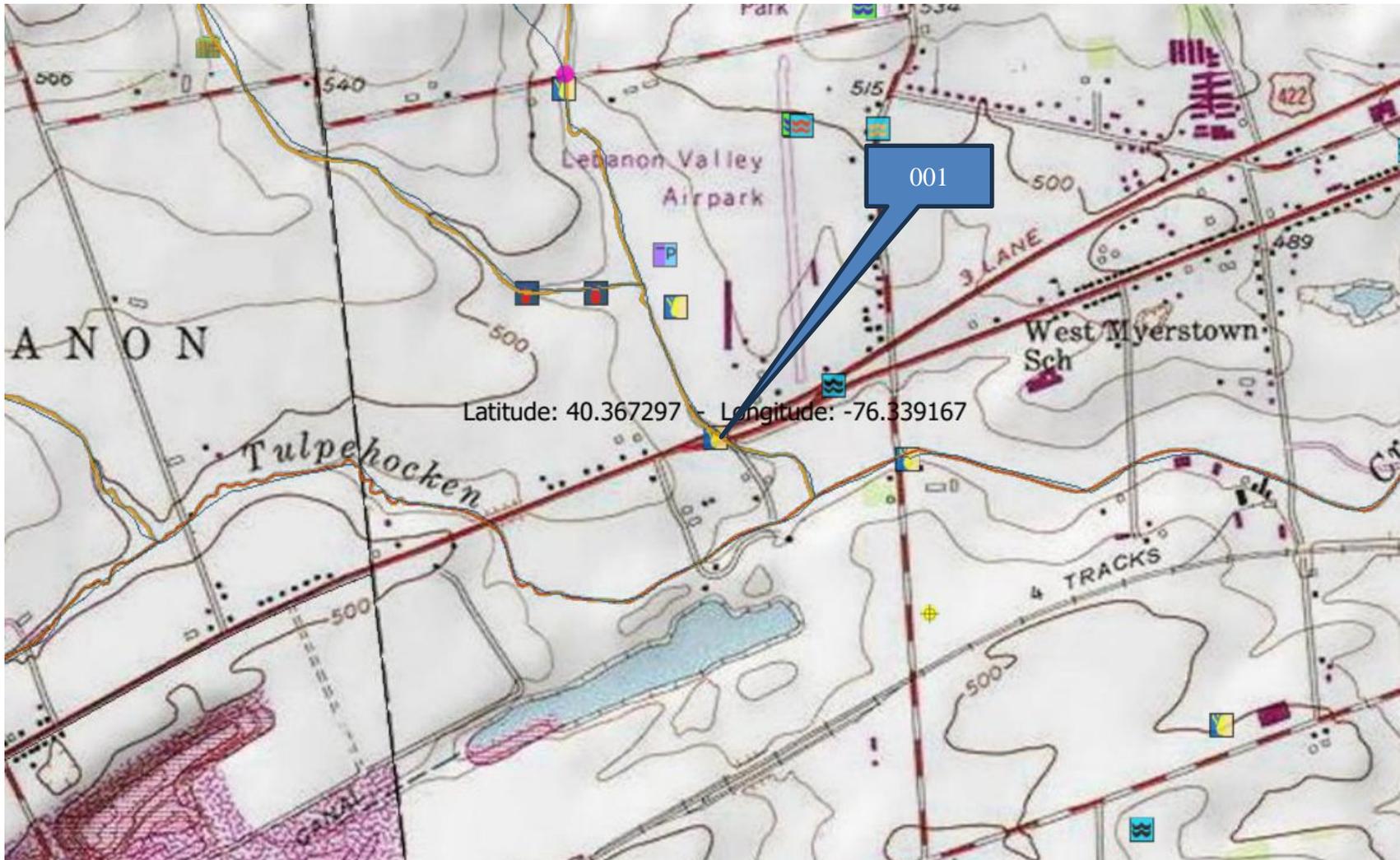
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Calculation
Ammonia Nov 1 - Apr 30	21	XXX	XXX	5.1	XXX	10.2	1/week	24-Hr Composite
Ammonia May 1 - Oct 31	7.1	XXX	XXX	1.7	XXX	3.4	1/week	24-Hr Composite
Total Phosphorus	4.1	XXX	XXX	1.0	XXX	2	1/week	24-Hr Composite

Compliance Sampling Location: At Outfall 001

8.0 Tools and References Used to Develop Permit	
<input checked="" type="checkbox"/>	WQM for Windows Model (see Attachment B&C)
<input type="checkbox"/>	Toxics Management Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	TRC Model Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Temperature Model Spreadsheet (see Attachment [redacted])
<input checked="" 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, 386-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
<input checked="" type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 386-2000-002, 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, 386-2000-008, 4/97.
<input checked="" type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
<input type="checkbox"/>	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
<input checked="" type="checkbox"/>	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
<input type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
<input checked="" type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
<input type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
<input type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
<input checked="" type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 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, 386-2000-020, 10/97.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 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, 386-2000-010, 3/1999.
<input type="checkbox"/>	Design Stream Flows, 386-2000-003, 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, 386-2000-006, 10/98.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
<input checked="" type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input checked="" type="checkbox"/>	SOP: Establishing effluent limitation for individual sewage permit.
<input type="checkbox"/>	Other: [redacted]

Attachment

A. Topographical Map



B. WQM Model Results for Summer Months

WQM 7.0 Effluent Limits — *Summer*

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>					
03C	1846	TULPEHOCKEN CREEK					
RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
36.200	Jackson Twp	PA0248185	0.500	CBOD5	16.07		
				NH3-N	2.85	5.7	
				Dissolved Oxygen			5
RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
32.500	Myerstown Boro	PA0031075	2.000	CBOD5	25		
				NH3-N	5.61	11.22	
				Dissolved Oxygen			5

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03C	1846	TULPEHOCKEN CREEK	36.200	465.00	2.31	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary		Stream	
									Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.220	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Jackson Twp	PA0248185	0.5000	0.5000	0.5000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03C	1846	TULPEHOCKEN CREEK	25.200	354.00	62.00	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.220	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
03C		1846				TULPEHOCKEN CREEK						
RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
36.200	0.51	0.00	0.51	.7735	0.00256	.531	12.71	23.96	0.19	1.190	23.02	7.00
32.500	6.12	0.00	6.12	3.8675	0.00158	.731	40.98	56.06	0.33	1.338	21.94	7.12
Q1-10 Flow												
36.200	0.43	0.00	0.43	.7735	0.00256	NA	NA	NA	0.18	1.235	23.22	7.00
32.500	5.14	0.00	5.14	3.8675	0.00158	NA	NA	NA	0.31	1.418	22.15	7.14
Q30-10 Flow												
36.200	0.63	0.00	0.63	.7735	0.00256	NA	NA	NA	0.20	1.134	22.77	7.00
32.500	7.52	0.00	7.52	3.8675	0.00158	NA	NA	NA	0.36	1.243	21.70	7.11

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.84	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.23	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin Stream Code Stream Name
03C 1846 TULPEHOCKEN CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
36.200	Jackson Twp	12.83	19.91	12.83	19.91	0	0
32.500	Myerstown Boro	12.33	32.8	12.26	32.8	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
36.200	Jackson Twp	1.58	2.85	1.58	2.85	0	0
32.500	Myerstown Boro	1.64	5.61	1.62	5.61	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
36.20	Jackson Twp	16.07	16.07	2.85	2.85	5	5	0	0
32.50	Myerstown Boro	25	25	5.61	5.61	5	5	0	0

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>			
03C	1846	TULPEHOCKEN CREEK			
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
36.200	0.500	23.017		7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
12.714	0.531	23.958		0.190	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>		<u>Reach Kn (1/days)</u>	
10.49	0.827	1.72		0.883	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
6.286	4.962	Tsivoglou		5	
<u>Reach Travel Time (days)</u>	<u>Subreach Results</u>				
1.190	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>	
	0.119	9.37	1.55	5.50	
	0.238	8.37	1.40	5.25	
	0.357	7.47	1.26	5.29	
	0.476	6.68	1.13	5.47	
	0.595	5.96	1.02	5.70	
	0.714	5.32	0.92	5.96	
	0.833	4.76	0.83	6.21	
	0.952	4.25	0.74	6.45	
	1.071	3.79	0.67	6.68	
	1.190	3.39	0.60	6.88	
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
32.500	2.500	21.937		7.124	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
40.975	0.731	56.055		0.333	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>		<u>Reach Kn (1/days)</u>	
9.31	0.972	1.82		0.813	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
7.063	5.248	Tsivoglou		5	
<u>Reach Travel Time (days)</u>	<u>Subreach Results</u>				
1.338	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>	
	0.134	8.07	1.63	6.03	
	0.268	7.00	1.46	5.76	
	0.402	6.07	1.31	5.83	
	0.535	5.27	1.18	6.05	
	0.669	4.57	1.05	6.31	
	0.803	3.96	0.95	6.59	
	0.937	3.44	0.85	6.84	
	1.071	2.98	0.76	7.08	
	1.205	2.59	0.68	7.29	
	1.338	2.24	0.61	7.47	

C. WQM Model Results for Winter Months

WQM 7.0 Effluent Limits - Winter

<u>SWP Basin</u>		<u>Stream Code</u>	<u>Stream Name</u>				
03C		1846	TULPEHOCKEN CREEK				
RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
36.200	Jackson Twp	PA0248185	0.500	CBOD5	25		
				NH3-N	7.67	15.34	
				Dissolved Oxygen			5
RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
32.500	Myerstown Boro	PA0031075	2.000	CBOD5	25		
				NH3-N	13.86	27.72	
				Dissolved Oxygen			5

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03C	1846	TULPEHOCKEN CREEK	36.200	465.00	2.31	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.220	0.00	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Jackson Twp	PA0248185	0.5000	0.5000	0.5000	0.000	5.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03C	1846	TULPEHOCKEN CREEK	32.500	415.00	27.80	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	pH	Stream Temp	pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.220	0.00	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Myerstown Boro	PA0031075	2.0000	2.0000	2.0000	0.000	5.00	7.70

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03C	1846	TULPEHOCKEN CREEK	25.200	354.00	62.00	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary		Stream	
									Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.220	0.00	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

<u>SWP Basin</u>		<u>Stream Code</u>		<u>Stream Name</u>								
03C		1846		TULPEHOCKEN CREEK								
RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
36.200	0.51	0.00	0.51	.7735	0.00256	.531	12.71	23.96	0.19	1.190	5.00	7.00
32.500	6.12	0.00	6.12	3.8675	0.00158	.731	40.98	56.06	0.33	1.338	5.00	7.12
Q1-10 Flow												
36.200	0.43	0.00	0.43	.7735	0.00256	NA	NA	NA	0.18	1.235	5.00	7.00
32.500	5.14	0.00	5.14	3.8675	0.00158	NA	NA	NA	0.31	1.418	5.00	7.14
Q30-10 Flow												
36.200	0.63	0.00	0.63	.7735	0.00256	NA	NA	NA	0.20	1.134	5.00	7.00
32.500	7.52	0.00	7.52	3.8675	0.00158	NA	NA	NA	0.36	1.243	5.00	7.11

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.84	Use inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.23	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin Stream Code Stream Name
03C 1846 TULPEHOCKEN CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
36.200	Jackson Twp	24.1	37.41	24.1	37.41	0	0
32.500	Myerstown Boro	20.72	50	21.07	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
36.200	Jackson Twp	4.36	7.89	4.36	7.67	2	3
32.500	Myerstown Boro	4.15	14.25	4.17	13.86	2	3

Dissolved Oxygen Allocations

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
36.20	Jackson Twp	25	25	7.67	7.67	5	5	0	0
32.50	Myerstown Boro	25	25	13.86	13.86	5	5	0	0

WQM 7.0 D.O. Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>			
03C	1846	TULPEHOCKEN CREEK			
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
36.200	0.500	5.000		7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
12.714	0.531	23.958		0.190	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>		<u>Reach Kn (1/days)</u>	
15.88	1.383	4.63		0.221	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
6.286	3.237	Tsvoglou		5	
<u>Reach Travel Time (days)</u>	<u>Subreach Results</u>				
1.190	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>	
	0.119	14.62	4.51	6.33	
	0.238	13.46	4.39	6.49	
	0.357	12.39	4.28	6.73	
	0.476	11.41	4.17	7.00	
	0.595	10.50	4.06	7.30	
	0.714	9.67	3.95	7.60	
	0.833	8.90	3.85	7.90	
	0.952	8.20	3.75	8.19	
	1.071	7.55	3.66	8.24	
	1.190	6.95	3.56	8.24	
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
32.500	2.500	5.000		7.124	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
40.975	0.731	56.055		0.333	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>		<u>Reach Kn (1/days)</u>	
9.76	1.206	4.75		0.221	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
7.238	3.512	Tsvoglou		5	
<u>Reach Travel Time (days)</u>	<u>Subreach Results</u>				
1.338	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>	
	0.134	9.00	4.62	7.89	
	0.268	8.30	4.48	8.24	
	0.402	7.66	4.35	8.24	
	0.535	7.06	4.22	8.24	
	0.669	6.51	4.10	8.24	
	0.803	6.00	3.98	8.24	
	0.937	5.54	3.87	8.24	
	1.071	5.10	3.75	8.24	
	1.205	4.71	3.64	8.24	
	1.338	4.34	3.54	8.24	

D. Process Flow Diagram

