Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0084115**
Facility Type	**Non-Municipal**	APS ID	**773612**
Major / Minor	**Minor**	Authorization ID	**1479218**

Applicant and Facility Information

Applicant Name	**Pilot Travel Center LLC**	Facility Name	**Pilot Travel Center #517 Clarks Ferry**
Applicant Address	5508 Lonas Drive	Facility Address	30 Benvenue Road Rte 322/22
	Knoxville, TN 37909-3221		Duncannon, PA 17020-9101
Applicant Contact	Joey Cupp	Facility Contact	Joey Cupp
Applicant Phone	(865) 474-2826	Facility Phone	(865) 474-2826
Client ID	135750	Site ID	444103
Ch 94 Load Status	Not Overloaded	Municipality	Reed Township
Connection Status		County	Dauphin
Date Application Received	April 3, 2024	EPA Waived?	Yes
Date Application Accepted	April 16, 2024	If No, Reason	

Purpose of Application: NPDES permit renewal for discharge of treated sewage

Summary of Review

1.0 General Discussion

This fact sheet supports the renewal of an existing NPDES permit for discharge of treated domestic wastewater from Pilot Travel Center # 517 Clarks Ferry wastewater treatment plant located in Reed Township, Dauphin County. The extended aeration treatment plant with design flow of 0.008 mgd provides sanitary services to a truck stop with a restroom and food services. Treated sewage is discharged to Susquehanna River which is classified for warm water fishes (WWF) and Migratory Fishes (MF). The existing NPDES permit was issued on September 25, 2019, with an effective date of October 1, 2019, and expiration date of September 30, 2024. The applicant submitted permit renewal application to the Department is currently operating under the terms and conditions in the existing permit pending Department action on the renewal application. A topographic map showing the discharge location is presented in attachment A

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

Sludge is hold up in a sludge holding tank and hauled out by a licensed hauler periodically.

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

Approve	Deny	Signatures	Date
X		*J. Pascal Kwedza* J. Pascal Kwedza, P.E. / Environmental Engineer	March 7, 2025
x		*Maria D. Bebenek* for Daniel W. Martin, P.E. / Environmental Engineer Manager	March 17, 2025
x		*Maria D. Bebenek* Maria D. Bebenek, P.E. / Program Manager	March 17, 2025

Summary of Review
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.

1.3.0 Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.008
Latitude	40º 24' 15.33"	Longitude	-77º 0' 29.90"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Susquehanna River (WWF, MF)	Stream Code	06685
NHD Com ID	54975269	RMI	86.3
Drainage Area	19700	Yield (cfs/mi^2)	USGS Gage Station
Q_{7-10} Flow (cfs)	1970	Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	6-C	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake	Veolia Water PA		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	11

Changes Since Last Permit Issuance: None

1.3.1 Water Supply Intake

The closest water supply intake located downstream from the discharge is Veolia Water PA in Susquehanna Twp., Dauphin County. The distance downstream from the discharge to the intake is approximately 11 miles. No impact is expected on the intake as a result of this discharge.

2.0 Treatment Facility Summary				
Treatment Facility Name: Pilot Travel Center No 517				
WQM Permit No.	**Issuance Date**			
2290405	August 12, 1991			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Extended Aeration	Hypochlorite	0.008
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.008		Not Overloaded		

Changes Since Last Permit Issuance: None

2.1 Treatment Facility

Treatment plant consists of a pump station, an EQ tank, an aeration tank, a clarifier, sludge holding tank, chlorine contact tank with de-chlorination unit and a post aeration system.

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	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	24-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Nitrate-Nitrite	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	Calculation
Ammonia	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TKN	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite

Compliance Sampling Location: Outfall 001

3.1 Compliance History

3.1.1 DMR Data for Outfall 001 (from January 1, 2024 to December 31, 2024)

Parameter	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24
Flow (MGD) Average Monthly	0.0048	0.00568	0.00437	0.00413	0.00408	0.00422	0.00386	0.00443	0.00414	0.00435	0.00417	0.004
Flow (MGD) Daily Maximum	0.0084	0.0529	0.00816	0.00643	0.00718	0.00681	0.00708	0.00739	0.00634	0.00819	0.00736	0.00691
pH (S.U.) Daily Minimum	7.83	7.56	7.09	7.73	8.11	7.41	8.31	8.16	8.08	7.91	8.14	7.58
pH (S.U.) Daily Maximum	8.91	8.89	8.65	8.99	8.98	8.94	8.98	8.99	8.94	8.97	8.98	8.98
DO (mg/L) Daily Minimum	8.94	8.38	7.93	7.84	6.97	6.69	6.75	7.89	10.33	10.59	10.83	10.47
TRC (mg/L) Average Monthly	< 0.03	< 0.04	< 0.03	< 0.02	< 0.07	< 0.05	< 0.05	< 0.03	< 0.04	< 0.02	< 0.03	< 0.02
TRC (mg/L) Instantaneous Maximum	0.13	0.2	0.09	0.1	0.21	0.12	0.16	0.13	0.14	0.11	0.1	0.1
CBOD5 (mg/L) Average Monthly	< 12.0	< 2.7	14.7	10.5	51.4	5.0	13.7	12.9	5.8	< 9.1	5.5	18.0
TSS (mg/L) Average Monthly	< 21.9	< 4.3	13.4	12.8	73.4	< 8.4	15.9	< 10.4	< 4.8	< 4.6	< 4.8	< 4.0
Fecal Coliform (No./100 ml) Geometric Mean	< 2	25	< 123	< 1	72	37	162	< 1	< 1	< 1	< 1	87
Fecal Coliform (No./100 ml) Instantaneous Maximum	4	64	15200	< 1	1300	8600	800	< 1	< 1	< 1	< 1	7500
Nitrate-Nitrite (mg/L) Daily Maximum	23.7						23.8					
Total Nitrogen (mg/L) Daily Maximum	30.9						46.9					
Ammonia (mg/L) Average Monthly	34.6	5.39	27.1	44	5.07	9.5	44.6	39.2	25.9	14.23	30.5	7.31
TKN (mg/L) Daily Maximum	7.25						23.1					
Total Phosphorus (mg/L) Daily Maximum	0.22						0.24					

3.1.2 Effluent Violations for Outfall 001, from: February 1, 2024 To: December 31, 2024

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
CBOD5	08/31/24	Avg Mo	51.4	mg/L	25.0	mg/L
TSS	08/31/24	Avg Mo	73.4	mg/L	30.0	mg/L
Fecal Coliform	10/31/24	IMAX	15200	No./100 ml	10000	No./100 ml
Fecal Coliform	07/31/24	IMAX	8600	No./100 ml	1000	No./100 ml
Fecal Coliform	08/31/24	IMAX	1300	No./100 ml	1000	No./100 ml

3.1.3 Summary of DMRs:

DMRs review for the facility for the last 12 months of operation, presented on the table above in section 3.1.1 indicates permit limits have been met most of the time. CBOD5, Fecal coliform and TSS violations occurred during the past 12 months of operation as presented is section 3.1.2. It is unclear what is causing the violations. The operator indicated it was due to excessive use of cleaning products in the bathrooms for the 08/31/2024 and listed lab errors for the other two violations. The violations have not resulted in a notice of violation from the Department but operations and maintenance at the site need improvement.

3.1.4 Summary of Inspections:

The facility has been inspected a couple of times during the past permit cycle. Inspection reports identified deterioration of some of the treatment units. A maintenance and operation violation was noted during April 14, 2021, inspection. The Department made the following recommendations to the permittee to: Address treatment tank deterioration as soon as possible. - Address inadequate DO in the aeration tank. Address diffusers and complete an evaluation of the blowers and the plant loadings to determine adequacy. Provide an update on the blowers to the Department within 60 days of receipt of report. Consider an alarm system for the treatment plant, especially for high level in the EQ tank. Move old pump station alarm to new pump station. Maintain access to the river outfall. Some of the recommendations have been addressed. It is noted that some of the treatment units would need to be replaced or undergo major repairs since they are at the end of their useful life.

4.0 Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .008
Latitude 40º 24' 15.77" **Longitude** -77º 0' 31.64"
Wastewater Description: Sewage Effluent

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.

4.2 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: Weekly averages are not applicable to this discharge

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 $CBOD_5$, NH_3-N and DO in permits. The model simulates mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to NH_3-N water quality criteria and also simulates mixing and consumption of D.O. in the stream due to the degradation of $CBOD_5$ and NH_3N 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 the Susquehanna River. According to 25 PA § 93.9o, this stream is protected for Warm Water Fishes (WWF) and Migratory Fishes (MF). It is located in Drainage List o and State Watershed 6-C. It has been assigned stream code 06685. According to the Department's Integrated Water Quality Monitoring and Assessment Report, the Susquehanna River, is impaired for fish consumption due to PCB.

4.3.3 Streamflow:

Streamflows for the water quality analysis were determined by correlating with the yield of USGS gauging station No. 01570500 on Susquehanna River in Harrisburg. The Q_{7-10} and drainage area at the gage is 2610 ft^3/s and 24100 mi^2

respectively. The discharge is into a side channel of Susquehanna River that is unassessed and runs approximately 0.25 miles after discharge point, before it comingles with main stem. The side channel is created by Haldeman Island. The resulting yields are as follows:

- Q_{7-10} = (2610 ft^3/s)/ 24100 mi^2 = 0.10 $ft^3/s/ mi^2$
- Q_{30-10} / Q_{7-10} = 1.36
- Q_{1-10} / Q_{7-10} = 0.64

The drainage area at discharge taken from the previous protection report = 19700 mi^2
The Q_{7-10} at discharge = 19700 mi^2 x 0.10 $ft^3/s/mi^2$ = 1970 ft^3/s.

For WQM modelling purposes, 25% of the flow will be used

Q_{7-10} model = 1970 ft^3/s. x 0.25 = 492.5 ft^3/s

4.3.4 NH_3N Calculations

NH_3N 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 NH_3N criteria used in the attached computer model of the stream:

*	Discharge pH	= 7.7 (July -Sept DMR median)
*	Discharge Temperature	= 25 ^{o} C (Default)
*	Stream pH	= 8.2 (Taken from WQN station at Harrisburg)
*	Stream Temperature	= 23.5^{o}C (Taken from WQN station at Harrisburg)
*	Background NH_3-N	= 0.0 (default)

4.3.5 $CBOD_5$:

WQM 7.0 Model was used to analyze the combined discharge from Sheetz and Pilot Travel Center due to the proximity of the discharges to each other. The model results presented in attachment B indicate that, for Pilot Travel Center's discharge of 0.008 MGD, an average monthly limit (AML) of 25mg/l $CBOD_5$ is adequate to protect the water quality of the stream. This limit is consistent with the existing permit and the STP has been consistently achieving below this limitation. Therefore, a limit of 25mg/l AML and 50 mg/l IMAX is recommended for this permit cycle.

4.3.6 NH_3-N:

The attached results of the WQM 7.0 stream model (attachment B) also indicates that no limitation on NH_3 as a monthly average is necessary to protect the aquatic life from toxicity effects. However, twice per month monitoring of ammonia required in the permit to ensure treatment efficiency will remain in the permit.

4.3.7 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.

4.3.8 Total Suspended Solids (TSS):

There is no water quality criterion for TSS. A limit of 30 mg/l AML required in the existing permit 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) will remain in the permit.

4.3.9 Total Residual Chlorine

The attached TRC results presented in attachment C utilizes the equations and calculations as presented in the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID No. 391-2000-015) for

developing chlorine limitations. The Guidance references Chapter 92a, Section 92a.48 (b) which establishes a standard BAT limit of 0.5 mg/l unless a facility-specific BAT has been developed. TRC calculation was done using a PMFs of 0.015 AFC & 0.103 CFC taken from DEP's Toxic Management Spreadsheet. The results presented in attachment D indicate that, a technology limit of 0.5 mg/l monthly average and IMAX of 1.6 mg/l would be needed to prevent toxicity concerns. This is consistent with the existing permit. DMR and inspection report indicate the facility has been meeting this limit.

4.3.10 Toxics

A reasonable potential (RP) analysis was done for pollutants sampled in support of the permit renewal application. All pollutants that were presented in the application sampling data were entered into DEP's Toxics Management Spreadsheet (TMS) to calculate Water Quality Based Effluent limits (WQBELs). The results of the TMS presented in attachment C indicate the discharge levels for all parameters analyzed were well below DEP's target quantitation limits (TQL) and calculated WQBELs, therefore no limitation or monitoring is required in the permit.

The recommended limits follow the logic presented in DEPs SOP, to establish limits in the permit where the maximum reported concentration exceeds 50% of the WQBEL, or for non-conservative pollutants to establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL, or to establish monitoring requirements for conservative pollutants where the maximum reported concentration is between 10% - 50% of the WQBEL.

4.3.11 Chesapeake Bay Strategy:

The Department formulated a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). Sewage discharges have been prioritized based on their delivered TN and TP loadings to the Bay. The highest priority (Phases 1, 2, and 3) dischargers received annual loading caps based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. These limits may be achieved through a combination of treatment technology, credits, or offsets if approved by DEP. Phase 4 (0.2 - 0.4mgd) and Phase 5(below 0.2mdg) are required to monitor and report TN series and TP during permit renewal. Any facility in Phases 4 and 5 that undergoes expansion is subjected to cap load right away. This facility is, classified as a phase 5, and has been monitoring and will continue monitoring Nitrate-Nitrite as N, Total Kjeldahl Nitrogen, Total Nitrogen and Total Phosphorus semi-annually throughout the next permit cycle to collect data

4.3.12 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 >= 1 MGD, 1/quarter for design flows >= 0.05 and < 1 MGD and 1/year for design flows of 0.002 and < 0.05 MGD. Your discharge of 0.008 MGD requires 1/year monitoring as included in the permit.

5.0 Other Requirements

5.1 Anti-backsliding

Not applicable to this permit

5.2 Stormwater:

No storm water outfall is associated with this facility

5.3 Anti-Degradation (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.

5.4 Class A Wild Trout Fisheries

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

5.5 303d Listed Streams

The discharge from this facility is to a stream segment that is not assessed. Susquehanna River is attaining its designated use of Recreational use but not attaining Fish Consumption use. It is impaired for fish consumption by PCB. The source of the impairment is unknown. This discharge does not contribute to the impairment; therefore, no action is warranted at this time.

5.6 Other Permit requirements

The permit contains the following special conditions:

1. Stormwater Prohibition. 2. Approval Contingencies, 3. Management of Solids and collected screenings, slurries, sludges and other solids 4. Requirement to connect if a public sewer becomes available in the area. 5. Chlorine minimization

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.

6.0 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	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	24-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Nitrate-Nitrite	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	Calculation
Ammonia	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TKN	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite

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

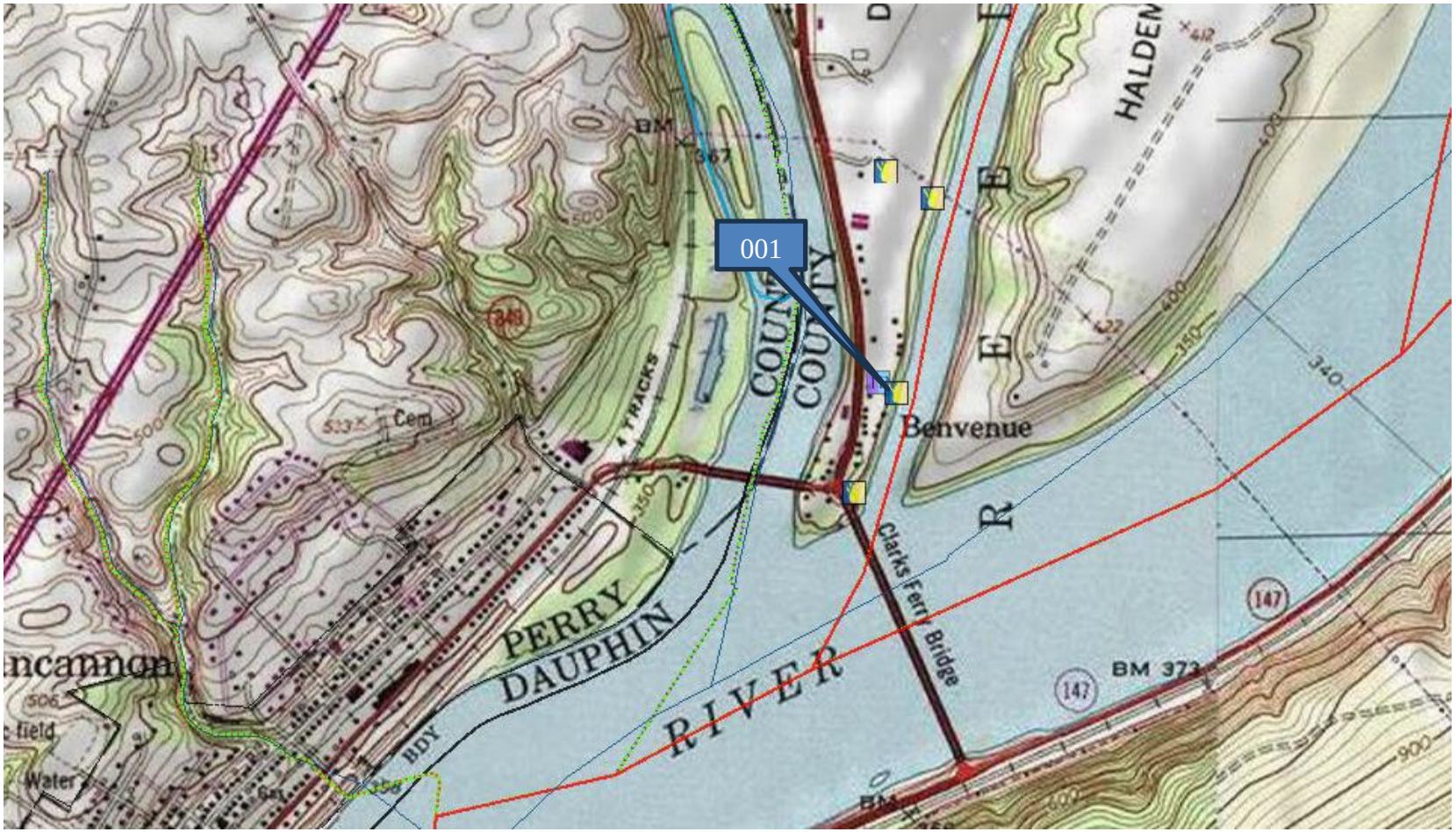
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite

Compliance Sampling Location: Outfall 001

7.0 Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **B**)
☐	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment **C**)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☒	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☒	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☒	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.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☒	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☒	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☒	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free-Flowing Streams, 386-2000-021, 10/97.
☐	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.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	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.
☒	Design Stream Flows, 386-2000-003, 9/98.
☐	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.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP: Establishing effluent limitation for individual sewage permit.
☒	Other: WIP 3 and Supplement.

Attachments

A. Topographical Map



B. WQM Model Results

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

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)
86.310	Sheetz	PA0261378	0.007	CBOD5	25		
				NH3-N	25	50	
				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)
86.300	Pilot Travel Ct	PA0084115	0.008	CBOD5	25		
				NH3-N	25	50	
				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)
79.230	Dauphin Boro	PA0024350	0.200	CBOD5	25		
				NH3-N	25	50	
				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
07K	6685	SUSQUEHANNA RIVER	**86.310**	345.00	19708.00	0.00000	0.00	☑

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 Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	492.40	0.000	0.000	0.0	0.00	0.00	23.50	8.20	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
Sheetz	PA0261378	0.0075	0.0075	0.0075	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
07K	6685	SUSQUEHANNA RIVER	**86.300**	344.00	19709.00	0.00000	0.00	☑

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 Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	492.50	0.000	0.000	0.0	0.00	0.00	23.50	8.20	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
Pilot Travel Ct	PA0084115	0.0080	0.0080	0.0080	0.000	25.00	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
07K	6685	SUSQUEHANNA RIVER	**79.230**	311.00	23423.00	0.00000	0.00	☑

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 Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	585.60	0.000	0.000	0.0	0.00	0.00	23.50	8.20	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
Dauphin Boro	PA0024350	0.2000	0.2000	0.2000	0.000	20.00	7.10

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
07K	6685	SUSQUEHANNA RIVER	**76.000**	300.00	23564.00	0.00000	3.75	☑

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 Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.50	8.20	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
Veolia Water	PA0014621	0.5440	0.5440	0.5440	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

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

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												
86.310	492.40	0.00	492.40	.0116	0.01895	1.837	284.32	154.8	0.94	0.001	23.50	8.20
86.300	492.50	0.00	492.50	.024	0.00088	1.28	482.85	377.16	0.80	0.542	23.50	8.20
79.230	585.60	0.00	585.60	.3334	0.00064	1.274	547	429.45	0.84	0.235	23.50	8.20
Q1-10 Flow												
86.310	467.78	0.00	467.78	.0116	0.01895	NA	NA	NA	0.92	0.001	23.50	8.20
86.300	467.88	0.00	467.88	.024	0.00088	NA	NA	NA	0.77	0.558	23.50	8.20
79.230	556.32	0.00	556.32	.3334	0.00064	NA	NA	NA	0.82	0.242	23.50	8.20
Q30-10 Flow												
86.310	576.11	0.00	576.11	.0116	0.01895	NA	NA	NA	1.03	0.001	23.50	8.20
86.300	576.22	0.00	576.22	.024	0.00088	NA	NA	NA	0.87	0.497	23.50	8.20
79.230	685.15	0.00	685.15	.3334	0.00064	NA	NA	NA	0.92	0.215	23.50	8.20

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.95	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.17	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

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
86.310	Sheetz	1.99	50	1.99	50	0	0
86.300	Pilot Travel Ct	1.99	50	1.99	50	0	0
79.230	Dauphin Boro	2	50	2	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
86.310	Sheetz	.46	25	.46	25	0	0
86.300	Pilot Travel Ct	.46	25	.46	25	0	0
79.230	Dauphin Boro	.46	25	.46	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
86.31	Sheetz	25	25	25	25	5	5	0	0
86.30	Pilot Travel Ct	25	25	25	25	5	5	0	0
79.23	Dauphin Boro	25	25	25	25	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
86.310	0.007	23.500	8.200
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
284.324	1.837	154.805	0.943
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.00	0.000	0.00	0.916
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.243	90.563	Tsivoglou	5
Reach Travel Time (days)			
0.001			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.000	2.00	0.00	7.74
0.000	2.00	0.00	7.74
0.000	2.00	0.00	7.74
0.000	2.00	0.00	7.74
0.000	2.00	0.00	7.74
0.000	2.00	0.00	7.74
0.000	2.00	0.00	7.74
0.001	2.00	0.00	7.74
0.001	2.00	0.00	7.74
0.001	2.00	0.00	7.74

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
86.300	0.015	23.500	8.200
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
482.852	1.280	377.160	0.797
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.00	0.001	0.00	0.916
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.737	3.570	Tsivoglou	5
Reach Travel Time (days)			
0.542			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.054	2.00	0.00	7.74
0.108	2.00	0.00	7.74
0.163	2.00	0.00	7.74
0.217	2.00	0.00	7.74
0.271	2.00	0.00	7.74
0.325	2.00	0.00	7.74
0.380	2.00	0.00	7.74
0.434	2.00	0.00	7.74
0.488	2.00	0.00	7.74
0.542	2.00	0.00	7.74

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
79.230	0.215	23.498	8.197
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
547.003	1.274	429.452	0.841
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.01	0.008	0.01	0.916
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.816	2.749	Tsivoglou	5
Reach Travel Time (days)			
0.235			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.023	2.01	0.01	7.74
0.047	2.01	0.01	7.74
0.070	2.01	0.01	7.74
0.094	2.01	0.01	7.74
0.117	2.01	0.01	7.74
0.141	2.01	0.01	7.74
0.164	2.01	0.01	7.74
0.188	2.01	0.01	7.74
0.211	2.01	0.01	7.74
0.235	2.01	0.01	7.74

C. TMS Results

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Pilot Travel Ctr Clark Ferry** NPDES Permit No.: **PA0084115** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Sewage**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.008	100	7.7						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L											
	Chloride (PWS)	mg/L											
	Bromide	mg/L											
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L	<										
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L	<										
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L	<										
	Total Boron	µg/L	<										
	Total Cadmium	µg/L	<										
	Total Chromium (III)	µg/L	<										
	Hexavalent Chromium	µg/L	<										
	Total Cobalt	µg/L	<										
	Total Copper	µg/L		41									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<										
	Dissolved Iron	µg/L	<										
	Total Iron	µg/L											
	Total Lead	µg/L		1									
	Total Manganese	µg/L											
	Total Mercury	µg/L	<										
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L	<										
	Total Selenium	µg/L	<										
	Total Silver	µg/L	<										
	Total Thallium	µg/L	<										
	Total Zinc	µg/L	<	84									
	Total Molybdenum	µg/L	<										

Stream / Surface Water Information

Pilot Travel Ctr Clark Ferry, NPDES Permit No. PA0084115, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Susquehanna River** No. Reaches to Model: **1**

◉ Statewide Criteria
○ Great Lakes Criteria
○ ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	006685	86.3	344	19709			Yes
End of Reach 1	006685	79.23	311	23423		100	Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	86.3	0.1										100	7		
End of Reach 1	79.23	0.1													

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	86.3														
End of Reach 1	79.23														

Model Results

Pilot Travel Ctr Clark Ferry, NPDES Permit No. PA0084115, Outfall 001

Instructions | *Results* | RETURN TO INPUTS | SAVE AS PDF | PRINT ◉ All ○ Inputs ○ Results ○ Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.015 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Copper	0	0		0	13.439	14.0	33,014	Chem Translator of 0.96 applied
Total Lead	0	0		0	64.581	81.6	192,544	Chem Translator of 0.791 applied
Total Zinc	0	0		0	117.180	120	282,563	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 720 PMF: 0.103 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Copper	0	0		0	8.956	9.33	152,368	Chem Translator of 0.96 applied
Total Lead	0	0		0	2.517	3.18	51,964	Chem Translator of 0.791 applied
Total Zinc	0	0		0	118.139	120	1,956,944	Chem Translator of 0.986 applied

☑ ***CFC*** CCT (min): 720 PMF: 0.103 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Copper	0	0		0	8.956	9.33	152,368	Chem Translator of 0.96 applied
Total Lead	0	0		0	2.517	3.18	51,964	Chem Translator of 0.791 applied
Total Zinc	0	0		0	118.139	120	1,956,944	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 359.189 THH PMF: 0.103 Analysis Hardness (mg/l): N/A Analysis pH: N/A PWS PMF: 0.0724

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Copper	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 720 PMF: 0.145 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Copper	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

Model Results

Pilot Travel Ctr Clark Ferry, NPDES Permit No. PA0084115, Outfall 001

Instructions | *Results* | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All ○ Inputs ○ Results ○ Limits

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

Pollutants	*Mass Limits* AML (lbs/day)	*Mass Limits* MDL (lbs/day)	*Concentration Limits* AML	*Concentration Limits* MDL	*Concentration Limits* IMAX	*Concentration Limits* Units	Governing WQBEL	WQBEL Basis	Comments

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Copper	21,161	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	51,964	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	181,112	µg/L	Discharge Conc ≤ 10% WQBEL

D. TRC Calculation Results

A	B	C	D	E	F	G
TRC EVALUATION						
Input appropriate values in A3:A9 and D3:D9						
1970	= Q stream (cfs)		0.5	= CV Daily		
0.008	= Q discharge (MGD)		0.5	= CV Hourly		
30	= no. samples		0.015	= AFC_Partial Mix Factor		
0.3	= Chlorine Demand of Stream		0.103	= CFC_Partial Mix Factor		
0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)		
0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)		
0	= % Factor of Safety (FOS)		0	=Decay Coefficient (K)		
Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc = 761.691		1.3.2.iii	WLA cfc = 5098.994	
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581	
PENTOXSD TRG	5.1b	LTA_afc= 283.824		5.1d	LTA_cfc = 2964.316	
Source		Effluent Limit Calculations				
PENTOXSD TRG	5.1f	AML MULT = 1.231				
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500		BAT/BPJ		
		INST MAX LIMIT (mg/l) = 1.635				
WLA afc		(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...				
		...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)				
LTAMULT afc		EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)				
LTA_afc		wla_afc*LTAMULT_afc				
WLA_cfc		(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...				
		...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)				
LTAMULT_cfc		EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)				
LTA_cfc		wla_cfc*LTAMULT_cfc				
AML MULT		EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))				
AVG MON LIMIT		MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)				
INST MAX LIMIT		1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)				