Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0051748**
Facility Type	**Municipal**	APS ID	**1452**
Major / Minor	**Minor**	Authorization ID	**1494914**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Tulpehocken Area School District**	Facility Name	**Tulpehocken High School STP**
Applicant Address	27 Rehersburg Road	Facility Address	55 Pearl Road
	Bethel, PA 19507-9737		Bernville, PA 19506-8939
Applicant Contact	Matthew Shirk, Chief Operating Officer *	Facility Contact	Paul Zerbe, WW Operator
Applicant Phone	(717) 933-4611 / mshirk@tulpehocken.org	Facility Phone	(484) 645-3912 / pzerbe@tulpehocken.org
Client ID	76765	Site ID	451567
Ch 94 Load Status	Not Overloaded	Municipality	Jefferson Township
Connection Status		County	Berks
Date Application Received	August 8, 2024	EPA Waived?	Yes
Date Application Accepted	August 12, 2024	If No, Reason	

Purpose of Application: Renewal of NPDES permit for the discharge of treated sewage

*copy Mary Peters, Project Manager, Entech Engineering, mpeters@entecheng.com. 570-868-0275

Summary of Review

The existing NPDES permit was issued February 21, 2020 with an expiration date of February 28, 2025. The renewal application was submitted using DEP's electronic upload system (Reference ID # 251913). The permit was administratively extended past its stated expiration date.

According to the renewal application, the Sewage Treatment Plant (STP) only serves Jefferson Township.
According to the DEP May 10, 2024 Inspection Report, the facility only receives flow from Tulpehocken High School. The high school dismisses for the summer at the end of May until the end of August. During this time, the facility has occasional flow from summer activities.

Design Flow

The renewal application represented the Annual Average Design Flow as 0.0216 MGD and the Hydraulic Design Capacity as 0.0216 MGD, the same as in the existing NPDES permit.

Discharge Monitoring Reports (DMRs) from January 1, 2023 through June 30, 2025 indicate the average monthly flow at 001 was 0.0017 MGD while the maximum daily flow was 0.0082 MGD. A summary of the DMRs' flow data is attached.
Note: During the months when school is in session (September through May), the average monthly flow at 001 was 0.0019 MGD and the maximum daily flow was 0.0082 MGD.

Industrial Users (IU)

The permittee reported in the application that there were no industrial users.

Approve	Deny	Signatures	Date
x		*Bonnie Boylan* Bonnie Boylan / Environmental Engineering Specialist	September 8, 2025
x		*Maria D. Bebenek* for Daniel W. Martin, P.E. / Environmental Engineer Manager	September 9, 2025

Summary of Review

EPA Pretreatment Program

Not Applicable.

Combined Sewer Overflows

None.

Variances

There were no variances [40 CFR 122.21(n)] requested in the application.

Hauled-in Wastes

The facility reported that they have not been receiving hauled-in waste and do not expect to accept hauled-in waste in the next 5 years, the term of the renewal NPDES permit.

Sludge use and disposal description and location(s)

Sludge is hauled and disposed off-site such as to Lehigh County Authority WWTP.

Outstanding Violations

There are no outstanding violations for this client according to DEP's Client History Summary Report.

Delaware River Basin Commission (DRBC)

The facility discharges to a waterway within the Delaware River watershed and is thus subject to DRBC requirements. A copy of the draft permit and Fact Sheet will therefore be sent to the DRBC for their review in accordance with State regulations and an interagency agreement. Any comments from DRBC will be considered.

The facility is under DRBC's reviewable threshold such that there is no docket.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.0216
Latitude	40º 27' 22" (40.456111)	Longitude	-76º 10' 52" (-76.18111)
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Little Northkill Creek (CWF)	Stream Code	UNT 01908
NHD Com ID	25997438	RMI	3.3 per lat/long & eMapPA
Drainage Area	2.89	Yield (cfs/mi^2)	0.02 USGS PA Stream Stats https://streamstats.usgs.gov/ss/
Q_{7-10} Flow (cfs)	0.055	Q_{7-10} Basis	
Elevation (ft)	approx. 420'	Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	CWF, MF
Existing Use	None (use designated use)	Existing Use Qualifier	none
Exceptions to Use	none	Exceptions to Criteria	none
Assessment Status	Impaired for Recreational Use		
Cause(s) of Impairment	Pathogens		
Source(s) of Impairment	Potentially Agriculture		
TMDL Status	None	Name	

Secondary Waters:
Flows into Little Northkill Creek (CWF) at approx. 2.39 RMI which empties into Northkill Creek (CWF) at approx. 0.77 RMI which flows into Tulpehocken Creek (WWF) at approx. 14.94 RMI (and Blue Marsh Lake), all of which are also impaired for recreational use due to pathogens (Blue Marsh Lake is also impaired for aquatic life due to nutrients)

Background/Ambient Data – Not available		Data Source – Not available	
Nearest Downstream Public Water Supply Intake		Western Berks Water Authority	
PWS Waters	Tulpehocken Creek	Flow at Intake (cfs)	
PWS RMI	Approx. 6.8	Distance from Outfall (mi)	Approx. 15 miles

Changes since last Fact Sheet:

Stream Stats online tool was used for this Fact Sheet whereas gage correlation was used to estimate Q7-10 and LFY for the last Fact Sheet. Gage correlation was not used for this Fact Sheet because:

a) there are no gages on Little Northkill Creek or Northkill Creek. The gage (01470779) used in the last Fact Sheet was one located on Tulpehocken Creek, upstream of the confluence with Northkill Creek.
b) The period of record for gage 01470779, on which Q7-10 flows and LFYs were estimated, ended in 2008. The data is considered outdated.

Other Comments:
-Receiving water and downstream waters are **not** considered Class A Trout or Trout Natural Reproduction waters.
-There are no nearby Water Quality Network stations (for background data) or stream gages on the receiving streams.
-There are no nearby sewage dischargers per DEP's eMapPA to include in modeling.

Treatment Facility Summary				
Treatment Facility Name: Tulpehocken High School				
WQM Permit No.	**Issuance Date**			
0615403	7/5/2016			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Extended Aeration	Gas Chlorine	0.0216
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.0216	36.7	Not Overloaded		

According to the NPDES application:

The facility utilizes an extended aeration activated sludge treatment process consisting of a comminutor, bar screen, aeration tank, clarifier, chlorine contact tank, and outfall structure. Two (2) sludge holding tanks are available. Sodium Hypochlorite is used for disinfection, aluminum sulfate is used for pH adjustment and settling, and line is used for pH adjustment.

According to the May 10, 2024 DEP Inspection Report:

-influent channel with a comminutor and a bypass channel with manual bar screen
-two aeration tanks connected via sluice gates, with airline diffusers
-two clarifiers
-two chlorine contact tanks, with v-notch weir and scum troughs
-two sludge holding tanks, continuously aerated

EXISTING PERMIT LIMITS, OUTFALL 001:

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

Compliance History

DMR Data for Outfall 001 (from August 1, 2024 to July 31, 2025)

Parameter	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24
Flow (MGD) Average Monthly		0.00075	0.001427	0.001346	0.00162	0.001877	0.00161	0.001104	0.001620	0.001907	0.00208	0.00045
Flow (MGD) Daily Maximum		0.00299	0.00312	0.00371	0.003077	0.005532	0.003857	0.0031	0.003427	0.003854	0.004371	0.0032
pH (S.U.) Instantaneous Minimum		7.02	6.9	6.85	6.9	6.74	6.81	6.63	6.84	6.82	6.82	6.86
pH (S.U.) Instantaneous Maximum		7.55	7.42	7.49	7.36	7.21	7.57	7.44	7.28	7.24	7.41	7.73
DO (mg/L) Daily Minimum		6.9	6.56	7.25	7.58	8.33	9.41	7.89	7.07	7.12	6.95	7.7
TRC (mg/L) Average Monthly		0.35	0.36	0.3	0.327	0.339	0.35	0.2	0.376	0.269	0.226	0.37
TRC (mg/L) Instantaneous Maximum		0.75	0.62	0.48	0.83	0.8	0.6	0.39	0.93	0.63	0.62	0.55
CBOD5 (mg/L) Average Monthly		< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CBOD5 (mg/L) Instantaneous Maximum		< 2	< 2	< 2	< 2	< 2	2.2	< 2	< 2	< 2	< 2	< 2
TSS (mg/L) Average Monthly		2.5	2.5	8.5	1.5	< 2	2	2.5	< 1.5	5.5	< 1.5	3.5
TSS (mg/L) Instantaneous Maximum		3	4	11	2	3	3	4	2	11	2	5
Fecal Coliform (No./100 ml) Geometric Mean		57	< 2	< 4.47	< 2	< 2	< 2	< 29	< 3.16	< 4.47	< 6	< 2
Fecal Coliform (No./100 ml) Instantaneous Maximum		470	< 2	10	< 2	< 2	< 2	410	5	10	18	< 2
Ammonia (mg/L) Average Monthly		0.025	0.08	0.11	0.57	0.025	0.045	< 0.07	< 0.05	0.025	0.389	0.78

Ammonia (mg/L) Instantaneous Maximum		0.03	0.14							0.03	0.56	1.46
Total Phosphorus (mg/L) Average Monthly		0.315	0.405	0.51	0.28	0.13	0.185	0.325	0.21	0.25	0.93	0.085
Total Phosphorus (mg/L) Instantaneous Maximum		0.38	0.48	0.64	0.28	0.14	0.21	0.39	0.24	0.3	2.51	0.1

Compliance History

Summary

Primary Facility ID	Primary Facility Other ID	Primary Facility Name	
478501	PA0051748	TULPEHOCKEN HIGH SCH	
Primary Facility Status	**Primary Facility Type**	**Primary Facility Kind**	**Primary Facility Fee Category**
ACTIV - Active	WPCF - Water Pollution Control Facility	SP - Sewage Publicly Owned (Muni)	Minor Sewage Facility <0.05 MGD

General | Addresses | Documents | Upload File | Monitoring Reports | Non-Compliance | Sampling Points | Permit History

Effluent Non-Compliance (Non-Compliant: 2 ; Compliant: 0) | Unauthorized Discharges (Non-Compliant: 0 ; Compliant: 0) | Other Permit Non-Compliance (Non-Compliant: 6 ; Compliant: 0)

Refine List

NC ID	Event Start Date	Event End Date	Parameter	Limit Type	Reported Value		Permit Limit	Unit	Sampling Point	Sampling Frequency	Sampling Type	Cause of NC	Corrective Action	External Comments	Internal Comments
225611	09/01/2024	09/30/2024	Total Phosphorus	Instantaneous Maximum	2.51	>	2	mg/L	Final Effluent (001)	2/month	Grab				View/Edit
15698	09/01/2015	09/30/2015	Fecal Coliform	Instantaneous Maximum	3500	>	1000	CFU/100 ml	Final Effluent (001)	2/month	Grab				View/Edit

Most recent DEP Inspections:

5/10/2024 – No violations. Effluent samples were collected and analyzed at Bureau of Labs: results showed no exceedances of permit limits. The clarifier weirs were clean and in good repair. The effluent from the Chlorine Contact Tank (CCT) appeared clear, without solids. The receiving stream appeared clear. Dense vegetation at outfall preventing observation. Effluent flow is measured with ultrasonic meter and recorded with a Totalizer. No standby power. No alarms.

12/19/2018 – No Violations. WQM Part II permit issued and upgrades completed as outlined in permit: aeration tank and clarifier partitioned, two new blowers installed, baffling in CCT added, second sludge holding tank constructed. Effluent samples are manually composited. No standby power. No alarms.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.0216
Latitude 40º 27' 22" **Longitude** -76º 10' 52"
Wastewater Description: Sewage Effluent

DEP separately determines Technology-Based Effluent Limitations (TBELs), Best Professional Judgement limitations (BPJ) as needed, and Water Quality-Based Effluent Limitations (WQBELs), compares them to existing permit limits, then decides which to impose as permit limits for the renewal permit.

Technology-Based Effluent Limitations (TBELs)

The following technology-based limitations apply to sewage dischargers, where applicable:

	Limit (mg/l)	Statistical Base Code	Federal Regulation	State Regulation	DRBC*
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)	
Total Suspended Solids (TSS)	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)	18 CFR Part 410
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 (TRC)	0.5	Average Monthly	-	92a.48(b)(2)	
Total Phosphorus (TP)**	2.0	Avg. Monthly		96.5(c)	
Total Dissolved Solids (TDS)	1000 ***	Average Monthly	-	-	18 CFR Part 410
Ammonia as N	20	Average Monthly	-	-	18 CFR Part 410

*DEP has an interagency agreement with the Delaware River Basin Commission (DRBC) and incorporates their requirements (18 CFR Part 410 Water Quality Regulations and approved dockets) into our permits where appropriate.

**applicable to discharges to a receiving water (or downstream water) that is known to be impaired for nutrients.

***or a concentration which is compatible with designated water uses and stream quality objectives, a concentration that will not cause the TDS in the receiving water to exceed the lesser of 500 mg/l or 133% of background.

The above limits for **$CBOD_5$, TSS, pH, and Fecal Coliform** have been included in the draft permit. These are the same limits as in the existing permit.

The **TRC** TBELs in the above table match the limits in the existing permit but are less stringent than the WQBELs for TRC. See the TRC discussion in the WQBEL section of this Fact Sheet.

The **TP** limits in the existing permit are more stringent than the limits shown above and have been carried forward into the draft renewal permit. TP is discussed in the WQBEL section of the Fact Sheet.

A monitoring requirement for TDS has been incorporated into the draft renewal permit, both as a result of the DRBC requirements and to allow DEP to satisfy the requirements in Pa Code 95.10 in the future (impose TDS limits when there is a significant increase from the TDS baseline load as of August 21, 2010 and/or determine loads to specific waterways to determine when variances are warranted).

The WQBELs for **Ammonia** are more stringent than the above TBELs or than the existing permit's limits. The WQBELs have been imposed as limits in the draft renewal permit. See the WQBEL section of the Fact Sheet.

Water Quality-Based Effluent Limitations (WQBELs)

Protection of Blue Marsh Lake:

In the previous facility's permits, an average monthly limit of 1.0 mg/L for Total Phosphorus (TP) was included in the permit based on a lake survey (i.e., lake model) prepared in 1987 which indicated that the Lake required protective measures to control nutrients. The same limits in the existing permit have been carried forward into the draft renewal permit. The facility's DMRs that were reviewed, from January 1, 2023 through June 30, 2025, demonstrate that the facility has been meeting the TP permit limits. Note: there are two public drinking water intakes immediately after Blue Marsh Lake.

WQBELs other than TMDL:

DEP's uses a TRC model (Excel worksheet) for TRC evaluation, consistent with Implementation Guidance for TRC, document #386-2000-011.

DEP uses a model known as WQM 7.0 to determine appropriate limits for CBOD5, Ammonia (NH3-N), and Dissolved Oxygen (DO). DEP's Guidance document #386-2000-022 provides the methods and calculations contained in the WQM 7.0 model for conducting wasteload allocation and for determining recommended NPDES effluent limits for point source discharges. For more explanation of the WQM 7.0 model, see Technical Reference Guide WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, document #386-2000-016.

The source of the River Mile Indices (RMI's) and elevations that were used in the WM 7.0 model (and TMS model discussed below) are DEP's eMapPA while the source of the Drainage Areas and stream design low-flows (Q_{7-10}) are the USGS PA Stream Stats online tool (see attached). Low Flow Yield (LFY) is calculated as stream low-flow Q_{7-10} divided by the Drainage Area of the stream at the outfall location.

DEP default values are used in the models in the absence of site-specific data. In addition, the models estimate the stream width, depth, slope, and velocity if no site-specific data are entered for these. The attached model results show the input values, the default values, and the results.

The following limitations were determined through water quality modeling (output files attached):

Parameter	Limit (mg/l)	SBC	Model
CBOD5	25 *	Average monthly	WQM 7.0
Dissolved Oxygen	5.0 *	Instant. Minimum	WQM 7.0
Ammonia	5.8	Average Monthly	WQM 7.0 (rounded)
Ammonia	11.6	Maximum	WQM 7.0 (rounded)
Total Residual Chlorine	0.25	Average Monthly	TRC (Excel) Worksheet
Total Residual Chlorine	0.82	Instant. Maximum	TRC (Excel) Worksheet

*The WQM 7.0 model did not calculate more stringent WQBELs for CBOD5 but defaulted to the existing permit's limits (TBELs) while achieving a minimum Dissolved Oxygen level of 5.0 mg/l.

Ammonia
Consistent with DEP's SOP Establishing Effluent Limitations for Individual Sewage Permits, the Ammonia limits recommended by the WQM 7.0 model have been imposed as the average monthly and maximum limits during warm months but less stringent Ammonia limits have been allowed for the cool months in recognition of the fact that Ammonia is

less toxic in cooler temperatures: a multiplier of 3 times the warm months limits were used to derive the Ammonia limits during the cool months.
To note, the water quality criteria for Ammonia has changed since the issuance of the last permit [25 Pa Code Chapter 93].

Total Residual Chlorine
DEP's TRC Excel worksheet recommended the above WQBELs which are more stringent than the TBELs and the existing permit limits. A review of the facility's DMRs from January 1, 2023 through June 30, 2025 (see attached) indicate that the facility cannot immediately meet the new TRC limits: the average concentration has been approximately 0.28 mg/l and their maximum during that period was 1.2 mg/l. A compliance schedule of one year has been proposed. No progress reports are required for compliance schedules of one year and less.

Toxics
DEP's permit renewal application for minor sewage facilities less than 0.1 MGD does not require sampling of toxic pollutants nor were effluent samples for toxic parameters provided. Further, this facility only receives sanitary wastewater from the school. DEP's model for toxic parameters, the Toxics Management Spreadsheet (TMS), was not run. The existing permit also did not include any limits for toxic pollutants.

Anti-Backsliding

No limits in the draft renewal permit are less stringent than in the existing permit

Flow Monitoring

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

E. Coli Monitoring

Consistent with the SOP Establishing Effluent Limitations for Individual Sewage Permits and due to the regulatory change in the State Water Quality Standards, PA Code Chapter 93, E. Coli monitoring at outfall 001 has been included. The SOP recommends once per year monitoring for facilities with discharge flows the size of this facility's . The statutory basis for this requirement is provided at PA Code § 92a.61.

Sample Types and Monitoring Frequencies

Sample types and monitoring frequencies are consistent with the Technical Guidance for the Development and Specification of Effluent Limitations, document #386-0400-001, and/or carried forward from the previous permit.

Total Nitrogen and Total Phosphorus Monitoring

In an effort to understand nutrient loading on PA streams, sewage dischargers with design flows greater than 2000 gpd are required, at a minimum, to monitor for Total Nitrogen (TN) and Total Phosphorus (TP) in new and reissued permits. Due to the downstream Blue Marsh Lake TMDL, monitoring and limits have previously been imposed for TP. A monitoring requirement has been added in the draft renewal permit for TN.

Class A Trout Fisheries

No Class A Trout Fisheries are impacted by this discharge.

Antidegradation

The permit limits and conditions are intended to protect the designated and existing uses of the receiving stream. No High Quality or Exceptional Value waters are impacted by this discharge.

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 as needed and BPJ. Instantaneous Maximum (IMAX) limits are generally 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 Effective Date + 1 Year. INTERIM LIMITS

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	5/week	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	5/week	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	5/week	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.5	XXX	1.6	5/week	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	30	XXX	60	2/month	Grab
Total Dissolved Solids	XXX	XXX	XXX	Report Avg Qrtrly	XXX	XXX	1/quarter	Grab
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
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	17.4	XXX	34.8	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	5.8	XXX	11.6	2/month	Grab
Nitrate-Nitrite – N *	XXX	XXX	XXX	Report Avg Qrtrly	XXX	XXX	1/quarter	Grab
Total Kjeldahl Nitrogen (TKN)*	XXX	XXX	XXX	Report Avg Qrtrly	XXX	XXX	1/quarter	Grab

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Total Nitrogen *	XXX	XXX	XXX	Report Avg Qrtrly	XXX	XXX	1/quarter	Calculation
Total Phosphorus	XXX	XXX	XXX	1.0	XXX	2.0	2/month	Grab

*Total Nitrogen = TKN + Nitrate-Nitrite

Compliance Sampling Location: at outfall 001

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 as needed and BPJ. Instantaneous Maximum (IMAX) limits are generally 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 + 1 Year through Permit Expiration Date. FINAL LIMITS

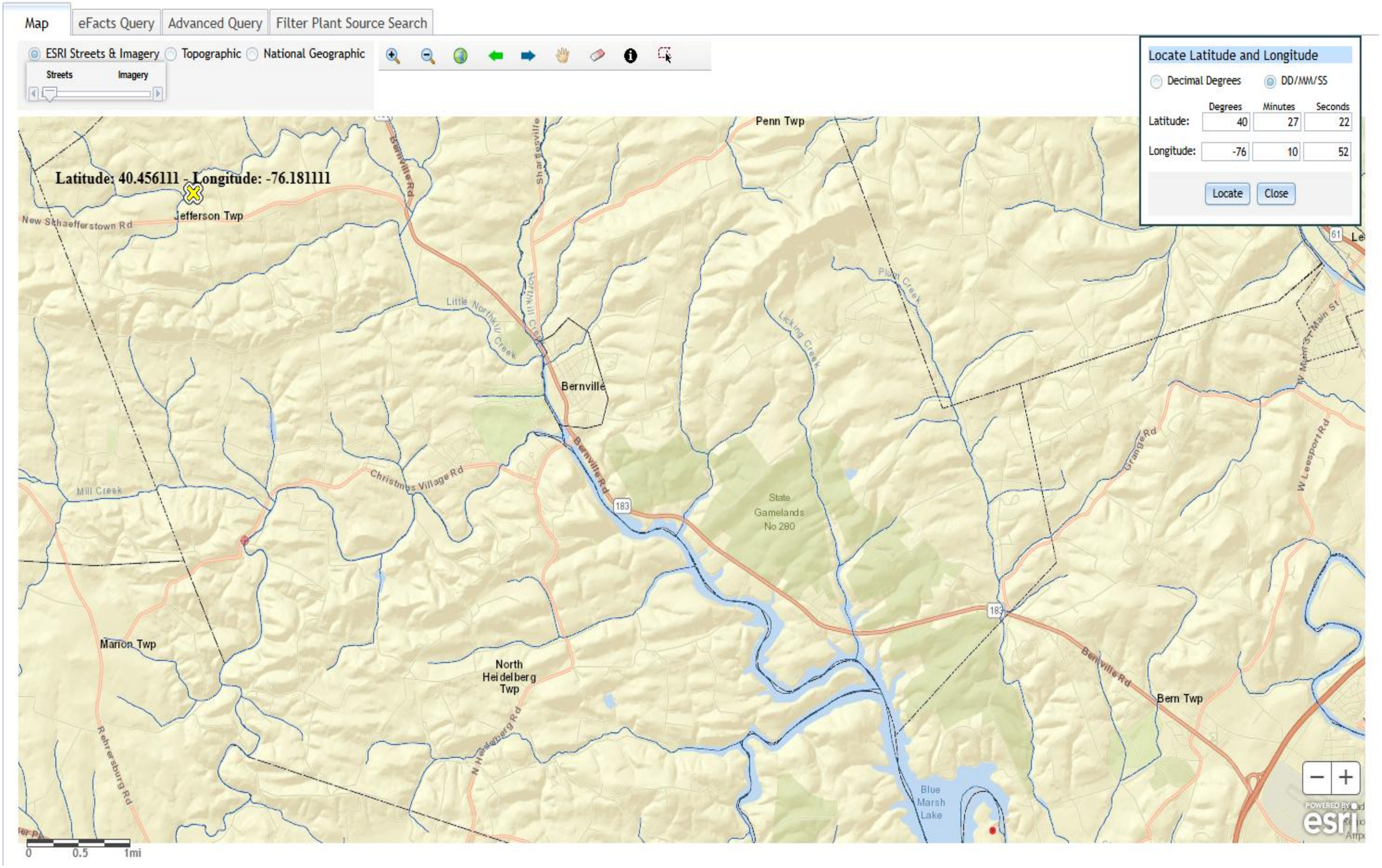
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	5/week	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	5/week	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	5/week	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.25	XXX	0.82	5/week	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	30	XXX	60	2/month	Grab
Total Dissolved Solids	XXX	XXX	XXX	Report Avg Qrtrly	XXX	XXX	1/quarter	Grab
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
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	17.4	XXX	34.8	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	5.8	XXX	11.6	2/month	Grab
Nitrate-Nitrite – N *	XXX	XXX	XXX	Report Avg Qrtrly	XXX	XXX	1/quarter	Grab
Total Kjeldahl Nitrogen (TKN)*	XXX	XXX	XXX	Report Avg Qrtrly	XXX	XXX	1/quarter	Grab

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Total Nitrogen *	XXX	XXX	XXX	Report Avg Qrtrly	XXX	XXX	1/quarter	Calculation
Total Phosphorus	XXX	XXX	XXX	1.0	XXX	2.0	2/month	Grab

*Total Nitrogen = TKN + Nitrate-Nitrite

Compliance Sampling Location: at outfall 001

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	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.
☐	EPA Technical Support Document for Water Quality-based Toxics Control (TSD), EPA/505/2-90-001, PB91-127415, March 1991.
☒	SOP: New and Reissuance Sewage Individual NPDES Permit Applications, Version 2.0, February 3, 2022
☒	SOP: Establishing Effluent Limitations in Individual Sewage NPDES Permits, Version 2.0, February 5, 2024
☐	SOP: Establishing Water-Quality Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers. Version 1.5, May 20, 2021.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Minutes
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Close
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Jefferson Twp
New Schaefferstown Rd
Penn Twp
Bernville
Bernville Rd
Christmas Village Rd
Mill Creek
Plum Creek
Licking Creek
Little Northkill Creek
State Gamelands No 280
183
Marion Twp
North Heidelberg Twp
N Heidelberg Rd
Rehrersburg Rd
Bern Twp
Grange Rd
W Leesport Rd
W Main St
Blue Marsh Lake
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0.5
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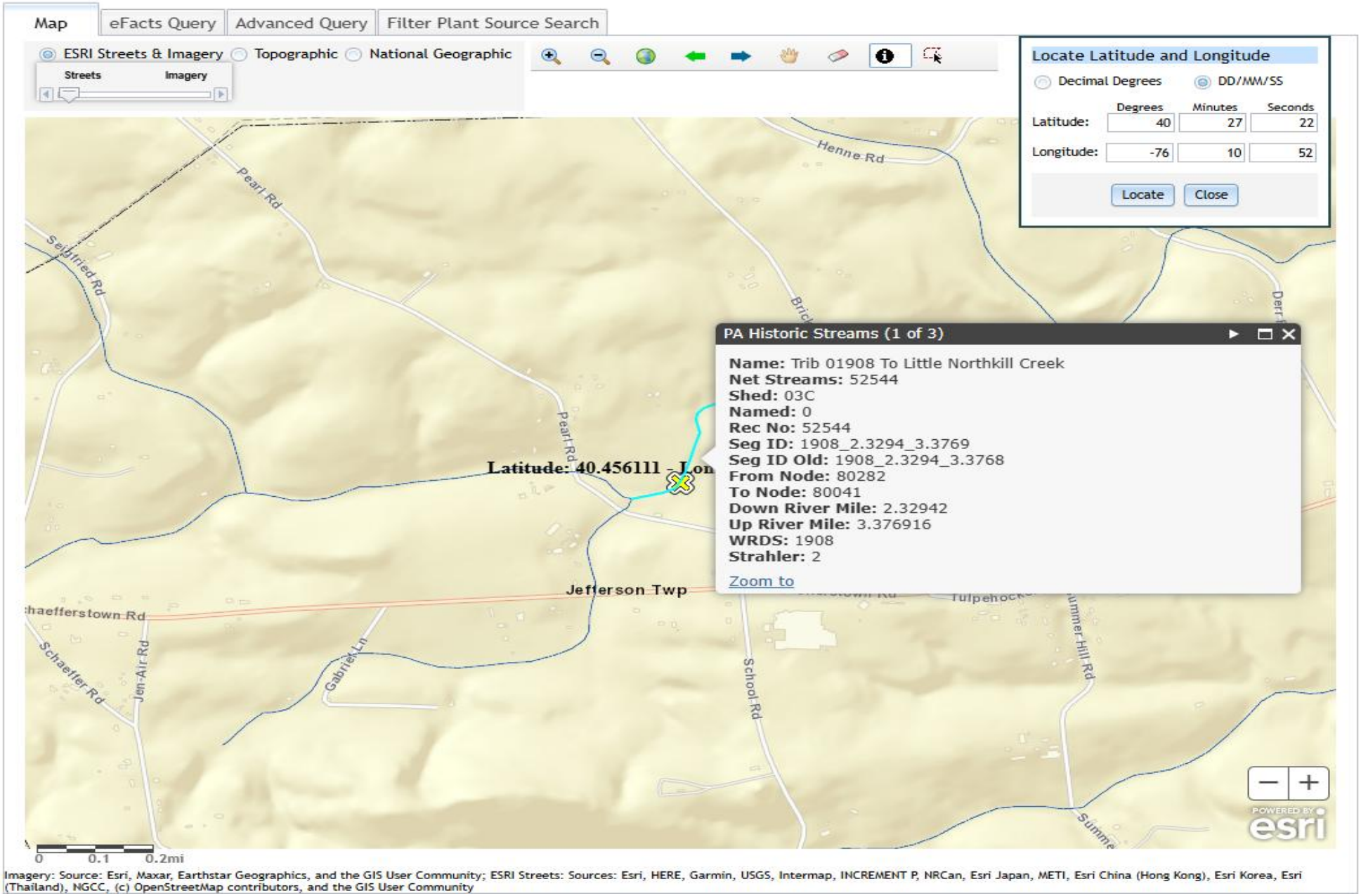
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Filter Plant Source Search
ESRI Streets & Imagery
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National Geographic
Streets
Imagery
Locate Latitude and Longitude
Decimal Degrees
DD/MM/SS
Degrees
Minutes
Seconds
Latitude: 40 27 22
Longitude: -76 10 52
Locate
Close
PA Historic Streams (1 of 3)
Name: Trib 01908 To Little Northkill Creek
Net Streams: 52544
Shed: 03C
Named: 0
Rec No: 52544
Seg ID: 1908_2.3294_3.3769
Seg ID Old: 1908_2.3294_3.3768
From Node: 80282
To Node: 80041
Down River Mile: 2.32942
Up River Mile: 3.376916
WRDS: 1908
Strahler: 2
Zoom to
Latitude: 40.456111 - Lon
Jefferson Twp
Henne Rd
Pearl Rd
Seigfried Rd
Schaeffer Rd
Jen-Air Rd
Gabriel Ln
School Rd
Summer Hill Rd
0 0.1 0.2mi
Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community; ESRI Streets: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

PERMIT	PF_NAME	MONITOR	MONITORIN	REPORT_F	OUTFALL	DISCHARG	PARAMETE	LOAD_UNI	LOAD_1_V	LOAD_1_	LOAD_1_SBC	LOAD_2_V	LOAD_2_	LOAD_2_SI	SAMPLE_F	SAMPLE_TYPE
PA0051748	TULPEHOCKEN HIGH SCH	1/1/2023	1/31/2023	Monthly	001	Yes	Flow	MGD	0.002049	Monitor	Average Monthly	0.003797	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	2/1/2023	2/28/2023	Monthly	001	Yes	Flow	MGD	0.002218	Monitor	Average Monthly	0.00545	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	3/1/2023	3/31/2023	Monthly	001	Yes	Flow	MGD	0.002003	Monitor	Average Monthly	0.003459	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	4/1/2023	4/30/2023	Monthly	001	Yes	Flow	MGD	0.00151	Monitor	Average Monthly	0.00383	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	5/1/2023	5/31/2023	Monthly	001	Yes	Flow	MGD	0.002048	Monitor	Average Monthly	0.00373	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	6/1/2023	6/30/2023	Monthly	001	Yes	Flow	MGD	0.00095	Monitor	Average Monthly	0.00254	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	8/1/2023	8/31/2023	Monthly	001	Yes	Flow	MGD	0.001477	Monitor	Average Monthly	0.00496	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	9/1/2023	9/30/2023	Monthly	001	Yes	Flow	MGD	0.002421	Monitor	Average Monthly	0.005397	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	10/1/2023	10/31/2023	Monthly	001	Yes	Flow	MGD	0.00228	Monitor	Average Monthly	0.00559	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	11/1/2023	11/30/2023	Monthly	001	Yes	Flow	MGD	0.001815	Monitor	Average Monthly	0.003628	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	12/1/2023	12/31/2023	Monthly	001	Yes	Flow	MGD	0.001739	Monitor	Average Monthly	0.00379	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	1/1/2024	1/31/2024	Monthly	001	Yes	Flow	MGD	0.00267	Monitor	Average Monthly	0.0082	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	2/1/2024	2/29/2024	Monthly	001	Yes	Flow	MGD	0.00202	Monitor	Average Monthly	0.00457	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	3/1/2024	3/31/2024	Monthly	001	Yes	Flow	MGD	0.00155	Monitor	Average Monthly	0.00359	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	4/1/2024	4/30/2024	Monthly	001	Yes	Flow	MGD	0.001805	Monitor	Average Monthly	0.00431	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	5/1/2024	5/31/2024	Monthly	001	Yes	Flow	MGD	0.00223	Monitor	Average Monthly	0.00503	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	6/1/2024	6/30/2024	Monthly	001	Yes	Flow	MGD	0.00067	Monitor	Average Monthly	0.00448	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	8/1/2024	8/31/2024	Monthly	001	Yes	Flow	MGD	0.00045	Monitor	Average Monthly	0.0032	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	9/1/2024	9/30/2024	Monthly	001	Yes	Flow	MGD	0.00208	Monitor	Average Monthly	0.004371	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	10/1/2024	10/31/2024	Monthly	001	Yes	Flow	MGD	0.001907	Monitor	Average Monthly	0.003854	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	11/1/2024	11/30/2024	Monthly	001	Yes	Flow	MGD	0.00162	Monitor	Average Monthly	0.003427	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	12/1/2024	12/31/2024	Monthly	001	Yes	Flow	MGD	0.001104	Monitor	Average Monthly	0.0031	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	1/1/2025	1/31/2025	Monthly	001	Yes	Flow	MGD	0.00161	Monitor	Average Monthly	0.003857	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	2/1/2025	2/28/2025	Monthly	001	Yes	Flow	MGD	0.001877	Monitor	Average Monthly	0.005532	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	3/1/2025	3/31/2025	Monthly	001	Yes	Flow	MGD	0.00162	Monitor	Average Monthly	0.003077	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	4/1/2025	4/30/2025	Monthly	001	Yes	Flow	MGD	0.001346	Monitor	Average Monthly	0.00371	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	5/1/2025	5/31/2025	Monthly	001	Yes	Flow	MGD	0.001427	Monitor	Average Monthly	0.00312	Monitor	Daily Maxi	5/week	Measured
PA0051748	TULPEHOCKEN HIGH SCH	6/1/2025	6/30/2025	Monthly	001	Yes	Flow	MGD	0.00075	Monitor	Average Monthly	0.00299	Monitor	Daily Maxi	5/week	Measured
									0.001687	Avg		0.0082	Max			
									0.00267	MMA						

StreamStats Output Report - outfall 001						
State/Regi	PA					
Workspac	PA20250908121722235000					
Latitude	40.45671					
Longitude	-76.1808					
Time	9/8/2025	8:17:44 AM				
Basin Characteristics						
Parameter	Parameter	Value	Unit			
CARBON	Percentag	0	percent			
DRNAREA	Area that	2.89	square miles			
PRECIP	Mean Ann	45	inches			
ROCKDEP	Depth to r	3	feet			
STRDEN	Stream De	1.44	miles per square mile			
Low-Flow	100.0 Percent Low Flow Region 2					
Parameter	Parameter	Value	Units	Min Limit	Max Limit	
CARBON	Percent Ca	0	percent	0	99	
DRNAREA	Drainage A	2.89	square mi	4.93	1280	
PRECIP	Mean Ann	45	inches	35	50.4	
ROCKDEP	Depth to R	3	feet	3.32	5.65	
STRDEN	Stream De	1.44	miles per	0.51	3.1	
Low-Flow	100.0 Percent Low Flow Region 2					
Statistic	Value	Unit				
7 Day 2 Ye	0.211	ft^3/s				
30 Day 2 Y	0.339	ft^3/s				
7 Day 10 Y	0.0552	ft^3/s				
30 Day 10	0.0967	ft^3/s				
90 Day 10	0.203	ft^3/s				
USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related mat						
USGS Software Disclaimer: This software has been approved for release by the U.S. G						
USGS Product Names Disclaimer: Any use of trade, firm, or product names is for des						

StreamStats Output Report downstream at Deer Rd					
State/Region ID	PA				
Workspace ID	PA20250908124055060000				
Latitude	40.46347				
Longitude	-76.16499				
Time	9/8/2025	8:41:17 AM			
Basin Characteristics					
Parameter Code	Parameter Descripti	Value	Unit		
CARBON	Percentage of area c	0	percent		
DRNAREA	Area that drains to a	4.94	square miles		
PRECIP	Mean Annual Precip	45	inches		
ROCKDEP	Depth to rock	3	feet		
STRDEN	Stream Density -- tot	1.65	miles per square mile		
Low-Flow Statistics Para	100.0 Percent Low Flow Region 2				
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	0	percent	0	99
DRNAREA	Drainage Area	4.94	square mi	4.93	1280
PRECIP	Mean Annual Precip	45	inches	35	50.4
ROCKDEP	Depth to Rock	3	feet	3.32	5.65
STRDEN	Stream Density	1.65	miles per	0.51	3.1
Low-Flow Statistics Flow	100.0 Percent Low Flow Region 2				
Statistic	Value	Unit			
7 Day 2 Year Low Flow	0.337	ft^3/s			
30 Day 2 Year Low Flow	0.54	ft^3/s			
7 Day 10 Year Low Flow	0.0897	ft^3/s			
30 Day 10 Year Low Flow	0.157	ft^3/s			
90 Day 10 Year Low Flow	0.323	ft^3/s			
USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are consi					
USGS Software Disclaimer: This software has been approved for release by the U.S. Geological Surve					
USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purpos					

LFY = Q7-10 / D.A. = 0.0897 cfs / 4.94 sq.mi. = 0.018

Input Data WQM 7.0

General Data

General | Stream | Discharge and Parameters

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	LFY (cfsm)	Slope (ft/ft)	PWS With (mgd)	Apply FC
1908	3.300	420	2.89	0.02	0	0	☑
1908	2.000	375	4.94	0.02	0	0	☑

Add Record

Delete Record

Input Data WQM 7.0

Stream Data

General | Stream | Discharge and Parameters

Design Condition ◉ Q7-10 ○ Q1-10 ○ Q30-10

RMI	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
3.300	0.00	0.00	0.000	0.00	0	0.00	0.00	20.00	7.00	0.000	0.00
2.000	0.00	0.00	0.000	0.00	0	0.00	0.00	20.00	7.00	0.000	0.00

Input Data WQM 7.0

Discharge and Parameter Data

General | Stream | Discharge and Parameters

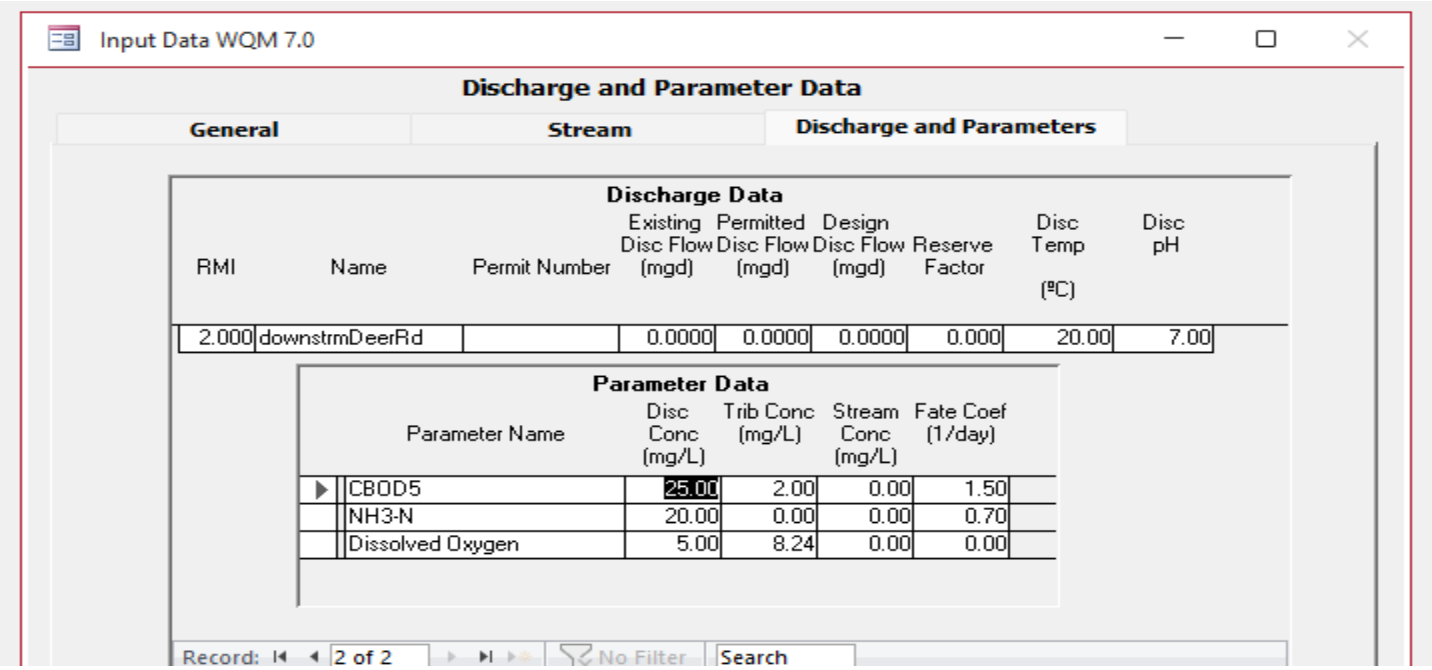
Discharge Data

RMI	Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (ºC)	Disc pH
3.300	Tulpehocken HS	PA0051748	0.0000	0.0216	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/day)
CBOD5	25.00	2.00	0.00	1.50
NH3-N	20.00	0.00	0.00	0.70
Dissolved Oxygen	5.00	8.24	0.00	0.00

Record: 1 of 2 | No Filter | Search



Input Data WQM 7.0

Discharge and Parameter Data

General | Stream | Discharge and Parameters

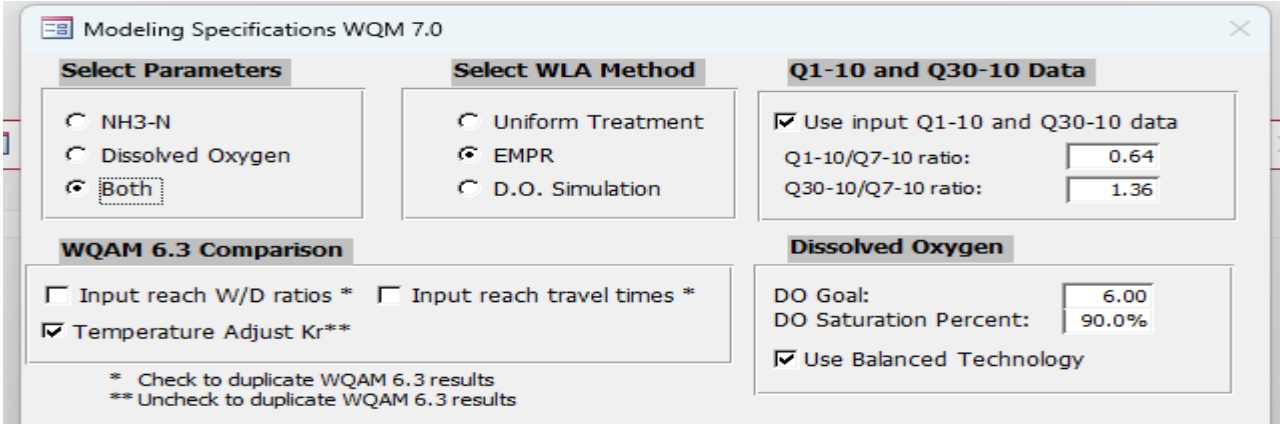
Discharge Data

RMI	Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (ºC)	Disc pH
2.000	downstrmDeerRd		0.0000	0.0000	0.0000	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/day)
CBOD5	25.00	2.00	0.00	1.50
NH3-N	20.00	0.00	0.00	0.70
Dissolved Oxygen	5.00	8.24	0.00	0.00

Record: 2 of 2 | No Filter | Search



Modeling Specifications WQM 7.0

Select Parameters

- ○ NH3-N
- ○ Dissolved Oxygen
- ◉ Both

Select WLA Method

- ○ Uniform Treatment
- ◉ EMPR
- ○ D.O. Simulation

Q1-10 and Q30-10 Data

- ☑ Use input Q1-10 and Q30-10 data
- Q1-10/Q7-10 ratio: 0.64
- Q30-10/Q7-10 ratio: 1.36

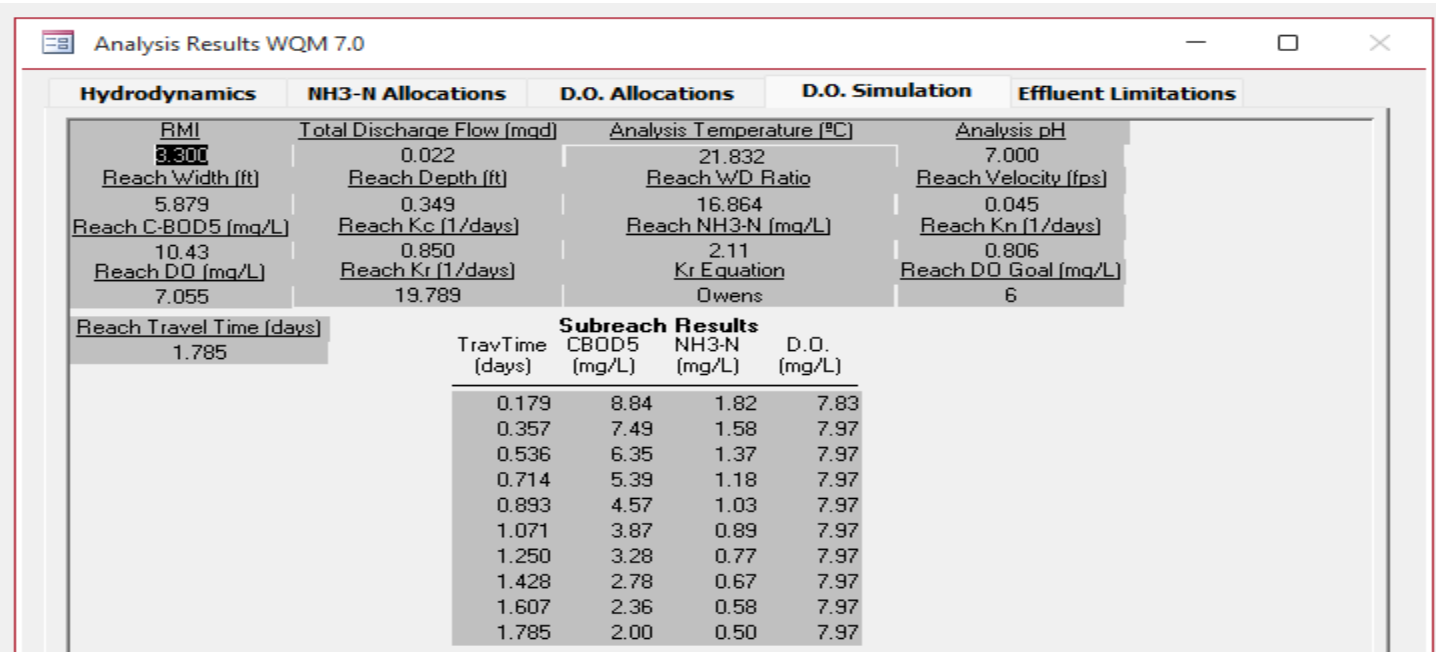
WQAM 6.3 Comparison

- ☐ Input reach W/D ratios *
- ☐ Input reach travel times *
- ☑ Temperature Adjust Kr**

* Check to duplicate WQAM 6.3 results
** Uncheck to duplicate WQAM 6.3 results

Dissolved Oxygen

- DO Goal: 6.00
- DO Saturation Percent: 90.0%
- ☑ Use Balanced Technology



Analysis Results WQM 7.0

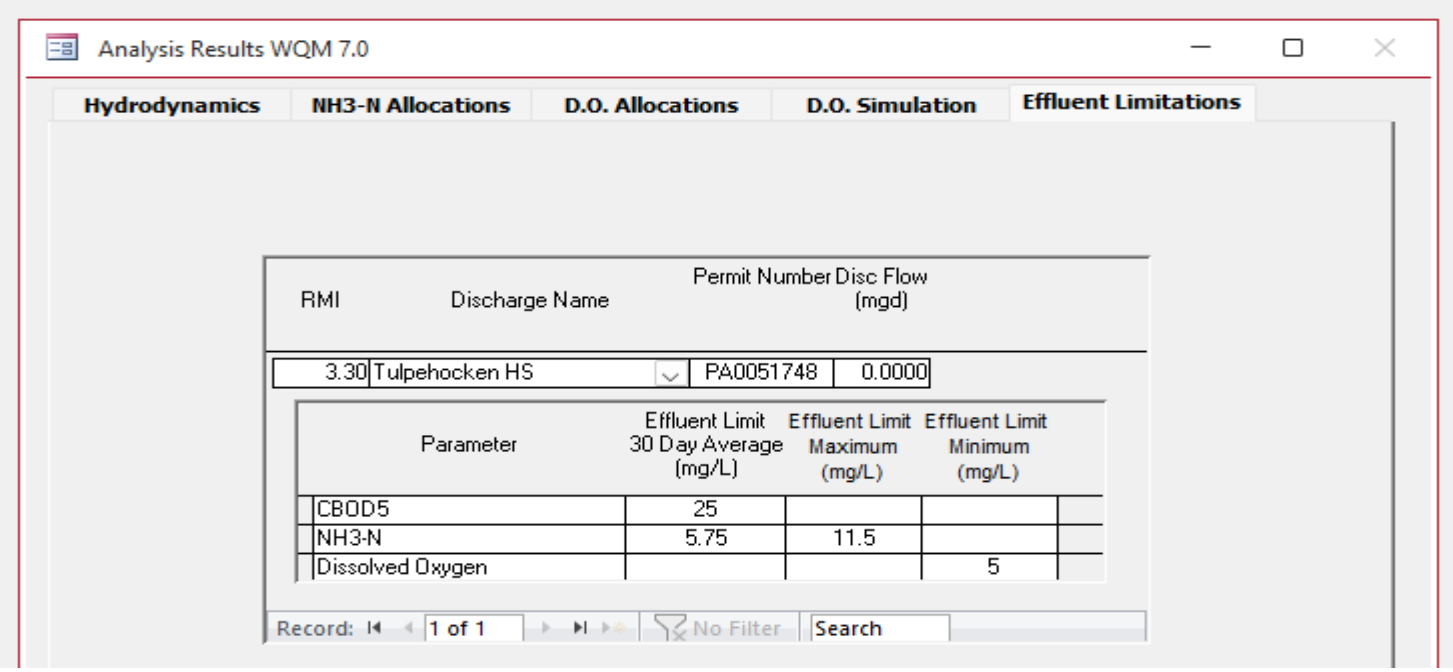
Hydrodynamics | NH3-N Allocations | D.O. Allocations | D.O. Simulation | Effluent Limitations

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
3.300	0.022	21.832	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WD Ratio**	**Reach Velocity (fps)**
5.879	0.349	16.864	0.045
Reach C-BOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
10.43	0.850	2.11	0.806
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.055	19.789	Owens	6

Reach Travel Time (days): 1.785

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.179	8.84	1.82	7.83
0.357	7.49	1.58	7.97
0.536	6.35	1.37	7.97
0.714	5.39	1.18	7.97
0.893	4.57	1.03	7.97
1.071	3.87	0.89	7.97
1.250	3.28	0.77	7.97
1.428	2.78	0.67	7.97
1.607	2.36	0.58	7.97
1.785	2.00	0.50	7.97


Analysis Results WQM 7.0
Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
Discharge Name
Permit Number
Disc Flow (mgd)
3.30
Tulpehocken HS
PA0051748
0.0000
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
CBOD5
25
NH3-N
5.75
11.5
Dissolved Oxygen
5
Record:
1 of 1
No Filter
Search

	A	B	C	D	E	F	G
2	Input appropriate values in A3:A9 and D3:D9						
3	0.055	= Q stream (cfs)		0.5	= CV Daily		
4	0.0216	= Q discharge (MGD)		0.5	= CV Hourly		
5	30	= no. samples		1	= AFC_Partial Mix Factor		
6	0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor		
7	0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)		
8	0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)		
9	0	= % Factor of Safety (FOS)			=Decay Coefficient (K)		
10	Source	Reference	AFC Calculations		Reference	CFC Calculations	
11	TRC	1.3.2.iii	WLA afc = 0.544		1.3.2.iii	WLA cfc = 0.523	
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581	
13	PENTOXSD TRG	5.1b	LTA_afc= 0.203		5.1d	LTA_cfc = 0.304	
14							
15	Source		Effluent Limit Calculations				
16	PENTOXSD TRG	5.1f	AML MULT = 1.231				
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.250		AFC		
18			INST MAX LIMIT (mg/l) = 0.816				
19							
20							
21							
22	WLA afc		(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...				
23			...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)				
24	LTAMULT afc		EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)				
25	LTA_afc		wla_afc*LTAMULT_afc				
26							
27	WLA_cfc		(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...				
28			...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)				
29	LTAMULT_cfc		EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)				
30	LTA_cfc		wla_cfc*LTAMULT_cfc				
31							
32	AML MULT		EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))				
33	AVG MON LIMIT		MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)				
34	INST MAX LIMIT		1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)				
35							
36							
37							
38							
39							
40							
41	(0.011/EXP(-K*CFC_tc/1440))+(((CFC_Yc*Qs*0.011)/(1.547*Qd)....						
42	....*EXP(-K*CFC_tc/1440)))+Xd+(CFC_Yc*Qs*Xs/1.547*Qd))*(1-FOS/100)						
43							

	PERMIT	PF_NAME	MONITOR	MONITORIN	REPORT_F	OUTFALL	DISCHARG	PARAMETE	ONC_UNIT	Q	CONC_2_V	CONC_2_L	CONC_2_S	CONC_3_V	CONC_3_L	CONC_3_S	SAMPLE_F	SAMPLE_TYPE
	PA0051748	TULPEHOCKEN HIGH SCH	7/1/2023	7/31/2023	Monthly	001	No											
	PA0051748	TULPEHOCKEN HIGH SCH	7/1/2024	7/31/2024	Monthly	001	No											
	PA0051748	TULPEHOCKEN HIGH SCH	7/1/2025	7/31/2025	Monthly	001	No											
	PA0051748	TULPEHOCKEN HIGH SCH	8/1/2025	8/31/2025	Monthly	001												
	PA0051748	TULPEHOCKEN HIGH SCH	1/1/2023	1/31/2023	Monthly	001	Yes	Ammonia	mg/L		0.385	Monitor a	Average	Monthly			2/month	Grab
	PA0051748	TULPEHOCKEN HIGH SCH	2/1/2023	2/28/2023	Monthly	001	Yes	Ammonia	mg/L		0.055	Monitor a	Average	Monthly			2/month	Grab
	PA0051748	TULPEHOCKEN HIGH SCH	3/1/2023	3/31/2023	Monthly	001	Yes	Ammonia	mg/L		0.035	Monitor a	Average	Monthly			2/month	Grab
	PA0051748	TULPEHOCKEN HIGH SCH	4/1/2023	4/30/2023	Monthly	001	Yes	Ammonia	mg/L		0.62	Monitor a	Average	Monthly			2/month	Grab
0	PA0051748	TULPEHOCKEN HIGH SCH	5/1/2023	5/31/2023	Monthly	001	Yes	Ammonia	mg/L		0.055	20	Average	M	0.08	40	Instantan	2/month	Grab
1	PA0051748	TULPEHOCKEN HIGH SCH	6/1/2023	6/30/2023	Monthly	001	Yes	Ammonia	mg/L		0.08	20	Average	M	0.14	40	Instantan	2/month	Grab
2	PA0051748	TULPEHOCKEN HIGH SCH	8/1/2023	8/31/2023	Monthly	001	Yes	Ammonia	mg/L	<	0.14	20	Average	M	0.26	40	Instantan	2/month	Grab
3	PA0051748	TULPEHOCKEN HIGH SCH	9/1/2023	9/30/2023	Monthly	001	Yes	Ammonia	mg/L		0.06	20	Average	M	0.07	40	Instantan	2/month	Grab
4	PA0051748	TULPEHOCKEN HIGH SCH	10/1/2023	10/31/2023	Monthly	001	Yes	Ammonia	mg/L	<	0.05	20	Average	M	0.08	40	Instantan	2/month	Grab
5	PA0051748	TULPEHOCKEN HIGH SCH	11/1/2023	11/30/2023	Monthly	001	Yes	Ammonia	mg/L		0.16	Monitor a	Average	Monthly			2/month	Grab
6	PA0051748	TULPEHOCKEN HIGH SCH	12/1/2023	12/31/2023	Monthly	001	Yes	Ammonia	mg/L	<	0.03	Monitor a	Average	Monthly			2/month	Grab
7	PA0051748	TULPEHOCKEN HIGH SCH	1/1/2024	1/31/2024	Monthly	001	Yes	Ammonia	mg/L		0.14	Monitor a	Average	Monthly			2/month	Grab
8	PA0051748	TULPEHOCKEN HIGH SCH	2/1/2024	2/29/2024	Monthly	001	Yes	Ammonia	mg/L		0.085	Monitor a	Average	Monthly			2/month	Grab
9	PA0051748	TULPEHOCKEN HIGH SCH	3/1/2024	3/31/2024	Monthly	001	Yes	Ammonia	mg/L		0.12	Monitor a	Average	Monthly			2/month	Grab
0	PA0051748	TULPEHOCKEN HIGH SCH	4/1/2024	4/30/2024	Monthly	001	Yes	Ammonia	mg/L		0.24	Monitor a	Average	Monthly			2/month	Grab
1	PA0051748	TULPEHOCKEN HIGH SCH	5/1/2024	5/31/2024	Monthly	001	Yes	Ammonia	mg/L		0.075	20	Average	M	0.08	40	Instantan	2/month	Grab
2	PA0051748	TULPEHOCKEN HIGH SCH	6/1/2024	6/30/2024	Monthly	001	Yes	Ammonia	mg/L		0.06	20	Average	M	0.07	40	Instantan	2/month	Grab
3	PA0051748	TULPEHOCKEN HIGH SCH	8/1/2024	8/31/2024	Monthly	001	Yes	Ammonia	mg/L		0.78	20	Average	M	1.46	40	Instantan	2/month	Grab
4	PA0051748	TULPEHOCKEN HIGH SCH	9/1/2024	9/30/2024	Monthly	001	Yes	Ammonia	mg/L		0.389	20	Average	M	0.56	40	Instantan	2/month	Grab
5	PA0051748	TULPEHOCKEN HIGH SCH	10/1/2024	10/31/2024	Monthly	001	Yes	Ammonia	mg/L		0.025	20	Average	M	0.03	40	Instantan	2/month	Grab
6	PA0051748	TULPEHOCKEN HIGH SCH	11/1/2024	11/30/2024	Monthly	001	Yes	Ammonia	mg/L	<	0.05	Monitor a	Average	Monthly			2/month	Grab
7	PA0051748	TULPEHOCKEN HIGH SCH	12/1/2024	12/31/2024	Monthly	001	Yes	Ammonia	mg/L	<	0.07	Monitor a	Average	Monthly			2/month	Grab
8	PA0051748	TULPEHOCKEN HIGH SCH	1/1/2025	1/31/2025	Monthly	001	Yes	Ammonia	mg/L		0.045	Monitor a	Average	Monthly			2/month	Grab
9	PA0051748	TULPEHOCKEN HIGH SCH	2/1/2025	2/28/2025	Monthly	001	Yes	Ammonia	mg/L		0.025	Monitor a	Average	Monthly			2/month	Grab
0	PA0051748	TULPEHOCKEN HIGH SCH	3/1/2025	3/31/2025	Monthly	001	Yes	Ammonia	mg/L		0.57	Monitor a	Average	Monthly			2/month	Grab
1	PA0051748	TULPEHOCKEN HIGH SCH	4/1/2025	4/30/2025	Monthly	001	Yes	Ammonia	mg/L		0.11	Monitor a	Average	Monthly			2/month	Grab
2	PA0051748	TULPEHOCKEN HIGH SCH	5/1/2025	5/31/2025	Monthly	001	Yes	Ammonia	mg/L		0.08	20	Average	M	0.14	40	Instantan	2/month	Grab
3	PA0051748	TULPEHOCKEN HIGH SCH	6/1/2025	6/30/2025	Monthly	001	Yes	Ammonia	mg/L		0.025	20	Average	M	0.03	40	Instantan	2/month	Grab
4											0.163	Avg						
5											0.078	Median						
6											0.78	MMA						

PERMIT	MONITOR	MONITORIN	REPORT_F	OUTFALL	MONITORING_	PARAMETE	LOAD_UNI	LOAD_1_V	ONC_UNIT	Q	CONC_2_V	CONC_2_L	CONC_2_SBC	CONC_3_V	CONC_3_L	CONC_3_SBC	SAMPLE_F	SAMPLE_TYPE
PA0051748	1/1/2023	1/31/2023	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.199	0.5	Average Monthly	0.51	1.6	Instantaneous Max	5/week	Grab
PA0051748	2/1/2023	2/28/2023	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.29	0.5	Average Monthly	0.88	1.6	Instantaneous Max	5/week	Grab
PA0051748	3/1/2023	3/31/2023	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.251	0.5	Average Monthly	0.49	1.6	Instantaneous Max	5/week	Grab
PA0051748	4/1/2023	4/30/2023	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.2	0.5	Average Monthly	0.41	1.6	Instantaneous Max	5/week	Grab
PA0051748	5/1/2023	5/31/2023	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.159	0.5	Average Monthly	0.35	1.6	Instantaneous Max	5/week	Grab
PA0051748	6/1/2023	6/30/2023	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.14	0.5	Average Monthly	0.24	1.6	Instantaneous Max	5/week	Grab
PA0051748	8/1/2023	8/31/2023	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.144	0.5	Average Monthly	0.37	1.6	Instantaneous Max	5/week	Grab
PA0051748	9/1/2023	9/30/2023	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.128	0.5	Average Monthly	0.26	1.6	Instantaneous Max	5/week	Grab
PA0051748	10/1/2023	10/31/2023	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.2	0.5	Average Monthly	0.45	1.6	Instantaneous Max	5/week	Grab
PA0051748	11/1/2023	11/30/2023	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.44	0.5	Average Monthly	0.6	1.6	Instantaneous Max	5/week	Grab
PA0051748	12/1/2023	12/31/2023	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.27	0.5	Average Monthly	0.75	1.6	Instantaneous Max	5/week	Grab
PA0051748	1/1/2024	1/31/2024	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.42	0.5	Average Monthly	0.6	1.6	Instantaneous Max	5/week	Grab
PA0051748	2/1/2024	2/29/2024	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.42	0.5	Average Monthly	0.7	1.6	Instantaneous Max	5/week	Grab
PA0051748	3/1/2024	3/31/2024	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.403	0.5	Average Monthly	0.5	1.6	Instantaneous Max	5/week	Grab
PA0051748	4/1/2024	4/30/2024	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.285	0.5	Average Monthly	1.2	1.6	Instantaneous Max	5/week	Grab
PA0051748	5/1/2024	5/31/2024	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.216	0.5	Average Monthly	0.4	1.6	Instantaneous Max	5/week	Grab
PA0051748	6/1/2024	6/30/2024	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.236	0.5	Average Monthly	0.49	1.6	Instantaneous Max	5/week	Grab
PA0051748	8/1/2024	8/31/2024	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.37	0.5	Average Monthly	0.55	1.6	Instantaneous Max	5/week	Grab
PA0051748	9/1/2024	9/30/2024	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.226	0.5	Average Monthly	0.62	1.6	Instantaneous Max	5/week	Grab
PA0051748	10/1/2024	10/31/2024	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.269	0.5	Average Monthly	0.63	1.6	Instantaneous Max	5/week	Grab
PA0051748	11/1/2024	11/30/2024	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.376	0.5	Average Monthly	0.93	1.6	Instantaneous Max	5/week	Grab
PA0051748	12/1/2024	12/31/2024	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.2	0.5	Average Monthly	0.39	1.6	Instantaneous Max	5/week	Grab
PA0051748	1/1/2025	1/31/2025	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.35	0.5	Average Monthly	0.6	1.6	Instantaneous Max	5/week	Grab
PA0051748	2/1/2025	2/28/2025	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.339	0.5	Average Monthly	0.8	1.6	Instantaneous Max	5/week	Grab
PA0051748	3/1/2025	3/31/2025	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.327	0.5	Average Monthly	0.83	1.6	Instantaneous Max	5/week	Grab
PA0051748	4/1/2025	4/30/2025	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.3	0.5	Average Monthly	0.48	1.6	Instantaneous Max	5/week	Grab
PA0051748	5/1/2025	5/31/2025	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.36	0.5	Average Monthly	0.62	1.6	Instantaneous Max	5/week	Grab
PA0051748	6/1/2025	6/30/2025	Monthly	001	Final Effluent	Total Residual Chlorine (TRC)			mg/L		0.35	0.5	Average Monthly	0.75	1.6	Instantaneous Max	5/week	Grab
											0.281	Avg		1.2	Max			
											0.44	Max						

denotes monitoring periods for which the reported concentrations are greater than the proposed TRC limits in the renewal permit