pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**New**	Application No.	**PA0209350**
Facility Type	**Municipal**	APS ID	**1088981**
Major / Minor	**Minor**	Authorization ID	**1454011**

Applicant and Facility Information

Applicant Name	Delmar Township	Facility Name	Delmar Township Smithville WWTF
Applicant Address	610 N Lawton Road	Facility Address	Heise Run Road
	Wellsboro, PA 16901-7941		Wellsboro, PA 16901
Applicant Contact	Garry Clark	Facility Contact	Garry Clark
Applicant Phone	215-498-1157	Facility Phone	215-498-1157
Client ID	68147	Site ID	532288
Ch 94 Load Status	Not Overloaded	Municipality	Delmar Township
Connection Status	Self-Imposed Connection Prohibition	County	Tioga
Date Application Received	May 15, 2023	EPA Waived?	Yes
Date Application Accepted	September 27, 2023	If No, Reason	N/A
Purpose of Application	Renewal of NPDES Permit		

Summary of Review

INTRODUCTION

Delmar Township has proposed the renewal of the existing NPDES permit which authorizes the discharge of treated domestic wastewater from a wastewater treatment facility (WWTF) serving Delmar Township, Tioga County.

APPLICATION

Delmar Township submitted the *NPDES Application for Individual Permit to Discharge Sewage Effluent from Minor Sewage Facilities* (DEP #3800-PM-BCW0342b). This application was received by the Department on May 15, 2023 and considered administratively complete on September 27, 2023. Garry Clark, Municipal Authority Board Member is both the client and site contact. His additional contact information is (email) delmartwp.clark@gmail.com. The application consultant is Nathan Jones, Senior Engineering Associate with Larson Design Group of Williamsport, PA. His contact information is (phone) 570-244-3454 and (email) njones@larsondesigngroup.com.

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.

The casefile, permit application package and draft permit will be available for public review at Department's Northcentral Regional Office. The address for this office is 208 West Third Street, Suite 101, Williamsport, PA 17701. An appointment can be made to review these materials during the comment period by calling the file coordinator at 570-327-3636.

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Approve	Deny	Signatures	Date
X		Jeffrey J. Gocek, EIT — Project Manager	05/15/2024
X		Nicholas W. Hartranft, PE — Environmental Engineer Manager	05/15/2024

DISCHARGE, RECEIVING WATERS AND WATER SUPPLY INFORMATION

Outfall No.	001	Design Flow (MGD)	0.007
Latitude	41° 44' 14"	Longitude	-77° 20' 47"
Quad Name	Antrim, PA	Quad Code	41077F3
Wastewater Description:	Sewage Effluent		
Receiving Waters	Heise Run (CWF, MF)	Stream Code	21898 (21856 @ POFU)
NHD Com ID	66536085	RMI	6.22 @ POFU
Drainage Area (mi^2)	41.1 @ POFU	Yield (cfs/mi^2)	0.1 (default)
Q_{7-10} Flow (cfs)	1.65 @ POFU	Q_{7-10} Basis	Ratio
Elevation (ft)	1190 @ POFU	Slope (ft/ft)	N/A
Watershed No.	9-A	Chapter 93 Class.	CWF, MF
Existing Use	None	Existing Use Qualifier	N/A
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired		
Cause(s) of Impairment	Highways, Roads and Bridges (New Construction and Non-Construction Related)		
Source(s) of Impairment	Siltation		
TMDL Status	None	Name	N/A
Nearest Downstream Public Water Supply Intake	Jersey Shore Area Joint Water Authority		
PWS Waters	Pine Creek	Flow at Intake (cfs)	N/A
PWS RMI	1.92	Distance from Outfall (mi)	65

POINT OF FIRST USE

Due to the intermittent nature of the receiving stream, Heise Run, the Department considers Marsh Creek (downstream) as the Point of First Use (POFU) for modeling requirements. A POFU is required when/where the discharge is to intermittent streams or wetlands where there is limited flow and/or no mixing. This POFU is located at latitude 41°46'22" and longitude -77°21'17". Perennial flow occurs at the POFU and the stream characteristics there allow for the modeling of parameters not outlined in the Department's guidance *Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels, Swales and Storm Sewers* (DEP #391-200-014). These are Ammonia Nitrogen and Total Residual Chlorine.

Q7,10 DETERMINATION

The $Q_{7,10}$ is the lowest seven consecutive days of flow in a 10-year period and is used for modeling wastewater treatment plant discharges. 25 PA §96.1 defines $Q_{7,10}$ as *the actual or estimated lowest seven consecutive day average flow that occurs once in 10 years for a stream with unregulated flow or the estimated minimum flow for a stream with regulated flow*.

Basin characteristics, for a watershed based on the POFU location, were obtained from the USGS StreamStats webpage. A stream gage was selected as a reference for calculations. The selected gage is USGS #01548500 (Pine Creek at Cedar Run, PA). A $Q_{7,10}$ and drainage area for this gage were obtained from *Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania* (USGS Open Files Report 2011-1070). The drainage area at the POFU (41.1 mi^2) was calculated by the *USGS Pennsylvania StreamStats* application. Knowing the drainage area at the POFU (41.1 mi^2) and both the drainage area (604 mi2) and $Q_{7,10}$ (24.2 CFS) at the reference gage, the $Q_{7,10}$ at the POFU was calculated to be 1.65 CFS.

See Attachment 01 for the $Q_{7,10}$ determination.

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TREATMENT FACILITY SUMMARY

Delmar Township operates the Smithville WWTF which serves approximately 25 residential users in the township. The Smithville WWTF consists of a 2,000-gallon septic tank (influent settling), a 3,000-gallon dosing tank (with valve vault), two sand filters (each 42.5 x 85 foot), and ultraviolet disinfection prior to discharge by gravity. Each of the residential users has a septic tank.

The WWTF has a hydraulic design capacity of 0.007 MGD and an organic design capacity of 12.0 pounds BOD_5 per day.

See Attachment 02 for a map of the WWTF location.

The wastewater treatment characteristics are as follows:

Waste Type	Degree of Treatment	Process Type	Disinfection	Average Annual Flow (MGD)
Sewage	Tertiary	Septic Tank Sand Filter W/Solids Removal	Ultraviolet	0.007
Hydraulic Capacity (MGD)	**Organic Capacity (lbs BOD5/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.007	12.0	Not Overloaded	Anaerobic Digestion	Other WWTP

The annual average flow for the year prior to the submission of the application was 0.0028 MGD. The highest month of flow that year was March with 0.012 MGD.

Since this is a septic tank(s) - sand filter system, no sludge is produced. The septic tanks of the homeowners are pumped on an annual basis, as required by the

Both the NPDES and WQM permits (#5996403) were first issued to Delmar Township in September 1996. The conversion of the disinfection system from chlorine to ultraviolet light was approved in July 2020 by #PA0209350 A-1 and #5996403 A-1.

COMPLIANCE HISTORY

The WMS Query *Open Violations by Client* revealed no unresolved violations for Delmar Township.

The most recent Department inspection, a Compliance Evaluation Inspection (CEI), was performed March 26, 2024. The wastewater treatment facilities were operating normally with the exception of the flow meter. The receiving stream appeared unimpaired by the effluent. The broken flow meter was identified as a violation. Effluent exceedances in 2023 were also identified as violations. See the below table for more information.

Date	Parameter	SBC	DMR Value	Units	Limit Value
05/31/23	TSS	Weekly Average	51.6	mg/L	30.0
05/31/23	TSS	Average Monthly	35.0	mg/L	20.0
06/30/23	TSS	Weekly Average	42.0	mg/L	30.0
06/30/23	TSS	Average Monthly	30.4	mg/L	20.0

Delmar Township and the Department entered into a Consent Order and Agreement, dated July 2023, which outlined violations and compliance requirements, issued a civil penalty and identified stipulated penalties (if the requirements were not met). Violations included the failure to submit a timely NPDES renewal application and numerous effluent exceedances.

Recent Discharge Monitoring Report (DMR) data, from April 2023 through March 2024 is as follows.

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Parameter	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23
Flow (MGD) Average Monthly	E	E	0.002	0.002	0.002	0.002	0.002	0.0005	0.0005	0.0005	0.0005	0.0005
pH (S.U.) Instantaneous Minimum	6.58	6.54	8.00	7.90	7.95	7.50	7.80	7.80	7.70	7.60	7.70	7.30
pH (S.U.) Instantaneous Maximum	6.96	8.32	8.34	8.20	8.12	7.80	7.90	8.20	7.80	7.90	7.70	8.00
CBOD5 (lbs/day) Average Monthly	E	E	< 0.05	< 0.05	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
CBOD5 (mg/L) Average Monthly	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 2.0	< 3.0	< 3.0	< 3.0	< 3.0
CBOD5 (mg/L) Weekly Average	< 3.0	3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	E	E	< 0.6	2.0	< 1.0	< 1.0	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	E	E	0.9	3.0	< 1.0	< 1.0	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
BOD5 (mg/L) Raw Sewage Influent Average Monthly	14.86	61.4	< 36.4	90	25	19	32	57	29	39	29	32
TSS (lbs/day) Average Monthly	E	E	< 0.03	< 0.1	< 0.1	< 0.1	< 0.03	< 0.1	< 0.1	0.1	0.1	0.04
TSS (lbs/day) Raw Sewage Influent Average Monthly	E	E	< 0.06	< 1.0.	< 1.0	< 1.0	< 1.0	1.0	< 1.0	< 1.0	< 1.0	< 1.0
TSS (lbs/day) Raw Sewage Influent Daily Maximum	E	E	< 0.07	< 1.0	1.0	< 1.0	< 1.0	2.0	< 1.0	< 1.0	< 1.0	< 1.0
TSS (mg/L) Average Monthly	< 2.0	2.0	< 2.0	3.2	< 9.0	2.5	< 1.8	< 3.0	4.8	30.4	35.0	9.8
TSS (mg/L) Raw Sewage Influent Average Monthly	3.5	8.3	< 3.67	8.0	17	6.0	10	228	9.0	15	22	26
TSS (mg/L) Weekly Average	2.0	2.0	< 2.0	4.0	15.0	2.5	2.0	4.4	5.5	42.0	51.6	13.5
Fecal Coliform (No./100 ml) Geometric Mean	< 3.0	< 1.0	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	6.3	< 1.0	< 1.0	2.0	< 1.0	< 10	< 1.0.	3.0	< 1.0	< 1.0	< 1.0	< 1.0
UV Transmittance (%) Instantaneous Minimum	50	50	50	45.52	1.0	1.0	1.0	1.0	1.0	1.0	35.45	32.97
Total Nitrogen (mg/L) Daily Maximum				E								
Total Phosphorus (mg/L) Daily Maximum				E								

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EXISTING LIMITATIONS

The following effluent limitations were established at the permit amendment in July 2020.

Discharge Parameter	Mass Limits (lb/day)		Concentration Limits (mg/L)				Monitoring Requirements	
	Monthly Average	Weekly Average	Minimum	Monthly Average	Weekly Average	IMAX	Minimum Measurement Frequency	Required Sample Type
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	Continuous	Metered
pH (SU)	XXX	XXX	6.0 Instantaneous Minimum	XXX	XXX	9.0	1/Day	Grab
Ultraviolet Light Transmittance	XXX	XXX	Report Instantaneous Minimum	XXX	XXX	XXX	1/Day	Measured
$CBOD_5$ (05/01-10/31)	0.6	XXX	XXX	10	15	20	2/Month	Grab
$CBOD_5$ (11/01-04/30)	1.2	XXX	XXX	20	30	40	2/Month	Grab
BOD_5 Influent	Report	Report Daily Maximum	XXX	Report	XXX	XXX	2/Month	Grab
Total Suspended Solids	25	38	XXX	30	45	60	2/Month	Grab
TSS Influent	Report	Report Daily Maximum	XXX	Report	XXX	XXX	2/Month	Grab
Fecal Coliform (No./100mL) (05/01-09/30)	XXX	XXX	XXX	200 Geometric Mean	XXX	1,000	2/Month	Grab
Fecal Coliform (No./100mL) (10/01-04/30)	XXX	XXX	XXX	2,000 Geometric Mean	XXX	10,000	2/Month	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Maximum	XXX	1/Year	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Maximum	XXX	1/Year	Grab

DEVELOPMENT OF EFFLUENT LIMITATIONS

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)

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$CBOD_5$, NH_3-N and DO

WQM 7.0 for Windows (WQM 7.0) is a DEP computer model used to determine wasteload allocations (WLAs) and effluent limitations for Carbonaceous Biochemical Oxygen Demand ($CBOD_5$), Ammonia-Nitrogen (NH_3-N) and Dissolved Oxygen (DO) for single and multiple point source discharge scenarios. This model simulates two basic processes. The NH3-N module simulates the mixing and degradation of NH3-N in the stream and compares calculated instream NH3-N concentrations to the water quality criteria.

The DO module simulates mixing and consumption of DO in the stream due to degradation of CBOD5 and NH3-N and compares the calculated instream DO concentrations to the water quality criteria. The model then determines the highest pollutant loading the stream can assimilate and still meet water quality criteria under design conditions.

The model recommended the following limitations at the POFU:

Parameter	Effluent Limitations (mg/L)		
	30 Day Average	Maximum	Minimum
$CBOD_5$	25		
NH_3-N	25	50	
DO			3

See Attachment 03 for the WQM model output.

Water Quality-Based Limitations

A *Reasonable Potential Analysis* is not required since the facility is a minor sewage facility (< 1.0 MGD) and there are no industrial dischargers within the collection system.

Best Professional Judgment (BPJ) Limitations

In the absence of applicable effluent guidelines for the discharge or pollutant, permit writers must identify and/or develop needed technology-based effluent limitations (TBELs) TBELs on a case-by-case basis, in accordance with the statutory factors specified in the Clean Water Act.

No BPJ limitations have been proposed for this draft.

Anti-Backsliding

To comply with 40 CFR § 122.44(l)(1) (anti-backsliding requirements), the Department must issue a renewed permit with limitations as stringent as that the of the previous permit.

No less stringent limitations have been proposed for this draft.

DEVELOPMENT OF EFFLUENT MONITORING

Influent Monitoring

Department policy requires that all Publicly Owned Treatment Works (POTWs) with flows greater than 2,000 gallons per day (gpd) conduct influent BOD5 and TSS monitoring at the same frequency and sample type as is used for the effluent CBOD5 and TSS monitoring.

Ammonia Nitrogen

Since the WQM 7.0 recommended a technology-based limit of 25 mg/L and this is an existing facility, Department policy requires that a monthly monitoring requirement be established in the permit.

Dissolved Oxygen

Department policy requires that a minimum limit of 4.0 mg/L be established as BPJ to ensure adequate WWTF operation and maintenance. Since this is a new parameter being introduced into an existing permit, a monitoring requirement need only be established for the first permit term to collect data. The limitation will be established at the next renewal.

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E. Coli

The Department is requiring the monitoring of Eschericia coli (E.coli), a pathogenic bacterium normally found in the intestines of healthy people and animals which is used as a fecal contamination indicator in freshwater ecosystems. Section 303(c)(1) of the Clean Water Act requires that Pennsylvania periodically review and revise water quality standards, if necessary. The 2017 triennial review final form rulemaking, published in 2020, has revised the Chapter 93 water quality standards regulations for bacteria to include E. coli. To further characterize fecal contamination of surface waters during the swimming season, the Department is requiring the annual reporting of effluent E. coli effluent values. In accordance with 25 PA § 92a.61, the Department may impose reasonable monitoring requirements on pollutants which could have impact on the quality of the Commonwealth's waters or the quality of waters in other states.

REMOVAL OF EFFLUENT MONITORING

Chesapeake Bay TMDL

Despite 25 years of extensive restoration efforts, the Chesapeake Bay Total Maximum Daily Load (TMDL) was prompted by insufficient progress and continued poor water quality in the Chesapeake Bay and its tidal tributaries. This TMDL, required by the Clean Water Act, is the largest ever developed by the Environmental Protection Agency (EPA). This document identifies the necessary pollution reductions of nitrogen, phosphorus and sediment across Delaware, Maryland, New York, Virginia, West Virginia, District of Columbia and Pennsylvania. It also sets pollution limits necessary to meet applicable water quality standards in the Bay, tidal rivers and embayments.

Pennsylvania explains how and when it will meet its pollution allocations in its Watershed Implementation Plan (WIP), which is incorporated into the TMDL. Pennsylvania's permitting strategy for significant dischargers has been outlined in the Phase I WIP and incorporated in the Phase III WIP by reference, and imposes Total Nitrogen (TN) and Total Phosphorus (TP) cap loads on the significant dischargers.

Because the design of this facility is less than 0.2 MGD, the Department considers this an existing Phase 5 sewage facility for the purposes of implementing the Chesapeake Bay TMDL. This system has a design flow of 0.007 MGD. According to the Department's Wastewater Supplement to Phase II WIP (last revised July 2022), renewed Phase 5 facilities are required to contain monitoring and reporting for TN and TP throughout the permit term at a frequency of no less than annually unless the facility has already conducted at least two years of nutrient monitoring.

Nutrient data was collected during the previous permit term. That data is summarized below.

Year	Parameter	Concentration (mg/L)
2019	Total Nitrogen	< 25.31
2019	Total Phosphorus	1.66
2020	Total Nitrogen	29.05
2020	Total Phosphorus	2.58
2021	Total Nitrogen	< 18.72
2021	Total Phosphorus	1.86
2022	Total Nitrogen	< 21.92
2022	Total Phosphorus	2.32

RECEIVING STREAM

Stream Characteristics

The receiving stream is Heise Run. This stream, according to 25 PA § 93.9L, is protected for Cold Water Fishes (CWF) and Migratory Fishes (MF). These are the stream's *Designated Uses*, which is defined in 25 PA § 93.1 as "those uses specified in §§ 93.9a – 93.9z for each waterbody or segment whether or not the use is being attained". Designated uses are regulations promulgated by the Environmental Quality Board (EQB) throughout the rulemaking process. This stream currently has no *Existing Use*, which is defined in 25 PA § 93.1 as "those uses actually attained in the waterbody on or after November 28, 1975 whether or not they are included in the water quality standards". Heise Run is identified by Department stream code 21898. This stream is located in (Chapter 93) drainage list L and State Water Plan 9A (Pine Creek).

The POFU is downstream from the discharge, in Marsh Creek.

Impairment/TMDL

Heise Run is impaired by siltation caused by both new construction and non-construction related highways, roads, bridges and infrastructure. Heise Run is attaining its uses for recreation.

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ADDITIONAL CONSIDERATIONS

Ultraviolet Light Transmittance

Recent DMR data indicates reported UV Light Transmittance values ranging from 1.0 to 50. Expected UV Light Transmittance values, as a percent, should be 60 to 65% for secondary treatment systems. This discrepancy needs to be resolved prior to the issuance of the renewed permit.

Hauled-In Wastes

According to the application materials, the Smithville WWTF does not accept hauled-in wastes.

Whole Effluent Toxicity (WET) Testing

According to the application materials, the Smithville WWTF does not accept from industrial or commercial users. Because of this, a WET test evaluation is not required.

Rounding of Limitations

Limitations have been rounded down in accordance with the Department's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (#362-0400-001).

Limit Multipliers

The instantaneous maximum limitations have been calculated using multipliers of 2.0 (for sewage discharges) for determining the IMAX. This practice is in accordance with the Department's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (#362-0400-001).

Sample Frequencies and Types

The sample type and minimum measurement frequencies are in accordance with the Department's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (#362-0400-001).

Standard Operating Procedures (SOPs)

The review of this permit application was performed in accordance with the Department's *SOP for New and Reissuance Sewage Individual NPDES Permit Applications* (unnumbered) and *SOP for Establishing Effluent Limitations for Individual Sewage Permits* (SOP #BPNPSM-PMT-033).

Special Permit Conditions

Stormwater Prohibition
Approval Contingencies
Proper Waste Disposal
Lack of Assimilative Capacity
Solids Management for Non-Lagoon Treatment Systems

Supplemental Discharge Monitoring Reports

Daily Effluent Monitoring
Non-Compliance Reporting
Biosolids Production and Disposal
Hauled-in Municipal Waste
Influent and Process Control
Lab Accreditation

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PROPOSED EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The limitations and monitoring requirements specified below reflect the most stringent limitations amongst technology, water quality and BPJ.

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

Discharge Parameter	Mass Limits (lb/day)		Concentration Limits (mg/L)				Monitoring Requirements	
	Monthly Average	Weekly Average	Minimum	Monthly Average	Weekly Average	IMAX	Minimum Measurement Frequency	Required Sample Type
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	Continuous	Metered
pH (SU)	XXX	XXX	6.0 Instantaneous Minimum	XXX	XXX	9.0	1/Day	Grab
Ultraviolet Light Transmittance	XXX	XXX	Report Instantaneous Minimum	XXX	XXX	XXX	1/Day	Measured
Dissolved Oxygen	XXX	XXX	Report Instantaneous Minimum	XXX	XXX	XXX	1/Month	Grab
$CBOD_5$ (05/01-10/31)	0.6	XXX	XXX	10	15	20	2/Month	Grab
$CBOD_5$ (11/01-04/30)	1.2	XXX	XXX	20	30	40	2/Month	Grab
BOD_5 Influent	Report	Report Daily Maximum	XXX	Report	XXX	XXX	2/Month	Grab
Total Suspended Solids	1.2	XXX	XXX	20	30	40	2/Month	Grab
TSS Influent	Report	Report Daily Maximum	XXX	Report	XXX	XXX	2/Month	Grab
Fecal Coliform (No./100mL) (05/01-09/30)	XXX	XXX	XXX	200 Geometric Mean	XXX	1,000	2/Month	Grab
Fecal Coliform (No./100mL) (10/01-04/30)	XXX	XXX	XXX	2,000 Geometric Mean	XXX	10,000	2/Month	Grab
E. Coli	XXX	XXX	XXX	XXX	XXX	Report	1/Year	Grab

END of Fact Sheet.

USGS Gage 01548500

DA = 604 mi^2

$Q_{7,10}$ = 24.2 CFS

Pine Creek @ Cedar Run, PA.

POPU (Marsh Creek)

RM1 = 6.22

DA = 41.1

Elevation = 1153

$\frac{604}{41.1} = \frac{24.2}{X}$ $Q_{7,10}$

X = 1.65

Downstream (Marsh Creek)

RM1 = 3.92

DA = 52.9

Elevation = 1145

$\frac{604}{52.9} = \frac{24.2}{X}$ $Q_{7,10}$

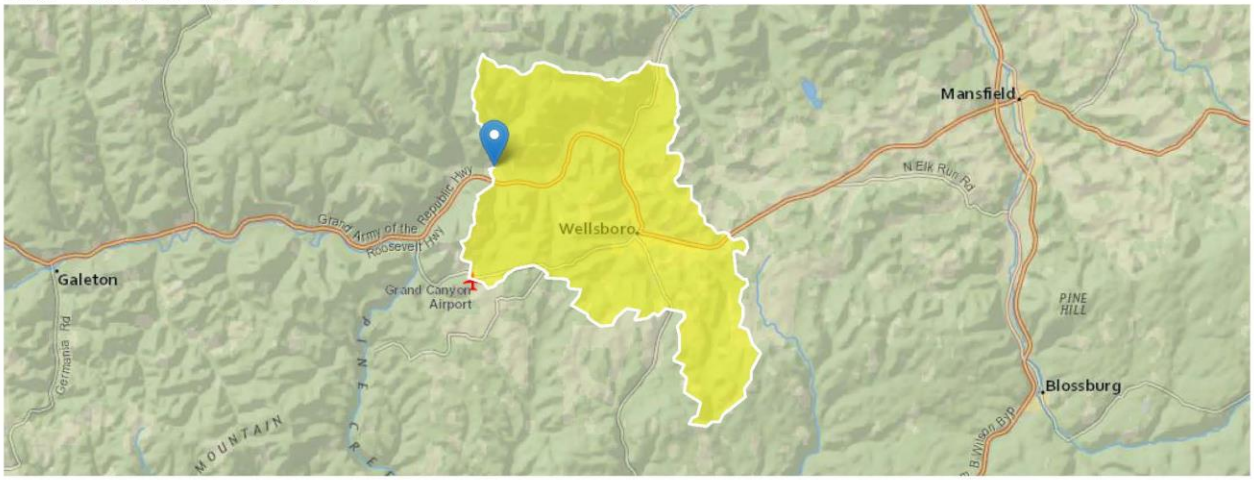
X = 2.10

Discharge @ 001 = 0.007 MGD

Marsh Creek = 21856

StreamStats Report

Region ID: PA
Workspace ID: PA20240507125642086000
Clicked Point (Latitude, Longitude): 41.77734, -77.38433
Time: 2024-05-07 08:57:07 -0400



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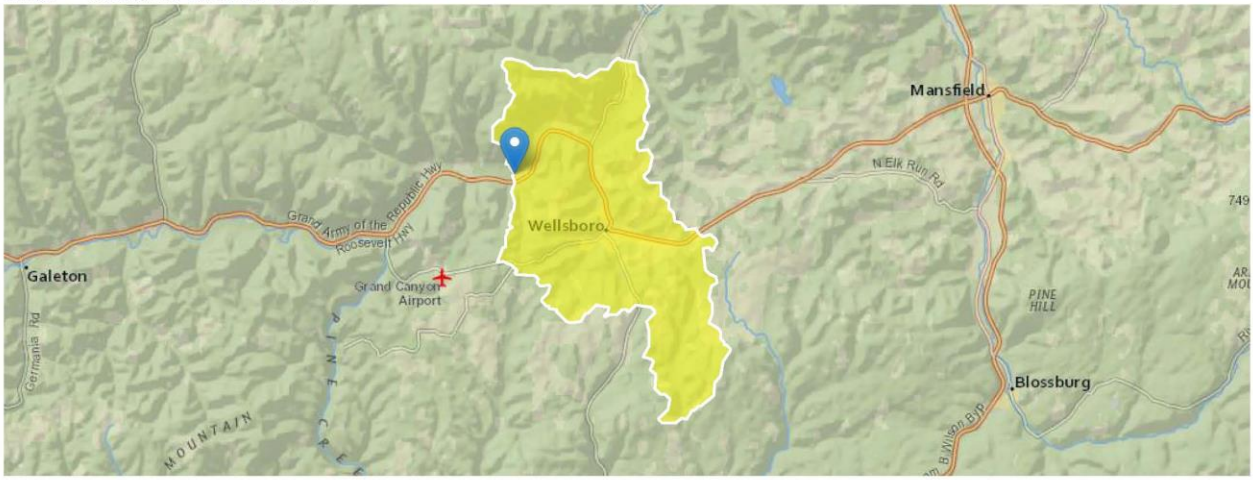
Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	52.4	square miles
FOREST	Percentage of area covered by forest	62.6288	percent
GLACIATED	Percentage of basin area that was historically covered by glaciers	100	percent
PRECIP	Mean Annual Precipitation	32	inches

StreamStats Report

Region ID: PA
Workspace ID: PA20240507124813983000
Clicked Point (Latitude, Longitude): 41.77286, -77.35493
Time: 2024-05-07 08:48:36 -0400



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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	41.1	square miles
FOREST	Percentage of area covered by forest	57.9921	percent
GLACIATED	Percentage of basin area that was historically covered by glaciers	100	percent
PRECIP	Mean Annual Precipitation	32	inches

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi², square miles]

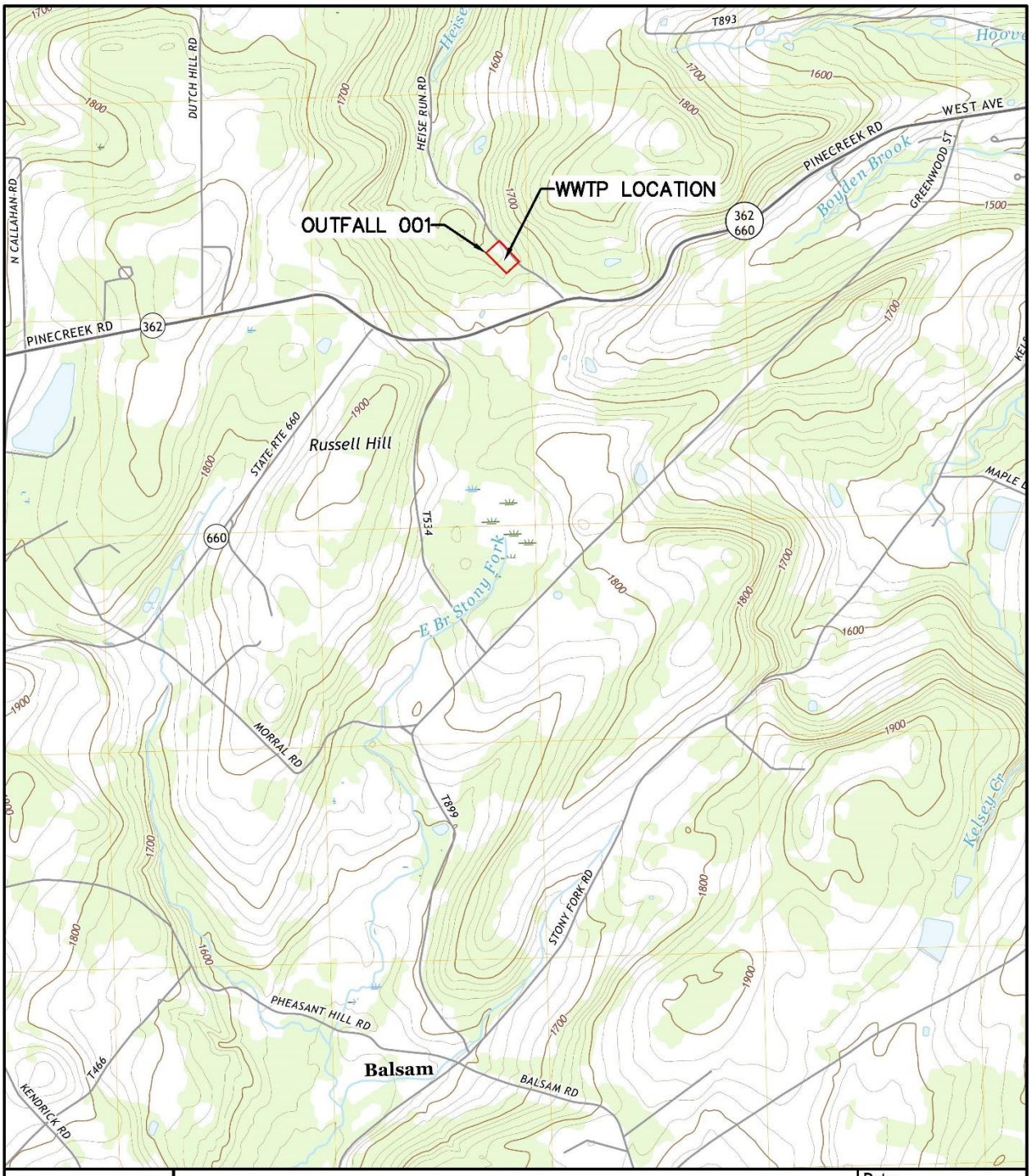
Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi²)	Regulated[1]
01541303	West Branch Susquehanna River at Hyde, Pa.	41.005	-78.457	474	Y
01541308	Bradley Run near Ashville, Pa.	40.509	-78.584	6.77	N
01541500	Clearfield Creek at Dimeling, Pa.	40.972	-78.406	371	Y
01542000	Moshannon Creek at Osceola Mills, Pa.	40.850	-78.268	68.8	N
01542500	WB Susquehanna River at Karthaus, Pa.	41.118	-78.109	1,462	Y
01542810	Waldy Run near Emporium, Pa.	41.579	-78.293	5.24	N
01543000	Driftwood Branch Sinnemahoning Creek at Sterling Run, Pa.	41.413	-78.197	272	N
01543500	Sinnemahoning Creek at Sinnemahoning, Pa.	41.317	-78.103	685	N
01544000	First Fork Sinnemahoning Creek near Sinnemahoning, Pa.	41.402	-78.024	245	Y
01544500	Kettle Creek at Cross Fork, Pa.	41.476	-77.826	136	N
01545000	Kettle Creek near Westport, Pa.	41.320	-77.874	233	Y
01545500	West Branch Susquehanna River at Renovo, Pa.	41.325	-77.751	2,975	Y
01545600	Young Womans Creek near Renovo, Pa.	41.390	-77.691	46.2	N
01546000	North Bald Eagle Creek at Milesburg, Pa.	40.942	-77.794	119	N
01546400	Spring Creek at Houserville, Pa.	40.834	-77.828	58.5	N
01546500	Spring Creek near Axemann, Pa.	40.890	-77.794	87.2	N
01547100	Spring Creek at Milesburg, Pa.	40.932	-77.786	142	N
01547200	Bald Eagle Creek below Spring Creek at Milesburg, Pa.	40.943	-77.786	265	N
01547500	Bald Eagle Creek at Blanchard, Pa.	41.052	-77.604	339	Y
01547700	Marsh Creek at Blanchard, Pa.	41.060	-77.606	44.1	N
01547800	South Fork Beech Creek near Snow Shoe, Pa.	41.024	-77.904	12.2	N
01547950	Beech Creek at Monument, Pa.	41.112	-77.702	152	N
01548005	Bald Eagle Creek near Beech Creek Station, Pa.	41.081	-77.549	562	Y
01548500	Pine Creek at Cedar Run, Pa.	41.522	-77.447	604	N
01549000	Pine Creek near Waterville, Pa.	41.313	-77.379	750	N
01549500	Blockhouse Creek near English Center, Pa.	41.474	-77.231	37.7	N
01549700	Pine Creek below Little Pine Creek near Waterville, Pa.	41.274	-77.324	944	Y
01550000	Lycoming Creek near Trout Run, Pa.	41.418	-77.033	173	N
01551500	WB Susquehanna River at Williamsport, Pa.	41.236	-76.997	5,682	Y
01552000	Loyalsock Creek at Loyalsockville, Pa.	41.325	-76.912	435	N
01552500	Muncy Creek near Sonestown, Pa.	41.357	-76.535	23.8	N
01553130	Sand Spring Run near White Deer, Pa.	41.059	-77.077	4.93	N
01553500	West Branch Susquehanna River at Lewisburg, Pa.	40.968	-76.876	6,847	Y
01553700	Chillisquaque Creek at Washingtonville, Pa.	41.062	-76.680	51.3	N
01554000	Susquehanna River at Sunbury, Pa.	40.835	-76.827	18,300	Y
01554500	Shamokin Creek near Shamokin, Pa.	40.810	-76.584	54.2	N
01555000	Penns Creek at Penns Creek, Pa.	40.867	-77.048	301	N
01555500	East Mahantango Creek near Dalmatia, Pa.	40.611	-76.912	162	N
01556000	Frankstown Branch Juniata River at Williamsburg, Pa.	40.463	-78.200	291	N
01557500	Bald Eagle Creek at Tyrone, Pa.	40.684	-78.234	44.1	N
01558000	Little Juniata River at Spruce Creek, Pa.	40.613	-78.141	220	N
01559000	Juniata River at Huntingdon, Pa.	40.485	-78.019	816	LF
01559500	Standing Stone Creek near Huntingdon, Pa.	40.524	-77.971	128	N
01559700	Sulphur Springs Creek near Manns Choice, Pa.	39.978	-78.619	5.28	N
01560000	Dunning Creek at Belden, Pa.	40.072	-78.493	172	N

Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft^3/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft^3/s)	7-day, 10-year (ft^3/s)	7-day, 2-year (ft^3/s)	30-day, 10-year (ft^3/s)	30-day, 2-year (ft^3/s)	90-day, 10-year (ft^3/s)
01546000	1912–1934	17	1.8	2.2	6.8	3.7	12.1	11.2
01546400	1986–2008	23	13.5	14.0	19.6	15.4	22.3	18.7
01546500	1942–2008	67	26.8	29.0	41.3	31.2	44.2	33.7
01547100	1969–2008	40	102	105	128	111	133	117
01547200	1957–2008	52	99.4	101	132	106	142	115
01547500	[2]1971–2008	38	28.2	109	151	131	172	153
01547500	[3]1956–1969	14	90.0	94.9	123	98.1	131	105
01547700	1957–2008	52	.5	.6	2.7	1.1	3.9	2.2
01547800	1971–1981	11	1.6	1.8	2.4	2.1	2.9	3.5
01547950	1970–2008	39	12.1	13.6	28.2	17.3	36.4	23.8
01548005	[2]1971–2000	25	142	151	206	178	241	223
01548005	[3]1912–1969	58	105	114	147	125	165	140
01548500	1920–2008	89	21.2	24.2	50.1	33.6	68.6	49.3
01549000	1910–1920	11	26.0	32.9	78.0	46.4	106	89.8
01549500	1942–2008	67	.6	.8	2.5	1.4	3.9	2.6
01549700	1959–2008	50	33.3	37.2	83.8	51.2	117	78.4
01550000	1915–2008	94	6.6	7.6	16.8	11.2	24.6	18.6
01551500	[2]1963–2008	46	520	578	1,020	678	1,330	919
01551500	[3]1901–1961	61	400	439	742	523	943	752
01552000	1927–2008	80	20.5	22.2	49.5	29.2	69.8	49.6
01552500	1942–2008	67	.9	1.2	3.1	1.7	4.4	3.3
01553130	1969–1981	13	1.0	1.1	1.5	1.3	1.8	1.7
01553500	[2]1968–2008	41	760	838	1,440	1,000	1,850	1,470
01553500	[3]1941–1966	26	562	619	880	690	1,090	881
01553700	1981–2008	28	9.1	10.9	15.0	12.6	17.1	15.2
01554000	[2]1981–2008	28	1,830	1,990	3,270	2,320	4,210	3,160
01554000	[3]1939–1979	41	1,560	1,630	2,870	1,880	3,620	2,570
01554500	1941–1993	53	16.2	22.0	31.2	25.9	35.7	31.4
01555000	1931–2008	78	33.5	37.6	58.8	43.4	69.6	54.6
01555500	1931–2008	78	4.9	6.5	18.0	9.4	24.3	16.6
01556000	1918–2008	91	43.3	47.8	66.0	55.1	75.0	63.7
01557500	1946–2008	63	2.8	3.2	6.3	4.2	8.1	5.8
01558000	1940–2008	69	56.3	59.0	79.8	65.7	86.2	73.7
01559000	1943–2008	66	104	177	249	198	279	227
01559500	1931–1958	28	9.3	10.5	15.0	12.4	17.8	15.8
01559700	1963–1978	16	.1	.1	.2	.1	.3	.2
01560000	1941–2008	68	8.5	9.4	15.6	12.0	20.2	16.2
01561000	1932–1958	27	.4	.5	1.6	.8	2.5	1.7
01562000	1913–2008	96	64.1	67.1	106	77.4	122	94.5
01562500	1931–1957	27	1.1	1.6	3.8	2.3	5.4	3.7
01563200	[2]1974–2008	35	—	—	—	112	266	129
01563200	[3]1948–1972	25	10.3	28.2	86.1	64.5	113	95.5
01563500	[2]1974–2008	35	384	415	519	441	580	493
01563500	[3]1939–1972	34	153	242	343	278	399	333
01564500	1940–2008	69	3.6	4.2	10.0	6.2	14.4	10.6

ATTACHMENT 02



P:\12903\12903-001\05 Permits\DEP Permits\Smithville NPDES Permit Renewal\Location Map\Location Map.dwg, STANDARD SHEET, 4/24/2023 11:51:02 AM, Jones, Nathan

Larson Design Group
1000 COMMERCE PARK DRIVE
SUITE 201
WILLIAMSPORT, PA 17701
(877) 323-6603

SMITHVILLE WWTP NPDES PERMIT RENEWAL

14 CRAFTON STREET, WELLSBORO, PA 16901

PROJECT LOCATION MAP

Date: 2023-04-19
Project No.: 12903-001
Sheet No.: 1 OF 1

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
09A	21856	MARSH CREEK	**6.220**	1153.00	41.10	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	1.65	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Delmar Twp	PA0209350	0.0070	0.0070	0.0070	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	3.00	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
09A	21856	MARSH CREEK	**3.920**	1145.00	52.40	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	2.10	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	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
09A	21856	MARSH CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
6.220	1.65	0.00	1.65	.0108	0.00066	.624	25.55	40.93	0.10	1.349	20.03	7.00
Q1-10 Flow												
6.220	1.06	0.00	1.06	.0108	0.00066	NA	NA	NA	0.08	1.729	20.05	7.00
Q30-10 Flow												
6.220	2.24	0.00	2.24	.0108	0.00066	NA	NA	NA	0.12	1.137	20.02	7.00

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	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	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
09A	21856	MARSH CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
6.220	Delmar Twp	16.69	50	16.69	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
6.220	Delmar Twp	1.88	25	1.88	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)		
6.22	Delmar Twp	25	25	25	25	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
09A	21856	MARSH CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
6.220	0.007	20.033	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
25.546	0.624	40.927	0.104
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.15	0.050	0.16	0.702
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.209	0.652	Tsivoglou	5
Reach Travel Time (days)			
1.349			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.135	2.14	0.15	8.20
0.270	2.12	0.13	8.20
0.405	2.11	0.12	8.21
0.540	2.09	0.11	8.22
0.675	2.08	0.10	8.23
0.810	2.06	0.09	8.24
0.945	2.05	0.08	8.24
1.080	2.04	0.08	8.24
1.215	2.02	0.07	8.24
1.349	2.01	0.06	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
09A	21856	MARSH CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
6.220	Delmar Twp	PA0209350	0.007	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			3