pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0111741**
Facility Type	**Municipal**	APS ID	**1025062**
Major / Minor	**Minor**	Authorization ID	**1330177**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Lewis Township Northumberland County**	Facility Name	**Warrior Run Wastewater Treatment Plant**
Applicant Address	1428 Rovendale Drive Watsontown, PA 17777-8459	Facility Address	4800 Susquehanna Trail Turbotville, PA 17772-9741
Applicant Contact	Willard Murray, Supervisor/Chairman	Facility Contact	Willard Murray, Supervisor/Chairman
Applicant Phone	(570) 649-5371	Facility Phone	(570) 649-5371
Client ID	112872	Site ID	487961
Ch 94 Load Status	Not Overloaded	Municipality	Lewis Township
Connection Status	No Limitations	County	Northumberland
Date Application Received	October 6, 2020	EPA Waived?	Yes
Date Application Accepted	October 15, 2020	If No, Reason	
Purpose of Application	Renewal of a NPDES Permit		

Summary of Review

The subject facility is a Publicly Owned Treatment Works (POTW) serving a portion of Lewis Township, Northumberland County including the Warrior Run School District complex.

A map showing the discharge location is attached.

Sludge use and disposal description and location(s): The facility's sludge is transferred to other WWTPs for further processing. Per the application 2.283 dry tons were removed in the past year.

Public Participation

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

Approve	Deny	Signatures	Date
X		*Keith C. Allison* Keith C. Allison / Project Manager	March 9, 2021
X		*Nicholas W. Hartranft* Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	March 10, 2021

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.026
Latitude	41º 6' 0.00"	Longitude	-76º 47' 55.31"
Quad Name	Milton, PA	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Warrior Run (WWF)	Stream Code	19144
NHD Com ID	66918041	RMI	4.5
Drainage Area	13.1 mi^2	Yield (cfs/mi^2)	0.212
Q_{7-10} Flow (cfs)	2.77	Q_{7-10} Basis	USGS Stream Gage 01553700, Chillisquaque Creek @ Washington, PA (1981-2008)
Elevation (ft)	502	Slope (ft/ft)	0.00217
Watershed No.	10-D	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired		
Cause(s) of Impairment	FLOW REGIME MODIFICATION, SILTATION		
Source(s) of Impairment	AGRICULTURE, HIGHWAY/ROAD/BRIDGE RUNOFF (NON-CONSTRUCTION RELATED)		
TMDL Status	Final	Name	Warrior Run TMDL
Nearest Downstream Public Water Supply Intake	PA-American Water Company @ Milton, PA		
PWS Waters	West Branch Susquehanna River	Distance from Outfall (mi)	Approx. 7
PWS RMI	10.8		

Changes Since Last Permit Issuance: None

Other Comments: Discharge is to an intermittent stream 200 feet above Warrior Run. The first point of aquatic life use has been assumed to be at the discharge into Warrior Run.

The Warrior Run TMDL was finalized on April 30, 2013. This treatment facility discharge did not receive any waste load allocations under the TMDL and is not expected to be a significant contributor to the impairment to Warrior Run. As seen below the TSS levels in the discharge range from 1-3 mg/L as a monthly average.

No downstream water supply is expected to be affected by the discharge with the limitations and monitoring proposed.

Treatment Facility Summary

Treatment Facility Name: Lewis Township WWTP

WQM Permit No.	Issuance Date	
4910404	A1 – 3/5/14 Original 1/1/11	Replacement of Chlorine with UV disinfection Plant upgrades including increased wet well size, flow equalization, and replacement of comminutor with a band screen
667S043	A1 – 6/8/98 Original – 9/25/67	Improvements to treatment plant Extended aeration treatment plant with sand filters, chlorine disinfection and aerated sludge holding tank
4920402	12/10/21	Schell and Koch Road Sewer Extension

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Ultraviolet	0.026

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.026	124	Not Overloaded	Holding Tank	Other WWTP

Changes Since Last Permit Issuance: WQM permit No. 4920402 for the Schell and Koch Road sewer extension including a pump station was issued on December 10, 2020. The Township is also currently pursuing Act 537 planning for ultimate connection to the Milton Regional Sewer Authority system discharging under NPDES Permit No. PA0020273.

Other Comments: Treatment consists of screening, aeration, clarification, dosing tank, intermittent sand filters, and UV disinfection.

Compliance History

DMR Data for Outfall 001 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
Flow (MGD) Average Monthly	0.00675	0.010005	0.007084	0.007801	0.008016	0.007154	0.006124	0.006471	0.006636	0.007453	0.008138	0.007967
Flow (MGD) Daily Maximum	0.011328	0.09315	0.013269	0.016692	0.014816	0.012075	0.007924	0.012489	0.011425	0.035699	0.014681	0.025974
pH (S.U.) Minimum	7.0	6.94	7.02	7.04	7.0	7.01	7.02	7.01	7.01	7.16	7.07	7.08
pH (S.U.) Instantaneous Maximum	7.41	7.35	7.47	7.49	7.39	7.36	7.34	7.32	7.35	7.37	7.35	7.29
DO (mg/L) Minimum	4.16	3.85	5.23	5.06	5.08	5.01	5.04	5.08	5.06	5.43	5.31	5.14
CBOD5 (mg/L) Average Monthly	3.0	4.0	< 3	< 3	< 3	< 3	< 3	< 3	< 4	6	< 5	< 4
CBOD5 (mg/L) Weekly Average	3.0	4.0	< 3	< 3	< 3	< 3	< 3	< 3	5	8	8	5
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	22	7	11	32	16	8	5	9	6	7	25	17
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	36	9	11	43	20	9	7	11	9	12	34	22
BOD5 (mg/L) Raw Sewage Influent Average Monthly	387	160	150	387	252	112	94	175	111	126	256	265
TSS (lbs/day) Raw Sewage Influent Average Monthly	36	5	13	16	21	16	9	7	9	8	29	13
TSS (lbs/day) Raw Sewage Influent Daily Maximum	67	6	15	20	24	17	10	8	9	11	35	13
TSS (mg/L) Average Monthly	3.0	3.0	3	1	2	1	< 1	1	< 1	< 2	2	2
TSS (mg/L) Raw Sewage Influent Average Monthly	639	103	175	191	344	204	178	144	163	161	320	208
TSS (mg/L) Weekly Average	3.0	3.0	4	2	2	2	2	1	1	< 2	3	2

Fecal Coliform (CFU/100 ml) Geometric Mean	< 1.0	26	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	2.0	160.7	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	2	< 1
UV Intensity (mW/cm²) Minimum	2.0	2.2	3.4	4.2	3.4	4.0	4.7	3.9	3.4	3.7	3.7	3.2
Ammonia (mg/L) Average Monthly	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.671	< 0.1

Compliance History, Cont'd	
Summary of Inspections:	The facility was inspected approximately annually over the past permit term. The most recent inspection by the Department on January 28, 2021 identified no violations at the time of the inspection.
Other Comments:	A query in WMS found no open violations in eFACTS for Lewis Township, Northumberland County.

Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	Report	XXX	XXX	XXX	1/day	Grab
CBOD5	XXX	XXX	XXX	25	40	50	2/month	Grab
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	Grab
TSS	XXX	XXX	XXX	30	45	60	2/month	Grab
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
UV Intensity (mW/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Metered
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/year	Grab
Ammonia	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/year	Grab

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.026
Latitude 41º 6' 3.60" **Longitude** -76º 47' 58.80"
Wastewater Description: Sewage Effluent

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)

Comments: The above limitations are applicable and are included in the existing permit.

Water Quality-Based Limitations

DO, CBOD5 and NH3-N

The WQM7.0 model allows the Department to evaluate point source discharges of dissolved oxygen (DO), carbonaceous BOD ($CBOD_5$), and ammonia-nitrogen (NH_3-N) into free-flowing streams and rivers. To accomplish this, the model simulates two basic processes: the mixing and degradation of NH_3-N in the stream and the mixing and consumption of DO in the stream due to the degradation of $CBOD_5$ and NH_3-N. WQM7.0 modeling was performed for the previous renewal for the discharge to the Warrior Run and showed that no limitations are necessary beyond the technology-based secondary treatment limits listed above. See Attachment B for a copy of this modeling. DO and NH_3-N monitoring will continue.

Water Quality Toxics Management

No additional "Reasonable Potential Analysis" was performed to determine additional toxic parameters as candidates for limitations or monitoring for this 0.026 MGD facility receiving only domestic wastewater.

Chesapeake Bay/Nutrient Requirements

A portion of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the Water Pollution Control Act, 33 U.S.C. §1313(d). Total Nitrogen and Total Phosphorus cap loads have been established for significant dischargers in Pennsylvania to reduce the total nutrient load to the Bay and meet State of Maryland Water Quality Standards. This Lewis Township facility is considered a Phase 5, Non-Significant Chesapeake Bay discharger. Consistent with the Phase II Watershed Implementation Plan the existing permit included annual monitoring for nutrients (Total Nitrogen and Total Phosphorus). The available data in eDMR for the past four years averaged 46 mg/L for Total Nitrogen and 4.9 mg/L for Total Phosphorus. Because the nutrient load from the facility has been adequately characterized at this time no additional nutrient monitoring will be required in the proposed permit consistent with the Phase III WIP.

Best Professional Judgment (BPJ) Limitations

Comments: No additional BPJ limitations are necessary beyond the technology and water quality-based limits noted above.

Anti-Backsliding

No limitations have been made less stringent consistent with the anti-degradation requirements of the Clean Water Act and 40 CFR 122.44(I).

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	Report	XXX	XXX	XXX	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	40.0	50	2/month	Grab
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	Grab
TSS	XXX	XXX	XXX	30.0	45.0	60	2/month	Grab
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	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
UV Intensity (mW/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Metered
Ammonia	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab

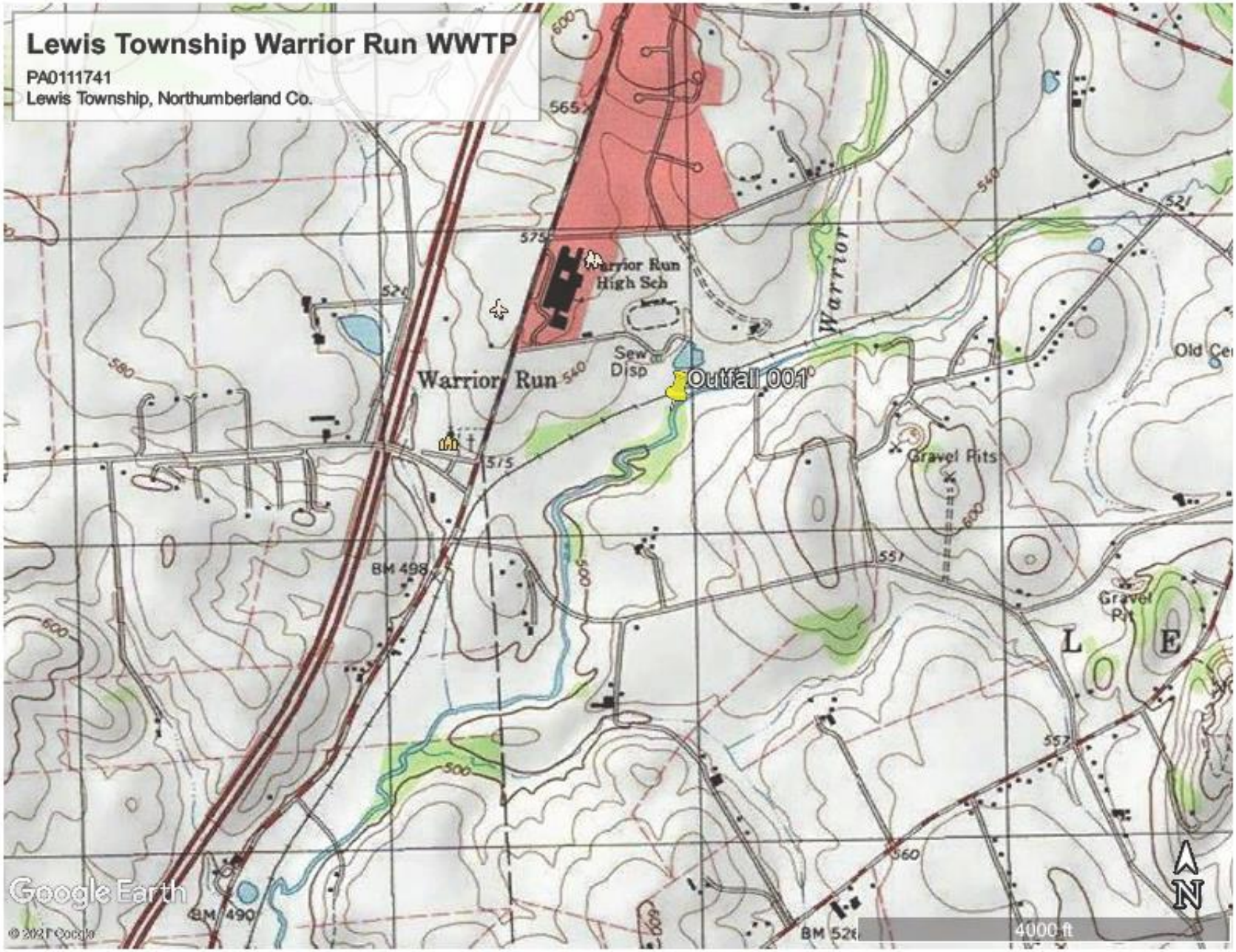
Compliance Sampling Location: Outfall 001

Other Comments: The above limitations and monitoring are unchanged from the existing permit except for the removal of Total Nitrogen and Total Phosphorus monitoring as mentioned above.

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **B**)
☐	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, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☒	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☒	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 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, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 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, 391-2000-022, 3/1999.
☒	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: Establishing Effluent Limitations for Individual Sewage Permits, rev. 8/23/13
☒	Other: *Selected Stream Flow Characteristics for Streamgage Locations in and near Pennsylvania*, Stuckey and Roland, 2011.

Attachments:

A. Map
B. WQM7.0 Modeling


Lewis Township Warrior Run WWTP
PA0111741
Lewis Township, Northumberland Co.
Warrior Run High Sch
Warrior Run
Outfall 001
Gravel Pits
BM 498
BM 490
Google Earth
© 2021 Google
4000 ft
N

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
10D	19144	WARRIOR RUN	**4.500**	502.00	13.10	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	0.210	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Lewis Twp	PA0111741	0.0260	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

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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
	10D	19144	WARRIOR RUN	2.580	480.00	16.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.210	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

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WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
10D	19144	WARRIOR RUN

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												
4.500	2.75	0.00	2.75	.0402	0.00217	.606	23.3	38.47	0.20	0.593	20.07	7.00
Q1-10 Flow												
4.500	1.76	0.00	1.76	.0402	0.00217	NA	NA	NA	0.15	0.758	20.11	7.00
Q30-10 Flow												
4.500	3.74	0.00	3.74	.0402	0.00217	NA	NA	NA	0.23	0.500	20.05	7.00

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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		

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WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
10D	19144	WARRIOR RUN

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
4.500	Lewis Twp	9.6	50	9.6	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
4.500	Lewis Twp	1.91	25	1.91	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)		
4.50	Lewis Twp	25	25	25	25	3	3	0	0

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WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
10D	19144	WARRIOR RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
4.500	0.026	20.072	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
23.301	0.606	38.471	0.198
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.33	0.161	0.36	0.704
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.167	4.085	Tsivoglou	5
Reach Travel Time (days)			
0.593			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.059	2.31	0.35	8.23
0.119	2.29	0.33	8.23
0.178	2.27	0.32	8.23
0.237	2.24	0.30	8.23
0.297	2.22	0.29	8.23
0.356	2.20	0.28	8.23
0.415	2.18	0.27	8.23
0.475	2.16	0.26	8.23
0.534	2.14	0.25	8.23
0.593	2.12	0.24	8.23

Permit No. PA0111741

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
10D	19144	WARRIOR RUN

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)
4.500	Lewis Twp	PA0111741	0.026	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			3