pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0260118**
Facility Type	**Non-Municipal**	APS ID	**1032087**
Major / Minor	**Minor**	Authorization ID	**1359112**

Applicant and Facility Information

Applicant Name	**New Oxford MHC Group, LLC**	Facility Name	**New Oxford MHC**
Applicant Address	31200 Northwestern Highway	Facility Address	575 Kohler School Road
	Farmington Hills, MI 48334-5900		New Oxford, PA 17350-9490
Applicant Contact	Ross Partrich	Facility Contact	Mike Kreiser
Applicant Phone	(248) 626-0737	Facility Phone	(610) 589-4023
Client ID	360978	Site ID	2143
Ch 94 Load Status	Not Overloaded	Municipality	Mount Pleasant Township
Connection Status	No Limitations	County	Adams
Date Application Received	June 24, 2021	EPA Waived?	Yes
Date Application Accepted	June 30, 2021	If No, Reason	

Purpose of Application .

Summary of Review

Spotts, Stevens, and McCoy, Inc. (SSM); on behalf of the New Oxford MHC Group, LLC; has applied to the Pennsylvania Department of Environmental Protection (DEP) for issuance of the NPDES permit. This is a NPDES permit for the existing facility located at 575 Kohler School Road, New Oxford, PA. The permit was reissued on November 22, 2016 and became effective on December 1, 2016. The permit expired on November 30, 2021 but the terms and conditions of the permit have been extended since that time.

NPDES PA0260118 permit be amended to reflect a change in ownership from Chesapeake Estates of New Oxford LLP to New Oxford MHC Group, LLC. Which issued on February 26, 2021

The WQM Part II No. 0115403 issued on November 22, 2016, and transfer 0115403 T-1 issued on February 26, 2021.

This facility serves the areas of New Oxford MHC in Mt. Pleasant Township (100%). The flow design is 0.062328 MGD. The hydraulic capacity is 0.084 MGD.

Sludge use and disposal description and location(s): N/A due to the sludge is hauled by Kline's Services.

Changes from the previous permit: Unit of Fecal Coliform changed from CFU/100 ml to No./100 ml. The E. Coli. monitoring and report requirements will be added to the proposed permit.

Based on the review outline in this fact sheet, it is recommended that the permit be drafted and published in the Pennsylvania Bulletin for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	December 10, 2021
X		Maria D. Bebenek for Daniel W. Martin, P.E. / Environmental Engineer Manager	December 20, 2021

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.062328
Latitude	39º 50' 26"	Longitude	-77º 4' 35"
Quad Name	McSherrystown	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	South Branch Conewago Creek (WWF)	Stream Code	08813
NHD Com ID	134353635	RMI	6.31 miles
Drainage Area	63.4 mi.^{2}	Yield (cfs/mi^2)	0.064
Q_{7-10} Flow (cfs)	4.07	Q_{7-10} Basis	USGS StreamStas
Elevation (ft)	477	Slope (ft/ft)	
Watershed No.	7-F	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	New Oxford Municipal Authority		
PWS Waters	South Branch Conewago Creek	Flow at Intake (cfs)	
PWS RMI	4.79 miles	Distance from Outfall (mi)	Approximate 2.0 miles

Changes Since Last Permit Issuance:

Drainage Area
The discharges are to Tributary 08813 to South Branch Conewago Creek at RMI 6.31 miles. A drainage area upstream of the discharge is estimated to be 63.4 mi.^{2}, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Stream Flow
According to StreamStats, the discharge point on South Branch Conewago Creek has a Q_{7-10} of 4.07 cfs and a drainage area of 63.4 mi.^{2}, which results in a low flow yield of 0.064 cfs/mi.^{2}. This information is used to obtain a chronic or 30-day (Q_{30-10}), and an acute or 1-day (Q_{1-10}) exposure stream flow for the point of first use as follows (Guidance No. 391-2000-023):

Q_{7-10} = 4.07 cfs
Low Flow Yield = 4.07 cfs / 63.4 mi.^{2} = 0.064 cfs/mi.^{2}
Q_{30-10} = 1.36 * 4.07 cfs = 5.53 cfs
Q_{1-10} = 0.64 * 4.07 cfs = 2.60 cfs

The resulting Q_{7-10} dilution ratio is: Q_{stream} / $Q_{discharge}$ = 4.07 cfs / [0.062328 MGD * (1.55 cfs/MGD)] = 42:1

South Branch Conewago Creek
25 Pa. Code § 93.9o classifies South Branch Conewago Creek as Warm Water and Migratory Fishes (WWF & MF) surface water. Based on the 2020 Integrated Report, South Branch Conewago Creek; assessment unit IDs 14256, 11598, 18831, & 18585; is not impaired. A TMDL currently does not exist for this stream segment, therefore, no TMDL has been taken into consideration during this review.

Public Water Supply
The nearest downstream public water supply intake is the New Oxford Municipal Authority on South Branch Conewago Creek, approximately 2.0 miles downstream of this discharge. Given the nature and dilution, the discharge is not expected to significantly impact the water supply.

Treatment Facility Summary				

Treatment Facility Name: New Oxford MHC

WQM Permit No.	Issuance Date
0115403	11/22/2016
0115403 T-1	2/25/2021

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Total Nitrogen Reduction	Extended Aeration	Ultraviolet	0.062328

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.062328		Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: none

The WWTP train is to be configured as follows:

Mechanical Screen (1) ⇒ EQ Tank (25,000 gal) ⇒ Anoxic tanks (22,322 gal) ⇒ Six Aeration Tanks (26,670 gal combined) ⇒ Two Clarifiers (12,784 gal) ⇒ UV Disinfection Unit ⇒ Discharge

The system is to incorporate the chemical addition of 340-ACP Dry Polymer to assist with flocculation and settling.

Compliance History	
Summary of DMRs:	The DMRs reported from November 1, 2020 to October 31, 2021 is summarized in the Table below (Pages # 4, & 5).
Summary of Inspections:	1/29/2020: Brandon Bettinger, DEP WQS, conducted a compliance evaluation inspection. There were no violations noticed during inspection. There were recommendations such as calibrating flow meter one per year; inspect treatment units during plant operation to ensure all system components are operating as they should; ensure DMRs, bench sheets, and lab results are maintained on-site for review; maintain SOP on-site for references for non-certified operators; and need to consider the standby power for case of outage power. The outfall 001 appeared clear. 12/26/2019: Brandon Bettinger, DEP WQS, conducted a Chesapeake Bay Data Audit inspection. There were no violations noticed during inspection. The recommendation was to update the newest revisions of DMRs form. 2/8/2018: Patrick Bowen, DEP WQS, conducted a compliance evaluation inspection. There were no violations noticed during inspection. There were recommendations such as develop SOP within 30 days of receipt of this report and forward a copy when it completed via email to inspector; and maintain monitoring records on-site. Field test results were within the permit limits.
Other Comments:	There are currently no open violations associated to the permittee or the facility.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from November 1, 2020 to October 31, 2021)

Parameter	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20
Flow (MGD) Average Monthly	0.029	0.047	0.027	0.025	0.0261	0.029	0.028	0.04	0.039	0.032	0.038	0.023
Flow (MGD) Daily Maximum	0.076	0.142	0.038	0.036	0.072	0.061	0.04	0.141	0.067	0.07	0.131	0.033
pH (S.U.) Instantaneous Minimum	7.05	7.25	6.85	7.05	7.05	6.88	6.85	6.46	6.21			
pH (S.U.) Minimum										6.57	7.1	6.9
pH (S.U.) Instantaneous Maximum	8.05	7.8	8.45	8.87	8.64	7.92	8.23	8.01	8.11			
pH (S.U.) Maximum										8.13	8.3	7.9
DO (mg/L) Instantaneous Minimum	5.88	5.24	5.41	5.47	5.1	5.36	5.6	5.12	5.4			
DO (mg/L) Minimum										5.85	7.0	6.6
CBOD5 (mg/L) Average Monthly	2.6	< 2.7	5.3	3.8	< 5.5	6.4	7.7	3.9	38	4.5	< 4.0	< 3.0
TSS (mg/L) Average Monthly	< 4	< 5	< 4.6	< 4	< 4	< 4.3	< 4.8	< 4	123.3	8.2	6.0	4.0
Fecal Coliform (No./100 ml) Geometric Mean	< 1	< 23	< 1	< 1	< 1	< 1	< 1	1	< 2	< 1	< 1	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 1	546	1	< 1	< 1	< 1	1	1	< 4	1	2	< 1
UV Intensity (µw/cm²) Instantaneous Minimum	3.3	3.6	4.8	4.4	3.3	3.4	2.9	2.1	2			
UV Intensity (µw/cm²) Minimum										2.1	2.8	3.8
Nitrate-Nitrite (mg/L) Average Monthly	5.12	10.6	4.36	3.28	4.29	4.17	3.94	7.64	6.47	11.74	< 6.2	< 8.3
Nitrate-Nitrite (lbs) Total Monthly	28	74	24	17	33	52	27	91	72	85	< 50	< 53

Total Nitrogen (mg/L) Average Monthly	< 5.62	11.94	6.09	4.51	5.1	5.25	5.87	8.62	9.01	15.5	< 5.7	< 8.8
Total Nitrogen (lbs) Effluent Net Total Monthly	< 31	83	34	23	39	67	40	101	104	113	< 55	< 56
Total Nitrogen (lbs) Total Monthly	< 31	83	34	23	39	67	40	101	104	113	< 55	< 56
Total Nitrogen (lbs) Effluent Net Total Annual		< 780										
Total Nitrogen (lbs) Total Annual		< 780										
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.14	< 0.1	< 0.1	< 0.22	0.63	< 0.1	< 0.1	< 2.61	< 0.1	< 0.1
Ammonia (lbs) Total Monthly	< 0.6	< 0.7	< 0.8	< 0.5	< 0.8	< 3	4	< 1	< 1	< 20	< 1	< 0.6
Ammonia (lbs) Total Annual		< 34										
TKN (mg/L) Average Monthly	< 0.5	1.37	1.73	1.23	0.81	1.08	1.93	0.98	2.55	3.74	< 0.5	< 0.5
TKN (lbs) Total Monthly	< 3	9	10	6	6	14	13	10	32	28	< 5	< 3
Total Phosphorus (mg/L) Average Monthly	3.31	3.49	5.53	2.58	3.69	2.75	2.2	2.01	2.77	2.15	1.8	2.1
Total Phosphorus (lbs) Effluent Net Total Monthly	18	24	31	16	27	32	16	19	29	16	17	13
Total Phosphorus (lbs) Total Monthly	18	24	31	16	27	32	16	19	29	16	17	13
Total Phosphorus (lbs) Effluent Net Total Annual		242										
Total Phosphorus (lbs) Total Annual		253										

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.062328
Latitude 39º 50' 26.00" **Longitude** -77º 4' 35.00"
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)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Comments:

Water Quality-Based Limitations

Ammonia (NH_3-N):
NH_3-N calculations were first based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the in-stream NH_3-N criteria used in the attached computer model of the stream:

- Discharge pH = 7.0 (Default)
- Discharge Temperature = 25°C (Default)
- Stream pH = 7.0 (Default)
- Stream Temperature = 25ºC (Default for WWF)
- Background NH_3-N = 0 (Default)

The model input data and results are attached. The printout of the WQM 7.0 stream model (version 1.1) indicates that a limit of 25.0 mg/L as a monthly average and 50.0 mg/L IMAX are necessary to protect the aquatic life from toxicity effects at the point of discharge. The existing limits of 25.0 mg/L monthly average (AML), and 50.0 mg/L instantaneous maximum (IMAX). However, the model results will not be applied as the permit limits since the dilution provided by the stream is very high (Q_{7-10} dilution ratio = 42:1). As per 391-2000-013, since both the toxicity-based and D.O.-based ammonia effluent limitations are greater than 15.0 mg/L, no NH_3-N limitations are needed for this facility. The existing monitor and report requirement will remain in the proposed permit.

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$):
The attached computer printout of the WQM 7.0 stream model (version 1.1) indicates that a monthly average limit of 25.0 mg/L, or secondary treatment, is adequate to protect the water quality of the stream. However, the existing limits of 25.0 mg/L monthly average (AML), and 50.0 mg/L instantaneous maximum (IMAX) will remain in the proposed permit as per guidance document 391-2000-014. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits.

pH:
The effluent discharge pH should remain above 6.0 and below 9.0 standard units according to 25 Pa. Code § 95.2(1).

Dissolved Oxygen (D.O.):
A minimum D.O. of 5.0 mg/L is required per 25 Pa. Code § 93.7. It is recommended that this limit be maintained in the proposed permit to ensure the protection of water quality standards. This approach is consistent with DEP's current Standard Operating Procedure (SOP) No. BPNPSM-PMT-033 and has been applied to other point source dischargers throughout the state. The minimum monitoring frequency will remain the same as 2/month which is also consistent with Permit Writers Manual Table 6-3.

E. Coli:
As recommended by DEP's SOP no. BPNPSM-PMT-033, a routine monitoring for E. Coli will be included in the proposed permit under 25 Pa. Code §92a.61. This requirement applies to all sewage dischargers greater than 0.002 MGD in their new and reissued permits. A monitoring frequency of 2/month will be included permit to be consistent with the recommendation from this SOP.

Fecal Coliform:
The recent coliform guidance in 25 Pa. Code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100ml and § 92a.47.(a)(5) requires a winter limit of 2,000/100ml as a geometric mean and an instantaneous maximum not greater than 10,000/100ml.

Total Suspended Solids (TSS):
The existing technology-based limits of 30.0 mg/L average monthly, and 60.0 mg/L instantaneous maximum will remain in the proposed permit based on the minimum level of effluent quality attainable by secondary treatment based on 25 Pa. Code § 92a.47. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits. The minimum monitoring frequency will remain the same as 2/month.

UV:
The UV system monitor and report the UV intensity (mW/cm^2) after update to replace chlorine disinfection to UV disinfection system will remain in the proposed permit.

Toxics:
DEP utilities a Toxics Management Spreadsheet (last modified on March 2021 ver. 1.3) to facilitate calculations necessary for completing a reasonable potential analysis and determining WQBELs for toxic pollutants. The worksheet output indicates that there are no toxic pollutants of concern.

Phosphorus:
The estimated phosphorus load (assuming no treatment at the plant) to the lower Susquehanna River is:

10 mg/L x 0.062 MGD x 8.34 = 5.17 lbs/day

This load represents 0.14% of the total estimated load to the lower Susquehanna River (3,814 lbs/day), which is below the "minimum requirement" of 0.25% required for the establishment of phosphorus limits. Therefore, no local phosphorus limits will be included in the permit. Phosphorus monitoring will be required, however, per the guidelines of the Chesapeake Bay Strategy.

Chesapeake Bay Strategy:
This facility falls under Phase 5 of the Pennsylvania's Chesapeake Bay Tributary Strategy Point Source Implementation Plan, which the previous protection report quoted as stating the following:

"Phase 5 – smaller dischargers (design annual average daily flow on August 29, 2005 less than 0.2 MGD and greater than 0.002 mgd): Any facility in this phase that undergoes an expansion prior to phase 5 implementation will be immediately subject to the requirements shown for phase 5, i.e. no net increase in loading, based on design annual average flow on August 29, 2005, and existing nutrient concentrations, but in no case will this load exceed 7,306 pounds of TN and 974 pounds of TP, annually."

Cap Loads were calculated based on the existing 0.02 MGD design flow for the sprayfield and the use of default concentration values of 22.0 mg/L and 4.0 mg/L for TN and TP, respectively. This method yielded the following results:

TN Cap Load = 22.0 mg/L x 0.02 MGD x 8.34 x 365 days = 1,339 lbs/year
TP Cap Load = 4.0 mg/L x 0.02 MGD x 8.34 x 365 days = 243 lbs/year

The existing Cap Loads and monitoring frequency requirements will remain in the proposed permit.

Biosolids Management:
Sludge is digested on-site, via an aerobic sludge digester, and removed by a certified hauler.

Stormwater:
There is no known stormwater outfall associated with this facility.

Antidegradation (93.4):
The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High-Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

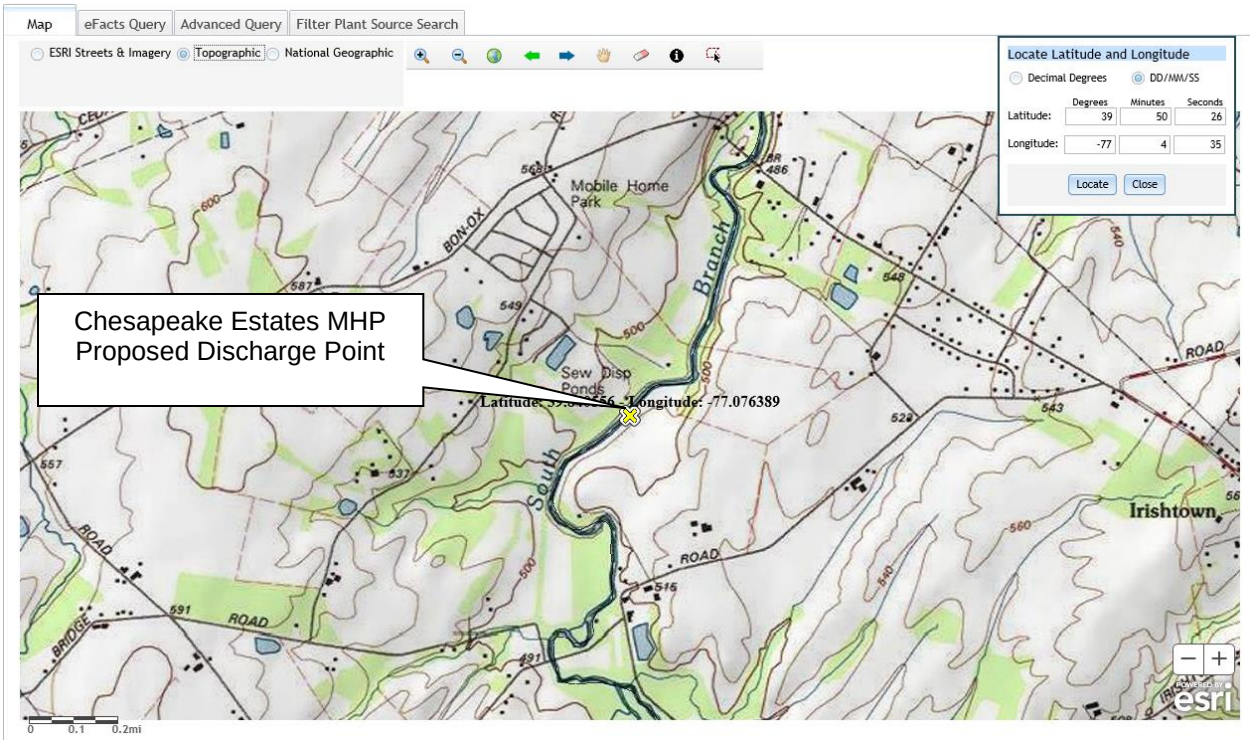
303d Listed Streams:
This discharge is not located on a 303d listed stream segment.

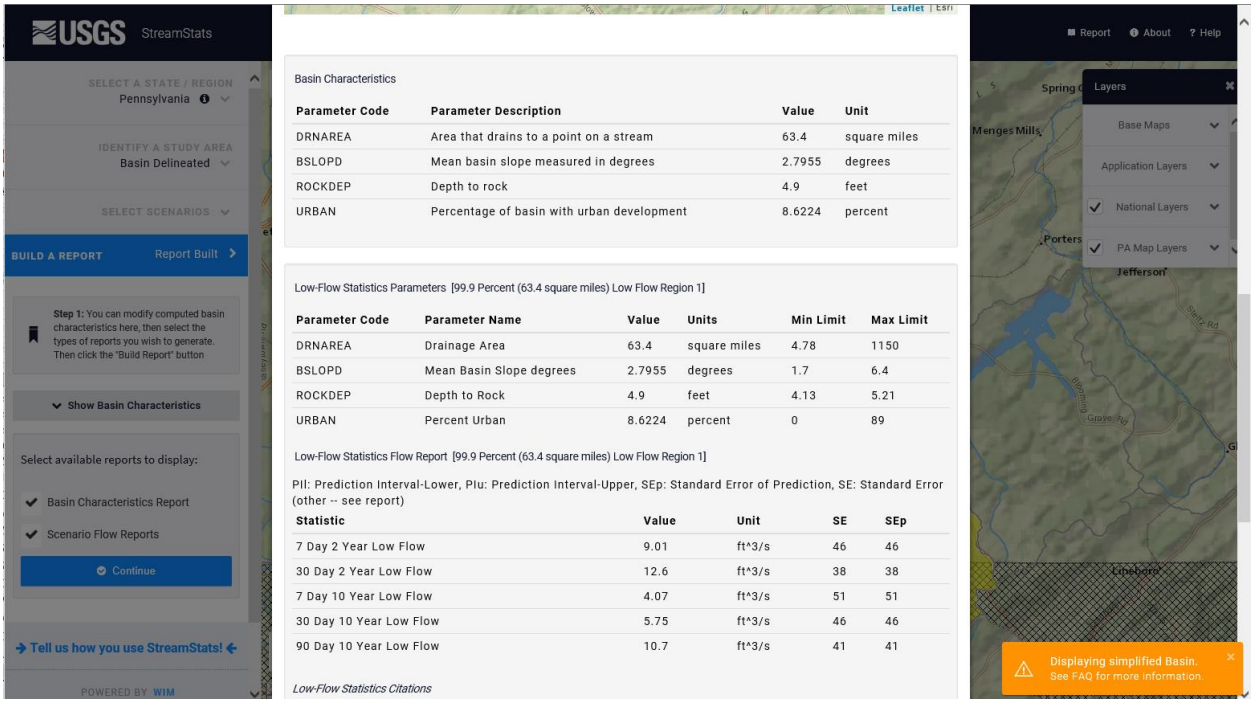
Class A Wild Trout Fisheries:
No Class A Wild Trout Fisheries are impacted by this discharge.

WQM 7.0 model input data:

DO Goal = 5.0 mg/L

Node 1:	Outfall 001 on South Branch Conewago Creek (08813)	
	Elevation:	477 ft (USGS National Map Viewer)
	Drainage Area:	63.4 mi^2 (USGS PA StreamStats)
	River Mile Index:	6.31 (PA DEP eMapPA)
	Low Flow Yield:	0.064 cfs/mi^2
	Discharge Flow:	0.062328 MGD
Node 2:	Just before confluence of South Branch Conewago Creek with UNT 08839	
	Elevation:	474 ft (USGS National Map Viewer)
	Drainage Area:	64.0 mi^2 (USGS PA StreamStats)
	River Mile Index:	5.10 (PA DEP eMapPA)
	Low Flow Yield:	0.064 cfs/mi^2
	Discharge Flow:	0.000 MGD





Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	63.4	square miles
BSLOPD	Mean basin slope measured in degrees	2.7955	degrees
ROCKDEP	Depth to rock	4.9	feet
URBAN	Percentage of basin with urban development	8.6224	percent

Low-Flow Statistics Parameters [99.9 Percent (63.4 square miles) Low Flow Region 1]

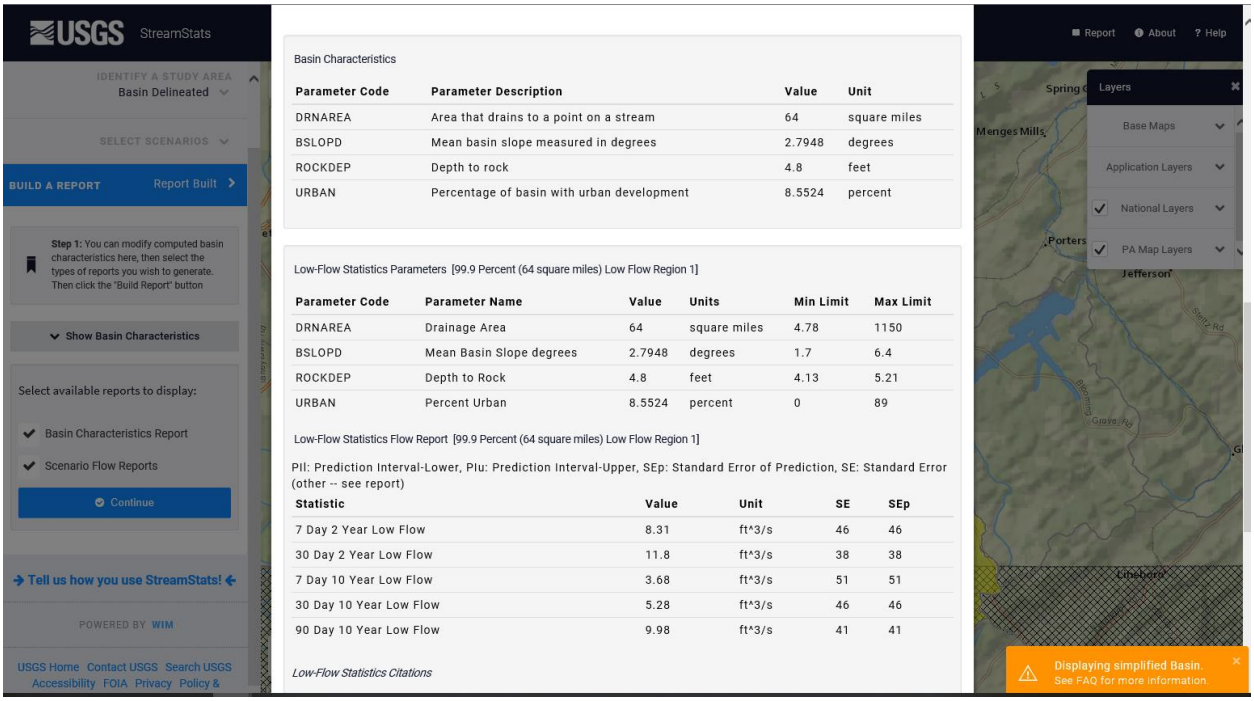
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	63.4	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	2.7955	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.9	feet	4.13	5.21
URBAN	Percent Urban	8.6224	percent	0	89

Low-Flow Statistics Flow Report [99.9 Percent (63.4 square miles) Low Flow Region 1]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	9.01	ft^3/s	46	46
30 Day 2 Year Low Flow	12.6	ft^3/s	38	38
7 Day 10 Year Low Flow	4.07	ft^3/s	51	51
30 Day 10 Year Low Flow	5.75	ft^3/s	46	46
90 Day 10 Year Low Flow	10.7	ft^3/s	41	41

Low-Flow Statistics Citations



USGS StreamStats

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	64	square miles
BSLOPD	Mean basin slope measured in degrees	2.7948	degrees
ROCKDEP	Depth to rock	4.8	feet
URBAN	Percentage of basin with urban development	8.5524	percent

Low-Flow Statistics Parameters [99.9 Percent (64 square miles) Low Flow Region 1]

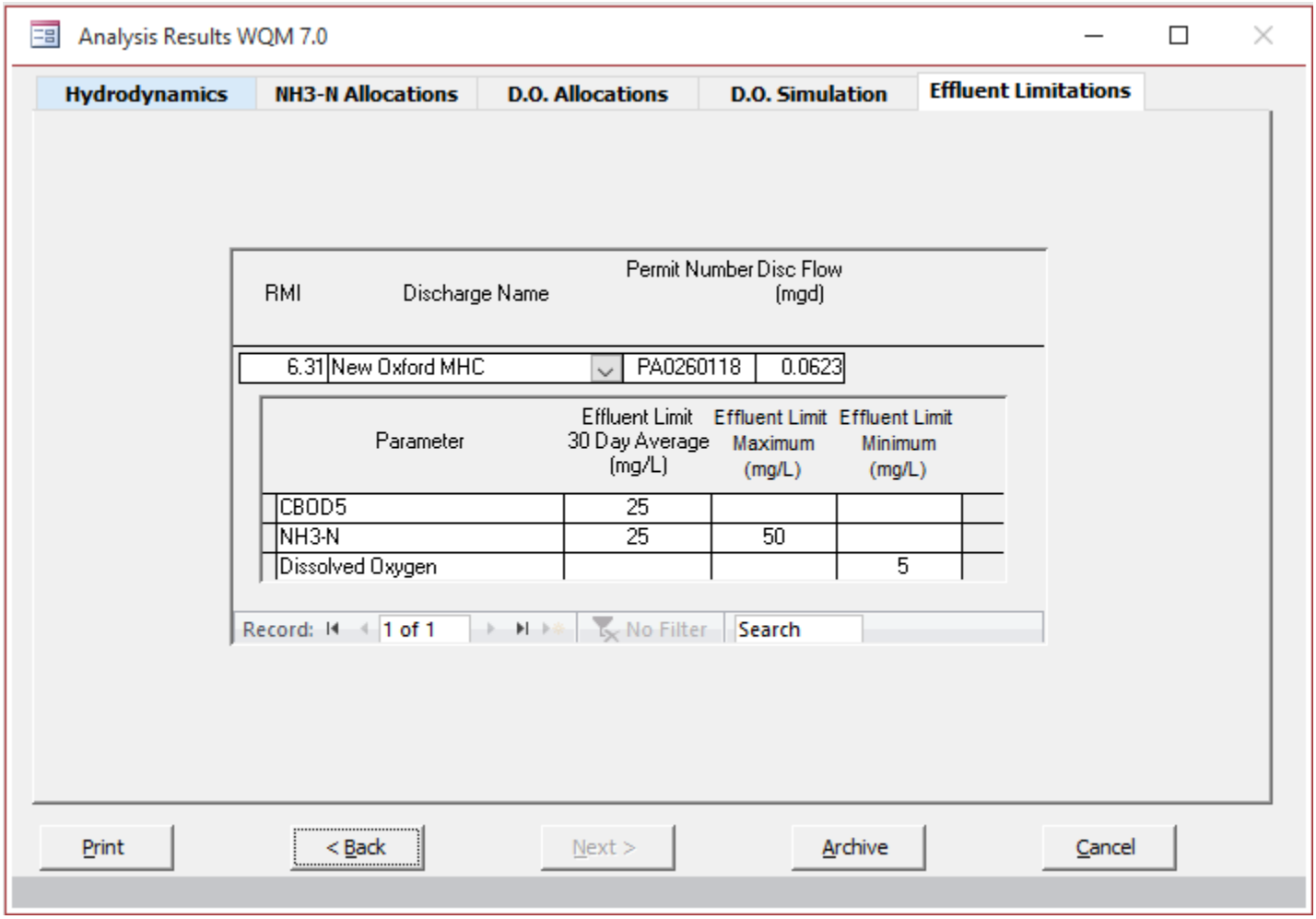
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	64	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	2.7948	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.8	feet	4.13	5.21
URBAN	Percent Urban	8.5524	percent	0	89

Low-Flow Statistics Flow Report [99.9 Percent (64 square miles) Low Flow Region 1]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	8.31	ft^3/s	46	46
30 Day 2 Year Low Flow	11.8	ft^3/s	38	38
7 Day 10 Year Low Flow	3.68	ft^3/s	51	51
30 Day 10 Year Low Flow	5.28	ft^3/s	46	46
90 Day 10 Year Low Flow	9.98	ft^3/s	41	41

Low-Flow Statistics Citations



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)
6.31	New Oxford MHC	PA0260118	0.0623

Parameter	Effluent Limit 30 Day Average (mg/L)	Effluent Limit Maximum (mg/L)	Effluent Limit Minimum (mg/L)
CBOD5	25		
NH3-N	25	50	
Dissolved Oxygen			5

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rptEffLimits

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07F	8813	SOUTH BRANCH CONEWAGO CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Eff. Limit 30-day Ave. (mg/L)	Eff. Limit Maximum (mg/L)	Eff. Limit Minimum (mg/L)
6.310	New Oxford MHC	PA0260118	0.062	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

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rpt_WLA

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07F	8813	SOUTH BRANCH CONEWAGO 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
6.310	New Oxford MHC	11.07	50	11.07	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
6.310	New Oxford MHC	1.37	25	1.37	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)		
6.31	New Oxford MHC	25	25	25	25	5	5	0	0

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rptDOSim

WQM 7.0 D.O. Simulation

SWP Basin	Stream Code	Stream Name
07F	8813	SOUTH BRANCH CONEWAGO CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
6.310	0.062	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WD Ratio**	**Reach Velocity (fps)**
37.424	0.722	51.864	0.154
Reach CBOD5 (mg/L)	**Reach Kr (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.53	0.243	0.58	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.168	0.773	Tsivoglou	6
Reach Travel Time (days)			
0.481			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.048	2.50	0.55	7.54
0.096	2.46	0.53	7.54
0.144	2.42	0.50	7.54
0.192	2.39	0.48	7.54
0.240	2.35	0.45	7.43
0.288	2.32	0.43	7.32
0.336	2.29	0.41	7.21
0.385	2.25	0.39	7.12
0.433	2.22	0.37	7.03
0.481	2.19	0.35	6.95

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rptModelSpecs

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	6		

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rptHydro

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07F	8813	SOUTH BRANCH CONEWAGO CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	WD Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
6.310	4.06	0.00	4.06	.0964	0.00047	.722	37.42	51.86	0.15	0.481	25.00	7.00
Q1-10 Flow												
6.310	2.60	0.00	2.60	.0964	0.00047	NA	NA	NA	0.12	0.613	25.00	7.00
Q30-10 Flow												
6.310	5.52	0.00	5.52	.0964	0.00047	NA	NA	NA	0.18	0.406	25.00	7.00

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rptGeneral

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
07F	8813	SOUTH BRANCH CONEWAGO CRE	6.310	477.00	63.40	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	0.064	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	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
New Oxford MHC	PA0260118	0.0623	0.0623	0.0625	0.000	25.00	7.00

Parameter Data

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

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rptGeneral

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
07F	8813	SOUTH BRANCH CONEWAGO CRE	6.100	474.00	64.00	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	0.064	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	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
New Oxford MHC	PA0260118	0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

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

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Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Instantaneous Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
D.O.	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
UV Intensity (µw/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
$CBOD_5$	XXX	XXX	XXX	25	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Ammonia-Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite

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
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	2/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/month	Calculation
Net Total Nitrogen	Report	1,339	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	243	XXX	XXX	XXX	XXX	1/month	Calculation

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	Average Weekly	Instantaneous Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
D.O.	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
UV Intensity (µw/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
$CBOD_5$	XXX	XXX	XXX	25	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Ammonia-Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite

Compliance Sampling Location:

Other Comments:

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
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	2/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/month	Calculation
Net Total Nitrogen	Report	1,339	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	243	XXX	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location:

Other Comments:

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, 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:
☐	Other: