pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0029122**
Facility Type	**Municipal**	APS ID	**981047**
Major / Minor	**Major**	Authorization ID	**1252164**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Saxonburg Borough Area Authority**	Facility Name	**Saxonburg Area Authority STP**
Applicant Address	420 West Main Street	Facility Address	161 Renfrew Road
	Saxonburg, PA 16056		Renfrew, PA 16053
Applicant Contact	Paul Cornetti, Authority Manager	Facility Contact	Paul Cornetti, Authority Manager
Applicant Phone	(724) 352-1400, ext. 228	Facility Phone	(724) 352-1400, ext. 228
Client ID	34547	Site ID	657024
Ch 94 Load Status	Not Overloaded	Municipality	Saxonburg Borough
Connection Status	No Limitations	County	Butler County
Date Application Received	November 7, 2018	EPA Waived?	No
Date Application Accepted	November 14, 2018	If No, Reason	Major Facility
Purpose of Application	Renewal of an NPDES Permit for an existing discharge of treated sanitary wastewater from a municipal STP.		

Summary of Review

Act 14 - Proof of Notification was submitted and received.

A Part II Water Quality Management permit is not required at this time.

The applicant should be able to meet the limits of this permit, which will continue to protect the uses of the receiving stream.

I. OTHER REQUIREMENTS:
- A. Stormwater into sewers
- B. Right of way
- C. Solids handling
- D. Effluent Chlorine Optimization and Minimization

SPECIAL CONDITIONS:
- II. Solids Management
- III. Whole Effluent Toxicity (WET)

There are no open violations in efacts for Client ID 34547 as of 10/4/2019.

Approve	Deny	Signatures	Date
X		Stephen A. McCauley, E.I.T. / Environmental Engineering Specialist	
X		Justin C. Dickey, P.E. / Environmental Engineer Manager	

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	2.05
Latitude	40º 48' 24.0"	Longitude	-79º 57' 24.0"
Quad Name	-	Quad Code	-
Wastewater Description:	Sewage Effluent		
Receiving Waters	Connoquenessing Creek (WWF)	Stream Code	34025
NHD Com ID	126217651	RMI	39.26
Drainage Area	136	Yield (cfs/mi^2)	0.06
Q_{7-10} Flow (cfs)	8.24	Q_{7-10} Basis	calculated
Elevation (ft)	982	Slope (ft/ft)	0.001167
Watershed No.	20-C	Chapter 93 Class.	WWF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired		
Cause(s) of Impairment	Organic Enrichment/Low D.O.		
Source(s) of Impairment	Agriculture		
TMDL Status	-	Name	-

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

Nearest Downstream Public Water Supply Intake	Beaver Falls Municipal Authority - Eastvale Plant		
PWS Waters	Beaver River	Flow at Intake (cfs)	561
PWS RMI	3.5	Distance from Outfall (mi)	46

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.

Narrative: This Fact Sheet details the determination of draft NPDES permit limits for an existing discharge of 2.05 MGD of treated sewage from an existing Publicly Owned Treatment Works (POTW) in Saxonburg Borough, Butler County.

Treatment consists of the following (WQM Permit 1005401: Influent Pump Station, Mechanical Screen & Washer w/ bypass bar screen, 'Orbal' Oxidation Ditch, Clarifiers, UV Disinfection and Cascade Re-aeration. Sludge handling: Sludge Tanks and Centrifuge Dewatering.

Facility Area: See the topographical map (Attachment 1) and the aerial map (Attachment 2)

1. Streamflow:

Below are the PA American Water Company water allocation permit minimum release rates for the Boydstown-Oneida and Thorn Run Reservoirs:

Month	Flow (cfs)
JAN	3.1
FEB	3.1
MAR	10.4
APR	10.4
MAY	10.4
JUN 1-15	10.4
JUN 16-30	3.3
JUL	3.3
AUG	3.1
SEP	3.1
OCT	3.1
NOV	3.1
DEC	3.1

Drainage Area where the minimum flow release is monitored = 27.73 mi^2

Drainage Area at Saxonburg's discharge point = 137 mi^2

Stream yield rate used to estimate the Q_{7-10} flow from unregulated drainage areas = 0.047 cfsm - this is the last 20 years of recorded data rather than using the period of record for the gage. The more recent gage data is a better representation of the present flow conditions.

(137 - 27.73) mi^2 x 0.047 cfsm = 5.14 cfs

(3.1 + 5.14) cfs = 8.24 cfs - summer Q_{7-10} flow

2. Wasteflow: Outfall 001

Maximum discharge: 2.05 MGD = 3.17 cfs

Runoff flow period: 24 hours Basis: Runoff flow for a Municipal STP

There is less than 3 parts stream flow (Q7-10) to 1 part effluent (design flow). However, since this is an existing discharge, the more stringent treatment requirements cannot be achieved, and the receiving stream is not impaired by the discharge, the standards in DEP guidance (391-2000-014) will not be applied. Flow will be required to be monitored as authorized under Chapter 92a.61, and as recommended in the SOP.

3. Parameters:

The following parameters were evaluated: pH, Total Suspended Solids, Fecal Coliform, Phosphorus, NH_3-N, $CBOD_5$, Dissolved Oxygen, and Total Residual Chlorine. NH_3-N, $CBOD_5$, and Dissolved Oxygen were evaluated using WQM 7.0 at the discharge point.

NO_2-NO_3, Fluoride, Phenolics, Sulfates, and Chlorides can be evaluated using PentoxSD at the nearest downstream potable water supply (PWS). Since there is significant dilution available, no modeling was performed for this facility.

a. pH

Between 6.0 and 9.0 at all times

Basis: Application of Chapter 93.7 technology-based limits

b. Total Suspended Solids

Limits are 30 mg/l as a monthly average and 60 as a daily maximum.

Basis: Application of Chapter 92a47 technology-based limits

c. Fecal Coliform

05/01 - 09/30: 200/100ml (monthly average geometric mean)
1,000/100ml (instantaneous maximum)

10/01 - 04/30: 2,000/100ml (monthly average geometric mean)
10,000/100ml (instantaneous maximum)

Basis: Application of Chapter 92a47 technology-based limits.

d. Phosphorus

☒ Limit necessary due to:

☐ Discharge to a lake, pond, or impoundment
☒ Discharge to a stream

Basis: Phosphorus limits of 2.0 mg/l monthly average will be retained with this renewal based on Chapter 96.5 and the Stream Enrichment Risk Analysis (SERA) study on the Connoquenessing Creek.

The Total Nitrogen monitoring requirement will also be retained with this renewal.

☐ Limit not necessary

Basis: N/A

e. NO_2-NO_3, Fluoride, Phenolics, Sulfates, Chlorides, and TDS

Nearest Downstream potable water supply (PWS): Beaver Falls Municipal Authority - Eastvale Plant

Distance downstream from the point of discharge: 46.0 miles (approximate)

☒ No limits necessary

Basis: Significant dilution available.

Based on the Toxics Screening Analysis Spreadsheet (see Attachment 4), Total Dissolved Solids and Phenolics were determined to have a reasonable potential.

Since PentoxSD does not calculate WQBELs for PWS-related parameters, Total Dissolved Solids and Phenolics were evaluated using a mass-balance calculation.

PWS Evaluation:

Stream flow (sf) at the potable water supply intake = 561 cfs
Waste flow (wf) from the STP = 2.05 MGD = 3.17 cfs
Total flow = 564.17 cfs

Background Concentrations: No data available

Mass balance for NO_2-NO_3 at the potable water supply intake:

(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)

(561 cfs)(0 mg/l) + (3.17 cfs)(x) = (564.17 cfs)(10 mg/l)

x = 1,779.7 mg/l (renewal application maximum was 0.0098 mg/l - ok)

Mass balance for Fluoride at the potable water supply intake:

(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)

(561 cfs)(0 mg/l) + (3.17 cfs)(x) = (564.17 cfs)(2 mg/l)

x = 355.9 mg/l (No data from renewal application - ok)

Mass balance for Phenolics at the potable water supply intake:

(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)

(561 cfs)(0 mg/l) + (3.17 cfs)(x) = (564.17 cfs)(0.005 mg/l)

x = 0.88 mg/l (renewal application maximum was 0.0098 mg/l - ok)

Mass balance for Sulfates at the potable water supply intake:

(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)

(561 cfs)(0 mg/l) + (3.17 cfs)(x) = (564.17 cfs)(250 mg/l)

x = 44,492.9 mg/l (renewal application maximum was 55.5 mg/l - ok)

Mass balance for Chlorides at the potable water supply intake:

(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)

(561 cfs)(0 mg/l) + (3.17 cfs)(x) = (564.17 cfs)(250 mg/l)

x = 44,492.9 mg/l (renewal application maximum was 146 mg/l - ok)

Mass balance for TDS at the potable water supply intake:

(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)

(561 cfs)(0 mg/l) + (3.17 cfs)(x) = (564.17 cfs)(500 mg/l)

x = 88,985.8 mg/l (renewal application maximum was 560 mg/l - ok)

f. Ammonia-Nitrogen (NH_3-N)

Median discharge pH to be used:	6.8	Standard Units (S.U.)
		Basis: Average pH value from DMR summary
Discharge temperature:	25°C	(default value used in the absence of data)
Median stream pH to be used:	7.0	Standard Units (S.U.)
		Basis: (default value used in the absence of data)
Stream Temperature:	25˚C	(default value used for WWF modeling)
Background NH_3-N concentration:	0.1	mg/l
		Basis: Default value.
calculated summer NH_3-N limits:	4.8	mg/l (monthly average)
	9.6	mg/l (instantaneous maximum)

calculated winter NH_3-N limits: 14.4 mg/l (monthly average)
28.8 mg/l (instantaneous maximum)

Result: WQ modeling resulted in the calculated summer limits above (see Attachment 3), which are less restrictive than in the previous NPDES Permit. Since the permittee is meeting the more restrictive limits of 4.5 mg/l monthly average and 9 mg/l instantaneous maximum, will be retained with this renewal.

g. $CBOD_5$

Median discharge pH to be used: 6.8 Standard Units (S.U.)

Basis: Average pH value from DMR summary

Discharge temperature: 25°C (default value used in the absence of data)

Median stream pH to be used: 7.0 Standard Units (S.U.)

Basis: (default value used in the absence of data)

Stream Temperature: 25˚C (default value used for WWF modeling)

Background $CBOD_5$ concentration: 2.0 mg/l

Basis: Default value

calculated summer $CBOD_5$ limits: 15.8 mg/l (monthly average)
31.6 mg/l (instantaneous maximum)

calculated winter $CBOD_5$ limits: 25.0 mg/l (monthly average)
50.0 mg/l (instantaneous maximum)

Result: WQ modeling resulted in the calculated summer limits above (see Attachment 3), which are less restrictive than in the previous NPDES Permit. Since the permittee is meeting the more restrictive limits of 15 mg/l monthly average and 30 mg/l instantaneous maximum, will be retained with this renewal. Per the SOP, the winter limits are to be calculated as 3 times the summer limits. However, since the technology-based winter limits of 25 mg/l monthly average and 50 mg/l instantaneous maximum are more restrictive, they will be set.

h. Dissolved Oxygen (DO)

- ☒ 4.0 mg/l - minimum desired in effluent to protect all aquatic life.
- ☐ 5.0 mg/l - desired in effluent for CWF, WWF, or TSF.
- ☐ 6.0 mg/l - minimum required due to discharge going to a drainage swale or ditch.
- ☐ 7.0 mg/l - minimum desired due to discharge going to a High Quality stream.
- ☐ 8.0 mg/l - required due to discharge going to a naturally reproducing salmonid stream

Discussion: The technology-based minimum of 4.0 mg/l for Dissolved Oxygen will be added to this renewal as recommended by the SOP based on Chapter 93.7, under the authority of Chapter 92a.61.

i. Total Residual Chlorine (TRC)

- ☒ No limit necessary
- ☐ TRC limits: _____ mg/l (monthly average)
  _____ mg/l (instantaneous maximum)

Basis: Total Residual Chlorine (TRC) is not used at this facility. Ultraviolet (UV) light disinfection is used and the monitoring for UV light intensity will be retained. The frequency was changed from 2/week to 1/day per the SOP.

j. Influent Total Suspended Solids and BOD_5

These two parameters will be monitored as recommended in the SOP for POTWs, as authorized under Chapter 92a.61.

k. Anti-Backsliding

Since all the permit limits in this renewal are the same or more restrictive than the previous NPDES Permit, anti-backsliding is not applicable.

4. Reasonable Potential Analysis:

A Reasonable Potential Analysis was performed in accordance with State practices for Outfall 001 by first using the Toxics Screening Analysis Spreadsheet (see Attachment 4) to determine which parameters should be modeled using the PentoxSD program (see Attachment 5). The parameters to be modeled are listed as follows for Outfall 001:

Total Dissolved Solids, Total Mercury, Total Phenols (Phenolics), Acrylonitrile, Carbon Tetrachloride, Chlorodibromomethane, Dichlorobromomethane, 1,2-Dichloroethane, 1,3-Dichloropropylene, 1,1,2,2-Tetrachloroethane, Tetrachloroethylene, 1,1,2-Trichloroethane, Vinyl Chloride, 4,6-Dinitro-o-Cresol, Pentachlorophenol, 2,4,6-Trichlorophenol, Benzidine, Benzo(a)Anthracene, Benzo(a)Pyrene, 3,4-Benzofluoranthene, Benzo(k)Fluoranthene, Bis(2-Chloroethyl)Ether, Bis(2-Ethylhexyl)Phthalate, Chrysene, Dibenzo(a,h)Anthrancene, 3,3-Dichlorobenzidine, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 1,2-Diphenylhydrazine, Hexachlorobenzene, Hexachlorobutadiene, Hexachlorocyclopentadiene, Hexachloroethane, Indeno(1,2,3-cd)Pyrene, n-Nitrosodimethylamine, n-Nitrosodi-n-Propylamine, n-Nitrosodiphenylamine, and Phenanthrene.

Median stream pH to be used:	7.0	Standard Units (S.U.)
Stream hardness to be used:	100	mg/l

Basis: PentoxSD defaults

Median discharge pH to be used:	6.8	Standard Units (S.U.)
Discharge hardness to be used:	147.3	mg/l

Basis: eDMR data and NPDES Permit Renewal data

Result: A survey and additional sampling letter was mailed on August 12, 2019 (see Attachment 8). Based on the PentoxSD program (see Attachment 5), resampling at the recommended QLs could result in the reduction or elimination of limits/monitoring for Vinyl Chloride, Pentachlorophenol, Benzidine, Benzo(a)Anthracene, Benzo(a)Pyrene, 3,4-Benzofluoranthene, Benzo(k)Fluoranthene, Bis(2-Chloroethyl)Ether, Chrysene, Dibenzo(a,h)Anthrancene, 3,3-Dichlorobenzidine, 1,2-Diphenylhydrazine, Hexachlorobenzene, Hexachlorobutadiene, Hexachlorocyclopentadiene, Indeno(1,2,3-cd)Pyrene, n-Nitrosodimethylamine, n-Nitrosodi-n-Propylamine, and Phenanthrene.

A response was received on 9/30/2019 (see Attachment 8) with resample results at the QLs for Vinyl Chloride, Pentachlorophenol, Benzidine, Benzo(a)Anthracene, Benzo(a)Pyrene, 3,4-Benzofluoranthene, Benzo(k)Fluoranthene, Bis(2-Chloroethyl)Ether, Chrysene, Dibenzo(a,h)Anthrancene, 3,3-Dichlorobenzidine, 1,2-Diphenylhydrazine, Hexachlorobenzene, Hexachlorobutadiene, Hexachlorocyclopentadiene, Indeno(1,2,3-cd)Pyrene, n-Nitrosodimethylamine, n-Nitrosodi-n-Propylamine, and Phenanthrene. A second Toxics Screening Analysis Spreadsheet (see Attachment 6) was created which no longer recommends that the above parameters need modeled. Based on the PentoxSD program (see Attachment 7), none of the original parameters of concern will require monitoring or limits with this renewal NPDES Permit.

5. Additional Information:

The Saxonburg Area Authority STP receives flow from the Middlesex Township (27.68%), the Penn Township (24.90%), the Saxonburg Borough (21.05%), the Jefferson Township (14.77%), and the Clinton Township (8.09%). The Richland Township in Allegheny County (3.51%) is not currently served, but is included in the 537 Plan.

The Saxonburg Borough and all its contributing municipalities are 100% separate sewers.

6. Attachment List:

Attachment 1 - Topographical Map of the Facility Area
Attachment 2 - Aerial Map of the STP
Attachment 3 - WQ Modeling Printouts
Attachment 4 - Toxics Screening Analysis Spreadsheet (Pre-Survey Letter)
Attachment 5 - PentoxSD Modeling Printouts (Pre-Survey Letter)
Attachment 6 - Toxics Screening Analysis Spreadsheet (Post-Survey Letter)
Attachment 7 - PentoxSD Modeling Printouts (Post-Survey Letter)
Attachment 8 - Survey Letter and Response

If viewing this electronically, please refer to the following PDF to view the above Attachments:

Adobe Acrobat Document

Compliance History

DMR Data for Outfall 001 (from September 1, 2018 to August 31, 2019)

Parameter	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18	SEP-18
Flow (MGD) Average Monthly	0.689	1.010	1.482	1.187	1.136	0.895	1.385	1.162	1.213	1.391	0.859	1.306
Flow (MGD) Weekly Average	0.746	1.213	2.150	2.241	1.610	1.175	1.760	1.753	1.782	1.679	1.450	2.338
pH (S.U.) Minimum	6.7	6.6	6.6	6.7	6.2	6.4	6.5	6.5	6.7	6.7	6.8	6.7
pH (S.U.) Maximum	7.3	7.2	7.1	7.1	6.9	7.0	6.9	6.9	7.0	7.1	7.1	7.0
CBOD5 (lbs/day) Average Monthly	8	10	33	68	24	16	39	25	22	30	13	26
CBOD5 (lbs/day) Weekly Average	9	17	77	246	42	17	87	36	28	57	27	45
CBOD5 (mg/L) Average Monthly	1	1	2	4	3	2	3	3	2	2	2	2
CBOD5 (mg/L) Weekly Average	1	1	3	8	4	3	5	3	3	3	2	3
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	1507	2391	2007	2399	1203	897	1042	1573	1505	1432	802	1383
BOD5 (mg/L) Raw Sewage Influent Average Monthly	251	310	148	254	139	131	95	180	174	107	120	120
TSS (lbs/day) Average Monthly	15	21	72	332	43	24	61	37	27	36	12	23
TSS (lbs/day) Raw Sewage Influent Average Monthly	1833	2574	3362	2883	974	799	957	1549	1670	1560	684	1184
TSS (lbs/day) Weekly Average	19	37	168	1391	64	29	144	53	35	75	25	38
TSS (mg/L) Average Monthly	2	3	4	13	5	3	5	4	3	3	2	2
TSS (mg/L) Raw Sewage Influent Average Monthly	305	323	222	281	111	115	84	178	195	115	105	101
TSS (mg/L) Weekly Average	3	3	8	44	7	4	8	5	4	4	2	2
Fecal Coliform (CFU/100 ml) Average Monthly	1	2	2	4	5	5	3	2	2	3	2	10

Fecal Coliform (CFU/100 ml) Instantaneous Maximum	6	50	7	18	7	23	18	5	4	9	20	473
UV Intensity (µw/cm²) Average Monthly	6790	7882	8145	7340	7090	7827	8330	8113	8611	8750	8581	7587
Total Nitrogen (mg/L) Average Monthly	9	14	8	9	13	14	12	7	9	5	9	2
Ammonia (lbs/day) Average Monthly	< 1	< 1	5	6	< 1	< 1	8	2	< 1	6	< 1	1
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	0.3	0.2	< 0.1	< 0.1	0.4	0.2	< 0.1	0.3	< 1.0	0.1
Total Phosphorus (lbs/day) Average Monthly	14.1	12.0	14.7	21.9	14.5	16.2	20.6	17.7	15.6	20.3	12.0	14.9
Total Phosphorus (mg/L) Average Monthly	2	2	1	2	2	2	2	2	2	2	2	1

Whole Effluent Toxicity (WET)

For Outfall 001, ☐ **Acute** ☒ **Chronic** WET Testing was completed:

☒ For the permit renewal application (4 tests).
☐ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☐ Other:

The dilution series used for the tests was: 100%, 64%, 28%, 14%, and 7%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 28.

Summary of Four Most Recent Test Results

(NOTE – Enter results into one table, depending on which data analysis method was used).

NOEC/LC50 Data Analysis

	***Ceriodaphnia* Results (% Effluent)**			***Pimephales* Results (% Effluent)**			
Test Date	**NOEC Survival**	**NOEC Reproduction**	**LC50**	**NOEC Survival**	**NOEC Growth**	**LC50**	**Pass? ***
6/17/18-6/22/18	100%	100%	100%	100%	100%	100%	Pass
6/25/17-6/30/17	100%	100%	100%	100%	100%	100%	Pass
6/26/16-7/1/16	100%	100%	100%	100%	100%	100%	Pass
7/12/15-7/17/15	100%	100%	100%	100%	14%	100%	Pass
12/15/13-12/20/13	100%	100%	100%	100%	14%	100%	Pass

***** *A "passing" result is that which is greater than or equal to the TIWC value.*

TST Data Analysis

(NOTE – In lieu of recording information below, the application manager may attach the DEP WET Analysis Spreadsheet).

	***Ceriodaphnia* Results (Pass/Fail)**		***Pimephales* Results (Pass/Fail)**	
Test Date	**Survival**	**Reproduction**	**Survival**	**Growth**

***** *A "passing" result is that in which the replicate data for the TIWC is not statistically significant from the control condition. This is exhibited when the calculated t value ("T-Test Result") is greater than the critical t value. A "failing" result is exhibited when the calculated t value ("T-Test Result") is less than the critical t value.*

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).*

☐ **YES** ☒ **NO**

Comments:

Evaluation of Test Type, IWC and Dilution Series for Renewed Permit

Acute Partial Mix Factor (PMFa): **0.44** Chronic Partial Mix Factor (PMFc): **1.0**

1. Determine IWC – Acute (IWCa):

(Q_d x 1.547) / ((Q_{7-10} x PMFa) + (Q_d x 1.547))

[(2.05 MGD x 1.547) / ((8.24 cfs x 0.44) + (2.05 MGD x 1.547))] x 100 = **46%**

Is IWCa < 1%? ☐ **YES** ☒ **NO (Chronic Tests Required)**

If the discharge is to the tidal portion of the Delaware River, indicate how the type of test was determined:

N/A

Type of Test for Permit Renewal: **Chronic**

2a. Determine Target IWCa (If Acute Tests Required)

TIWCa = IWCa / 0.3 = N/A**%**

2b. Determine Target IWCc (If Chronic Tests Required)

(Q_d x 1.547) / (Q_{7-10} x PMFc) + (Q_d x 1.547)

[(2.05 MGD x 1.547) / ((8.24 cfs x 1.0) + (2.05 MGD x 1.547))] x 100 = **28%**

3. Determine Dilution Series

(NOTE – check Attachment C of WET SOP for dilution series based on TIWCa or TIWCc, whichever applies).

Dilution Series = 100%, 64%, 28%, 14%, and 7%.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

Will WET limits be established in the permit? ☐ YES ☒ NO

If WET limits will be established, identify the species and the limit values for the permit (TU).

N/A

If WET limits will not be established, but reasonable potential was determined, indicate the rationale for not establishing WET limits:

N/A

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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
UV Intensity (µw/cm²)	XXX	XXX	XXX	Report	XXX	XXX	1/day	Measured
CBOD5 Nov 1 - Apr 30	427	684	XXX	25.0	40.0	50	2/week	24-Hr Composite
CBOD5 May 1 - Oct 31	256	427	XXX	15.0	25.0	30	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	513	769	XXX	30	45	60	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200	XXX	1000	2/week	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	231	XXX	XXX	13.5	XXX	27	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	77	XXX	XXX	4.5	XXX	9	2/week	24-Hr Composite

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Phosphorus	34.2	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite

Compliance Sampling Location: at Outfall 001, after Ultraviolet (UV) light disinfection.

Flow is monitor only based on Chapter 92a.61. The limits for pH and Dissolved Oxygen are technology-based on Chapter 93.7. The limits for CBOD5, Total Suspended Solids, and Fecal Coliforms are technology-based on Chapter 92a.47. UV Intensity is monitor only based on Chapter 92a.61. Monitoring for influent BOD5 and Total Suspended Solids is based on Chapter 92a.61. Monitoring for Total Nitrogen is based on Chapter 92a.61. The limits for Ammonia-Nitrogen are water quality-based on Chapter 93.7. The limits for Total Phosphorus are technology-based on Chapter 96.5 and the Stream Enrichment Risk Analysis (SERA) study on the Connoquenessing Creek.