pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0217654**
Facility Type	**Municipal**	APS ID	**767647**
Major / Minor	**Minor**	Authorization ID	**1387659**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Seward Borough & Saint Clair Township Sanitary Authority**	Facility Name	**Sugar Run STP**
Applicant Address	815 Stiles Road	Facility Address	815 Stiles Road
	Seward, PA 15954-0494		Seward, PA 15954-0494
Applicant Contact	Dan Hill	Facility Contact	
Applicant Phone	(724) 446-6450	Facility Phone	
Client ID	95642	Site ID	556236
Ch 94 Load Status		Municipality	Saint Clair Township
Connection Status		County	Westmoreland
Date Application Received	February 24, 2022	EPA Waived?	Yes
Date Application Accepted	May 26, 2022	If No, Reason	

Purpose of Application: Renewal application to discharge treated sewage

Summary of Review

This review is in response to a partial renewal application received on February 24, 2022. The remaining portion of the application was received on May 26, 2022. Additional information was received on June 30, 2022. The Seward Borough and Saint Clair Township Authority owns and operates a lagoon sewage treatment system in Saint Clair Township, Westmoreland County. Sewage from New Florence Borough, Seward Borough and St. Clair Township is treated with a grit chamber, a comminutor, aerated lagoons, and chlorine disinfection before discharging to the Unnamed Tributary to Conemaugh River through outfall 001. Groundwater from underneath the lagoons is collected and discharged to the surface through outfall 002.

Sludge use and disposal description and location(s): Sludge is not disposed from this sewage plant. The last time sludge was disposed from this plant was in 2008 when new aerators were installed in the lagoons.

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		James M. Vanek James M. Vanek, P.E. / Environmental Engineer	June 26, 2024
X		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineer Manager	July 5, 2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.381
Latitude	40º 23' 57.29"	Longitude	-79º 1' 58.71"
Quad Name	New Florence		
Wastewater Description:	Sewage Effluent		

Receiving Waters	Conemaugh River (WWF)	Stream Code	43832
NHD Com ID	123721888	RMI	40.75
Drainage Area	719	Yield (cfs/mi^2)	0.24
Q_{7-10} Flow (cfs)	173	Q_{7-10} Basis	Previous pollution report
Elevation (ft)	1080	Slope (ft/ft)	0.008
Watershed No.	18-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	none	Exceptions to Criteria	none
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL

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

Nearest Downstream Public Water Supply Intake	Buffalo Township Water Authority		
PWS Waters	Allegheny River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	➢ 50 miles

Changes Since Last Permit Issuance: none

Other Comments: the plant does not waste sludge

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	0
Latitude	40º 23' 47.30"	Longitude	-79º 1' 40.03"
Quad Name	New Florence	Quad Code	
Wastewater Description:	Groundwater underdrain		
Receiving Waters	Unnamed Tributary to Conemaugh River (CWF)	Stream Code	43832
NHD Com ID	123721467	RMI	40.75
Drainage Area	719	Yield (cfs/mi^2)	0.24
Q_{7-10} Flow (cfs)	173	Q_{7-10} Basis	Previous pollution report
Elevation (ft)		Slope (ft/ft)	
Watershed No.	18-D	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	none	Exceptions to Criteria	none
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL

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

Nearest Downstream Public Water Supply Intake		Buffalo Township Water Authority	
PWS Waters	Allegheny River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	➢ 50 miles

Changes Since Last Permit Issuance: none

Other Comments:

Treatment Facility Summary

Treatment Facility Name: Sugar Run STP

WQM Permit No.	Issuance Date

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Lagoons	Chlorine	0.381

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.381	652	Not Overloaded	none	none

Changes Since Last Permit Issuance: none

Other Comments: This plant does not waste sludge

Compliance History

Operations Compliance Check Summary Report

Facility: Sugar Run STP
NPDES Permit No.: PA0217654
Compliance Review Period: 4/2017 – 4/2022
Inspection Summary:

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
3328075	01/24/2022	Follow-up Inspection	PA Dept of Environmental Protection	No Violations Noted
3243003	09/01/2021	Administrative/File Review	PA Dept of Environmental Protection	No Violations Noted
3246095	08/26/2021	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted
3240356	08/24/2021	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted
2826450	05/10/2018	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted

Violation Summary:

VIOL ID	VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE
927445	08/24/2021	92A.44	NPDES - Violation of effluent limits in Part A of permit	08/24/2021
928727	08/26/2021	92A.44	NPDES - Violation of effluent limits in Part A of permit	08/26/2021

Open Violations by Client ID:

No open violations for Client ID 95642

Enforcement Summary:

ENF ID	ENF TYPE	ENF TYPE DESC	ENF CREATION DATE	VIOLATIONS	# OF VIOLATIONS	ENF CLOSED DATE
397049	FLNOV	Field Notice of Violation	09/08/2021	92A.44	1	
396820	FLNOV	Field Notice of Violation	08/26/2021	92A.44	1	

DMR Violation Summary:

MONITORING END DATE	PARAMETER	PERMIT VALUE	SAMPLE VALUE	UNIT OF MEASURE
10/31/2021	Dissolved Oxygen	4	3.5	mg/L
9/30/2021	Dissolved Oxygen	4	3.1	mg/L
9/30/2021	Fecal Coliform	1000	1733	No./100 ml
8/31/2021	Dissolved Oxygen	4	3	mg/L
7/31/2021	Dissolved Oxygen	4	2.3	mg/L
6/30/2021	Dissolved Oxygen	4	1.3	mg/L
6/30/2021	Fecal Coliform	1000	2747	No./100 ml
5/31/2021	Dissolved Oxygen	4	1.2	mg/L
5/31/2021	Fecal Coliform	1000	2190	No./100 ml
4/30/2021	Dissolved Oxygen	4	2.4	mg/L
3/31/2021	Dissolved Oxygen	4	1.2	mg/L
2/28/2021	Dissolved Oxygen	4	2	mg/L
12/31/2020	Dissolved Oxygen	4	2.02	mg/L
11/30/2020	Dissolved Oxygen	4	2.2	mg/L
10/31/2020	Dissolved Oxygen	4	3.5	mg/L
9/30/2020	Dissolved Oxygen	4	2.2	mg/L
8/31/2020	Dissolved Oxygen	4	2.2	mg/L
7/31/2020	Dissolved Oxygen	4	2.1	mg/L
6/30/2020	Dissolved Oxygen	4	2	mg/L
6/30/2020	Fecal Coliform	1000	1120	No./100 ml
5/31/2020	Dissolved Oxygen	4	3	mg/L
4/30/2020	Dissolved Oxygen	4	2.7	mg/L
7/31/2019	Dissolved Oxygen	4	3	mg/L
6/30/2019	Dissolved Oxygen	4	3	mg/L
5/31/2019	Dissolved Oxygen	4	2.6	mg/L

Compliance Status:

Permittee has several DMR exceedances. Operations will review and issue CACP if necessary.

Completed by: John Murphy
Completed date: 4/18/2022

Other Comments: **This plant does not waste sludge**

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .381
Latitude 40º 23' 57.00" **Longitude** -79º 1' 58.00"
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)
	38	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: The $CBOD_5$ limits, the TSS limits and pH limits are the same as those in EPA's secondary treatment regulation (40 CFR § 133.102).

Average monthly and maximum daily flow must be reported pursuant to 25 Pa. Code § 92a.61(d)(1). The minimum dissolved oxygen limit of 4.0 mg/L will be imposed in the new permit pursuant to 25 Pa. Code § 92a.61(b) (regarding reasonable monitoring requirements) and BPJ.

In accordance with Section I of DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits" [SOP No. BCW-PMT-033, Version 1.9, March 22, 2021] and under the authority of 25 Pa. Code § 92a.61(b), annual reporting for Total Nitrogen and Total Phosphorus is required for sewage discharges with design flows greater than 2,000 gpd to help evaluate treatment effectiveness and to monitor nutrient loading to the receiving watershed (this reporting was required by the previous permit and will be reimposed in the new permit). Pursuant to that same SOP and under the authority of § 92a.61(b), an annual reporting requirement for *E. coli* will be added to Outfall 001. *E. coli* was recently added to the bacteria water quality criteria in 25 Pa. Code § 93.7(a) and the monitoring will be used to determine if *E. coli* concentrations require additional controls.

The Sugar Run STP uses chlorine disinfection, so the TBELs for TRC from 92a.47(a)(8) are imposed.

Mass Limits

In accordance with Table 5-3 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations. and Other Permit Conditions in NPDES Permits" and Section IV of DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits", mass limits are calculated for $CBOD_5$ and TSS. Average monthly and average weekly mass limits in units of pounds per day are calculated using the concentration limits in Table 1 and Sugar Run STP's hydraulic design flow of 0.381 MGD with the following formula:

Design flow (average annual) (MGD) × concentration limit (mg/L) at design flow × conversion factor (8.34) = mass limit (lb/day)

Table 2. Mass TBELs for Sanitary Wastewaters

Parameter	Average Monthly (mg/L)	Average Weekly (mg/L)
CBOD5	75.0	120.0
Total Suspended Solids	95.0	140.0

Pursuant to Chapter 5, Section C.2 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits" mass limits for conventional pollutants with a magnitude greater than 60.0 are rounded down to the nearest 5.0 mg/L and limits greater than 10.0 and less than 60.0 are rounded down to the nearest 1.0 mg/L. The mass limits in Table 2 account for this rounding convention.

Water Quality-Based Limitations

WQM 7.0 Water Quality Modeling Program

WQM 7.0 is a water quality modeling program for Windows that determines Waste Load Allocations ("WLAs") and effluent limitations for carbonaceous biochemical oxygen demand ("$CBOD_5$"), ammonia-nitrogen, and dissolved oxygen ("DO") for single and multiple point-source discharge scenarios. To accomplish this, the model simulates two basic processes. In the ammonia-nitrogen module, the model simulates the mixing and degradation of ammonia-nitrogen in the stream and compares calculated instream ammonia-nitrogen concentrations to ammonia-nitrogen water quality criteria. In the DO module, the model simulates the mixing and consumption of DO in the stream due to the degradation of $CBOD_5$ and ammonia-nitrogen, and compares calculated instream DO concentrations to DO water quality criteria. WQM 7.0 then determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions. The output from WQM 7.0 is in the references section of this report.

WQM 7.0 Modeling for Outfall 001

Table 3: 001 WQM 7.0 Summer Inputs

Discharge Characteristics	
Parameter	**Value**
River Mile Index	40.75
Discharge Flow (MGD)	0.381
Discharge Temp. (°C) (Summer)	25.0
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	718
Q_{7-10} (cfs)	173
Low-flow yield (cfs/mi^2)	0.24
Elevation (ft)	1080
Slope	0.008
Stream Temp. (°C) (Summer)	20.0
Reach Width (ft)	103
Reach Depth (ft)	2.0
Stream pH (s.u.)	7.0

The WQM 7.0 model is run for Outfall 001 to determine whether WQBELs are necessary for $CBOD_5$, ammonia-nitrogen, and/or dissolved oxygen. Input values for the WQM 7.0 model are shown in Table 3.

DEP's modeling for sewage discharges is a conditional two-step process. First, a discharge is modeled for the summer period (May through October) using warm temperatures for the discharge and the receiving stream. Modeling for the summer period is done first because allowable ammonia-nitrogen concentrations in a discharge are lower at higher temperatures (i.e., warm temperatures are more likely to result in critical loading conditions). Reduced dissolved oxygen levels also appear to increase ammonia toxicity and the maximum concentration of dissolved oxygen in water is lower at higher temperatures. The second step is to evaluate WQBELs for the winter period, but only if modeling shows that WQBELs are needed for the summer period.

For the summer period, pursuant to DEP's "Implementation Guidance of Section 93.7 Ammonia Criteria" [Doc. No. 391-2000-013] (Ammonia Guidance) and in the absence of site-specific data, the discharge temperature is assumed to be 25°C and the design stream temperature and pH are assumed to be 20°C and 7.0 s.u., respectively, based on the recommendations for cold water fisheries. The flow used for modeling is the average design flow (0.381 MGD). Input discharge concentrations for CBOD-5 and Ammonia-Nitrogen are the average monthly limits expected from secondary treatment (25 mg/L and 25.0 mg/L, respectively). The input discharge concentration for dissolved oxygen is

3.0 mg/L. The background dissolved oxygen concentration of Redstone Creek at 20°C is assumed to be 8.24 mg/L. The width and depth of the stream have been measured and placed in the model.

The results of the modeling indicate that new, more stringent WQBELs for Ammonia-Nitrogen are not required. The winter evaluation was not performed. Experience has shown that secondary limits in the warmer months will result in secondary limits in the colder months.

The IMAX concentration limits for TSS and $CBOD_5$ will appear in the permit, but since 8-hour composite sampling is required and IMAX limits only apply when grab sampling is specified, Sugar Run does not need to report results on DMRs for compliance with the IMAX limits. The IMAX limits may be used by DEP to spot-check compliance by collecting a grab sample during a site inspection.

Pursuant to Chapter 5, Section C.2 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits" mass limits for conventional pollutants with a magnitude greater than 60.0 are rounded down to the nearest 5.0.

Total Residual Chlorine

The Sugar Run STP uses chlorine disinfection, so the TBELs for TRC from 92a.47(a)(8) are imposed. These limits were placed into the Department's Total Residual Chlorine (TRC) Spreadsheet to see if water quality based TRC are needed. The output from the spreadsheet is attached to this report. It shows that WQBEL's for TRC are not necessary.

Total Maximum Daily Load for the Kiski-Conemaugh Watershed

A Total Maximum Daily Load ("TMDL") for the Kiski-Conemaugh Watershed ("Kiski Conemaugh TMDL") was completed on January 29. 2010 for the control of acid mine drainage pollutants: aluminum, iron, manganese, sediment, and pH. In accordance with 40 CFR § 122.44(d)(1)(vii)(B), when developing WQBELs, the permitting authority shall ensure that effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation (WLA) for the discharge prepared by the State and approved by EPA pursuant to 40 CFR § 130.7. The Sugar Run STP was not assigned WLAs for aluminum, iron, and manganese by the Kiski Conemaugh TMDL. The TMDL does not establish wasteload allocations for sediment or pH. Since the Sugar Run STP was not assigned any specific WLA's, only monitoring will be required for iron, aluminum and manganese.

Table 4: TMDL WQBELs for Outfall 001

Parameter	Maximum Daily (mg/L)
Aluminum, Total	Monitor and report
Iron, Total	Monitor and report
Manganese, Total	Monitor and report

Influent Monitoring

Pursuant to Section IV.E.8 of DEP's "Standard Operating Procedure (SOP) for Clean Water Program New and Reissuance Sewage Individual NPDES Permit Applications" [SOP No. BCW-PMT-002, Version 1.9, January 6, 2020], for POTWs with design flows greater than 2,000 GPD, influent BOD5 and TSS monitoring is established in the permit with the same minimum measurement frequency and sample type used for the effluent (2/week, 24-Hr Composite for the Uniontown STP). The required influent monitoring will be for BOD5 and TSS including average monthly and average weekly influent loading and average monthly and average weekly influent concentrations.

As stated in Footnote 3 in Part A of the current NPDES permit, the organic design capacity of 12,300 lbs BOD5 per day for the treatment facility is used to prepare the annual Municipal Wasteload Management Report to determine whether an "organic overload" condition exists, as defined in 25 Pa. Code Chapter 94. That is, BOD5 is the parameter used to determine whether a sewage treatment plant is organically overloaded. The applicant's re-rate request did not include a request to re-rate the organic loading of the facility. The organic design capacity will remain at 12,300 lbs BOD_5 per day.

The previous permit required raw sewage influent sampling for CBOD. That was an error. The raw sewage influent sampling will be changed to BOD_5.

Industrial Contributors

The application does not list any industrial contributors to its collection system and only 2 commercial establishments connected to the collection system. A restaurant and a grocery store each has a grease trap on its lateral.

Development of Effluent Limitations

Outfall No.	002	**Design Flow (MGD)**	0
Latitude	40º 23' 45.00"	**Longitude**	-79º 1' 44.00"

Wastewater Description: Groundwater underdrain

Technology-Based Limitations

Best Professional Judgment (BPJ) Limitations

The previous permit required quarterly sampling for typical sewage parameters. No explanation was provided in the fact sheet, but it is assumed these monitoring requirements were placed in the permit to make sure the liners for the sewage treatment plant lagoons were not leaking.

Anti-Backsliding

The effluent monitoring requirements for outfall 002 will remain the same as the monitoring requirements in the previous permit due to anti-backsliding 40 CFR 122.44(l).

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" (386-0400-001), 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 Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
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
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	75	120	XXX	25.0	38.0	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	Report	XXX	1/week	8-Hr Composite
TSS	95	140	XXX	30.0	45.0	60	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	Report	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-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		
Ammonia-Nitrogen	XXX	XXX	XXX	Report	Report	XXX	1/week	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Total Aluminum	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Total Iron	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Total Manganese	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	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" (386-0400-001), SOPs and/or BPJ.

Outfall 002, 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	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.) Groundwater	XXX	XXX	Report Inst Min	XXX	XXX	Report	1/quarter	Grab
CBOD5 Groundwater	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
TSS Groundwater	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Fecal Coliform (No./100 ml) Groundwater	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Ammonia-Nitrogen Groundwater	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab

Compliance Sampling Location:

Other Comments:

WQM 7.0 Model Results

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
18C	43832	CONEMAUGH RIVER	**40.750**	1050.00	719.00	0.00800	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	0.240	0.00	0.00	0.000	0.000	50.0	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
sugar run stp	PA0217654	0.3810	0.3810	0.3810	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	0.20	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
18C	43832	CONEMAUGH RIVER	**40.250**	1029.00	730.00	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	0.240	0.00	0.00	0.000	0.000	50.0	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 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	85.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18C	43832	CONEMAUGH RIVER

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												
40.750	172.56	0.00	172.56	.5894	0.00800	2.051	102.57	50	0.82	0.037	20.02	7.00
Q1-10 Flow												
40.750	110.44	0.00	110.44	.5894	0.00800	NA	NA	NA	0.64	0.048	20.03	7.00
Q30-10 Flow												
40.750	234.68	0.00	234.68	.5894	0.00800	NA	NA	NA	0.98	0.031	20.01	7.00

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18C	43832	CONEMAUGH RIVER

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
40.750	sugar run stp	16.72	50	16.72	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
40.750	sugar run stp	1.89	25	1.89	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)		
40.75	sugar run stp	25	25	25	25	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18C	43832	CONEMAUGH RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
40.750	0.381	20.017	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
102.566	2.051	50.000	0.823
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.08	0.060	0.28	0.701
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.225	3.983	O'Connor	5
Reach Travel Time (days)			
0.037			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.004	2.08	0.28	7.78
0.007	2.08	0.28	7.78
0.011	2.08	0.28	7.78
0.015	2.08	0.28	7.78
0.019	2.08	0.28	7.78
0.022	2.08	0.28	7.78
0.026	2.08	0.28	7.78
0.030	2.07	0.28	7.78
0.033	2.07	0.28	7.78
0.037	2.07	0.28	7.78

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18C	43832	CONEMAUGH RIVER

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)
40.750	sugar run stp	PA0217654	0.381	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			3

TRC Spreadsheet Results

TRC_CALC

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

173	= **Q stream (cfs)**	**0.5**	= **CV Daily**
0.381	= **Q discharge (MGD)**	**0.5**	= **CV Hourly**
30	= **no. samples**	**0.52**	= **AFC_Partial Mix Factor**
0.3	= **Chlorine Demand of Stream**	**1**	= **CFC_Partial Mix Factor**
0	= **Chlorine Demand of Discharge**	**15**	= **AFC_Criteria Compliance Time (min)**
0.5	= **BAT/BPJ Value**	**720**	= **CFC_Criteria Compliance Time (min)**
0	= **% Factor of Safety (FOS)**		=**Decay Coefficient (K)**

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	**1.3.2.iii**	WLA afc =	48.707	**1.3.2.iii**	WLA cfc =	91.294
PENTOXSD TRG	**5.1a**	LTAMULT afc =	0.373	**5.1c**	LTAMULT cfc =	0.581
PENTOXSD TRG	**5.1b**	LTA_afc=	18.150	**5.1d**	LTA_cfc =	53.074

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) =	1.635	

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...** **...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...** **...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**