pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0025984**
Facility Type	**Municipal**	APS ID	**1091963**
Major / Minor	**Major**	Authorization ID	**1445793**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Allegheny County Sanitary Authority ALCOSAN**	Facility Name	**Woods Run STP**
Applicant Address	3300 Preble Avenue	Facility Address	3300 Preble Avenue
	Pittsburgh, PA 15233-1025		Pittsburgh, PA 15233-1025
Applicant Contact	Michelle Buys	Facility Contact	Douglas Jackson
Applicant Phone	412-734-6216	Facility Phone	412-734-8355
Client ID	123978	Site ID	379960
Ch 94 Load Status	Existing Hydraulic Overload	Municipality	Pittsburgh City
Connection Status	No Limitations	County	Allegheny
Date Application Received	June 29, 2023	EPA Waived?	No
Date Application Accepted	July5, 2023	If No, Reason	Major Facility, Pretreatment
Purpose of Application	Application for renewal of an existing NPDES Permit for the discharge of treated sewage effluent with combined sewer overflows (CSOs).		

Summary of Review

The permittee has applied for a renewal of NPDES Permit No. PA0025984. PA0025984 was previously issued by the PA Department of Environmental Protection (DEP) on December 11, 2018, and amended July 23, 2020. It expired December 31, 2023. The renewal application was submitted in a timely manner, so the permit was granted an administrative extension.

Sewage from this facility is treated by primary clarification, grit removal, activated sludge, final sedimentation, liquid chlorination, and dechlorination before discharging through Outfall 001 to the Ohio River (ID 32317) which is classified as a Warm Water Fishery (WWF) in State Watershed No. 20-G.

Woods Run STP treats biosolids using anaerobic digestion and disposes of them in one of three ways. ALCOSAN has Biosolids Permit No. PAG086101, which allows them to land apply biosolids in the State of Pennsylvania. They also have a permit through the Ohio Environmental Protection Agency which allows them to land apply biosolids in Ohio (Permit No.51N00000*DD). Any biosolids that are not land applied are disposed of in one of 11 landfills by Burch Hydro.

ALCOSAN is currently enrolled in and will continue to use eDMR.

The applicant has complied with Act 14 Notifications with letters dated June 21, 2023, and sent to the City of Pittsburgh and Allegheny County.

On January 23, 2008, ALCOSAN entered into a Consent Decree (CD) with DEP, the Environmental Protection Agency, and the Allegheny County Health Department (The Plaintiffs). It created a framework and enforceable schedule for ALCOSAN to

Approve	Deny	Signatures	Date
X		Stephanie Conrad / Project Manager	August 5, 2025
X		Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	September 2, 2025

Summary of Review

generate a Wet Weather Plan (WWP), revise their Nine Minimum Controls (NMC) Plan, and resolve its combined sewer overflows (CSOs) and separate sewer overflows (SSOs). The WWP generated under this CD proposed a green infrastructure first approach with ALCOSAN also constructing storage tunnels. Using the Hydraulic and Hydrologic model that was required as part of the CD, ALCOSAN determined that this approach did not adequately address CSOs and SSOs and prohibit their impairment to the receiving streams. As a result, the CD was Modified to address the need for ALCOSAN's Customer Municipalities to also address overflow source reduction. The modified CD was lodged on September 19, 2019.

By entering into the 2019 CD, the plaintiffs approved ALCOSAN's 2019 Wet Weather Plan. ALCOSAN is required to have a Wet Weather Plan instead of a Long-Term Control Plan because both CSOs and SSOs need to be addressed as part of the plan.

Since the previous permit was issued, the following changes have been made:

- CSO Outfalls A-55 and A-63 have been closed and therefore have been removed from the permit.
- The outfall locations for the CSO outfalls have been updated to reflect ALCOSAN's current GIS data.
- The permit limits and monitoring requirements for Outfall 002 have been updated to reflect the region's permits for similar satellite treatment plants.
- Monitoring for Nitrate-Nitrite as N and Total Kjeldahl Nitrogen have been removed from the permit.
- Monitoring for 1,4-dioxane has been removed from the permit.
- Average Monthly and Daily maximum mass load reporting has been added for bromide, chloride, and total sulfate.
- The Weekly Average mass load and concentration limits for $CBOD_5$ has been reduced to be consistent with Department's rounding guidance.
- The average monthly mass load limit for $CBOD_5$ has been reduced to be consistent with Department's rounding guidance.
- The average monthly and daily maximum mass load limit for TSS have been reduced to be consistent with Department's rounding guidance.
- Monthly *E. coli* monitoring has been added in accordance with the SOPs.
- Quarterly PFAS monitoring has been added in accordance with the SOPs.
- WQBELs have been added for total dissolved solids, total mercury, 4,4 DDT, benzo(a) anthracene, benzo(a)pyrene, benzo(k)fluoranthene, 3,4-benzo-fluoranthene, chrysene, dibenzo(a,h)-anthracene, indeno(1,2,3-cd)pyrene, and phenanthrene based on updated TMS modeling.
- Monitoring has been added for chloride, total copper, and total zinc based on updated TMS modeling.

This permit imposes two different sets of interim permit limits. Woods Run STP is expanding from a design flow of 250 MGD to a design flow of 295 MGD. Limits based on a design flow of 250 MGD are imposed from the permit effective date through October 31, 2025. New effluent limitations based on the expanded flow will go into effect starting November 1, 2025. A compliance period of three years is being imposed for WQBELs for toxic pollutants generated by updated modeling. That compliance period will end after the plant has expanded. For this reason, the WQBELs imposed will be based on a design flow of 295 MGD. A monitoring requirement for the toxic pollutants will be imposed during the compliance schedule.

The following fact sheet provides the justifications for development of effluent limits and/or monitoring requirements.

Stormwater outfalls SW1, SW2, and SW5 will again be included in this permit Part C.X. defines requirements for these outfalls. Outfalls SW3 and SW4 have been removed from this permit because they were eliminated during the North End Plant Expansion. The storm flow that previously discharged through these outfalls has been re-routed to existing outfall SW2.

Woods Run currently has one emergency overflow at the main pump station. After the plant is expanding the currently permitted outfall 001 structure will become a second emergency bypass. Part B.I.G of the permit defines requirements for emergency bypasses.

<u>Anti-Backsliding</u>

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation

Summary of Review

addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard of water quality standard.

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 ***(l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.***

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.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001 (Existing Outfall Location)	Design Flow (MGD)	250
Latitude	40º 28' 34"	Longitude	-80º 2' 44"
Quad Name	Pittsburgh West	Quad Code	1505
Wastewater Description:	Sewage Effluent		

Receiving Waters	Ohio River (WWF)	Stream Code	32317
NHD Com ID	99685360	RMI	977.800
Drainage Area	19400	Yield (cfs/mi^2)	2.438
Q_{7-10} Flow (cfs)	4730	Q_{7-10} Basis	US Army Corp of Engineer
Elevation (ft)	710	Slope (ft/ft)	
Watershed No.	20-G	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	DIOXIN, PATHOGENS, POLYCHLORINATED BIPHENYLS (PCBS),		
Source(s) of Impairment	SOURCE UNKNOWN, SOURCE UNKNOWN, SOURCE UNKNOWN		
TMDL Status	Final	Name	Ohio River

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

Nearest Downstream Public Water Supply Intake	West View Water Authority		
PWS Waters	Ohio River	Flow at Intake (MGD)	40
PWS RMI	975.99	Distance from Outfall (mi)	1.81

Changes Since Last Permit Issuance: None

Other Comments: The design flow for this facility is changing from 250 to 295 MGD during this permit cycle.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001 (Proposed Outfall Location)	Design Flow (MGD)	295
Latitude	40º 28' 54"	Longitude	-80º 2' 58"
Quad Name	Pittsburgh West	Quad Code	1505
Wastewater Description:	Sewage Effluent		

Receiving Waters	Ohio River (WWF)	Stream Code	32317
NHD Com ID	99685360	RMI	977.3
Drainage Area	19400	Yield (cfs/mi^2)	2.438
Q_{7-10} Flow (cfs)	4730	Q_{7-10} Basis	US Army Corp of Engineers
Elevation (ft)	710	Slope (ft/ft)	
Watershed No.	20-G	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	DIOXIN, PATHOGENS, POLYCHLORINATED BIPHENYLS (PCBS),		
Source(s) of Impairment	SOURCE UNKNOWN, SOURCE UNKNOWN, SOURCE UNKNOWN		
TMDL Status	Final	Name	Ohio River

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

Nearest Downstream Public Water Supply Intake		West View Water Authority	
PWS Waters	Ohio River	Flow at Intake (MGD)	40
PWS RMI	975.99	Distance from Outfall (mi)	1.31

Changes Since Last Permit Issuance: None

Other Comments: The design flow for this facility is changing from 250 to 295 MGD during this permit cycle.

Q_{7-10} stream flow in the Ohio River between the point and RMI 974.8 is maintained by the US Army Corp of Engineers to be 4,730 cfs. Because of this, the instream Q_{7-10} values do not change with the re-location of outfall 001.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	305
Latitude	40º 28' 39"	Longitude	-80º 2' 47"
Quad Name	Pittsburgh West	Quad Code	1505
Wastewater Description:	Treated Combined Sewer Overflow		

Receiving Waters	Ohio River (WWF)	Stream Code	32317
NHD Com ID	99685360	RMI	977.65
Drainage Area	19400	Yield (cfs/mi^2)	2.438
Q_{7-10} Flow (cfs)	4730	Q_{7-10} Basis	US Army Corp of Engineers
Elevation (ft)		Slope (ft/ft)	
Watershed No.	20-G	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	DIOXIN, PATHOGENS, POLYCHLORINATED BIPHENYLS (PCBS),		
Source(s) of Impairment	SOURCE UNKNOWN, SOURCE UNKNOWN, SOURCE UNKNOWN		
TMDL Status	Final	Name	Ohio River

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

Nearest Downstream Public Water Supply Intake		West View Water Authority	
PWS Waters	Ohio River	Flow at Intake (MGD)	40
PWS RMI	975.99	Distance from Outfall (mi)	1.66

Changes Since Last Permit Issuance: This outfall is scheduled to go online during this permit term.

Other Comments:

Treatment Facility Summary

Treatment Facility Name: ALCOSAN Sewer System

WQM Permit No.	Issuance Date	Purpose
8507-S	August 23, 1954	Permit issued to ALCOSAN by the Department of Health approving treatment facilities including screening, grit removal, primary and secondary sedimentation tanks, and a spray pond.
468S015	May 13, 1968	Permit issued to ALCOSAN by Department of Environmental Resources approving expansion of the treatment plant to 150 MGD by installing: • Six (6) 4-million-gallon Step aeration activated sludge treatment tanks with fine bubble diffusers • Four (4) 60,000 cfm air compressors • Four (4) 8,000 lbs/day chlorination feed • Twelve, 1.565 million gallon (141ft diameter) secondary sedimentation tanks • Vacuum filtration aided by polyelectrolytes • Upgrades to four existing CE Raymond Flash dryer and incinerators alternating the feed to natural gas and adding scrubbers • Ten (10), 11200 gpm activated sludge return pump • Ten (10) 11200 gpm activated sludge return pump • Ten (10) 800 gpm sludge waste pumps • Six (6), 350 gpm sludge disintegrators • Two (2) 65,400 sludge mixing tanks
0274469	June 4, 1975	Permit issued to ALCOSAN by the Department of Environmental Resources approving a re-rate of the Woods Run Sewage Treatment Plant from 150 MGD to 200 MGD.

0274469 A-1	July 16, 1993	Permit issued to ALCOSAN by the Department of Environmental Resources approving
		• Biosolids processing upgrades
		  ○ Zimpro Inc. multiple hearth incinerator with 10 fluidized incinerators, one after burner, one waste heat recovery boiler, and one venturi and impingement tray exhaust gas scrubber
		  ○ Two, 65-ton dry lime storage silos and four vibrating baffle screw feeders.
		  ○ Sludge dewatering building with odor control consisting of two mixer vent exhaust fans, truck loading area exhaust fan, scrubber, and PLC system
		  ○ Thirteen belt presses
		  ○ Truck loading system with two reversing type conveyers with pneumatically operated plows, one manual plow, and three discharge chutes
		  ○ Potassium permanganate storage including a 100,000 lb storage silo and 14 polymer pumps
		• Upgrade of the high-pressure effluent flushing water 3,400 gpm and 250 hps pumps
		• Effluent anti-foaming system with one 200-gallon and one 12,000 storage tank and related diaphragm pump.

		• Upgrade of main pumping station including replacement of three pumps with Dresser Industries 66,00 gpm pumps and retrofitting three pumps to have a capacity of 45,250 gpm. • New grit handling system including four new combination flight bucket elevator grit collector, two grit collecting screw conveyers, two grit dewatering screw conveyors, and one pneumatic transport subsystem. • New screening handling with four screenings grinder, one screening collection screw conveyer, two screening transfer screw conveyors and one pneumatic transport subsystem.
0274469 A-2	November 21, 1997	Permit issued to ALCOSAN by the Department of Environmental Protection approving plant modifications to expand the design flow to 250 MGD including: • Construction of one (1) 6.13- million-gallon primary sedimentation tank • Conversion of two (2) 6.13-million-gallon pre-aeration tank to primary sedimentations tanks • Construction of two (2) 3.53-million-gallon aeration basins with fine bubble diffusers • Upgrade of existing course bubble diffusers to fine bubble diffusers • Construction of two (2) 1.67-million-gallon final clarifiers • Replacement of a liquid chlorine disinfection system with a liquid sodium hypochlorite for disinfection and odor control • Installation of a second drainage pump at the main pump station • Replacement of ten (10) primary sludge pumps • Upgrades to the compressed air distribution system • Installation of four (4) new activated sludge pump stations with three (3) pumps each • Installation of six (6) 594 ton/hr gravity belt thickeners • Expansion of the lime storage building • Upgrades to the sludge conveyance system
0274469 A-3	February 3, 2000	-
0274469	April 18, 2001	-
0274469	June 17, 2005	-
0274469	December 12, 2006	-
0274469	September 14, 2007	-
0274469	August 23, 2011	-
0274469 A-7	February 6, 2020	Permit issued to ALCOSAN approving upgrades to the treatment plant including: • New 360 MGD “East Headworks Facility” which include new chain and rake type bar screens, aerated grit removal tanks and all support equipment and facilities • New influent conduit from the Main Pump Station to the New East Headworks • New “West Headworks” effluent channel to connect the Primary Influent Channel, and new connections from the East Headworks to the “West Headworks” • Modifications to the Main Pumping Station to allow flow splitting between the West Headworks and New East Headworks and to allow future WWPS force main connection • Two new Primary Sedimentation tanks and all appurtenances

		• Five new waste sludge thickening centrifuges and all appurtenances • New odor control facilities • New 5KV sub station • New laboratory • Two new Final Clarifiers • New final effluent sodium hypochlorite disinfection facilities • New final disinfection tanks • New final effluent outfall (001) • CSO related bypass control structure and all appurtenances • CSO bypass disinfection tank • CSO bypass sodium hypochlorite disinfection system • CSO Dechlorination facilities • CSO bypass outfall (002) • All appurtenances, pipes, pumps, controls, channels and ancillary equipment so that the treatment facility may function as designed
0274469 A-8	June 17, 2025	Permit issued by ALCOSAN approving a 120 MGD wet well/dry well Wet Weather Pump Station including: • One (1) 96-inch influent conduit • One 105' diameter underground wet well with a minimum of 10' wall and surrounded by 4" of shotcrete. • Six (6) variable speed 15000 hp pump, four active and two stand by. • 193 LF of 48" DIP recirculation line • 218 LF of 72" Prestressed Concrete Cylinder gravity sewer, terminating at the East Headworks influent conduit with a 72"x120" reducer • 2 submersible emergency backup pumps rated at 5 MGD each.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	Hypochlorite	250

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
250	287,010	Existing Hydraulic Overload	Anaerobic Digestion	Land Application and Landfill

Changes Since Last Permit Issuance: ALCOSAN is in the process of actively expanding the treatment facility. The table below summarizes the expansion status as of June 24, 2025.

Project Name	Item identified in Permit No. 0274469 A-7 (February 6, 2020)	Anticipated Date of Startup	Post-Construction Certification Submitted
North End Plant Expansion	New Final Disinfection Chlorine Contact Tank (and Chemical Building)	January 2025	1/15/2025
	New Final Outfall (001)	January 2025	1/15/2025
	Two new Final Settling Tanks	September 2025	
East Headworks	East Primary Influent Conduit (EPIC)	June 2025	6/16/2025
	East Headworks (EHW)	June 2025	6/16/2025
	Headworks Odor Control Sytem Modifications	June 2025	6/16/2025
	MPS Discharge Channel Modifications to Split flow to EHW and West Headworks (WHW)	June 2025	6/16/2025
	Influent Conduit from Main Pump Station (MPS) to EHW	June 2025	6/16/2025
	West Primary Influent Conduit (WPIC)	June 2025	6/16/2025
	Center Primary Influent Conduit (CPIC)	December 2025	
CSO Bypass & Disinfection	CSO-Related Bypass Channel	October 2026	
	CSO-Related Disinfection Chlorine Contact Tank (and Chem Building)	October 2026	
	CSO-Related Outfall (002)	October 2026	
Solids Thickening & Dewatering Improvements	Five new Waste Activated Sludge (WAS) Thickening Centrifuges*	February 2026	
Primary Sedimentation Tank E-4	Two new Primary Sedimentation Tanks*	June 2029	
	Primary Odor Control System Modifications	June 2029	

*These items will be the subjects of an upcoming permit modification submission:

1. ALCOSAN will propose to install Gravity Belt Thickeners in lieu of Centrifuges to accomplish the Thickening process.
2. ALCOSAN will propose to construct one new Primary Sedimentation Tank in lieu of two new Primary Sedimentation Tanks.

Other Comments: None

Compliance History

Operations Compliance Check Summary Report

Facility: ALCOSAN SEW SYS

NPDES Permit No.: PA0025984

Compliance Review Period: 7/1/20-7/16/25

Inspection Summary:

INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC	INSPECTION COMMENT
12/04/2024	Combined Sewer Overflow-Non-Sampling	County Health Dept	No Violations Noted	
09/17/2024	Compliance Evaluation	County Health Dept	No Violations Noted	
07/25/2024	Biosolids Processor Compliance Eval Insp	PA Dept of Environmental Protection	No Violations Noted	
07/25/2024	Combined Sewer Overflow-Non-Sampling	PA Dept of Environmental Protection	No Violations Noted	
07/25/2024	Compliance Evaluation	County Health Dept	Violation(s) Noted	
07/25/2024	Biosolids Land Appl Site Compl Eval Insp	PA Dept of Environmental Protection	No Violations Noted	
08/31/2023	Compliance Evaluation	County Health Dept	Violation(s) Noted	
09/21/2022	Compliance Evaluation	County Health Dept	Violation(s) Noted	
09/15/2022	Biosolids Processor Compliance Eval Insp	County Health Dept	No Violations Noted	
09/02/2021	Combined Sewer Overflow-Non-Sampling	PA Dept of Environmental Protection	No Violations Noted	
08/12/2021	Biosolids Land Appl Site Admin/File Rev	PA Dept of Environmental Protection	No Violations Noted	Located annual report in OnBase. No application in 2020.
08/12/2021	Biosolids Land Appl Site Admin/File Rev	PA Dept of Environmental Protection	No Violations Noted	Located annual report in OnBase. No application in 2020. Located annual report in OnBase. No application in 2020.
07/22/2021	Compliance Evaluation	County Health Dept	No Violations Noted	
01/29/2021	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted	
09/15/2020	Compliance Evaluation	County Health Dept	Viol(s) Noted & Immediately Corrected	

Violation Summary:

VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE	VIOLATION COMMENT
07/25/2024	CSL201	CSL - Unauthorized, unpermitted discharge of sewage to waters of the Commonwealth	09/06/2024	
08/31/2023	92A.44	NPDES - Violation of effluent limits in Part A of permit	01/26/2024	Fecal coliform violations
08/31/2023	CSL201	CSL - Unauthorized, unpermitted discharge of sewage to waters of the Commonwealth	01/26/2024	SSOs & dry weather overflows
09/21/2022	92A.44	NPDES - Violation of effluent limits in Part A of permit	09/28/2022	fecal coliform exceedance 3/22
09/21/2022	92A.61(C)	NPDES - Failure to monitor pollutants as required by the NPDES permit	09/28/2022	missed field analysis
01/29/2021	92A.47(C)	NPDES - Illegal discharge to waters of the Commonwealth from a sanitary sewer overflow (SSO)	07/13/2022	
09/15/2020	92A.44	NPDES - Violation of effluent limits in Part A of permit	10/22/2020	DO minimum conc.

Open Violations by Client ID:

No open violations for Client ID 123978

Enforcement Summary:

ENF TYPE	ENF TYPE DESC	EXECUTED DATE	VIOLATIONS	ENF FINALSTATUS	ENF CLOSED DATE
NOV	Notice of Violation	08/02/2024	CSL201	Administrative Close Out	09/13/2024
NOV	Notice of Violation	09/11/2023	92A.44	Administrative Close Out	09/11/2024
NOV	Notice of Violation	10/07/2020	92A.44	Administrative Close Out	07/07/2023

Effluent Violation Summary:

MON PD	PARAMETER	REPORTED VALUE	PERMIT LIMIT	UNIT	STAT_BASE_CODE	FACILITY COMMENTS
Dec-24	Dissolved Oxygen	4.9	5	mg/L	Instantaneous Minimum	
Apr-23	Fecal Coliform	435	400	No./100 ml	Instantaneous Maximum	
Feb-23	Fecal Coliform	> 60	2000	No./100 ml	Average Monthly	Updated laboratory procedures to include a 50% and 10% dilution of the final effluent grab sample analysis per Mico-Colilert -18 Quanti-tray analysis. Operations was adjusting Sodium Hypochlorite for seasonal effluent limitations.
Mar-22	Fecal Coliform	> 129	2000	No./100 ml	Average Monthly	

Unauthorized Discharges:

No unauthorized discharges reported in eDMR during review period

Compliance Status: Facility is in general compliance with no open violations or pending enforcements.

Completed by: Amanda Illar **Completed date:** 7/16/25

Compliance History

DMR Data for Outfall 001 (from June 1, 2024 to May 31, 2025)

Parameter	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24
Flow (MGD) Average Monthly	210.9	213.1	192.6	222.8	175.3	177.6	160.4	145.4	146.7	166.4	153.1	163.8
Flow (MGD) Daily Maximum	250.0	250.0	242.3	250.0	230.9	219.7	246.7	187.2	209.6	233.0	216.0	214.2
pH (S.U.) Instantaneous Minimum	6.7	6.6	6.6	6.9	6.7	6.6	6.7	6.6	6.8	6.8	6.8	6.6
pH (S.U.) Instantaneous Maximum	7.2	7.1	7.6	7.3	7.5	7.9	7.7	7.5	7.6	7.2	7.1	7.2
DO (mg/L) Instantaneous Minimum	6.5	7.2	7.2	8.1	6.2	4.9	5.1	5.5	5.5	5.5	5.4	5.4
DO (mg/L) Minimum Weekly Average	8.2	8.3	8.7	9.3	8.1	7.9	7.7	7.7	7.5	7.1	7.1	7.5
TRC (mg/L) Average Monthly	< 0.19	< 0.18	< 0.39	0.46	< 0.37	0.39	< 0.43	< 0.43	0.40	< 0.32	< 0.35	0.34
TRC (mg/L) Instantaneous Maximum	0.84	0.51	0.78	0.76	1.4	0.54	0.91	0.71	0.70	0.67	0.48	0.57
$CBOD_5$ (lbs/day) Average Monthly	< 8501	9362	10971	13035	11354	14925	10592	7252	6413	< 5931	< 5256	< 5061
$CBOD_5$ (lbs/day) Weekly Average	11328	11724	13772	14594	17460	23273	13427	8378	6900	< 7085	< 7673	5968
$CBOD_5$ (mg/L) Average Monthly	< 4.8	5.2	6.8	7.1	7.7	9.8	7.8	6.1	5.2	< 4.2	< 4.0	< 3.7
$CBOD_5$ (mg/L) Weekly Average	6.3	6.6	7.8	7.8	12.3	13.6	8.8	7.7	5.8	< 4.4	< 4.9	4.2
BOD_5 (lbs/day) Raw Sewage Influent Average Monthly	104995	< 105989	137356	124204	140802	126882	120092	113398	106758	103485	112231	112068
BOD_5 (lbs/day) Raw Sewage Influent Daily Maximum	157630	151081	234212	222027	294633	185493	189838	149620	200647	320173	207804	170653

BOD_5 (mg/L) Raw Sewage Influent Average Monthly	62	< 61	87	68	96	87	92	95	88	76	89	82
BOD_5 (mg/L) Raw Sewage Influent Daily Maximum	103	102	165	129	156	122	148	125	150	220	158	130
TSS (lbs/day) Average Monthly	< 13859	< 13485	< 10171	< 13627	< 19689	< 18056	< 15050	< 10775	< 9018	< 9315	< 7945	< 8199
TSS (lbs/day) Raw Sewage Influent Average Monthly	150465	141824	161361	146161	164445	176575	163120	153781	176482	171207	215296	187284
TSS (lbs/day) Raw Sewage Influent Daily Maximum	250984	223739	301097	367494	492981	313391	297585	231138	767180	681094	841740	660651
TSS (lbs/day) Weekly Average	19051	< 16710	< 11814	15103	43610	< 25401	23677	< 11729	< 11134	< 10755	< 10181	< 8550
TSS (mg/L) Average Monthly	< 8.0	< 8.0	< 6.0	< 7.0	< 14.0	< 12.0	< 11.0	< 9.0	< 7.0	< 7.0	< 6.0	< 6.0
TSS (mg/L) Raw Sewage Influent Average Monthly	89	81	102	79	111	120	125	128	143	125	168	139
TSS (mg/L) Raw Sewage Influent Daily Maximum	168	112	180	196	256	212	232	196	520	468	640	532
TSS (mg/L) Weekly Average	10.0	< 8.0	< 7.0	< 8.0	33.0	< 15.0	15.0	< 10.0	< 8.0	< 8.0	< 7.0	< 6.0
Total Dissolved Solids (lbs/day) Average Monthly	936088	987343	929067	1387182	1124642	1326243	473138	587411	616682	691985	654614	724879
Total Dissolved Solids (lbs/day) Daily Maximum	1110558	1338290	1176988	2297670	1967406	2682484	625834	668479	751668	827812	760208	869211
Total Dissolved Solids (mg/L) Average Monthly	537	573	562	762	780	818	383	464	478	504	488	536
Total Dissolved Solids (mg/L) Daily Maximum	632	646	654	1102	14000	1464	484	498	514	586	536	620
Fecal Coliform (No./100 ml) Average Monthly			210	80	38	19	41					

Fecal Coliform (No./100 ml) Geometric Mean	19	12						16	14	22	15	10
Fecal Coliform (No./100 ml) Instantaneous Maximum	192	96						236	325	88	59	75
Nitrate-Nitrite (mg/L) Daily Maximum	7.5	7.5	4.8	4.2	5.7	33.3	< 2.4	< 2.4	26.1	9.5	< 2.4	< 2.4
Total Nitrogen (mg/L) Daily Maximum	10.6	10.6	10.5	< 15.6	19.9	43.1	< 7.4	< 8.6	35.1	12.6	< 3.8	< 4.6
Ammonia (lbs/day) Average Monthly	< 2830	< 3171	< 5540	< 7030	7260	3726	< 1665	< 1253	< 1360	< 1533	< 1277	< 1366
Ammonia (lbs/day) Weekly Average	3445	< 4698	< 6090	8032	10651	6333	< 2901	< 1351	< 1924	< 1804	< 1526	< 1425
Ammonia (mg/L) Average Monthly	< 1.6	< 1.8	< 3.4	< 3.9	5.1	2.4	< 1.2	< 1.0	< 1.1	< 1.1	< 1.0	< 1.0
Ammonia (mg/L) Weekly Average	1.9	< 2.8	< 3.7	4.5	7.9	3.7	< 1.7	< 1.2	< 1.5	< 1.3	< 1.0	< 1.0
TKN (mg/L) Daily Maximum	3.4	4.2	6.2	13.6	16.1	9.8	5.0	6.2	9.0	3.9	2.0	6.4
Total Phosphorus (mg/L) Daily Maximum	0.4283	0.5229	0.2966	0.52	1.5	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Sulfate (mg/L) Average Monthly	72	77	73	77	67	86	91	94	95	98	93	98
Sulfate (mg/L) Daily Maximum	82	80	78	80	75	135	104	99	105	108	111	103
1,4-Dioxane (mg/L) Average Monthly	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.003	< 0.002	< 0.002	< 0.002	< 0.005	< 0.002	< 0.002
1,4-Dioxane (mg/L) Daily Maximum	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.004	< 0.002	< 0.002	< 0.002	< 0.022	< 0.002	< 0.002
Chloride (mg/L) Average Monthly	179	198	213	342	327	288	122	121	126	131	127	137
Chloride (mg/L) Daily Maximum	208	242	254	543	492	454	136	134	136	149	137	145
Bromide (mg/L) Average Monthly	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 3.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Bromide (mg/L) Daily Maximum	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Compliance History

Effluent Violations for Outfall 001, from: July 1, 2024 To: May 31, 2025

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
DO	12/31/24	Inst Min	4.9	mg/L	5.0	mg/L

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 250
Latitude 40º 28' 34.00" **Longitude** -80º 2' 44.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations (TBELs)

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
Flow	Report	Average Monthly	-	92a.27, 92a.61
$CBOD_5$	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)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)
Ammonia-Nitrogen	25	Average Monthly	-	BPJ
Dissolved Oxygen	4.0	Min	-	BPJ
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Total Nitrogen	Report	Average Monthly	-	92a.61
Total Phosphorus	Report	Average Monthly	-	92a.61
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)

Water Quality-Based Limitations (WQBELs)

Pursuant to EPA's approval of Pennsylvania's 2017 Triennial Review of Water Quality Standards and corresponding regulatory changes published in the *Pennsylvania Bulletin* on July 11, 2020, new water quality criteria for ammonia-nitrogen apply to waters of the commonwealth.

WQM 7.0 Water Quality Modeling

DEP's WQM 7.0 version 1.1 model is a Microsoft Access Program used for sewage dischargers to determine whether TBELs are sufficient to meet in-stream water quality criteria for ammonia-nitrogen, carbonaceous biochemical oxygen demand ($CBOD_5$), and dissolved oxygen (DO).To accomplish this, the model simultaneously simulates mixing and degradation of ammonia-nitrogen and mixing and consumption of DO through $CBOD_5$ and ammonia-nitrogen degradation. WQM 7.0 determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions. More information regarding the model can be found in the Department's *Technical Reference Guide (TRG) WQM 7.0 for Windows Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen Version 1.0* [Doc. No. 391-2000-007].

The model is a two-step process. The discharge is first remodeled for the summer period (May through October) because warm temperatures are more likely to result in critical loading conditions in the receiving water. Reduced DO levels likely also play a role in ammonia-toxicity and solubility of DO decreases at increased water temperature. If summer modeling determines that WQBELs are appropriate for the summer period, then modeling is completed for the winter period (November through April). This is in accordance with DEP's *Implementation Guidance of Section 93.7 Ammonia Criteria* [Doc. No. 391-2000-013] (Ammonia Guidance).

River Mile Index (RMI) was measured in eMAP PA as the distance from the facility's outfall to the mouth of the Ohio River. Upper pool elevation and Q_{7-10} stream flow in the Ohio River is maintained by the US Army Corp of Engineers. Discharge

point drainage area was generated by USGS Stream Stats. Drainage area at the end of reach could not be estimated by USGS stream stats, so the drainage area for the point on the Ohio River where it leaves Pennsylvania and enters Ohio was used instead.. In this case, although drainage area is a required input for the model, it does not impact the limit because the limit is based on the Q_{7-10} flow. In the absence of site-specific data, discharge temperature, stream temperature, and stream pH were assumed to be 20 °C, 25 °C, and 7, respectively in accordance with Department's Ammonia Guidance. Stream width was measured from Google Earth. Depth was assumed to be 10 ft. Discharge concentrations for ammonia-nitrogen, $CBOD_5$, and DO were assigned the value of the existing effluent limitations.

WQM 7.0 modeling inputs are documented in the table below:

Discharge Characteristics		Basin/Stream Characteristics	
Parameter	**Value**	**Parameter**	**Value**
River Mile Index (RMI)	977.8	Drainage Area (Attachment A)	19400
Discharge Flow (MGD)	250	$Q_{7-10\ (cfs)}$	4730
Discharge Temp (°C)	20	Elevation (ft)	710
Ammonia-Nitrogen (mg/L)	9	Stream Width (ft)	1214
$CBOD_5$ (mg/L)	20	Stream Depth (ft)	10
Dissolved Oxygen (mg/L)	5	Stream Temp (°C)	25
		Stream pH (s.u.)	7

The discharge was modeled using WQM 7.0 to evaluate $CBOD_5$, ammonia-nitrogen, and DO parameters. Modeling confirmed that WQBELs are necessary to meet in-stream water quality criteria for ammonia-nitrogen, $CBOD_5$, and dissolved oxygen.

The Ammonia Guidance documents that when modeling for Winter, the in-stream temperature should be 5 °C and the low flow yield is doubled. The instream dissolved oxygen concentration was also changed to 12.51 and the discharge temperature changed to 15 °C. Effluent concentrations for CBOD5 and ammonia-nitrogen were changed to match the winter effluent limitations imposed in the previous permit.

In accordance with DEP's SOP for *Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033], winter ammonia-nitrogen limits are assessed by comparing the winter WQM 7.0 calculated limits with one calculated from a summer limit using a multiplier of three. The more restrictive of the two limits is then imposed. For this facility, the more restrictive limits are based on modeling. The winter WQM 7.0 model confirmed that technical based effluent limitations are adequate during the winter months. DEP policies do not allow for seasonal dissolved oxygen limits, so a year-round dissolved oxygen WQBEL of 5 mg/L will be imposed based on the summer WQM 7.0 Model. Output files for a design flow of 250 MGD in WQM 7.0 are provided in Attachment B.

Parameter	Limit (mg/l)	SBC	Model
Dissolved Oxygen	5.0	Instantaneous Minimum	WQM 7.0
Ammonia-Nitrogen (summer)	9	Average Monthly	WQM 7.0
Ammonia-Nitrogen (winter)	25	Average Monthly	WQM 7.0
$CBOD_5$ (summer)	20	Average Monthly	WQM 7.0
$CBOD_5$ (winter)	25	Average Monthly	WQM 7.0

Toxic Management Spreadsheet (TMS) Water Quality Modeling Program and Procedure for Evaluating Reasonable Potential

DEP's Toxics Management Spreadsheet Version 1.3 (TMS) is a Microsoft Excel ® spreadsheet that facilitates the evaluation of a single discharger and performs the calculations necessary to complete a reasonable potential analysis and determine WQBELs for dischargers of toxic unconventional pollutants.

The TMS evaluates each pollutant by computing a wasteload allocation for each applicable criterion, determining the most stringent governing WQBEL, and comparing that governing WQBEL with the effluent discharge concentration to determine whether permit requirements should apply. That decision is made using the following reasonable potential thresholds as documented in the Department's SOP for *Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers* [SOP No. BCW-PMT-037]:

- Establish limits in the permit where the maximum reported effluent concentration or calculated, average monthly effluent concentration exceeds 50% of the WQBEL. Use the average monthly, maximum daily, and instantaneous maximum (IMAX) limits for the permit as recommended by the TMS.

- For non-conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated average monthly effluent concentration is between 25-50% of the WQBEL.

- For conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated average monthly concentration is between 10-50% of the WQBEL.

TMS requires input data including stream code, RMI, elevation, drainage area, Q_{7-10} stream flow, discharge hardness and pH, and stream hardness and pH. The same discharge and basin characteristic values are used for WQM 7.0. Discharge pH and hardness were taken from the effluent sample results reported in the application. Stream hardness was calculated as the statistical mean of the hardness data provided in Attachment B.3 of the application. In the absence of site-specific data, a stream pH default of 7.0 S.U. was used in accordance with *DEP Toxics Management Spreadsheet (TMS) Instructions*. When known, additional information may be used to further refine the model. In this case, a velocity rate and stream slope were taken from the WQM 7.0 Model output. Additionally, acute and chronic mix factors were calculated for the WET Test.

Discharge Characteristics		**Basin/Stream Characteristics**	
Parameter	**Value**	**Parameter**	**Value**
River Mile Index (RMI)	977.8	Drainage Area (Attachment A)	19400
Discharge pH	7	$Q_{7-10\ (cfs)}$	4730
Discharge Hardness	168	Stream pH	7.0
Acute Mix Factor (%)	6.66	Elevation (ft)	710
Chronic Mix Factor (%)	46.12	Stream Width (ft)	1214
Design Flow (MGD)	250	Stream Depth (ft)	10
		Stream Velocity (fps)	0.42
		Stream Slope (ft/ft)	0.00026

A preliminary Reasonable Potential Analysis was conducted using TMS.

The preliminary model suggested limits or monitoring for 38 pollutants, 34 of which had non-detect results above the Department's Target QL. Target QLs are assigned for each toxic pollutant representing a concentration threshold, below which, the Department accepts a non-detect as having a minimal potential to result in excursions above the in-stream water quality criteria. Those pollutants were: total antimony, total cadmium , hexavalent chromium, total cobalt, total copper, total lead, total mercury, total nickel, total selenium, total silver, total thallium, total zinc, acrolein, acrylonitrile, benzene, carbon tetrachloride, chlorobromomethane, dichlorobromomethane, 1,2-dichloropropane, 1,3 - dichloropropylene, 1, 1, 2, 2- tetrachlorothane, 1,1,2- Trichloroethane, trichloroethylene, vinyl chloride, benzo(a)anthracene, benzo(a)pyrene, 3,4-benzoflouranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracence, hexachlorobutadiene , indeno(1,2,3-cd)pyrene, phenanthrene, and 1,2,4- trichlorobenzene.

The preliminary model also suggested limits for total dissolved solids, chloride, 4,4 -DDT, and total beta.

A pre-draft letter/survey for toxic pollutants was emailed to the permittee on September 11, 2023, and their response is provided in Attachment C. ALCOSAN elected to re-sample for 36 of the 38 pollutants. They elected not to resample for total dissolved solids or chloride because these limits were triggered due to the proximity of the downstream drinking water intake. Re-sample results were submitted on January 19, 2024, and data sets were re-evaluated.

14 pollutants were re-sampled using a detection limit less than the target QL and all of the re-sample results were non-detect. For those pollutants, no monitoring will be imposed. These are total cadmium, total silver, total thallium, benzene, carbon tetrachloride, chlorodibromomethane, 1, 2- dichloropropane, 1, 3-dichloropropylene,
1, 1, 2, 2- tetrachloroethane, 1, 1, 2 – trichloroethane, trichloroethylene, vinyl chloride, hexachlorobutadiene, and 1,2,4 Trichlorobenzene.

Seven pollutants were re-sampled using a detection limit less than the target QL and had at least one detection, but no limits were suggested by TMS. For these pollutants, the highest of the four results was input into TMS and was less than 10% of the WQBEL for conservative pollutants or 25% of the WQBEL for non-conservative pollutants. Those pollutants are total antimony, hexavalent chromium, total cobalt, total lead, total nickel, total selenium, dichlorobromomethane.

In accordance with *Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers* [SOP No. BCW-PMT-037], when using a data set of three to nine samples, the maximum value is input into WMS. For samples sets greater than 10, the statistical mean as calculated using TOXCONC is used as the input.

The application data reported for total copper were all non-detect with a method detection limit (MDL) of 50 µg/L. ALCOSAN re-sampled using a MDL less than the target QL of 4 µg/L. The highest of the four re-sampling results was input into TMS. The model calculated the effluent concentration to be between 10 and 50% of the WQBEL, so monitoring will be imposed in the permit.

The application data reported for total zinc were all non-detect at a MDL of 50 µg/L. ALCOSAN re-sampled using a MDL less than the target QL of 5 µg/L. The highest of the four re-sampling results (19 ug/L) was input into TMS. The model calculated the effluent concentration to be between 10 and 50% of the WQBEL, so monitoring will be imposed in the permit.

The application data for acrolein were all non-detect at a MDL of 20 µg/L. ALCOSAN re-sampled with all four results being non-detect at a MDL of 16 µg/L. The Department's target QL for acrolein is 2 µg/L. Even though all of the sample results were non-detect, the MDL was significantly larger than the target QL. The laboratory MDL of 16 µg/L is greater than 50% of the WQBEL of 3.49, therefore TMS assigned limits for acrolein.

The application data for acrylonitrile were all non-detect at a MDL of 20 µg/L. ALCOSAN re-sampled with all four results being non-detect at a MDL of 7.8 µg/L. The Department's target QL for acrylonitrile is 5 µg/L. Even though all of the sample results were non-detect, the MDL was larger than the target QL. The laboratory MDL of 7.8 µg/L is greater than 50% of the WQBEL of 0.99, therefore TMS assigned limits for acrylonitrile.

The application data for benzo(a)anthracene were all non-detect at a MDL of 5 µg/L. ALCOSAN re-sampled using a MDL less than the target QL of 2.5 µg/L. The highest of the four re-sampling results (2.2 µg/L) was input into TMS. The effluent concentration is greater than 50% of the WQBEL of 0.019 µg/L, therefore TMS assigned limits for benzo(a)anthracene.

The application data for benzo(a)pyrene were all non-detect at a MDL of 5 µg/L. ALCOSAN re-sampled using a MDL less than the target QL of 2.5 µg/L. The highest of the four re-sampling results (0.65 µg/L) was input into TMS. The effluent concentration is greater than 50% of the WQBEL of 0.002 µg/L, therefore TMS assigned limits for benzo(a)pyrene.

The application data for 3,4-benzoflouranthene were all non-detect at a MDL of 5 µg/L. ALCOSAN re-sampled using a MDL less than the target QL of 2.5 µg/L. The highest of the four re-sampling results (1.7 µg/L) was input into TMS. The effluent concentration is greater than 50% of the WQBEL of 0.019 µg/L, therefore TMS assigned limits for benzo(a)pyrene.

The application data for benzo(k)fluoranthene were all non-detect at a MDL of 5 µg/L. ALCOSAN re-sampled using a MDL less than the target QL of 2.5 µg/L. The highest of the four re-sampling results (0.63 µg/L) was input into TMS. The effluent concentration is greater than 50% of the WQBEL of 0.074 µg/L, therefore TMS assigned limits for benzo(k)fluoranthene.

The application data for chrysene were all non-detect at a MDL of 5 µg/L. ALCOSAN re-sampled using a MDL less than the target QL of 2.5 µg/L. The highest of the four re-sampling results (2.6 µg/L) was input into TMS. The effluent concentration is greater than 50% of the WQBEL of 0.074 µg/L, therefore TMS assigned limits for chrysene.

The application data for dibenzo(a,h)anthracence were all non-detect at a MDL of 5 µg/L. ALCOSAN re-sampled using a MDL less than the target QL of 2.5 µg/L. The highest of the four re-sampling results (0.17 µg/L) was input into TMS. The

effluent concentration is greater than 50% of the WQBEL of 0.002 µg/L, therefore TMS assigned limits for dibenzo(a,h) anthracence.

The application data for indeno(1,2,3-cd)pyrene were all non-detect at a MDL of 5 µg/L. ALCOSAN re-sampled using a MDL less than the target QL of 2.5 µg/L. The highest of the four re-sampling results (0.41 µg/L) was input into TMS. The effluent concentration is greater than 50% of the WQBEL of 0.019 µg/L, therefore TMS assigned limits for indeno(1,2,3-cd)pyrene.

The application data for phenanthrene were all non-detect at a MDL of 5 µg/L. ALCOSAN re-sampled using a MDL less than the target QL of 2.5 µg/L. The highest of the four re-sampling results (7.4 µg/L) was input into TMS. The effluent concentration is greater than 50% of the WQBEL of 5.81 µg/L, therefore TMS assigned limits for phenanthrene.

The application data for 4,4- DDT reported one sample out of five having a concentration of 0.003 µg/L and four non-detect samples. ALCOSAN elected to take an additional 7 samples, resulting in a data set with 12 data points. With data sets of 10 or more data points, the average concentration as calculated by TOXCONC will be input into TMS. TOXCONC (Attachment D) calculated an average of 0.0018620 µg/L. Coefficient of Variation was calculated to be 0.5259374. The average effluent concentration calculated by TOXCONC is greater than 50% of the WQBEL of 0.00003 µg/L, therefore TMS assigned limits for 4,4 DDT. Given that only one of 12 sample results had a detection, the department postulated that the detection was an outlier. In accordance with Section I.B. of the Department's SOP for Establishing WQBELs and Permit Conditions for Toxic Pollutants in NPDES Permits [SOP No. BCW-PMT-037], when an outlier is suspected in data sets greater than 10, then the median value should be used to evaluate reasonable potential rather than the AMEC. A median value of 0.00065 was input into TMS. This value is greater than 50% of the WQBEL of 0.00003 µg/L, therefore TMS still assigns limits for 4,4 DDT. Using the median value of the total 12 data points, 0.0018620 µg/L, does not result in a different limit than if the calculated average value of 0.0078620 µg/L. The calculated average was therefore used as the input value for 4,4 DDT.

Please note that the department did not complete the tests recommended in EPA's Guidance for Data Quality Assessment (Data Quality Guidance) [EPA QA/G-9 QA00 Version] to confirm that outliers exist in either dataset. The department's willingness to evaluate what the limits would be if outliers exist in the data sets should not be misconstrued in any way as confirmation that 4, 4 DDT data set contains any outliers. The final modeling used the maximum value of 0.003 µg/L in accordance with *Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers* [SOP No. BCW-PMT-037 for a data set where an outlier has not been confirmed.

The application data for Total Beta (pCi/L) reported four detections with a maximum value of 13 pCi/L. At the time of the pre-draft sampling, DEP intended to impose monitoring for total beta based on these detections. After further evaluation, however, the department has decided to not impose monitoring because the TMS should be adequate to calculate reasonable potential, and it does not assign a monitoring requirement based off of the concentration of Total Beta based on the application data.

For Total Mercury, after re-sampling, it was noted that while ALCOSAN met the Department's target QL of 0.2 ug/L, however, as a discharger to the Ohio River, they are required to meet the more restrictive 12 ng/L detection limit required by ORSANCO. ALCOSAN elected to take additional mercury samples meeting ORSANCO's more restrictive target detection limit. Additionally, ALCOSAN elected to take additional samples for acrolein and acrylonitrile as they had not yet obtained sampling that met the Department's target QLs for these two pollutants.

ALCOSAN submitted a third-round of sampling results on December 12, 2024.

The application data for acrolein were all non-detect at a MDL of 20 µg/L. ALCOSAN re-sampled with all four results being non-detect at a MDL of 16 µg/L. The Department's target QL for acrolein is 2 µg/L. In the third round of sampling, all four acrolein results where non-detect at a MDL of 1.9 mg/L, therefore, no monitoring is proposed for acrolein.

The application data for acrylonitrile were all non-detect at a MDL of 20 µg/L. ALCOSAN re-sampled with all four results being non-detect at a MDL of 7.8 µg/L. The Department's target QL for acrylonitrile is 5 µg/L. In the third round of sampling, all four acrylonitrile were non-detect at a MDL of 2.5 mg/L, therefore, no monitoring is proposed for acrylonitrile.

In the third round of sampling, six mercury results were reported. The highest result (9 ng/L) was input into TMS. The effluent concentration is greater than 50% of the WQBEL of 12 ng/L, therefore, TMS assigned limits for total mercury.

ALCOSAN's previous permit required weekly monitoring for chloride. Five years (July 1, 2020- June 30, 2025) of daily maximum eDMR results were reviewed for chloride. Using TOXCONC (Attachment D), a statistical average of 442.6612921 and a coefficient of variance of 0.5512374 we then plugged into the TMS model, which determined that monitoring was adequate. The original model was based on the maximum of 102 samples reported in the application as 593. The department believes that using five years of daily maximum is more representative and sufficiently sensitive to protect water quality. Based on this stance, monitoring will again be imposed for chloride in this permit.

In response to the pre-draft letter, ALCOSAN completed the pre-draft survey, indicating that they are unsure of the length of time needed to comply with the new water quality-based effluent limits. In accordance with DEP's SOP for *Establishing Water Quality-based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers* [SOP No. BCW-PMT-037], compliance schedules for new toxic limitations are generally assigned based on the permittee's pre-draft response documented that ALCOSAN was unsure of the time they would need to meet the new, more restrictive limitations. In this situation, the SOP allows the permit writer to use discretion in assigning a compliance period but that it should not exceed three years. A three-year compliance schedule is being imposed for toxic pollutants. ALCOSAN is expanding their treatment plant, with the new, expanded design flow anticipated to go online October 3, 2025. The three-year compliance schedule will end after the plant expansion has gone online. Therefore, at the end of the three-year compliance period, the effluent limits for be imposed based on a design flow of 295 MGD. The TMS model output file for 250 MGD is provided in Attachment E.

Monitoring will be imposed from permit issuance until the end of the three-year compliance schedule for total mercury, TDS, benzo(a)anthracene, benzo(a)pyrene, 3,4-benzoflouranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, phenanthrene, and 4,4-DDT. After the end of three years, the toxic WQBELs determined by TMS for a design flow rate of 295 MGD will be imposed. A monitoring requirement for chloride, total copper, and total zinc are being imposed for the entire length of the permit term.

Total Residual Chlorine

DEP's Total Residual Chlorine (TRC) Spreadsheet is a Microsoft Excel® Program used to evaluate WQBELs for TRC using a mass balance. In accordance with the Department's SOP for *Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033 Version 1.9], default values of 0.3 mg/L and 0 mg/L for in-stream and discharge chlorine demand were used. Additionally, a discharge flow of 250 MGD and a Q_{7-10} of 4730 cfs were used. TRC Modeling confirmed that a technology based effluent limit of 0.5 mg/L is adequate.

Total Dissolved Solids (TDS), Chloride, Bromide, Total Sulfate, and 1,4 Dioxane

Total Dissolved Solids (TDS) and its major constituents including sulfate, chloride, and bromide have emerged as contaminants of concern throughout the Commonwealth. These solids are conservative in nature, accumulating in surface waters and in the case of drinking water treatment, bromide has been linked with formation of disinfection byproducts. In response to the growing concern, the Department promulgated PA Code 25 Chapter 95.10 on August 21, 2010 which establishes treatment requirements for new and expanding discharges. Chapter 95.10 (a)1) documents that "discharge loads of TDS or specific conductivity that were authorized by DEP prior to August 21,2010 are exempt from the standards. Woods Run STP was originally permitted August 23, 1954 under WQM Permit No. 8507-S. The design capacity was expanded to 250 MGD on July 4, 1975 under WQM Permit No. 0274469. The facility is currently exempt from Chapter 95.10 treatment requirements.

In accordance with DEP's SOP for *Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033 Version 1.9], a minimum of monitoring should be imposed for TDS for any discharge that exceeds a TDS concentration of 1,000 mg/L. Based on eDMR data, Woods Run STP has exceeded 1,000 mg/L twice in the last two years, therefore, weekly TDS monitoring is still appropriate. Because chloride, bromide, total sulfate, and 1,4 dioxane are all components of TDS, weekly monitoring will again be included under the authority of 25 Pa. Code § 92a.61(b).

Five years (July 1, 2020- June 30, 2025) of daily maximum eDMR results were reviewed for chloride, bromide, total sulfate, and 1,4 dioxane. Chloride data ranged from 124 mg/L to 1180 mg/L. Bromide results were all non-detect with MDLs ranging between 0.5 and 2.0 mg/L. Total sulfate results ranged from 69 mg/L to 135 mg/L.

The previous permit imposed 1,4 dioxane monitoring with the justification that it was a pollutant of concern associated with TDS. There does not appear to be an actual link, however. 1,4 dioxane results are all non-detect at a MDL of either 0.002 mg/L or 0.004 mg/L. EPA's health advisory for 1,4 dioxane states that the concentration should not exceed 0.035 mg/L.

Given that Woods Run STP's discharge concentration is non-detect at concentrations significantly lower than 0.035 mg/L, the monitoring requirement for 1,4-dioxane is being removed during this permit cycle.

ORSANCO Pollution Control Standards

The Ohio River Valley Water Sanitation Commission (ORSANCO) sets water quality standards for the Ohio River, to which Woods Run STP is a direct discharger. DEP will implement ORSANCO's water quality standards pursuant to Chapter 93.2(b).

ORSANCO set water quality criteria in the 2019 revision of *Pollution Control Standards for Discharges to the Ohio River.* ORSANCO criteria for conventional pollutants are summarized in the table below.

Parameter	Average Monthly	Weekly Average
TSS (mg/L)	30	45
$CBOD_5$ (mg/L)	25	40
Fecal Coliform (No./100 mL)	2,000 (geometric mean)	____

ORSANCO criteria for TSS and $CBOD_5$ are equal to the criteria set in 25 PA Code Chapter 92a.47(a). Fecal Coliform criteria established in 25 Pa Code 92a.47(a)(4) are more restrictive than those defined by ORSANCO and will therefore be imposed for this permit.

According to Pollution Control Standards for Discharges to the Ohio River, the maximum allowable level for E. coli for contact recreation from April- October is a monthly average of 130/100 mL (90-day geometric mean) and a weekly average of 240/100 mL. The 90-day geometric mean must be based on not less than five samples per month.

In a correlation equation developed by the Ohio EPA, concentrations of *E. Coli* and Fecal Coliform bacteria can be interchanged. The equation is as follows:

$$\text{E. coli} = 0.403(\text{Fecal Coliform})^{1.028}$$

	Estimated *E. coli* limit based on PA Criteria		ORSANCO *E. coli* Standard
Average Monthly Fecal Coliform (5/1 – 9/30)	232 / 100 mL	Average Monthly *E. coli* (4/1 – 10/31)	130/100 mL
IMAX Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	Weekly Average *E. coli* (4/1 – 10/31)	489/100 mL

Using the equation to convert the ORSANCO *E. coli* water quality limits to fecal coliform values, it is apparent that DEP's average monthly fecal coliform criteria, imposed as a TBELs, is more stringent. The ORSANCO weekly *E. coli* limit, however, is more restrictive. DEP is therefore re-imposing the summer fecal limits of 200 No./100ml Average Monthly and 400 No./100ml Instantaneous Max imposed in the last permit. The limits were developed in accordance with DEP's SOP for Establishing Effluent Limitations for individual Sewage Permits [SOP no. BCW-PMT-033 Version 1.9].

PA Code 92a.47(a)(4) defines summer criteria for fecal coliform as being applicable between May and September. The ORSANCO E. coli standard, however, is applicable for a longer time span of April to October. The summer fecal coliform limit was therefore imposed for the longer ORSANCO based date range of April 1 through October 31. The winter fecal coliform limit range was imposed for the remaining months of the year.

Permit Effluent Limitations

In accordance with Section III of DEP's SOP for *Establishing Effluent limitations for Individual Sewage Permits*, the limits to be imposed, which are provided below, represent the most stringent limitations between the TBELs, WQBELs, BAT, and BPJs

Parameter	Limit (mg/l)	SBC	Model
Dissolved Oxygen	5.0	Instantaneous Minimum	WQM 7.0

Ammonia-Nitrogen (summer)	9	Average Monthly	WQM 7.0
Ammonia-Nitrogen (winter)	25	Average Monthly	WQM 7.0
$CBOD_5$ (summer)	20	Average Monthly	WQM 7.0
$CBOD_5$ (winter)	25	Average Monthly	WQM 7.0
Total Residual Chlorine	0.5	Average Monthly	BAT
Total Suspended Solids	30	Average Monthly	TBEL
Fecal Coliform (Recreation Season)	200 CFU/mL	Geo Mean	TBEL
Fecal Coliform (Non-Recreation Season)	2,000 CFU/mL	Geo Mean	TBEL
pH	6.0	Instantaneous Minimum	TBEL
pH	9.0	Instantaneous Maximum	TBEL

Ohio River TMDL

A TMDL for the Ohio River was approved by the EPA on April 9, 2001 for the control of PCBs and chlordane. This TMDL applies to RMI 981-940.74 on the Ohio River. 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 number water quality criterion, or both, are consistent with the assumptions and requirements of any available waste load allocation (WLA) for the discharge prepared by the State and approved by the EPA pursuant to 40 CFR § 130.7. The TMDL document states that the production and us of PCBs were banned in the US in July 1979 and the use of chlordane in the US has been banned since April 1988. Therefore, there are no new point sources for either of these pollutants. Known, existing point sources of PCBs and/or chlordane have obtained NPDES permits with WQBELs for those pollutants. PCBs and chlordane in the Ohio River are expected to be present primarily in the sediment due to historic use and improper disposal practices. Natural attenuation is expected to reduce PCB and chlordane contamination in the Ohio River over time. The TMDL is monitoring the concentrations of PCBs and chlordane in fish, therefore, Woods Run STP will not be assigned waste load allocations or monitoring for PCBs and chlordane.

Mass Loading Limitations

Section 1.A of the Department's SOP, *Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033 Version 1.9] and table 5.3 of the Department's *Technical Guidance for the Development and Specification of Effluent Limitations* [Doc. No. 362-0400-001] establish mass loading limits for Publicly Owned Treatment Works (POTWs) for ammonia-nitrogen, $CBOD_5$, and TSS. Average monthly and average weekly limits will be imposed for ammonia-nitrogen, $CBOD_5$, and TSS. Mass loading limits are calculated according to the following equation:

$$mass\ loading\ limit\ \left(\frac{lbs}{day}\right) = average\ annual\ flow\ (MGD) * concentration\ limit\ \left(\frac{mg}{L}\right) * 8.34\ (conversion\ factor)$$

The following mass loading limits are being imposed:

Parameter	Average Monthly (lbs/day)	Weekly Average (lbs/day)
Ammonia-Nitrogen Summer (mg/L)	52,125	N/A
Ammonia-Nitrogen Winter (mg/L)	18,765	N/A
$CBOD_5$ Summer (mg/L)	41,700	62,550
$CBOD_5$ Winter (mg/L)	52,125	78,145
TSS (mg/L)	62,550	93,825

Additional Considerations

In accordance with Section I.A. of DEP's SOP for *Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033 Version 1.9], pursuant to EPA's approval of Pennsylvania's 2017 Triennial Review of Water Quality Standards and corresponding regulatory changes published in the *Pennsylvania Bulletin* on July 11, 2020 and under the authority of 25 Pa. Code § 93.7(a) and § 92.a.61, sewage dischargers will include monitoring for *E. coli*. For new and reissued permits, a monitoring frequency of 1/month will be imposed for flows ≥ 1 MGD.

In accordance with Section I.A. of DEP's SOP for established for *Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033 Version 1.9], and under the authority of 25 Pa. Code § 92a.61(b), nutrient monitoring for total nitrogen and total phosphorus will be imposed for sewage facilities with a design flow greater than 2,000 GPD. The intent of this monitoring is to establish the nutrient load of the wastewater and evaluate the impact that load may have on the quality of the receiving stream. During the last permit cycle, total nitrogen was sampled monthly with results ranging from non-detects at a MDL of 2.1 to 12.9 mg/L. Total phosphorus was sampled monthly with results ranging from 0.250 to 0.8945 mg/L. There were also several total phosphorus results that were non detect at a MDL of 3.0 mg/L. The SOP states that if the receiving stream is not impaired for nutrients, then discretion may be used in setting the monitoring frequency. The Ohio River is not impaired for nitrogen or phosphorus; therefore, a monitoring frequency of 1/month will be imposed. The frequency of monitoring is not changing from the previous permit cycle. The previous permit-imposed monitoring for the total nitrogen constituents Nitrate-Nitrite as N and Total Kjeldahl Nitrogen without justifying why the additional monitoring was imposed. Because the Ohio River is not impaired for nutrients, monitoring total nitrogen is sufficient to gauge the impact Woods Run STP's effluent has on nutrient loading to the river.

Monitoring frequency for the proposed effluent limits are based on Table 6-3, Self-Monitoring Requirements for Sewage Discharger, from DEP's *Technical Guidance for the Development and Specification of Effluent Limitations* [Doc. No. 362-0400-001]. No changes are being made to sampling frequency during this permit cycle.

Conventional concentration and mass loading limits as well toxic concentration and mass loading limits are rounded in accordance with the guidelines in Chapter 5 Section C.2. of DEP's *Technical Guidance for the Development and Specification of Effluent Limitations* [Doc. No. 362-0400-001]. Please note that the average weekly concentration and mass loading limits for $CBOD_5$ have changed to be consistent with the rounding policy.

Table 5.3 DEP's *Technical Guidance for the Development and Specification of Effluent Limitations* [DOC. No 362-0400-001] documents that for Publicly Owned Treatment Works (POTW)s, conventional pollutants should receive average monthly, weekly average, and instantaneous maximum concentration limits. These limits have been imposed for ammonia-nitrogen, $CBOD_5$, DO, and TSS.

Influent Monitoring

Section IV.F.2 of DEP's SOP for *New and Reissuance Sewage Individual NPDES Permit Applications* [SOP No. BCW-PMT-002 Version 2.0] establishes influent BOD_5 and TSS monitoring for POTWs. The intent of influent BOD_5 and TSS monitoring is to verify compliance with the secondary treatment requirement of 85% removal defined in 40 CFR §133.102. No changes have been made to the effluent monitoring during this permit renewal.

Per-and Polyfluoroalkyl Substances (PFAS)

In February 2024, DEP implemented a new PFAS monitoring initiative consistent with EPA's memorandum that provides guidance for addressing PFAS in treated effluent discharges permitted under the NPDES program. PFAS are a family of synthetic organic chemicals containing a chain of strong carbon-fluorine bonds. PFAS are resistant to biodegradation, photooxidation, direct photolysis, and hydrolysis. Because PFAS does not readily degrade by natural processes, it accumulates over time. According to the United States Department of Health and Human Services' Agency for Toxic Substances and Disease Registry (ATSDR), the environmental persistence and mobility of PFAS, combined with decades of widespread use, have resulted in surface water, groundwater, drinking water, rainwater, solid, sediment, ice caps, outdoor and indoor air, plants, animal tissue, and human blood serum contamination across the globe. ATSDR also reports that exposure to certain PFAS can lead to adverse human health impacts. Due to their durability, toxicity, persistence, and pervasiveness, PFAS have emerged as a potentially significant pollutant of concern for sewage treatment plants.

In accordance with Section II.G. of DEP's SOP for *Establishing Effluent Limitations for Individual Sewage Permits* [BCQ-PMT-033] and under the authority of 25 Pa. Code § 92.a.61, DEP is imposing monitoring for a subset of common/well-studied PFAS to help understand the extent of PFAS contamination throughout the Commonwealth and the extent to which point source dischargers under the NPDES program contribute. These PFAS include Perfluorooctanoic Acid

(PFOA), Perfluoroctanesulfonic Acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene Oxide Dimer Acid (HFPO-DA).

ALCOSAN submitted their NPDES Permit renewal application prior to August 5, 2024 and are therefore not required to sample for PFOA, PFOS, PFBS, and HFPO-DA as part of the renewal sampling. Woods Run STP has 18 categorical users that fall into industries that EPA believes may be a source of PFAS. Those industries include organic chemicals, plastics & synthetic fibers (OCPSF), metal finishing, and electroplating. Quarterly monitoring for PFOA, PFOS, PFBS, and HFPO-DA is therefore being added to this permit. In accordance with Section II.G.3. of DEP's SOP for *Establishing Effluent Limitations for Individual Sewage Permits* [BCQ-PMT-033], a footnote has been added to the permit stating "The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS of the results in four consecutive monitoring period indicate non-detect results at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L PFOS, 3.5 ng/L for PFBS, and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees must enter a No Discharge Indicator (NODI) Code of "GG" on DMRs.

EPA Approved Pre-treatment Program

ALCOSAN has an EPA approved and administered Industrial Pretreatment Program. Part C.V. of the permits requires continued implementation of this program.

Whole Effluent Toxicity (WET)

The 2016 permit required ALCOSAN to collect discharge samples and perform WET tests to generate chronic survival and reproduction data for the cladoceran (water flea) *Cerodaphnia dubia* and chronic survival and growth data for the flathead minnow *Pimephales promelas* . The dilution series for the tests was: 4%, 9%, 30%, 60%, and 100%. The Target Instream Waste Concentration (TIWC) used to analyze the results was 9%.

Analysis of the four most recent WET tests, conducted August and September 2020, October 2021, October 2022, and October 2023 is included in Attachment F. There is no reasonable potential, therefore, no WET limits will be imposed in this permit. An annual monitoring requirement will be added to Part C.VIII.B. of the permit.

The WET Test targets assigned in the 2019 permit were based on a 1991 stream mixing study. DEP considers site specific studies to be valid for 10 years. ALCOSAN has the opportunity to complete a new stream mixing study if they object to the values calculated using default stream characteristics.

Complete mixing time is calculated as a function of discharge flow rate and receiving stream characteristics ($Q_{7\text{-}10}$ flow, velocity, width, depth, and slope). The same Stream Characteristics used to model conventional and toxic pollutants were used to define WET Test targets.

Complete mix time was calculated to be 4185 minutes. When the complete mix time is greater than 720 minutes, Chronic Partial Mix Factor is calculated using the following equation:

$$PMF_c = \left(\frac{720}{Complete\ mix\ time}\right)^{0.5}$$

The Chronic Partial Mix Factor was calculated to be 41.48%.

Chronic Instream Waste Concentration (IWCc) is calculated as a function of discharge flow, stream flow, and Chronic Partial Mix Factor according to the following equation:

$$IWC_c = \left(\frac{Q_d * 1.547}{Q_{7-10} * PMF_c}\right) + (Q_d * 1.547)$$

The Chronic Instream Waste Concentration was calculated to be 16.5%. Chronic Tests will again be imposed in the permit.

Target Chronic Instream Waste Concentration is calculated as a function of Chronic Instream Waste Concentration using the following equation:

$$TIWC_c = \frac{IWC_c}{1}$$

Target Chronic Instream Waste Concentration was calculated to be 16.47 %

The dilution series was determined using Attachment D of the Department's SOP for *Whole Effluent Toxicity (WET)* [SOP No. BPNPSM-PMT-031]. Based on a Target Chronic Instream Waste Concentration of 16%, the dilution series imposed in this permit will be 100%, 58%, 16%, 8%, and 4%.

Development of Effluent Limitations

Outfall No.	001	**Design Flow (MGD)**	295
Latitude	40º 28' 54.00"	**Longitude**	-80º 2' 58.00"
Wastewater Description:	Sewage Effluent		

ALCOSAN is currently constructing additional infrastructure at Woods Run STP as required by their CD. Once this construction is complete, the design flow will expand from 250 to 295 MGD. As a result of this expansion, effluent limitations are being re-evaluated. Appendix Z of the CD requires the expanded plant to go online October 3, 2025, therefore, effluent limits based on a design flow of 295 MGD will become effective on November 1, 2025.

Technology-Based Limitations (TBELs)

The same TBELs previously discussed for a design flow of 250 MGD apply to Woods Run STP's expanded flow.

Water Quality-Based Limitations (WQBELs)

WQM 7.0 Water Quality Modeling

Limits for ammonia-nitrogen, $CBOD_5$, and DO were reevaluated for the Woods Run STP at the expanded flow using DEP's WQM version 1.1. The same basin and stream characteristics used for the model at 250 MGD were input into the model to evaluate limits based at a design flow of 295 MGD. WQM 7.0 modeling output files are provided in Attachment B.

Discharge Characteristics		Basin/Stream Characteristics	
Parameter	**Value**	**Parameter**	**Value**
River Mile Index (RMI)	977.35	Drainage Area (Attachment A)	19400
Discharge Flow (MGD)	295	$Q_{7\text{-}10\ (cfs)}$	4730
Discharge Temp (ºC)	20	Elevation (ft)	710
Ammonia-Nitrogen (mg/L)	7	Stream Width (ft)	1214
$CBOD_5$ (mg/L)	20	Stream Depth (ft)	10
Dissolved Oxygen (mg/L)	5.0	Stream Temp (ºC)	25
		Stream pH (s.u.)	7

Modeling confirmed that the effluent limitation previously imposed are still appropriate for ammonia-nitrogen, $CBOD_5$, and DO.

Parameter	Limit (mg/l)	SBC	Model
Dissolved Oxygen	5.0	Instantaneous Minimum	WQM 7.0
Ammonia-Nitrogen (summer)	7	Average Monthly	WQM 7.0
Ammonia-Nitrogen (winter)	21	Average Monthly	WQM 7.0
$CBOD_5$ (summer)	20	Average Monthly	WQM 7.0
$CBOD_5$ (winter)	25	Average Monthly	WQM 7.0

Toxic Management Spreadsheet (TMS) Water Quality Modeling Program and Procedure for Evaluating Reasonable Potential

Toxic WQBELs were re-evaluated for the expanded flow using DEP's Toxics Management Spreadsheet Version 1.3 (TMS). With the exception of design flow, all of the same inputs discussed for a design flow of 250 were also used for the expanded flow. The only input that changed was the flow rate.

A three-year compliance schedule is being imposed for toxic pollutants. ALCOSAN is expanding their treatment plant, with the new, expanded design flow anticipated to go online October 3, 2025. The three-year compliance schedule will end after the plant expansion has gone online. Therefore, at the end of the three-year compliance period from permit effective date, the effluent limits will be imposed based on a design flow of 295 MGD.

The table below summarizes the limits generated by TMS for both design flows and how the limits change as a function of design flow.

Parameter	Limit for a design flow of 250 MGD(µg/l)	Limit for a design flow of 295 MGD(µg/l)	Change	SBC	Model
Total Dissolved Solids	2,274	2,006 (mg/L)	Limit becomes more stringent	Average Monthly	TMS Version 1.3
Chloride	Report	Report (mg/L)	Monitoring requirement is unchanged	Average Monthly	TMS Version 1.3
Total Copper	Report	Report	Monitoring requirement is unchanged	Average Monthly	TMS Version 1.3
Total Zinc	Report	Report	Monitoring requirement is unchanged	Average Monthly	TMS Version 1.3
Total Mercury	0.012	0.012	Limit is unchanged because it is equal to in-stream criteria	Average Monthly	TMS Version 1.3
Benzo(a)anthracene	0.019	0.017	Limit becomes more stringent	Average Monthly	TMS Version 1.3
Benzo(a)pyrene	0.002	0.002	Limit is unchanged because it is equal to in-stream criteria	Average Monthly	TMS Version 1.3
3,4-benzflouranthene	0.019	0.017	Limit becomes more stringent	Average Monthly	TMS Version 1.3
Benzo(k)fluoranthene	0.074	0.063	Limit becomes more stringent	Average Monthly	TMS Version 1.3
Chrysene	0.074	0.063	Limit becomes more stringent	Average Monthly	TMS Version 1.3
Dibenzo(a,h)anthracence	0.002	0.002	Limit is unchanged because it is equal to in-stream criteria	Average Monthly	TMS Version 1.3
Indeno(1,2,3-cd)pyrene	0.019	0.017	Limit becomes more stringent	Average Monthly	TMS Version 1.3
Phenanthrene	5.81	5.45	Limit becomes more stringent	Average Monthly	TMS Version 1.3
4,4 DDT	0.00003	0.00003	Limit is unchanged because it is equal to in-stream criteria	Average Monthly	TMS Version 1.3

Monitoring will be imposed from permit issuance until the end of the three-year compliance schedule for total mercury, TDS, benzo(a)anthracene, benzo(a)pyrene, 3,4-benzoflouranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, phenanthrene, and 4,4-DDT. After the end of three years, the toxic WQBELS determined by TMS for a design flow rate of 295 MGD will be imposed. A monitoring requirement for chloride, total copper, and total zinc are being imposed for the entire length of the permit.

Section III.4. of DEP's SOP for *Establishing Water Quality-based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers* [SOP No. BCW-PMT-037], requires permittees to conduct site specific studies when default data was used for modeling. Part C.VII.B. has therefore been added to the permit. Section III.5.a. of the same SOP requires the permittee to conduct a TRE if they document in the pre-draft survey that they are unaware of the source of the pollutant. Part C.VII.C. has therefore been added to the permit.

Section II.F.4. of DEP's SOP for *Establishing Effluent limitations for Individual Sewage Permits*, when a permit effluent limitation is less than the Department's target QL, a permit condition will be included documenting that the permit limit is less than the target QL and defining the QL required for permit compliance. Part C.IX. has therefore been added to the permit for the pollutants below and with the following defined QLs:

Parameter	Limit (µg/l)	SBC	Quantitation Limit
Benzo(a)anthracene	0.017	Average Monthly	2.5
Benzo(a)pyrene	0.002	Average Monthly	2.5
3,4-benzflouranthene	0.017	Average Monthly	2.5
Benzo(k)fluoranthene	0.063	Average Monthly	2.5
Chrysene	0.063	Average Monthly	2.5
Dibenzo(a,h)anthracence	0.002	Average Monthly	2.5
Indeno(1,2,3-cd)pyrene	0.017	Average Monthly	2.5
4,4 DDT	0.00003	Average Monthly	0.05

Total Residual Chlorine

DEP's TRC Spreadsheet was used to re-evaluate TRC effluent limits at the expanded design flow of 295 MGD. The only model input that changed for this re-evaluation was the discharge flow, which changed from 250 MGD to 295 MGD. TRC modeling confirmed that technology based effluent limits are still appropriate at the expanded flow.

Total Dissolved Solids (TDS)

As previously discussed, Wood Run STP is currently exempt from the 25 PA Code Chapter 95.10 treatment requirements. The treatment plant is expanding to 295 MGD during this permit cycle, and the added 45 MGD may be subject to the treatment requirements. Section 95.10 (a) (7) states that new and expanding discharge loadings of TDS equal to or less than 5,000 lbs per day, measured as an average monthly discharge over the course of a calendar year are subject to the treatment requirements. Average monthly total dissolved concentration data from May 2024 through May 2025 was evaluated. An average of the twelve-monthly values resulted in an annual average daily concentration of 575 mg/L. The average daily mass load of the increased 1 MGD flow was calculated using the following equation:

$$annual\ average\ daily\ mass\ load\ \left(\frac{lbs}{day}\right) = 45\ (MGD) * 575\ \left(\frac{mg}{L}\right) * 8.34\ (conversion\ factor)$$

Annual average mass load for the increased 45 MGD was calculated to be 215,797 lbs/day. The calculated annual average daily mass load is greater than 5,000 lbs/day, therefore, the expanded 45 MGD at Woods Run STP is subject to an effluent limitation of 2,000 mg/L in accordance with Section 95.10 (c).

Because not all flow is subject to an effluent limitation of 2,000 mg/L, a weighted limit was calculated based on the treatment requirements in Chapter 95.10 and the WQBEL for TDS as determined by the TMS model for 250 MGD.

$$\boldsymbol{Limit_{Weighted} = \frac{45\ MGD}{295\ MGD} * \left(2,000 \frac{mg}{L}\right) + \frac{250\ MGD}{295\ MGD} * \left(2,274 \frac{mg}{L}\right)}$$

The weighted limit was calculated to be 2,232 mg/L. TMS modeling determined that a WQBEL of 2,006 mg/L is necessary to protect drinking water quality at the downstream drinking water intake. The more restrictive WQBEL will therefore be imposed.

Permit Effluent Limitations to be Imposed

In accordance with Section III of DEP's SOP for *Establishing Effluent limitations for Individual Sewage Permits*, the limits to be imposed, which are provided below, represent the most stringent limitations between the TBELs, WQBELs, BAT limits, and BPJ limits, and 25 PA Code Section 95.10 treatment requirements.

Parameter	Limit (mg/l)	SBC	Model
Dissolved Oxygen	5.0	Instantaneous Minimum	BPJ
Ammonia-Nitrogen (summer)	7	Average Monthly	WQM 7.0
Ammonia-Nitrogen (winter)	21	Average Monthly	WQM 7.0
$CBOD_5$ (summer)	20	Average Monthly	WQM 7.0
$CBOD_5$ (winter)	25	Average Monthly	WQM 7.0
Total Residual Chlorine	0.5	Average Monthly	TBEL
Total Suspended Solids	30	Average Monthly	TBEL
Fecal Coliform (Recreation Season)	200 CFU/mL	Geo Mean	TBEL
Fecal Coliform (Non-Recreation Season)	2,000 CFU/mL	Geo Mean	TBEL
pH	6.0	Instantaneous Minimum	TBEL
pH	9.0	Instantaneous Maximum	TBEL
Total Dissolved Solids	2,006	Average Monthly	TMS Version 1.3
Chloride	Report	Average Monthly	TMS Version 1.3
Total Copper	Report (µg/L)	Average Monthly	TMS Version 1.3
Total Zinc	Report (µg/L)	Average Monthly	TMS Version 1.3
Acrolein	3.27 (µg/L)	Average Monthly	TMS Version 1.3
Acrylonitrile	0.85 (µg/L)	Average Monthly	TMS Version 1.3
Benzo(a)anthracene	0.017 (µg/L)	Average Monthly	TMS Version 1.3
Benzo(a)pyrene	0.002 (µg/L)	Average Monthly	TMS Version 1.3
3,4-benzflouranthene	0.017 (µg/L)	Average Monthly	TMS Version 1.3
Benzo(k)fluoranthene	0.063 (µg/L)	Average Monthly	TMS Version 1.3
Chrysene	0.063 (µg/L)	Average Monthly	TMS Version 1.3
Dibenzo(a,h)anthracence	0.002 (µg/L)	Average Monthly	TMS Version 1.3
Indeno(1,2,3-cd)pyrene	0.017 (µg/L)	Average Monthly	TMS Version 1.3
Phenanthrene	5.45 (µg/L)	Average Monthly	TMS Version 1.3
4,4 DDT	0.00003 (µg/L)	Average Monthly	TMS Version 1.3

Mass Loading Limitations

Mass loading average monthly and average weekly limits were reevaluated at a design flow of 295 MGD for ammonia-nitrogen, $CBOD_5$, and TSS. Mass loading limits are calculated according to the following equation:

$$mass\ loading\ limit\ \left(\frac{lbs}{day}\right) = average\ annual\ flow\ (MGD) * concentration\ limit\ \left(\frac{mg}{L}\right) * 8.34\ (conversion\ factor)$$

The following mass loading limits are being imposed:

Parameter	Average Monthly (lbs/day)	Weekly Average (lbs/day)
Ammonia-Nitrogen Summer (mg/L)	51,666	N/A
Ammonia-Nitrogen Winter (mg/L)	17,222	N/A
$CBOD_5$ Summer (mg/L)	49,206	73,805
$CBOD_5$ Winter (mg/L)	61,505	91,030
TSS (mg/L)	73,805	110,710

Additional Considerations

The same additional considerations were made for the expanded design flow.

Influent Monitoring

Influent monitoring will continue to be imposed for the expanded design flow at the frequency imposed for a design flow of 250 MGD.

Ohio River TMDL

The expanded flow does not justify additional considerations based on the Ohio River TMDL.

Per-and Polyfluoroalkyl Substances (PFAS)

Monitoring requirements for PFAS are not impacted by the expansion of the design flow of Woods Run STP.

Whole Effluent Toxicity (WET)

The WET Test targets are being re-evaluated for the expanded design flow of 295 MGD.

Complete mixing time is calculated as a function of discharge flow rate and receiving stream characteristics ($Q_{7\text{-}10}$ flow, velocity, width, depth, and slope). The same Stream Characteristics used to model conventional and toxic pollutants were used to define WET Test targets.

Complete mix time was calculated to be 4073 minutes. When the complete mix time is greater than 720 minutes, Chronic Partial Mix Factor is calculated using the following equation:

$$PMF_c = \left(\frac{720}{Complete\ mix\ time}\right)^{0.5}$$

The Chronic Partial Mix Factor was calculated to be 42.04%.

Chronic Instream Waste Concentration (IWCc) is calculated as a function of discharge flow, stream flow, and Chronic Partial Mix Factor according to the following equation:

$$IWC_c = \left(\frac{Q_d * 1.547}{Q_{7-10} * PMF_c}\right) + (Q_d * 1.547)$$

The Chronic Instream Waste Concentration was calculated to be 18.6%. Chronic Tests will again be imposed in the permit.

Target Chronic Instream Waste Concentration is calculated as a function of Chronic Instream Waste Concentration using the following equation:

$$TIWC_c = \frac{IWC_c}{1}$$

Target Chronic Instream Waste Concentration was calculated to be 18.6%

The dilution series as determined using Attachment D of the Department's SOP for *Whole Effluent Toxicity (WET)* [SOP No. BPNPSM-PMT-031]. Based on a Target Chronic Instream Waste Concentration of 19%, the dilution series imposed for the expanded flow will be 100%, 60%, 19%, 10%, and 5%.

Development of Effluent Limitations

Outfall No. 002 **Design Flow (MGD)** 305
Latitude 40º 28' 28.10" **Longitude** -80º 2' 42.68"
Wastewater Description: Treated Combined Sewer Overflow

ALCOSAN has determined that it is not feasible to treat all of the wet weather flow it receives with secondary treatment. As a result, they have calculated a "core flow" rate that it can reasonably treat. That flow is 295 MGD. Additionally, ALCOSAN is in the process of upgrading the Woods Run Treatment Plant to be able to provide primary treatment and disinfection for 305 MGD of additional wet weather flow prior to discharging it through Outfall 002 to the Ohio River.

Technology-Based Limitations (TBELs)

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
Flow (MGD)	Report	Average Monthly		92a.27, 92a.61
$CBOD_5$	Report	Average Monthly		92a.61
Total Suspended Solids	Report	Average Monthly		92a.61
Total Residual Chlorine	0.5	Average Monthly		92a.48(b)(2)
Ammonia-Nitrogen	Report	Average Monthly		92a.61
pH	6.0 – 9.0 S.U.	Min – Max		95.2(1)
Total Nitrogen	Report	Average Monthly		92a.61
Total Phosphorus	Report	Average Monthly		92a.61
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)

Best Professional Judgement (BPJ)

In addition to a 295 MGD design flow, Woods Run STP is designed to provide primary treatment and disinfection to an additional 305 MGD of wet weather flow. This additional treatment is intended to comply with Appendix T Section 1.e. of the 2019 CD. Based on the CD, effluent must meet a minimum of:

- Primary clarification (Removal of floatables and settleable solids may be achieved by any combination of treatment technologies or methods that are shown to be equivalent to primary clarification.);
- Disinfection of effluent, if necessary, to meet WQS, protect designated uses and protect human health, including removal of harmful disinfection chemical residuals, where necessary.

In an effort to provide DEP with a metric to verify proper operation and maintenance of the treatment system, minimum percent removal requirements will be imposed for $CBOD_5$ and TSS.

Section 62.21 of DEP's *Domestic Wastewater Facilities Manual* [Doc. No. 362-0300-001] documents that "A BOD removal of 30 percent to 35 percent will indicate efficient primary treatment. Similarly, page 396 of the fourth edition of *Wastewater Engineering Treatment and Reuse* by Metcalf and Eddy states, "Efficiently designed and operated sedimentation tanks should remove … 25 to 40 percent of BOD". Based on these references, a best professional judgment minimum percent removal limit of 35% is being imposed at outfall 002. Percent removal must be calculated using influent and effluent monitoring results, therefore, influent and effluent $CBOD_5$ monitoring is also being imposed at outfall 002.

Page 396 of the fourth edition of *Wastewater Engineering Treatment and Reuse* by Metcalf and Eddy states, "Efficiently designed and operated sedimentation tanks should remove 50 to 70 percent of suspended solids." Based on this reference, a best professional judgement minimum percent removal limit of 60% is being imposed at outfall 002. Percent

removal must be calculated using influent and effluent monitoring results, therefore, influent and effluent $CBOD_5$ monitoring is also being imposed at outfall 002.

Additional Considerations

In accordance with Section 1.A. of the Department's SOP for *Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033], Pursuant to EPA's approval of Pennsylvania's 2017 Triennial Review of Water Quality Standards and corresponding regulatory changes published in the *PA Bulletin* on July 11, 2020, and under the authority of 25 Pa.Code §92.a61, sewage discharges will include monitoring for *E. coli* for new or reissued permits, a monitoring frequency of 1/month when discharging will be imposed for facilities with a design flow of ≥ 1MGD.

In accordance with Section IV.F.2 of the Department's SOP for *Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033 Version 1.9], and under the authority of 25 Pa. Code § 92a.61(b), nutrient monitoring for total nitrogen and total phosphorus will be imposed. The intent of this monitoring is to establish the nutrient load of the wastewater and evaluate the impact that load may have on the quality of the receiving stream. The SOP states that a monitoring frequency shall be imposed equivalent to that imposed or conventional pollutants if the facility discharges to a nutrient impaired stream or a lesser frequency if the receiving stream is not nutrient-impaired. The receiving stream, the Ohio River, is not impaired for nutrients, therefore a monitoring frequency of 1/month when discharging will be imposed.

In accordance with Section IV.F.2 of the Department's SOP for *New and Reissuance Sewage Individual NPDES Permit Applications* [SOP No. BCW-PMT-002 Version 2.0] for POTWs with design flows greater than 2,000 GPD, influent BOD_5 and TSS monitoring must be established in the permit at a frequency and sample type equivalent to that imposed for the effluent parameters.

Monitoring frequency for the proposed effluent limitations are typically based on Table 6-3. Self-Monitoring Requirements for Sewage Discharges, from the Department's *Technical Guidance for the Development and Specification of Effluent Limitations* [Doc No.362-0400-001]. The bypass at Woods Run STP has a discharge rate of 305 MGD. Based on Table 6-3, a sampling frequency of daily when discharging will be imposed.

Total Residual Chlorine

DEP's TRC Spreadsheet was used to evaluate TRC effluent limits for the bypass at Woods Run STP. In accordance with the Department's SOP for *Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033 Version 1.9], default values of 0.3 mg/L and 0 mg/L for in-stream and discharge chlorine demand were used. Additionally, a discharge flow of 305 MGD and a Q_{7-10} of 4730 cfs were used. The TRC Spreadsheet confirmed that a TBEL for TRC is adequate to protect water quality at the bypass.

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 October 31, 2025.

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)	250	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/shift	Grab
DO	XXX	XXX	5.0 Inst Min	5.5 Min Mo Avg	XXX	XXX	1/shift	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/shift	Grab
$CBOD_5$ Nov 1 - Apr 30	52125	78145	XXX	25.0	37.0	50	1/day	24-Hr Composite
$CBOD_5$ May 1 - Oct 31	41700	62550	XXX	20.0	30.0	40	1/day	24-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	1/day	24-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	1/day	24-Hr Composite
TSS	62550	93825	XXX	30.0	45.0	60	1/day	24-Hr Composite
Total Dissolved Solids	Report	Report	XXX	Report	Report	Report	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Nov 1 - Mar 31	XXX	XXX	XXX	2000	XXX	XXX	1/day	Grab
Fecal Coliform (No./100 ml) Apr 1 - Oct 31	XXX	XXX	XXX	200 Geo Mean	XXX	400	1/day	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/month	24-Hr Composite

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 Nov 1 - May 31	52125	78187	XXX	25.0	37.5	50	1/day	24-Hr Composite
Ammonia-Nitrogen Jun 1 - Oct 31	18765	28147	XXX	9.0	13.5	18	1/day	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/month	24-Hr Composite
PFOA (ng/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Grab
PFOS (ng/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Grab
PFBS (ng/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Grab

Compliance Sampling Location: Outfall 001

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 001, Effective Period: November 1, 2025 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)	295	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/shift	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/shift	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/shift	Grab
$CBOD_5$ Nov 1 - Apr 30	61505	91030	XXX	25.0	37.0	50	1/day	24-Hr Composite
$CBOD_5$ May 1 - Oct 31	49206	73805	XXX	20.0	30.0	40	1/day	24-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	1/day	24-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	1/day	24-Hr Composite
TSS	73805	110710	XXX	30.0	45.0	60	1/day	24-Hr Composite
Fecal Coliform (No./100 ml) Nov 1 - Mar 31	XXX	XXX	XXX	2000 Geo Mean	XXX	XXX	1/day	Grab
Fecal Coliform (No./100 ml) Apr 1 - Oct 31	XXX	XXX	XXX	200 Geo Mean	XXX	400	1/day	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/month	24-Hr Composite
Ammonia-Nitrogen Nov 1 - May 31	51666	XXX	XXX	21.0	31.0	42.0	1/day	24-Hr Composite
Ammonia-Nitrogen Jun 1 - Oct 31	17222	XXX	XXX	7.0	10.5	14.0	1/day	24-Hr Composite

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	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/month	24-Hr Composite
PFOA (ng/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Grab
PFOS (ng/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Grab
PFBS (ng/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Grab

Compliance Sampling Location: Outfall 001

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 001, Effective Period: Permit Effective Date through Three Years Following Permit Effective 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	Daily Maximum	Instant. Maximum		
Total Dissolved Solids	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Copper (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Sulfate	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Mercury (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Zinc (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
4,4-DDT (ng/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Benzo(a)-Anthracene (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Benzo(a)Pyrene (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Benzo(k)Fluor-anthene (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
3,4-Benzo-fluoranthene (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Chloride	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Bromide	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Chrysene (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Dibenzo(a,h)-Anthracene (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite

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	Daily Maximum	Instant. Maximum		
Indeno(1,2,3-cd)Pyrene (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Phenanthrene (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite

Compliance Sampling Location: Outfall 001

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 001, Effective Period: Three Years Following Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2)	Required
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Total Dissolved Solids	4935645	7700399	XXX	2006.0	3130.0	5015	1/week	24-Hr Composite
Total Copper	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Sulfate	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Mercury (ug/L)	0.03	0.046	XXX	0.012	0.019	0.03	1/week	24-Hr Composite
Total Zinc	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
4,4-DDT (ng/L)	0.00007	0.0001	XXX	0.03	0.05	0.08	1/week	24-Hr Composite
Benzo(a)-Anthracene (ug/L)	0.041	0.064	XXX	0.017	0.026	0.042	1/week	24-Hr Composite
Benzo(a)Pyrene (ug/L)	0.004	0.006	XXX	0.017	0.003	0.004	1/week	24-Hr Composite
Benzo(k)Fluor-anthene (ug/L)	0.16	0.24 Wkly Avg	XXX	0.063	0.099	0.16	1/week	24-Hr Composite
3,4-Benzo-fluoranthene (ug/L)	0.041	0.064	XXX	0.017	0.026	0.042	1/week	24-Hr Composite
Chloride	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Bromide	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Chrysene (ug/L)	0.16	0.24	XXX	0.063	0.099	0.16	1/week	24-Hr Composite
Dibenzo(a,h)-Anthracene (ug/L)	0.004	0.006	XXX	0.002	0.003	0.004	1/week	24-Hr Composite
Indeno(1,2,3-cd)Pyrene (ug/L)	0.041	0.064	XXX	0.017	0.026	0.042	1/week	24-Hr Composite

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	Daily Maximum	Instant. Maximum		
Phenanthrene (ug/L)	13.4	20.9	XXX	5.45	8.5	13.6	1/week	24-Hr Composite

Compliance Sampling Location: Outfall 001

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)	Required
	Average Monthly	Average Weekly	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Daily when Discharging	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	Daily when Discharging	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.5	Daily when Discharging	Grab
$CBOD_5$ Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	Report	Daily when Discharging	Grab
$CBOD_5$	XXX	XXX	XXX	Report	XXX	Report	Daily when Discharging	Grab
$CBOD_5$ % Removal (%)	XXX	XXX	35.00	XXX	XXX	XXX	Daily when Discharging	Grab
TSS	XXX	XXX	XXX	Report	Report	XXX	Daily when Discharging	Grab
TSS Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	Report	Daily when Discharging	Grab
TSS % Removal (%)	XXX	XXX	60	XXX	XXX	XXX	Daily when Discharging	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	Daily when Discharging	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	Daily when Discharging	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	Monthly When Discharging	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Ammonia-Nitrogen	XXX	XXX	XXX	Report	XXX	Report	Daily when Discharging	Grab

Outfall 002 , 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	Average Weekly	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Phosphorus	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab

Compliance Sampling Location: Outfall 002

Other Comments:

ATTACHMENT A

USGS Stream Stats Output Files

Discharge Point Outfall 001

StreamStats Report

Region ID: PA
Workspace ID: PA20230825133353382000
Clicked Point (Latitude, Longitude): 40.48107, -80.05146
Time: 2023-08-25 09:34:33 -0400

Collapse All

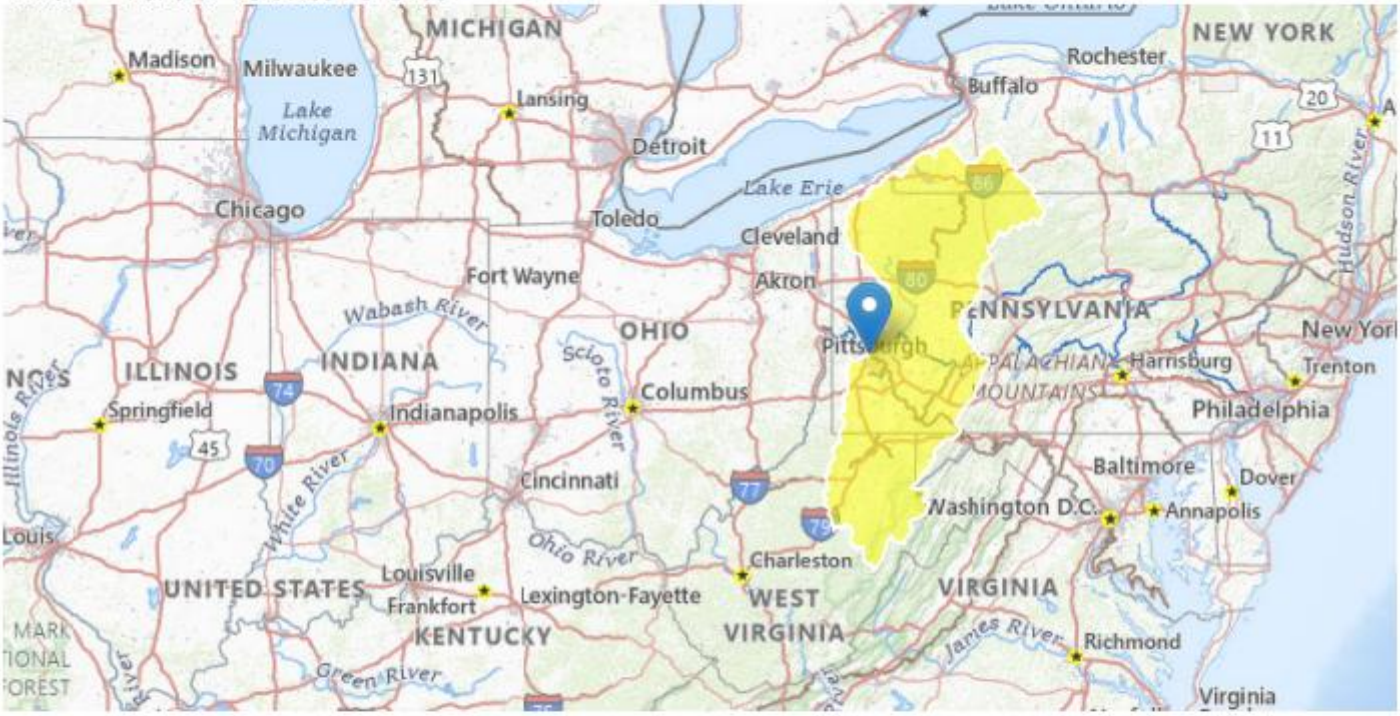
Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	19400	square miles
ELEV	Mean Basin Elevation	1676	feet
PRECIP	Mean Annual Precipitation	45	inches

Discharge Point Outfall 002

StreamStats Report

Region ID: PA
Workspace ID: PA20250710134947126000
Clicked Point (Latitude, Longitude): 40.47712, -80.04806
Time: 2025-07-10 09:50:25 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	19400	square miles
ELEV	Mean Basin Elevation	1676	feet
PRECIP	Mean Annual Precipitation	45	inches

Downstream Drinking Water Intake

StreamStats Report

Region ID: PA
Workspace ID: PA20230829160950641000
Clicked Point (Latitude, Longitude): 40.49409, -80.07033
Time: 2023-08-29 12:10:29 -0400

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	19400	square miles
ELEV	Mean Basin Elevation	1676	feet
PRECIP	Mean Annual Precipitation	45	inches

Pennsylvania State Line

StreamStats Report

Region ID: PA
Workspace ID: PA20241223123336432000
Clicked Point (Latitude, Longitude): 40.63871, -80.51687
Time: 2024-12-23 07:34:10 -0500

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	23500	square miles
ELEV	Mean Basin Elevation	1579	feet
PRECIP	Mean Annual Precipitation	44	inches

ATTACHMENT B

WQM 7.0 Modeling Results

250 MGD
Summer Modeling

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
20E	32317	OHIO RIVER	**977.800**	710.00	19400.00	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	0.000	0.00	4730.00	0.000	0.000	0.0	1214.00	10.00	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
Woods Run STP	PA002584	0.0000	250.0000	0.0000	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	20.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	9.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20E	32317	OHIO RIVER	**926.700**	664.50	23500.00	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	0.000	0.00	5880.00	0.000	0.000	0.0	0.00	10.00	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	0.00	7.00

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO 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												
977.800	4730.00	0.00	4730.00	386.75	0.00017	10	1214	121.4	0.42	7.409	24.62	7.00
Q1-10 Flow												
977.800	3027.20	0.00	3027.20	386.75	0.00017	NA	NA	NA	0.28	11.105	24.43	7.00
Q30-10 Flow												
977.800	6432.80	0.00	6432.80	386.75	0.00017	NA	NA	NA	0.56	5.559	24.72	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5.5		

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	5.5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO 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
977.800	Woods Run STP	11.61	18	11.61	18	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
977.800	Woods Run STP	1.39	9	1.39	9	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)		
977.80	Woods Run STP	20	20	9	9	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
977.800	250.000	24.622	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1214.000	10.000	121.400	0.421
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.36	0.057	0.68	0.999
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.995	0.296	O'Connor	5.5
Reach Travel Time (days)			
7.409			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.741	3.19	0.32	6.41
1.482	3.03	0.15	5.90
2.223	2.88	0.07	5.87
2.964	2.73	0.04	6.02
3.705	2.59	0.02	6.23
4.445	2.46	0.01	6.45
5.186	2.34	0.00	6.66
5.927	2.22	0.00	6.84
6.668	2.11	0.00	7.00
7.409	2.00	0.00	7.13

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO 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)
977.800	Woods Run STP	PA002584	0.000	CBOD5	20		
				NH3-N	9	18	
				Dissolved Oxygen			5

250 MGD
Winter Modeling

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
20E	32317	OHIO RIVER	**977.800**	710.00	19400.00	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	0.000	0.00	9460.00	0.000	0.000	0.0	1214.00	10.00	5.00	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
Woods Run STP	PA002584	0.0000	250.0000	0.0000	0.000	15.00	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	12.51	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20E	32317	OHIO RIVER	**926.700**	664.50	23500.00	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	0.000	0.00	11760.00	0.000	0.000	0.0	0.00	10.00	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	0.00	7.00

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO 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												
977.800	9460.00	0.00	9460.00	386.75	0.00017	10	1214	121.4	0.81	3.850	5.39	7.00
Q1-10 Flow												
977.800	6054.40	0.00	6054.40	386.75	0.00017	NA	NA	NA	0.53	5.886	5.60	7.00
Q30-10 Flow												
977.800	12865.60	0.00	12865.60	386.75	0.00017	NA	NA	NA	1.09	2.861	5.29	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5.5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO 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
977.800	Woods Run STP	24.1	50	24.1	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
977.800	Woods Run STP	4.36	25	4.36	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)		
977.80	Woods Run STP	25	25	25	25	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
977.800	250.000	5.393	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1214.000	10.000	121.400	0.811
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.90	0.189	0.98	0.227
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
12.215	0.260	O'Connor	5.5
Reach Travel Time (days)			
3.850			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.385	2.80	0.90	11.34
0.770	2.69	0.82	11.34
1.155	2.60	0.76	11.03
1.540	2.50	0.69	10.77
1.925	2.41	0.63	10.56
2.310	2.32	0.58	10.40
2.695	2.24	0.53	10.27
3.080	2.15	0.49	10.18
3.465	2.08	0.45	10.12
3.850	2.00	0.41	10.09

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO 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)
977.800	Woods Run STP	PA002584	0.000	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

295 MGD
Summer Modeling

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
20E	32317	OHIO RIVER	**977.800**	710.00	19400.00	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	0.000	0.00	4730.00	0.000	0.000	0.0	1214.00	10.00	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
Woods Run STP	PA002584	0.0000	295.0000	0.0000	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	20.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	7.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20E	32317	OHIO RIVER	**926.700**	664.50	23500.00	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	0.000	0.00	5880.00	0.000	0.000	0.0	0.00	10.00	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	0.00	7.00

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO 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												
977.800	4730.00	0.00	4730.00	456.365	0.00017	10	1214	121.4	0.43	7.310	24.56	7.00
Q1-10 Flow												
977.800	3027.20	0.00	3027.20	456.365	0.00017	NA	NA	NA	0.29	10.883	24.34	7.00
Q30-10 Flow												
977.800	6432.80	0.00	6432.80	456.365	0.00017	NA	NA	NA	0.57	5.503	24.67	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5.5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO 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
977.800	Woods Run STP	11.69	14	11.69	14	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
977.800	Woods Run STP	1.4	7	1.4	7	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)		
977.80	Woods Run STP	20	20	7	7	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
977.800	295.000	24.560	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1214.000	10.000	121.400	0.427
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.58	0.065	0.62	0.994
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.955	0.297	O'Connor	5.5
Reach Travel Time (days)			
7.310			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.731	3.38	0.30	6.49
1.462	3.19	0.14	5.99
2.193	3.01	0.07	5.92
2.924	2.84	0.03	6.04
3.655	2.68	0.02	6.22
4.386	2.53	0.01	6.41
5.117	2.38	0.00	6.60
5.848	2.25	0.00	6.77
6.579	2.12	0.00	6.92
7.310	2.00	0.00	7.05

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO 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)
977.800	Woods Run STP	PA002584	0.000	CBOD5	20		
				NH3-N	7	14	
				Dissolved Oxygen			5

295 MGD
Winter Modeling

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
20E	32317	OHIO RIVER	**977.800**	710.00	19400.00	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	0.000	0.00	9460.00	0.000	0.000	0.0	1214.00	10.00	5.00	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
Woods Run STP	PA002584	0.0000	295.0000	0.0000	0.000	15.00	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	12.51	0.00	0.00
NH3-N	21.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20E	32317	OHIO RIVER	**926.700**	664.50	23500.00	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	0.000	0.00	11760.00	0.000	0.000	0.0	0.00	10.00	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	0.00	7.00

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO 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												
977.800	9460.00	0.00	9460.00	456.365	0.00017	10	1214	121.4	0.82	3.823	5.46	7.00
Q1-10 Flow												
977.800	6054.40	0.00	6054.40	456.365	0.00017	NA	NA	NA	0.54	5.823	5.70	7.00
Q30-10 Flow												
977.800	12865.60	0.00	12865.60	456.365	0.00017	NA	NA	NA	1.10	2.846	5.34	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5.5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO 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
977.800	Woods Run STP	24.1	42	24.1	42	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
977.800	Woods Run STP	4.36	21	4.36	21	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)		
977.80	Woods Run STP	25	25	21	21	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
977.800	295.000	5.460	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1214.000	10.000	121.400	0.817
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.06	0.217	0.97	0.229
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
12.164	0.261	O'Connor	5.5
Reach Travel Time (days)			
3.823			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.382	2.93	0.89	11.32
0.765	2.81	0.81	11.26
1.147	2.69	0.74	10.92
1.529	2.58	0.68	10.65
1.912	2.47	0.62	10.43
2.294	2.37	0.57	10.26
2.676	2.27	0.52	10.13
3.058	2.18	0.48	10.04
3.441	2.09	0.44	9.98
3.823	2.00	0.40	9.94

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO 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)
977.800	Woods Run STP	PA002584	0.000	CBOD5	25		
				NH3-N	21	42	
				Dissolved Oxygen			5

ATTACHMENT C

ALCOSAN's Pre-Draft Response

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Clean Water

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

Permittee Name: **ALCOSAN** Permit No.: **PA0025984**

Pollutant(s) identified by DEP that may require WQBELs: See attached letter dated September 11, 2023

Is the permittee aware of the source(s) of the pollutant(s)? ☐ Yes ☒ No ☐ Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)? ☐ Yes ☒ No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now? ☐ Yes ☐ No ☒ Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs: ☒ Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? ☒ Yes ☐ No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have not been submitted to DEP, please attach to this survey.

☐	Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
☒	Discharge and background Total Hardness concentrations (metals)	Year(s) Studied: 2000 to present- ORSANCO data
☒	Background / ambient pollutant concentrations	Year(s) Studied: 2006-2011 baseline WQ samples for total hardness.
☐	Chemical translator(s) (metals)	Year(s) Studied:
☒	Slope and width of receiving waters	Year(s) Studied: CSO Outfall Monitoring Data Report submitted to PA DEP in 2011.
☒	Velocity of receiving waters at design conditions	Year(s) Studied: USGS Report in collaboration with ALCOSAN-2006 submitted to PADEP
☒	Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
☐	Volatilization rates (highly volatile organics)	Year(s) Studied:
☐	Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied: 1991 - Report by PA DER to verify mixing of ALCOSAN discharges with the Ohio River.

Please submit this survey to the DEP regional office that is reviewing the permit application within 30 days of receipt.

ATTACHMENT D

TOXCONC Files

Chloride

Facility:	ALCOSAN
NPDES #:	PA0025984
Outfall No:	001
n (Samples/Month):	4
Reviewer/Permit Engineer:	Conrad

Parameter Name	chloride					
Units	mg/L					
Detection Limit						
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*					
07/01/20	141					
08/01/20	136					
09/01/20	124					
10/01/20	132					
11/01/20	144					
12/01/20	1180					
01/01/21	294					
02/01/21	853					
03/01/21	349					
04/01/21	213					
05/01/21	218					
06/01/21	186					
07/01/21	181					
08/01/21	175					
09/01/21	177					
10/01/21	156					
11/01/21	158					
12/01/21	152					
01/01/22	593					
02/01/22	455					
03/01/22	362					
04/01/22	232					
05/01/22	196					
06/01/22	169					
07/01/22	164					
08/01/22	157					
09/01/22	159					
10/01/22	149					
11/01/22	185					
12/01/22	195					
01/01/23	483					
02/01/23	381					
03/01/23	214					
04/01/23	174					
05/01/23	160					
06/01/23	158					
07/01/23	168					
08/01/23	151					
09/01/23	141					
10/01/23	136					
11/01/23	144					
12/01/23	189					
01/01/24	658					
02/01/24	243					
03/01/24	213					
04/01/24	183					
05/01/24	162					
06/01/24	145					
07/01/24	137					

Parameter Name	chloride					
Units	mg/L					
Detection Limit						
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*					
08/01/24	149					
09/01/24	136					
10/01/24	134					
11/01/24	136					
12/01/24	454					
01/01/25	492					
02/01/25	543					
03/01/25	254					
04/01/25	242					
05/01/25	208					
06/01/25	197					

Reviewer/Permit Engineer: Conrad

Facility:
NPDES #:
Outfall No:
n (Samples/Month): 4

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
chloride (mg/L)	Lognormal	0.5512374	442.6612921

ATTACHMENT E

TMS Model Output Files

250 MGD
TMS Model Output File

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Woods Run STP** NPDES Permit No.: **PA002584** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description:

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
250	168	7						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		1202									
	Chloride (PWS)	mg/L		458.196908			0.5598						
	Bromide	mg/L		2									
	Sulfate (PWS)	mg/L		98.4704024			0.0948						
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		76									
	Total Antimony	µg/L		0.3									
	Total Arsenic	µg/L	<	0.05									
	Total Barium	µg/L		41									
	Total Beryllium	µg/L	<	0.05									
	Total Boron	µg/L	<	200									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L	<	50									
	Hexavalent Chromium	µg/L		0.47									
	Total Cobalt	µg/L		0.39									
	Total Copper	µg/L		8.5									
	Free Cyanide	µg/L		2.7									
	Total Cyanide	µg/L	<	16									
	Dissolved Iron	µg/L		64									
	Total Iron	µg/L		480									
	Total Lead	µg/L		0.24									
	Total Manganese	µg/L		121									
	Total Mercury	µg/L		0.009									
	Total Nickel	µg/L		2.4									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L		0.55									
	Total Silver	µg/L	<	0.5									
	Total Thallium	µg/L	<	0.5									
	Total Zinc	µg/L		19									
	Total Molybdenum	µg/L	<	50									
	Acrolein	µg/L	<	1.9									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	2.5									
	Benzene	µg/L	<	0.6									
	Bromoform	µg/L	<	5									

Group 3	Carbon Tetrachloride	µg/L	<	1										
	Chlorobenzene	µg/L	<	5										
	Chlorodibromomethane	µg/L	<	0.63										
	Chloroethane	µg/L	<	5										
	2-Chloroethyl Vinyl Ether	µg/L	<	10										
	Chloroform	µg/L		5.61										
	Dichlorobromomethane	µg/L		2.1										
	1,1-Dichloroethane	µg/L	<	5										
	1,2-Dichloroethane	µg/L	<	0.57										
	1,1-Dichloroethylene	µg/L	<	5										
	1,2-Dichloropropane	µg/L	<	0.66										
	1,3-Dichloropropylene	µg/L	<	1.1										
	1,4-Dioxane	µg/L	<	2										
	Ethylbenzene	µg/L	<	5										
	Methyl Bromide	µg/L	<	5										
	Methyl Chloride	µg/L	<	5										
	Methylene Chloride	µg/L	<	5										
	1,1,2,2-Tetrachloroethane	µg/L	<	0.6										
	Tetrachloroethylene	µg/L		0.49										
	Toluene	µg/L		1.14										
	1,2-trans-Dichloroethylene	µg/L	<	5										
	1,1,1-Trichloroethane	µg/L	<	5										
	1,1,2-Trichloroethane	µg/L	<	0.45										
	Trichloroethylene	µg/L	<	0.69										
	Vinyl Chloride	µg/L	<	0.41										
Group 4	2-Chlorophenol	µg/L	<	5										
	2,4-Dichlorophenol	µg/L	<	5										
	2,4-Dimethylphenol	µg/L	<	5										
	4,6-Dinitro-o-Cresol	µg/L	<	5.1										
	2,4-Dinitrophenol	µg/L	<	10										
	2-Nitrophenol	µg/L	<	5										
	4-Nitrophenol	µg/L	<	5.1										
	p-Chloro-m-Cresol	µg/L	<	5										
	Pentachlorophenol	µg/L	<	5.1										
	Phenol	µg/L	<	5										
	2,4,6-Trichlorophenol	µg/L	<	5										
Group 5	Acenaphthene	µg/L	<	5										
	Acenaphthylene	µg/L	<	5										
	Anthracene	µg/L	<	5										
	Benzidine	µg/L	<	5										
	Benzo(a)Anthracene	µg/L		2.2										
	Benzo(a)Pyrene	µg/L		0.65										
	3,4-Benzofluoranthene	µg/L		1.7										
	Benzo(ghi)Perylene	µg/L	<	5										
	Benzo(k)Fluoranthene	µg/L		0.63										
	Bis(2-Chloroethoxy)Methane	µg/L	<	5										
	Bis(2-Chloroethyl)Ether	µg/L	<	5										
	Bis(2-Chloroisopropyl)Ether	µg/L	<	5										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	5										
	4-Bromophenyl Phenyl Ether	µg/L	<	5										
	Butyl Benzyl Phthalate	µg/L	<	5										
	2-Chloronaphthalene	µg/L	<	5										
	4-Chlorophenyl Phenyl Ether	µg/L	<	5										
	Chrysene	µg/L		2.6										
	Dibenzo(a,h)Anthrancene	µg/L		0.17										
	1,2-Dichlorobenzene	µg/L	<	5										
	1,3-Dichlorobenzene	µg/L	<	5										
	1,4-Dichlorobenzene	µg/L	<	5										
	3,3-Dichlorobenzidine	µg/L	<	5										
	Diethyl Phthalate	µg/L	<	5										
	Dimethyl Phthalate	µg/L	<	5										
	Di-n-Butyl Phthalate	µg/L	<	5										
	2,4-Dinitrotoluene	µg/L	<	5										

	2,6-Dinitrotoluene	µg/L	<	5										
	Di-n-Octyl Phthalate	µg/L	<	5										
	1,2-Diphenylhydrazine	µg/L	<	5										
	Fluoranthene	µg/L	<	5										
	Fluorene	µg/L	<	5										
	Hexachlorobenzene	µg/L	<	5										
	Hexachlorobutadiene	µg/L	<	0.18										
	Hexachlorocyclopentadiene	µg/L	<	5										
	Hexachloroethane	µg/L	<	5										
	Indeno(1,2,3-cd)Pyrene	µg/L		0.41										
	Isophorone	µg/L	<	5										
	Naphthalene	µg/L	<	5										
	Nitrobenzene	µg/L	<	5										
	n-Nitrosodimethylamine	µg/L	<	5										
	n-Nitrosodi-n-Propylamine	µg/L	<	5										
	n-Nitrosodiphenylamine	µg/L	<	5										
	Phenanthrene	µg/L		7.4										
	Pyrene	µg/L	<	5										
	1,2,4-Trichlorobenzene	µg/L	<	0.12										
Group 6	Aldrin	µg/L	<	0.0013										
	alpha-BHC	µg/L	<	0.0013										
	beta-BHC	µg/L	<	0.0029										
	gamma-BHC	µg/L	<	0.0013										
	delta BHC	µg/L	<	0.0013										
	Chlordane	µg/L	<	0.0013										
	4,4-DDT	µg/L		0.003										
	4,4-DDE	µg/L	<	0.0013										
	4,4-DDD	µg/L	<	0.0013										
	Dieldrin	µg/L	<	0.0013										
	alpha-Endosulfan	µg/L	<	0.0013										
	beta-Endosulfan	µg/L	<	0.0013										
	Endosulfan Sulfate	µg/L	<	0.0013										
	Endrin	µg/L	<	0.0013										
	Endrin Aldehyde	µg/L	<	0.0013										
	Heptachlor	µg/L	<	0.025										
	Heptachlor Epoxide	µg/L	<	0.025										
	PCB-1016	µg/L	<											
	PCB-1221	µg/L	<											
	PCB-1232	µg/L	<											
	PCB-1242	µg/L	<											
	PCB-1248	µg/L	<											
	PCB-1254	µg/L	<											
	PCB-1260	µg/L	<											
	PCBs, Total	µg/L	<											
	Toxaphene	µg/L	<	0.1										
	2,3,7,8-TCDD	ng/L	<											
Group 7	Gross Alpha	pCi/L		6.37										
	Total Beta	pCi/L		47.11										
	Radium 226/228	pCi/L	<	3.05										
	Total Strontium	µg/L	<	300										
	Total Uranium	µg/L	<	5										
	Osmotic Pressure	mOs/kg												

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Woods Run STP , NPDES Permit No. PA002584, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: Ohio River

No. Reaches to Model: 1

- ○ Statewide Criteria
- ○ Great Lakes Criteria
- ◉ ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	032317	977.35	710	19400	0.00026		Yes
End of Reach 1	032317	975.99	709.99	19400.01		40	Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	977.35		4730			1214	10	0.42				85.15	7		
End of Reach 1	975.99		4730												

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	977.35														
End of Reach 1	975.99														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Woods Run STP , NPDES Permit No. PA002584, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | (●) All ( ) Inputs ( ) Results ( ) Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.067 Analysis Hardness (mg/l): 130.82 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	1,361	
Total Antimony	0	0		0	1,100	1,100	1,995	
Total Arsenic	0	0		0	340	340	617	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	38,096	
Total Boron	0	0		0	8,100	8,100	14,694	
Total Cadmium	0	0		0	2.615	2.8	5.09	Chem Translator of 0.933 applied
Total Chromium (III)	0	0		0	709.989	2,247	4,076	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	29.6	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	172	
Total Copper	0	0		0	17.310	18.0	32.7	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	39.9	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	86.416	115	209	Chem Translator of 0.752 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	2.99	Chem Translator of 0.85 applied
Total Nickel	0	0		0	587.722	589	1,068	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	5.106	6.01	10.9	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	118	
Total Zinc	0	0		0	147.134	150	273	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	5.44	

Acrylonitrile	0	0		0	650	650	1,179	
Benzene	0	0		0	640	640	1,161	
Bromoform	0	0		0	1,800	1,800	3,265	
Carbon Tetrachloride	0	0		0	2,800	2,800	5,079	
Chlorobenzene	0	0		0	1,200	1,200	2,177	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	32,654	
Chloroform	0	0		0	1,900	1,900	3,447	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	27,211	
1,1-Dichloroethylene	0	0		0	7,500	7,500	13,606	
1,2-Dichloropropane	0	0		0	11,000	11,000	19,955	
1,3-Dichloropropylene	0	0		0	310	310	562	
Ethylbenzene	0	0		0	2,900	2,900	5,261	
Methyl Bromide	0	0		0	550	550	998	
Methyl Chloride	0	0		0	28,000	28,000	50,794	
Methylene Chloride	0	0		0	12,000	12,000	21,769	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,814	
Tetrachloroethylene	0	0		0	700	700	1,270	
Toluene	0	0		0	1,700	1,700	3,084	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	12,336	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	5,442	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	6,168	
Trichloroethylene	0	0		0	2,300	2,300	4,172	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	1,016	
2,4-Dichlorophenol	0	0		0	1,700	1,700	3,084	
2,4-Dimethylphenol	0	0		0	660	660	1,197	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	145	
2,4-Dinitrophenol	0	0		0	660	660	1,197	
2-Nitrophenol	0	0		0	8,000	8,000	14,513	
4-Nitrophenol	0	0		0	2,300	2,300	4,172	
p-Chloro-m-Cresol	0	0		0	160	160	290	
Pentachlorophenol	0	0		0	8.723	8.72	15.8	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	834	
Acenaphthene	0	0		0	83	83.0	151	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	544	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.91	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	54,423	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	8,163	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	490	
Butyl Benzyl Phthalate	0	0		0	140	140	254	

2-Chloronaphthalene	0	0		0	N/A	N/A	N/A
Chrysene	0	0		0	N/A	N/A	N/A
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A
1,2-Dichlorobenzene	0	0		0	820	820	1,488
1,3-Dichlorobenzene	0	0		0	350	350	635
1,4-Dichlorobenzene	0	0		0	730	730	1,324
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A
Diethyl Phthalate	0	0		0	4,000	4,000	7,256
Dimethyl Phthalate	0	0		0	2,500	2,500	4,535
Di-n-Butyl Phthalate	0	0		0	110	110	200
2,4-Dinitrotoluene	0	0		0	1,600	1,600	2,903
2,6-Dinitrotoluene	0	0		0	990	990	1,796
1,2-Diphenylhydrazine	0	0		0	15	15.0	27.2
Fluoranthene	0	0		0	200	200	363
Fluorene	0	0		0	N/A	N/A	N/A
Hexachlorobenzene	0	0		0	N/A	N/A	N/A
Hexachlorobutadiene	0	0		0	10	10.0	18.1
Hexachlorocyclopentadiene	0	0		0	5	5.0	9.07
Hexachloroethane	0	0		0	60	60.0	109
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A
Isophorone	0	0		0	10,000	10,000	18,141
Naphthalene	0	0		0	140	140	254
Nitrobenzene	0	0		0	4,000	4,000	7,256
n-Nitrosodimethylamine	0	0		0	17,000	17,000	30,839
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A
n-Nitrosodiphenylamine	0	0		0	300	300	544
Phenanthrene	0	0		0	5	5.0	9.07
Pyrene	0	0		0	N/A	N/A	N/A
1,2,4-Trichlorobenzene	0	0		0	130	130	236
Aldrin	0	0		0	3	3.0	5.44
alpha-BHC	0	0		0	N/A	N/A	N/A
beta-BHC	0	0		0	N/A	N/A	N/A
gamma-BHC	0	0		0	0.95	0.95	1.72
Chlordane	0	0		0	2.4	2.4	4.35
4,4-DDT	0	0		0	1.1	1.1	2.0
4,4-DDE	0	0		0	1.1	1.1	2.0
4,4-DDD	0	0		0	1.1	1.1	2.0
Dieldrin	0	0		0	0.24	0.24	0.44
alpha-Endosulfan	0	0		0	0.22	0.22	0.4
beta-Endosulfan	0	0		0	0.22	0.22	0.4
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A
Endrin	0	0		0	0.086	0.086	0.16
Endrin Aldehyde	0	0		0	N/A	N/A	N/A
Heptachlor	0	0		0	0.52	0.52	0.94
Heptachlor Epoxide	0	0		0	0.5	0.5	0.91
Toxaphene	0	0		0	0.73	0.73	1.32
Gross Alpha	0	0		0	N/A	N/A	N/A
Total Beta	0	0		0	N/A	N/A	N/A

Radium 226/228	0	0		0	N/A	N/A	N/A	
Total Strontium	0	0		0	N/A	N/A	N/A	

☑ *CFC* CCT (min): 720 PMF: 0.461 Analysis Hardness (mg/l): 97.627 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	1,461	
Total Arsenic	0	0		0	150	150	996	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	27,225	
Total Boron	0	0		0	1,600	1,600	10,624	
Total Cadmium	0	0		0	0.242	0.27	1.77	Chem Translator of 0.91 applied
Total Chromium (III)	0	0		0	72.671	84.5	561	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	69.0	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	126	
Total Copper	0	0		0	8.774	9.14	60.7	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	34.5	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	19,845	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.452	3.09	20.5	Chem Translator of 0.795 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	6.02	Chem Translator of 0.85 applied
Total Nickel	0	0		0	50.961	51.1	339	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	33.1	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	86.3	
Total Zinc	0	0		0	115.759	117	780	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	19.9	
Acrylonitrile	0	0		0	130	130	863	
Benzene	0	0		0	130	130	863	
Bromoform	0	0		0	370	370	2,457	
Carbon Tetrachloride	0	0		0	560	560	3,718	
Chlorobenzene	0	0		0	240	240	1,594	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	23,241	
Chloroform	0	0		0	390	390	2,590	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	20,584	
1,1-Dichloroethylene	0	0		0	1,500	1,500	9,960	
1,2-Dichloropropane	0	0		0	2,200	2,200	14,608	
1,3-Dichloropropylene	0	0		0	61	61.0	405	

Ethylbenzene	0	0		0	580	580	3,851	
Methyl Bromide	0	0		0	110	110	730	
Methyl Chloride	0	0		0	5,500	5,500	36,521	
Methylene Chloride	0	0		0	2,400	2,400	15,936	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	1,394	
Tetrachloroethylene	0	0		0	140	140	930	
Toluene	0	0		0	330	330	2,191	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	9,296	
1,1,1-Trichloroethane	0	0		0	610	610	4,050	
1,1,2-Trichloroethane	0	0		0	680	680	4,515	
Trichloroethylene	0	0		0	450	450	2,988	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	730	
2,4-Dichlorophenol	0	0		0	340	340	2,258	
2,4-Dimethylphenol	0	0		0	130	130	863	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	106	
2,4-Dinitrophenol	0	0		0	130	130	863	
2-Nitrophenol	0	0		0	1,600	1,600	10,624	
4-Nitrophenol	0	0		0	470	470	3,121	
p-Chloro-m-Cresol	0	0		0	500	500	3,320	
Pentachlorophenol	0	0		0	6.693	6.69	44.4	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	604	
Acenaphthene	0	0		0	17	17.0	113	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	392	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.66	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	39,841	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	6,043	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	359	
Butyl Benzyl Phthalate	0	0		0	35	35.0	232	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	1,062	
1,3-Dichlorobenzene	0	0		0	69	69.0	458	
1,4-Dichlorobenzene	0	0		0	150	150	996	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	5,312	
Dimethyl Phthalate	0	0		0	500	500	3,320	
Di-n-Butyl Phthalate	0	0		0	21	21.0	139	

2,4-Dinitrotoluene	0	0		0	320	320	2,125	
2,6-Dinitrotoluene	0	0		0	200	200	1,328	
1,2-Diphenylhydrazine	0	0		0	3	3.0	19.9	
Fluoranthene	0	0		0	40	40.0	266	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	13.3	
Hexachlorocyclopentadiene	0	0		0	1	1.0	6.64	
Hexachloroethane	0	0		0	12	12.0	79.7	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	13,944	
Naphthalene	0	0		0	43	43.0	286	
Nitrobenzene	0	0		0	810	810	5,379	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	22,577	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	392	
Phenanthrene	0	0		0	1	1.0	6.64	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	173	
Aldrin	0	0		0	0.1	0.1	0.66	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0043	0.004	0.029	
4,4-DDT	0	0		0	0.001	0.001	0.007	
4,4-DDE	0	0		0	0.001	0.001	0.007	
4,4-DDD	0	0		0	0.001	0.001	0.007	
Dieldrin	0	0		0	0.056	0.056	0.37	
alpha-Endosulfan	0	0		0	0.056	0.056	0.37	
beta-Endosulfan	0	0		0	0.056	0.056	0.37	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.036	0.036	0.24	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.0038	0.004	0.025	
Heptachlor Epoxide	0	0		0	0.0038	0.004	0.025	
Toxaphene	0	0		0	0.0002	0.0002	0.001	
Gross Alpha	0	0		0	N/A	N/A	N/A	
Total Beta	0	0		0	N/A	N/A	N/A	
Radium 226/228	0	0		0	N/A	N/A	N/A	
Total Strontium	0	0		0	N/A	N/A	N/A	

☑ ***THH*** CCT (min): ####### THH PMF: 0.461 Analysis Hardness (mg/l): N/A Analysis pH: N/A PWS PMF: 0.2901

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments

Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	2,274,111	WQC applied at RMI 975.99 with a design stream flow of 4730 cfs
Chloride (PWS)	0	0		0	250,000	250,000	1,137,056	WQC applied at RMI 975.99 with a design stream flow of 4730 cfs
Sulfate (PWS)	0	0		0	250,000	250,000	1,137,056	WQC applied at RMI 975.99 with a design stream flow of 4730 cfs
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	25.5	THH WQC applied at PWS at RMI 975.99
Total Arsenic	0	0		0	10	10.0	45.5	THH WQC applied at PWS at RMI 975.99
Total Barium	0	0		0	1,000	1,000	4,548	THH WQC applied at PWS at RMI 975.99
Total Boron	0	0		0	3,100	3,100	14,099	THH WQC applied at PWS at RMI 975.99
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	1,300	1,300	5,913	THH WQC applied at PWS at RMI 975.99
Free Cyanide	0	0		0	4	4.0	18.2	THH WQC applied at PWS at RMI 975.99
Dissolved Iron	0	0		0	300	300	1,364	THH WQC applied at PWS at RMI 975.99
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	4,548	THH WQC applied at PWS at RMI 975.99
Total Mercury	0	0		0	0.012	0.012	0.055	THH WQC applied at PWS at RMI 975.99
Total Nickel	0	0		0	610	610	2,774	THH WQC applied at PWS at RMI 975.99
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	22.7	WQC applied at RMI 975.99 with a design stream flow of 4730 cfs
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	1.09	THH WQC applied at PWS at RMI 975.99
Total Zinc	0	0		0	7,400	7,400	33,657	THH WQC applied at PWS at RMI 975.99
Acrolein	0	0		0	3	3.0	13.6	THH WQC applied at PWS at RMI 975.99
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	455	THH WQC applied at PWS at RMI 975.99
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	25.9	THH WQC applied at PWS at RMI 975.99
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	150	THH WQC applied at PWS at RMI 975.99
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	309	THH WQC applied at PWS at RMI 975.99
Methyl Bromide	0	0		0	47	47.0	214	THH WQC applied at PWS at RMI 975.99
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	

Toluene	0	0		0	57	57.0	259	THH WQC applied at PWS at RMI 975.99
1,2-trans-Dichloroethylene	0	0		0	100	100.0	455	THH WQC applied at PWS at RMI 975.99
1,1,1-Trichloroethane	0	0		0	10,000	10,000	45,482	THH WQC applied at PWS at RMI 975.99
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A	
Trichloroethylene	0	0		0	N/A	N/A	N/A	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	30	30.0	136	THH WQC applied at PWS at RMI 975.99
2,4-Dichlorophenol	0	0		0	10	10.0	45.5	THH WQC applied at PWS at RMI 975.99
2,4-Dimethylphenol	0	0		0	100	100.0	455	THH WQC applied at PWS at RMI 975.99
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	9.1	THH WQC applied at PWS at RMI 975.99
2,4-Dinitrophenol	0	0		0	10	10.0	45.5	THH WQC applied at PWS at RMI 975.99
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	18,193	THH WQC applied at PWS at RMI 975.99
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	318	THH WQC applied at PWS at RMI 975.99
Anthracene	0	0		0	300	300	1,364	THH WQC applied at PWS at RMI 975.99
Benzidine	0	0		0	N/A	N/A	N/A	
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	910	THH WQC applied at PWS at RMI 975.99
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	0.45	THH WQC applied at PWS at RMI 975.99
2-Chloronaphthalene	0	0		0	800	800	3,639	THH WQC applied at PWS at RMI 975.99
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	420	420	1,910	THH WQC applied at PWS at RMI 975.99
1,3-Dichlorobenzene	0	0		0	7	7.0	31.8	THH WQC applied at PWS at RMI 975.99
1,4-Dichlorobenzene	0	0		0	63	63.0	287	THH WQC applied at PWS at RMI 975.99
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	2,729	THH WQC applied at PWS at RMI 975.99
Dimethyl Phthalate	0	0		0	2,000	2,000	9,096	THH WQC applied at PWS at RMI 975.99
Di-n-Butyl Phthalate	0	0		0	20	20.0	91.0	THH WQC applied at PWS at RMI 975.99
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A	
Fluoranthene	0	0		0	20	20.0	91.0	THH WQC applied at PWS at RMI 975.99
Fluorene	0	0		0	50	50.0	227	THH WQC applied at PWS at RMI 975.99
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	

Hexachlorobutadiene	0	0	0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0	0	4	4.0	18.2	THH WQC applied at PWS at RMI 975.99
Hexachloroethane	0	0	0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0	0	N/A	N/A	N/A	
Isophorone	0	0	0	34	34.0	155	THH WQC applied at PWS at RMI 975.99
Naphthalene	0	0	0	N/A	N/A	N/A	
Nitrobenzene	0	0	0	10	10.0	45.5	THH WQC applied at PWS at RMI 975.99
n-Nitrosodimethylamine	0	0	0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0	0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0	0	N/A	N/A	N/A	
Phenanthrene	0	0	0	N/A	N/A	N/A	
Pyrene	0	0	0	20	20.0	91.0	THH WQC applied at PWS at RMI 975.99
1,2,4-Trichlorobenzene	0	0	0	0.07	0.07	0.32	THH WQC applied at PWS at RMI 975.99
Aldrin	0	0	0	N/A	N/A	N/A	
alpha-BHC	0	0	0	N/A	N/A	N/A	
beta-BHC	0	0	0	N/A	N/A	N/A	
gamma-BHC	0	0	0	0.98	0.98	4.46	THH WQC applied at PWS at RMI 975.99
Chlordane	0	0	0	N/A	N/A	N/A	
4,4-DDT	0	0	0	N/A	N/A	N/A	
4,4-DDE	0	0	0	N/A	N/A	N/A	
4,4-DDD	0	0	0	N/A	N/A	N/A	
Dieldrin	0	0	0	N/A	N/A	N/A	
alpha-Endosulfan	0	0	0	20	20.0	91.0	THH WQC applied at PWS at RMI 975.99
beta-Endosulfan	0	0	0	20	20.0	91.0	THH WQC applied at PWS at RMI 975.99
Endosulfan Sulfate	0	0	0	20	20.0	91.0	THH WQC applied at PWS at RMI 975.99
Endrin	0	0	0	0.03	0.03	0.14	THH WQC applied at PWS at RMI 975.99
Endrin Aldehyde	0	0	0	0.29	0.29	1.32	THH WQC applied at PWS at RMI 975.99
Heptachlor	0	0	0	N/A	N/A	N/A	
Heptachlor Epoxide	0	0	0	N/A	N/A	N/A	
Toxaphene	0	0	0	N/A	N/A	N/A	
Gross Alpha	0	0	0	N/A	N/A	N/A	
Total Beta	0	0	0	N/A	N/A	N/A	
Radium 226/228	0	0	0	N/A	N/A	N/A	
Total Strontium	0	0	0	4,000	4,000	18,193	THH WQC applied at PWS at RMI 975.99

☑ *CRL* CCT (min): 720 PMF: 0.591 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0	0	N/A	N/A	N/A		
Chloride (PWS)	0	0	0	N/A	N/A	N/A		
Sulfate (PWS)	0	0	0	N/A	N/A	N/A		
Total Aluminum	0	0	0	N/A	N/A	N/A		
Total Antimony	0	0	0	N/A	N/A	N/A		
Total Arsenic	0	0	0	N/A	N/A	N/A		

Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	50	50.0	974	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.051	0.051	0.99	
Benzene	0	0		0	0.58	0.58	11.3	
Bromoform	0	0		0	4.3	4.3	83.8	
Carbon Tetrachloride	0	0		0	0.4	0.4	7.79	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.4	0.4	7.79	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.55	0.55	10.7	
1,2-Dichloroethane	0	0		0	0.38	0.38	7.4	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.5	0.5	9.74	
1,3-Dichloropropylene	0	0		0	0.27	0.27	5.26	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	4.6	4.6	89.6	
1,1,2,2-Tetrachloroethane	0	0		0	0.17	0.17	3.31	
Tetrachloroethylene	0	0		0	0.69	0.69	13.4	
Toluene	0	0		0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0		0	0.55	0.55	10.7	
Trichloroethylene	0	0		0	0.6	0.6	11.7	
Vinyl Chloride	0	0		0	0.02	0.02	0.39	

2-Chlorophenol	0	0		0	N/A	N/A	N/A
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A
2-Nitrophenol	0	0		0	N/A	N/A	N/A
4-Nitrophenol	0	0		0	N/A	N/A	N/A
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A
Pentachlorophenol	0	0		0	0.030	0.03	0.58
Phenol	0	0		0	N/A	N/A	N/A
2,4,6-Trichlorophenol	0	0		0	1.4	1.4	27.3
Acenaphthene	0	0		0	N/A	N/A	N/A
Anthracene	0	0		0	N/A	N/A	N/A
Benzidine	0	0		0	0.000086	0.00009	0.002
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.019
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.002
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.019
Benzo(k)Fluoranthene	0	0		0	0.0038	0.004	0.074
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.58
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	6.23
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A
Chrysene	0	0		0	0.0038	0.004	0.074
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.002
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A
3,3-Dichlorobenzidine	0	0		0	0.021	0.021	0.41
Diethyl Phthalate	0	0		0	N/A	N/A	N/A
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A
2,4-Dinitrotoluene	0	0		0	0.05	0.05	0.97
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.97
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.58
Fluoranthene	0	0		0	N/A	N/A	N/A
Fluorene	0	0		0	N/A	N/A	N/A
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.002
Hexachlorobutadiene	0	0		0	0.01	0.01	0.19
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A
Hexachloroethane	0	0		0	0.1	0.1	1.95
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.019
Isophorone	0	0		0	N/A	N/A	N/A
Naphthalene	0	0		0	N/A	N/A	N/A

Nitrobenzene	0	0	0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0	0	0.00069	0.0007	0.013	
n-Nitrosodi-n-Propylamine	0	0	0	0.005	0.005	0.097	
n-Nitrosodiphenylamine	0	0	0	3.3	3.3	64.3	
Phenanthrene	0	0	0	N/A	N/A	N/A	
Pyrene	0	0	0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0	0	N/A	N/A	N/A	
Aldrin	0	0	0	0.0000008	8.00E-07	0.00002	
alpha-BHC	0	0	0	0.0004	0.0004	0.008	
beta-BHC	0	0	0	0.008	0.008	0.16	
gamma-BHC	0	0	0	N/A	N/A	N/A	
Chlordane	0	0	0	0.0003	0.0003	0.006	
4,4-DDT	0	0	0	0.00003	0.00003	0.0006	
4,4-DDE	0	0	0	0.00002	0.00002	0.0004	
4,4-DDD	0	0	0	0.0001	0.0001	0.002	
Dieldrin	0	0	0	0.000001	0.000001	0.00002	
alpha-Endosulfan	0	0	0	N/A	N/A	N/A	
beta-Endosulfan	0	0	0	N/A	N/A	N/A	
Endosulfan Sulfate	0	0	0	N/A	N/A	N/A	
Endrin	0	0	0	N/A	N/A	N/A	
Endrin Aldehyde	0	0	0	N/A	N/A	N/A	
Heptachlor	0	0	0	0.000006	0.000006	0.0001	
Heptachlor Epoxide	0	0	0	0.00003	0.00003	0.0006	
Toxaphene	0	0	0	0.00028	0.0003	0.005	
Gross Alpha	0	0	0	15	15.0	292	
Total Beta	0	0	0	50	50.0	974	
Radium 226/228	0	0	0	4	4.0	77.9	
Total Strontium	0	0	0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Dissolved Solids (PWS)	4,741,522	7,397,536	2,274	3,548	5,685	mg/L	2,274	THH-PWS	Discharge Conc ≥ 50% WQBEL (RP)
Chloride (PWS)	Report	Report	Report	Report	Report	mg/L	1,137	THH-PWS	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	21.0	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Mercury	0.025	0.039	0.012	0.019	0.03	µg/L	0.012	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	175	AFC	Discharge Conc > 10% WQBEL (no RP)
Benzo(a)Anthracene	0.041	0.063	0.019	0.03	0.049	µg/L	0.019	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Benzo(a)Pyrene	0.004	0.006	0.002	0.003	0.005	µg/L	0.002	CRL	Discharge Conc ≥ 50% WQBEL (RP)
3,4-Benzofluoranthene	0.041	0.063	0.019	0.03	0.049	µg/L	0.019	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Benzo(k)Fluoranthene	0.15	0.24	0.074	0.12	0.19	µg/L	0.074	CRL	Discharge Conc ≥ 50% WQBEL (RP)

Chrysene	0.15	0.24	0.074	0.12	0.19	µg/L	0.074	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Dibenzo(a,h)Anthrancene	0.004	0.006	0.002	0.003	0.005	µg/L	0.002	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Indeno(1,2,3-cd)Pyrene	0.041	0.063	0.019	0.03	0.049	µg/L	0.019	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Phenanthrene	12.1	18.9	5.81	9.07	14.5	µg/L	5.81	AFC	Discharge Conc ≥ 50% WQBEL (RP)
4,4-DDT	0.00006	0.0001	0.00003	0.00005	0.00008	µg/L	0.00003	CRL	Discharge Conc ≥ 50% WQBEL (RP)

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	1,137	mg/L	Discharge Conc ≤ 10% WQBEL
Total Aluminum	872	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	25.5	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	4,548	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	N/A	N/A	Discharge Conc < TQL
Total Cadmium	1.77	µg/L	Discharge Conc < TQL
Total Chromium (III)	561	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	18.9	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	110	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	18.2	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	1,364	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	19,845	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	20.5	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	4,548	µg/L	Discharge Conc ≤ 10% WQBEL
Total Nickel	339	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)	22.7	µg/L	Discharge Conc < TQL
Total Selenium	33.1	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	6.99	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	1.09	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.49	µg/L	Discharge Conc < TQL
Acrylonitrile	0.99	µg/L	Discharge Conc < TQL
Benzene	11.3	µg/L	Discharge Conc ≤ 25% WQBEL
Bromoform	83.8	µg/L	Discharge Conc ≤ 25% WQBEL
Carbon Tetrachloride	7.79	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	455	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	7.79	µg/L	Discharge Conc ≤ 25% WQBEL

Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	20,930	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroform	25.9	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	10.7	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	7.4	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethylene	150	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-Dichloropropane	9.74	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichloropropylene	5.26	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	309	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Bromide	214	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Chloride	32,557	µg/L	Discharge Conc ≤ 25% WQBEL
Methylene Chloride	89.6	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2,2-Tetrachloroethane	3.31	µg/L	Discharge Conc ≤ 25% WQBEL
Tetrachloroethylene	13.4	µg/L	Discharge Conc ≤ 25% WQBEL
Toluene	259	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-trans-Dichloroethylene	455	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,1-Trichloroethane	3,488	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2-Trichloroethane	10.7	µg/L	Discharge Conc < TQL
Trichloroethylene	11.7	µg/L	Discharge Conc ≤ 25% WQBEL
Vinyl Chloride	0.39	µg/L	Discharge Conc < TQL
2-Chlorophenol	136	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	45.5	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	455	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	9.1	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	45.5	µg/L	Discharge Conc < TQL
2-Nitrophenol	9,302	µg/L	Discharge Conc < TQL
4-Nitrophenol	2,674	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	186	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.58	µg/L	Discharge Conc < TQL
Phenol	18,193	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	27.3	µg/L	Discharge Conc < TQL
Acenaphthene	96.5	µg/L	Discharge Conc ≤ 25% WQBEL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	1,364	µg/L	Discharge Conc ≤ 25% WQBEL
Benzidine	0.002	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.58	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	910	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	6.23	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	314	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.45	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	3,639	µg/L	Discharge Conc < TQL

4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
1,2-Dichlorobenzene	953	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichlorobenzene	31.8	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dichlorobenzene	287	µg/L	Discharge Conc ≤ 25% WQBEL
3,3-Dichlorobenzidine	0.41	µg/L	Discharge Conc < TQL
Diethyl Phthalate	2,729	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	2,907	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	91.0	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.97	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.97	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.58	µg/L	Discharge Conc < TQL
Fluoranthene	91.0	µg/L	Discharge Conc ≤ 25% WQBEL
Fluorene	227	µg/L	Discharge Conc ≤ 25% WQBEL
Hexachlorobenzene	0.00008	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.01	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	5.81	µg/L	Discharge Conc < TQL
Hexachloroethane	1.95	µg/L	Discharge Conc < TQL
Isophorone	155	µg/L	Discharge Conc < TQL
Naphthalene	163	µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	45.5	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.013	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.097	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	64.3	µg/L	Discharge Conc < TQL
Pyrene	91.0	µg/L	Discharge Conc ≤ 25% WQBEL
1,2,4-Trichlorobenzene	0.32	µg/L	Discharge Conc < TQL
Aldrin	0.00002	µg/L	Discharge Conc < TQL
alpha-BHC	0.008	µg/L	Discharge Conc < TQL
beta-BHC	0.16	µg/L	Discharge Conc < TQL
gamma-BHC	0.95	µg/L	Discharge Conc < TQL
delta BHC	N/A	N/A	No WQS
Chlordane	0.0003	µg/L	Discharge Conc < TQL
4,4-DDE	0.00002	µg/L	Discharge Conc < TQL
4,4-DDD	0.0001	µg/L	Discharge Conc < TQL
Dieldrin	0.000001	µg/L	Discharge Conc < TQL
alpha-Endosulfan	0.26	µg/L	Discharge Conc < TQL
beta-Endosulfan	0.26	µg/L	Discharge Conc < TQL
Endosulfan Sulfate	91.0	µg/L	Discharge Conc < TQL
Endrin	0.1	µg/L	Discharge Conc < TQL
Endrin Aldehyde	1.32	µg/L	Discharge Conc < TQL
Heptachlor	0.0001	µg/L	Discharge Conc < TQL
Heptachlor Epoxide	0.0006	µg/L	Discharge Conc < TQL
Toxaphene	0.0002	µg/L	Discharge Conc < TQL
Gross Alpha	292	pCi/L	Discharge Conc ≤ 25% WQBEL
Total Beta	974	pCi/L	Discharge Conc ≤ 25% WQBEL

Radium 226/228	77.9	pCi/L	Discharge Conc ≤ 25% WQBEL
Total Strontium	18,193	µg/L	Discharge Conc ≤ 10% WQBEL
Total Uranium	N/A	N/A	No WQS

295 MGD
TMS Model Output File

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Woods Run STP** NPDES Permit No.: **PA002584** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description:

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
295	168	7						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		1202									
	Chloride (PWS)	mg/L		442.661292			0.5512						
	Bromide	mg/L		2									
	Sulfate (PWS)	mg/L		98									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		76									
	Total Antimony	µg/L		0.3									
	Total Arsenic	µg/L	<	0.05									
	Total Barium	µg/L		41									
	Total Beryllium	µg/L	<	0.05									
	Total Boron	µg/L	<	200									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L	<	50									
	Hexavalent Chromium	µg/L		0.47									
	Total Cobalt	µg/L		0.39									
	Total Copper	µg/L		8.5									
	Free Cyanide	µg/L		2.7									
	Total Cyanide	µg/L	<	16									
	Dissolved Iron	µg/L		64									
	Total Iron	µg/L		480									
	Total Lead	µg/L		0.24									
	Total Manganese	µg/L		121									
	Total Mercury	µg/L		0.009									
	Total Nickel	µg/L		2.4									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L		0.55									
	Total Silver	µg/L	<	0.5									
	Total Thallium	µg/L	<	0.5									
	Total Zinc	µg/L		19									
	Total Molybdenum	µg/L	<	50									
	Acrolein	µg/L	<	1.9									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	2.5									
	Benzene	µg/L	<	0.6									
	Bromoform	µg/L	<	5									

Group 3	Carbon Tetrachloride	µg/L	<	1									
	Chlorobenzene	µg/L	<	5									
	Chlorodibromomethane	µg/L	<	0.63									
	Chloroethane	µg/L	<	5									
	2-Chloroethyl Vinyl Ether	µg/L	<	10									
	Chloroform	µg/L		5.61									
	Dichlorobromomethane	µg/L		2.1									
	1,1-Dichloroethane	µg/L	<	5									
	1,2-Dichloroethane	µg/L	<	0.57									
	1,1-Dichloroethylene	µg/L	<	5									
	1,2-Dichloropropane	µg/L	<	0.66									
	1,3-Dichloropropylene	µg/L	<	1.1									
	1,4-Dioxane	µg/L	<	2									
	Ethylbenzene	µg/L	<	5									
	Methyl Bromide	µg/L	<	5									
	Methyl Chloride	µg/L	<	5									
	Methylene Chloride	µg/L	<	5									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.6									
	Tetrachloroethylene	µg/L		0.49									
	Toluene	µg/L		1.14									
	1,2-trans-Dichloroethylene	µg/L	<	5									
	1,1,1-Trichloroethane	µg/L	<	5									
	1,1,2-Trichloroethane	µg/L	<	0.45									
	Trichloroethylene	µg/L	<	0.69									
	Vinyl Chloride	µg/L	<	0.41									
Group 4	2-Chlorophenol	µg/L	<	5									
	2,4-Dichlorophenol	µg/L	<	5									
	2,4-Dimethylphenol	µg/L	<	5									
	4,6-Dinitro-o-Cresol	µg/L	<	5.1									
	2,4-Dinitrophenol	µg/L	<	10									
	2-Nitrophenol	µg/L	<	5									
	4-Nitrophenol	µg/L	<	5.1									
	p-Chloro-m-Cresol	µg/L	<	5									
	Pentachlorophenol	µg/L	<	5.1									
	Phenol	µg/L	<	5									
	2,4,6-Trichlorophenol	µg/L	<	5									
Group 5	Acenaphthene	µg/L	<	5									
	Acenaphthylene	µg/L	<	5									
	Anthracene	µg/L	<	5									
	Benzidine	µg/L	<	5									
	Benzo(a)Anthracene	µg/L		2.2									
	Benzo(a)Pyrene	µg/L		0.65									
	3,4-Benzofluoranthene	µg/L		1.7									
	Benzo(ghi)Perylene	µg/L	<	5									
	Benzo(k)Fluoranthene	µg/L		0.63									
	Bis(2-Chloroethoxy)Methane	µg/L	<	5									
	Bis(2-Chloroethyl)Ether	µg/L	<	5									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	5									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	5									
	4-Bromophenyl Phenyl Ether	µg/L	<	5									
	Butyl Benzyl Phthalate	µg/L	<	5									
	2-Chloronaphthalene	µg/L	<	5									
	4-Chlorophenyl Phenyl Ether	µg/L	<	5									
	Chrysene	µg/L		2.6									
	Dibenzo(a,h)Anthrancene	µg/L		0.17									
	1,2-Dichlorobenzene	µg/L	<	5									
	1,3-Dichlorobenzene	µg/L	<	5									
	1,4-Dichlorobenzene	µg/L	<	5									
	3,3-Dichlorobenzidine	µg/L	<	5									
	Diethyl Phthalate	µg/L	<	5									
	Dimethyl Phthalate	µg/L	<	5									
	Di-n-Butyl Phthalate	µg/L	<	5									
	2,4-Dinitrotoluene	µg/L	<	5									

	2,6-Dinitrotoluene	µg/L	<	5									
	Di-n-Octyl Phthalate	µg/L	<	5									
	1,2-Diphenylhydrazine	µg/L	<	5									
	Fluoranthene	µg/L	<	5									
	Fluorene	µg/L	<	5									
	Hexachlorobenzene	µg/L	<	5									
	Hexachlorobutadiene	µg/L	<	0.18									
	Hexachlorocyclopentadiene	µg/L	<	5									
	Hexachloroethane	µg/L	<	5									
	Indeno(1,2,3-cd)Pyrene	µg/L		0.41									
	Isophorone	µg/L	<	5									
	Naphthalene	µg/L	<	5									
	Nitrobenzene	µg/L	<	5									
	n-Nitrosodimethylamine	µg/L	<	5									
	n-Nitrosodi-n-Propylamine	µg/L	<	5									
	n-Nitrosodiphenylamine	µg/L	<	5									
	Phenanthrene	µg/L		7.4									
	Pyrene	µg/L	<	5									
	1,2,4-Trichlorobenzene	µg/L	<	0.12									
Group 6	Aldrin	µg/L	<	0.0013									
	alpha-BHC	µg/L	<	0.0013									
	beta-BHC	µg/L	<	0.0029									
	gamma-BHC	µg/L	<	0.0013									
	delta BHC	µg/L	<	0.0013									
	Chlordane	µg/L	<	0.0013									
	4,4-DDT	µg/L		0.001862			0.5259						
	4,4-DDE	µg/L	<	0.0013									
	4,4-DDD	µg/L	<	0.0013									
	Dieldrin	µg/L	<	0.0013									
	alpha-Endosulfan	µg/L	<	0.0013									
	beta-Endosulfan	µg/L	<	0.0013									
	Endosulfan Sulfate	µg/L	<	0.0013									
	Endrin	µg/L	<	0.0013									
	Endrin Aldehyde	µg/L	<	0.0013									
	Heptachlor	µg/L	<	0.025									
	Heptachlor Epoxide	µg/L	<	0.025									
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<	0.1									
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L		6.37									
	Total Beta	pCi/L		47.11									
	Radium 226/228	pCi/L	<	3.05									
	Total Strontium	µg/L	<	300									
	Total Uranium	µg/L	<	5									
	Osmotic Pressure	mOs/kg											

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Woods Run STP , NPDES Permit No. PA002584, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Ohio River**

No. Reaches to Model: 1

- ○ Statewide Criteria
- ○ Great Lakes Criteria
- ◉ ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	032317	977.35	710	19400	0.00026		Yes
End of Reach 1	032317	975.99	709.99	19400.01		40	Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	977.35		4730			1214	10	0.43				85.15	7		
End of Reach 1	975.99		4730												

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	977.35														
End of Reach 1	975.99														

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Model Results

Woods Run STP , NPDES Permit No. PA002584, Outfall 001

Instructions | *Results* | RETURN TO INPUTS | SAVE AS PDF | PRINT | ○ All | ◉ Inputs | ○ Results | ○ Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.067 Analysis Hardness (mg/l): 133.91 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	1,274	
Total Antimony	0	0		0	1,100	1,100	1,869	
Total Arsenic	0	0		0	340	340	578	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	35,685	
Total Boron	0	0		0	8,100	8,100	13,764	
Total Cadmium	0	0		0	2.675	2.87	4.88	Chem Translator of 0.932 applied
Total Chromium (III)	0	0		0	723.674	2,290	3,892	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	27.7	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	161	
Total Copper	0	0		0	17.695	18.4	31.3	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	37.4	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	88.616	118	201	Chem Translator of 0.748 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	2.8	Chem Translator of 0.85 applied
Total Nickel	0	0		0	599.427	601	1,021	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	5.315	6.25	10.6	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	110	
Total Zinc	0	0		0	150.069	153	261	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	5.1	

Acrylonitrile	0	0		0	650	650	1,105	
Benzene	0	0		0	640	640	1,088	
Bromoform	0	0		0	1,800	1,800	3,059	
Carbon Tetrachloride	0	0		0	2,800	2,800	4,758	
Chlorobenzene	0	0		0	1,200	1,200	2,039	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	30,587	
Chloroform	0	0		0	1,900	1,900	3,229	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	25,489	
1,1-Dichloroethylene	0	0		0	7,500	7,500	12,745	
1,2-Dichloropropane	0	0		0	11,000	11,000	18,692	
1,3-Dichloropropylene	0	0		0	310	310	527	
Ethylbenzene	0	0		0	2,900	2,900	4,928	
Methyl Bromide	0	0		0	550	550	935	
Methyl Chloride	0	0		0	28,000	28,000	47,580	
Methylene Chloride	0	0		0	12,000	12,000	20,391	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,699	
Tetrachloroethylene	0	0		0	700	700	1,190	
Toluene	0	0		0	1,700	1,700	2,889	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	11,555	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	5,098	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	5,778	
Trichloroethylene	0	0		0	2,300	2,300	3,908	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	952	
2,4-Dichlorophenol	0	0		0	1,700	1,700	2,889	
2,4-Dimethylphenol	0	0		0	660	660	1,122	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	136	
2,4-Dinitrophenol	0	0		0	660	660	1,122	
2-Nitrophenol	0	0		0	8,000	8,000	13,594	
4-Nitrophenol	0	0		0	2,300	2,300	3,908	
p-Chloro-m-Cresol	0	0		0	160	160	272	
Pentachlorophenol	0	0		0	8.723	8.72	14.8	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	782	
Acenaphthene	0	0		0	83	83.0	141	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	510	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.85	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	50,979	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	7,647	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	459	
Butyl Benzyl Phthalate	0	0		0	140	140	238	

2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	1,393	
1,3-Dichlorobenzene	0	0		0	350	350	595	
1,4-Dichlorobenzene	0	0		0	730	730	1,240	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	6,797	
Dimethyl Phthalate	0	0		0	2,500	2,500	4,248	
Di-n-Butyl Phthalate	0	0		0	110	110	187	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	2,719	
2,6-Dinitrotoluene	0	0		0	990	990	1,682	
1,2-Diphenylhydrazine	0	0		0	15	15.0	25.5	
Fluoranthene	0	0		0	200	200	340	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	10	10.0	17.0	
Hexachlorocyclopentadiene	0	0		0	5	5.0	8.5	
Hexachloroethane	0	0		0	60	60.0	102	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	16,993	
Naphthalene	0	0		0	140	140	238	
Nitrobenzene	0	0		0	4,000	4,000	6,797	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	28,888	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	510	
Phenanthrene	0	0		0	5	5.0	8.5	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	221	
Aldrin	0	0		0	3	3.0	5.1	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	0.95	0.95	1.61	
Chlordane	0	0		0	2.4	2.4	4.08	
4,4-DDT	0	0		0	1.1	1.1	1.87	
4,4-DDE	0	0		0	1.1	1.1	1.87	
4,4-DDD	0	0		0	1.1	1.1	1.87	
Dieldrin	0	0		0	0.24	0.24	0.41	
alpha-Endosulfan	0	0		0	0.22	0.22	0.37	
beta-Endosulfan	0	0		0	0.22	0.22	0.37	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.086	0.086	0.15	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.52	0.52	0.88	
Heptachlor Epoxide	0	0		0	0.5	0.5	0.85	
Toxaphene	0	0		0	0.73	0.73	1.24	
Gross Alpha	0	0		0	N/A	N/A	N/A	
Total Beta	0	0		0	N/A	N/A	N/A	

Radium 226/228	0	0		0	N/A	N/A	N/A	
Total Strontium	0	0		0	N/A	N/A	N/A	

☑ ***CFC*** CCT (min): 720 PMF: 0.467 Analysis Hardness (mg/l): 99.325 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	1,286	
Total Arsenic	0	0		0	150	150	877	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	23,964	
Total Boron	0	0		0	1,600	1,600	9,352	
Total Cadmium	0	0		0	0.245	0.27	1.57	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	73.705	85.7	501	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	60.8	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	111	
Total Copper	0	0		0	8.904	9.28	54.2	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	30.4	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	17,047	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.498	3.15	18.4	Chem Translator of 0.792 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	5.29	Chem Translator of 0.85 applied
Total Nickel	0	0		0	51.709	51.9	303	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	29.2	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	76.0	
Total Zinc	0	0		0	117.463	119	696	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	17.5	
Acrylonitrile	0	0		0	130	130	760	
Benzene	0	0		0	130	130	760	
Bromoform	0	0		0	370	370	2,163	
Carbon Tetrachloride	0	0		0	560	560	3,273	
Chlorobenzene	0	0		0	240	240	1,403	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	20,457	
Chloroform	0	0		0	390	390	2,279	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	18,119	
1,1-Dichloroethylene	0	0		0	1,500	1,500	8,767	
1,2-Dichloropropane	0	0		0	2,200	2,200	12,859	
1,3-Dichloropropylene	0	0		0	61	61.0	357	

Ethylbenzene	0	0		0	580	580	3,390	
Methyl Bromide	0	0		0	110	110	643	
Methyl Chloride	0	0		0	5,500	5,500	32,147	
Methylene Chloride	0	0		0	2,400	2,400	14,028	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	1,227	
Tetrachloroethylene	0	0		0	140	140	818	
Toluene	0	0		0	330	330	1,929	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	8,183	
1,1,1-Trichloroethane	0	0		0	610	610	3,565	
1,1,2-Trichloroethane	0	0		0	680	680	3,974	
Trichloroethylene	0	0		0	450	450	2,630	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	643	
2,4-Dichlorophenol	0	0		0	340	340	1,987	
2,4-Dimethylphenol	0	0		0	130	130	760	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	93.5	
2,4-Dinitrophenol	0	0		0	130	130	760	
2-Nitrophenol	0	0		0	1,600	1,600	9,352	
4-Nitrophenol	0	0		0	470	470	2,747	
p-Chloro-m-Cresol	0	0		0	500	500	2,922	
Pentachlorophenol	0	0		0	6.693	6.69	39.1	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	532	
Acenaphthene	0	0		0	17	17.0	99.4	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	345	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.58	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	35,069	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	5,319	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	316	
Butyl Benzyl Phthalate	0	0		0	35	35.0	205	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	935	
1,3-Dichlorobenzene	0	0		0	69	69.0	403	
1,4-Dichlorobenzene	0	0		0	150	150	877	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	4,676	
Dimethyl Phthalate	0	0		0	500	500	2,922	
Di-n-Butyl Phthalate	0	0		0	21	21.0	123	

2,4-Dinitrotoluene	0	0		0	320	320	1,870	
2,6-Dinitrotoluene	0	0		0	200	200	1,169	
1,2-Diphenylhydrazine	0	0		0	3	3.0	17.5	
Fluoranthene	0	0		0	40	40.0	234	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	11.7	
Hexachlorocyclopentadiene	0	0		0	1	1.0	5.84	
Hexachloroethane	0	0		0	12	12.0	70.1	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	12,274	
Naphthalene	0	0		0	43	43.0	251	
Nitrobenzene	0	0		0	810	810	4,734	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	19,872	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	345	
Phenanthrene	0	0		0	1	1.0	5.84	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	152	
Aldrin	0	0		0	0.1	0.1	0.58	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0043	0.004	0.025	
4,4-DDT	0	0		0	0.001	0.001	0.006	
4,4-DDE	0	0		0	0.001	0.001	0.006	
4,4-DDD	0	0		0	0.001	0.001	0.006	
Dieldrin	0	0		0	0.056	0.056	0.33	
alpha-Endosulfan	0	0		0	0.056	0.056	0.33	
beta-Endosulfan	0	0		0	0.056	0.056	0.33	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.036	0.036	0.21	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.0038	0.004	0.022	
Heptachlor Epoxide	0	0		0	0.0038	0.004	0.022	
Toxaphene	0	0		0	0.0002	0.0002	0.001	
Gross Alpha	0	0		0	N/A	N/A	N/A	
Total Beta	0	0		0	N/A	N/A	N/A	
Radium 226/228	0	0		0	N/A	N/A	N/A	
Total Strontium	0	0		0	N/A	N/A	N/A	

☑ ***THH*** CCT (min): ###### THH PMF: 0.467 Analysis Hardness (mg/l): N/A Analysis pH: N/A PWS PMF: 0.2906

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments

Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	2,006,115	WQC applied at RMI 975.99 with a design stream flow of 4730 cfs
Chloride (PWS)	0	0		0	250,000	250,000	1,003,058	WQC applied at RMI 975.99 with a design stream flow of 4730 cfs
Sulfate (PWS)	0	0		0	250,000	250,000	1,003,058	WQC applied at RMI 975.99 with a design stream flow of 4730 cfs
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	22.5	THH WQC applied at PWS at RMI 975.99
Total Arsenic	0	0		0	10	10.0	40.1	THH WQC applied at PWS at RMI 975.99
Total Barium	0	0		0	1,000	1,000	4,012	THH WQC applied at PWS at RMI 975.99
Total Boron	0	0		0	3,100	3,100	12,438	THH WQC applied at PWS at RMI 975.99
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	1,300	1,300	5,216	THH WQC applied at PWS at RMI 975.99
Free Cyanide	0	0		0	4	4.0	16.0	THH WQC applied at PWS at RMI 975.99
Dissolved Iron	0	0		0	300	300	1,204	THH WQC applied at PWS at RMI 975.99
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	4,012	THH WQC applied at PWS at RMI 975.99
Total Mercury	0	0		0	0.012	0.012	0.048	THH WQC applied at PWS at RMI 975.99
Total Nickel	0	0		0	610	610	2,447	THH WQC applied at PWS at RMI 975.99
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	20.1	WQC applied at RMI 975.99 with a design stream flow of 4730 cfs
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.96	THH WQC applied at PWS at RMI 975.99
Total Zinc	0	0		0	7,400	7,400	29,691	THH WQC applied at PWS at RMI 975.99
Acrolein	0	0		0	3	3.0	12.0	THH WQC applied at PWS at RMI 975.99
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	401	THH WQC applied at PWS at RMI 975.99
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	22.9	THH WQC applied at PWS at RMI 975.99
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	132	THH WQC applied at PWS at RMI 975.99
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	273	THH WQC applied at PWS at RMI 975.99
Methyl Bromide	0	0		0	47	47.0	189	THH WQC applied at PWS at RMI 975.99
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	

Toluene	0	0		0	57	57.0	229	THH WQC applied at PWS at RMI 975.99
1,2-trans-Dichloroethylene	0	0		0	100	100.0	401	THH WQC applied at PWS at RMI 975.99
1,1,1-Trichloroethane	0	0		0	10,000	10,000	40,122	THH WQC applied at PWS at RMI 975.99
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A	
Trichloroethylene	0	0		0	N/A	N/A	N/A	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	30	30.0	120	THH WQC applied at PWS at RMI 975.99
2,4-Dichlorophenol	0	0		0	10	10.0	40.1	THH WQC applied at PWS at RMI 975.99
2,4-Dimethylphenol	0	0		0	100	100.0	401	THH WQC applied at PWS at RMI 975.99
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	8.02	THH WQC applied at PWS at RMI 975.99
2,4-Dinitrophenol	0	0		0	10	10.0	40.1	THH WQC applied at PWS at RMI 975.99
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	16,049	THH WQC applied at PWS at RMI 975.99
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	281	THH WQC applied at PWS at RMI 975.99
Anthracene	0	0		0	300	300	1,204	THH WQC applied at PWS at RMI 975.99
Benzidine	0	0		0	N/A	N/A	N/A	
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	802	THH WQC applied at PWS at RMI 975.99
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	0.4	THH WQC applied at PWS at RMI 975.99
2-Chloronaphthalene	0	0		0	800	800	3,210	THH WQC applied at PWS at RMI 975.99
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	420	420	1,685	THH WQC applied at PWS at RMI 975.99
1,3-Dichlorobenzene	0	0		0	7	7.0	28.1	THH WQC applied at PWS at RMI 975.99
1,4-Dichlorobenzene	0	0		0	63	63.0	253	THH WQC applied at PWS at RMI 975.99
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	2,407	THH WQC applied at PWS at RMI 975.99
Dimethyl Phthalate	0	0		0	2,000	2,000	8,024	THH WQC applied at PWS at RMI 975.99
Di-n-Butyl Phthalate	0	0		0	20	20.0	80.2	THH WQC applied at PWS at RMI 975.99
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A	
Fluoranthene	0	0		0	20	20.0	80.2	THH WQC applied at PWS at RMI 975.99
Fluorene	0	0		0	50	50.0	201	THH WQC applied at PWS at RMI 975.99
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	

Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	16.0	THH WQC applied at PWS at RMI 975.99
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	136	THH WQC applied at PWS at RMI 975.99
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	40.1	THH WQC applied at PWS at RMI 975.99
n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	80.2	THH WQC applied at PWS at RMI 975.99
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.28	THH WQC applied at PWS at RMI 975.99
Aldrin	0	0		0	N/A	N/A	N/A	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	0.98	0.98	3.93	THH WQC applied at PWS at RMI 975.99
Chlordane	0	0		0	N/A	N/A	N/A	
4,4-DDT	0	0		0	N/A	N/A	N/A	
4,4-DDE	0	0		0	N/A	N/A	N/A	
4,4-DDD	0	0		0	N/A	N/A	N/A	
Dieldrin	0	0		0	N/A	N/A	N/A	
alpha-Endosulfan	0	0		0	20	20.0	80.2	THH WQC applied at PWS at RMI 975.99
beta-Endosulfan	0	0		0	20	20.0	80.2	THH WQC applied at PWS at RMI 975.99
Endosulfan Sulfate	0	0		0	20	20.0	80.2	THH WQC applied at PWS at RMI 975.99
Endrin	0	0		0	0.03	0.03	0.12	THH WQC applied at PWS at RMI 975.99
Endrin Aldehyde	0	0		0	0.29	0.29	1.16	THH WQC applied at PWS at RMI 975.99
Heptachlor	0	0		0	N/A	N/A	N/A	
Heptachlor Epoxide	0	0		0	N/A	N/A	N/A	
Toxaphene	0	0		0	N/A	N/A	N/A	
Gross Alpha	0	0		0	N/A	N/A	N/A	
Total Beta	0	0		0	N/A	N/A	N/A	
Radium 226/228	0	0		0	N/A	N/A	N/A	
Total Strontium	0	0		0	4,000	4,000	16,049	THH WQC applied at PWS at RMI 975.99

☑ ***CRL*** CCT (min): 720 PMF: 0.592 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	

Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	50	50.0	835	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.051	0.051	0.85	
Benzene	0	0		0	0.58	0.58	9.69	
Bromoform	0	0		0	4.3	4.3	71.8	
Carbon Tetrachloride	0	0		0	0.4	0.4	6.68	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.4	0.4	6.68	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.55	0.55	9.19	
1,2-Dichloroethane	0	0		0	0.38	0.38	6.35	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.5	0.5	8.35	
1,3-Dichloropropylene	0	0		0	0.27	0.27	4.51	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	4.6	4.6	76.8	
1,1,2,2-Tetrachloroethane	0	0		0	0.17	0.17	2.84	
Tetrachloroethylene	0	0		0	0.69	0.69	11.5	
Toluene	0	0		0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0		0	0.55	0.55	9.19	
Trichloroethylene	0	0		0	0.6	0.6	10.0	
Vinyl Chloride	0	0		0	0.02	0.02	0.33	

2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	0.030	0.03	0.5	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.4	1.4	23.4	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.000086	0.00009	0.001	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.017	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.002	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.017	
Benzo(k)Fluoranthene	0	0		0	0.0038	0.004	0.063	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.5	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	5.35	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.0038	0.004	0.063	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.002	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.021	0.021	0.35	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	0.84	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.84	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.5	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.001	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.17	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	1.67	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.017	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	

Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.00069	0.0007	0.012	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.084	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	55.1	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	
Aldrin	0	0		0	0.0000008	8.00E-07	0.00001	
alpha-BHC	0	0		0	0.0004	0.0004	0.007	
beta-BHC	0	0		0	0.008	0.008	0.13	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0003	0.0003	0.005	
4,4-DDT	0	0		0	0.00003	0.00003	0.0005	
4,4-DDE	0	0		0	0.00002	0.00002	0.0003	
4,4-DDD	0	0		0	0.0001	0.0001	0.002	
Dieldrin	0	0		0	0.000001	0.000001	0.00002	
alpha-Endosulfan	0	0		0	N/A	N/A	N/A	
beta-Endosulfan	0	0		0	N/A	N/A	N/A	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	N/A	N/A	N/A	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.000006	0.000006	0.0001	
Heptachlor Epoxide	0	0		0	0.00003	0.00003	0.0005	
Toxaphene	0	0		0	0.00028	0.0003	0.005	
Gross Alpha	0	0		0	15	15.0	251	
Total Beta	0	0		0	50	50.0	835	
Radium 226/228	0	0		0	4	4.0	66.8	
Total Strontium	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Dissolved Solids (PWS)	4,935,645	7,700,399	2,006	3,130	5,015	mg/L	2,006	THH-PWS	Discharge Conc ≥ 50% WQBEL (RP)
Chloride (PWS)	Report	Report	Report	Report	Report	mg/L	1,003	THH-PWS	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	20.1	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Mercury	0.03	0.046	0.012	0.019	0.03	µg/L	0.012	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	167	AFC	Discharge Conc > 10% WQBEL (no RP)
Benzo(a)Anthracene	0.041	0.064	0.017	0.026	0.042	µg/L	0.017	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Benzo(a)Pyrene	0.004	0.006	0.002	0.003	0.004	µg/L	0.002	CRL	Discharge Conc ≥ 50% WQBEL (RP)
3,4-Benzofluoranthene	0.041	0.064	0.017	0.026	0.042	µg/L	0.017	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Benzo(k)Fluoranthene	0.16	0.24	0.063	0.099	0.16	µg/L	0.063	CRL	Discharge Conc ≥ 50% WQBEL (RP)

Chrysene	0.16	0.24	0.063	0.099	0.16	µg/L	0.063	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Dibenzo(a,h)Anthrancene	0.004	0.006	0.002	0.003	0.004	µg/L	0.002	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Indeno(1,2,3-cd)Pyrene	0.041	0.064	0.017	0.026	0.042	µg/L	0.017	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Phenanthrene	13.4	20.9	5.45	8.5	13.6	µg/L	5.45	AFC	Discharge Conc ≥ 50% WQBEL (RP)
4,4-DDT	0.00007	0.0001	0.00003	0.00005	0.00008	µg/L	0.00003	CRL	Discharge Conc ≥ 50% WQBEL (RP)

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	1,003	mg/L	Discharge Conc ≤ 10% WQBEL
Total Aluminum	817	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	22.5	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	4,012	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	N/A	N/A	Discharge Conc < TQL
Total Cadmium	1.57	µg/L	Discharge Conc < TQL
Total Chromium (III)	501	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	17.7	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	103	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	16.0	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	1,204	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	17,047	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	18.4	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	4,012	µg/L	Discharge Conc ≤ 10% WQBEL
Total Nickel	303	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)	20.1	µg/L	Discharge Conc < TQL
Total Selenium	29.2	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	6.81	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	0.96	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.27	µg/L	Discharge Conc < TQL
Acrylonitrile	0.85	µg/L	Discharge Conc < TQL
Benzene	9.69	µg/L	Discharge Conc ≤ 25% WQBEL
Bromoform	71.8	µg/L	Discharge Conc ≤ 25% WQBEL
Carbon Tetrachloride	6.68	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	401	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	6.68	µg/L	Discharge Conc ≤ 25% WQBEL

Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	19,605	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroform	22.9	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	9.19	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	6.35	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethylene	132	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-Dichloropropane	8.35	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichloropropylene	4.51	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	273	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Bromide	189	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Chloride	30,497	µg/L	Discharge Conc ≤ 25% WQBEL
Methylene Chloride	76.8	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2,2-Tetrachloroethane	2.84	µg/L	Discharge Conc ≤ 25% WQBEL
Tetrachloroethylene	11.5	µg/L	Discharge Conc ≤ 25% WQBEL
Toluene	229	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-trans-Dichloroethylene	401	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,1-Trichloroethane	3,268	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2-Trichloroethane	9.19	µg/L	Discharge Conc < TQL
Trichloroethylene	10.0	µg/L	Discharge Conc ≤ 25% WQBEL
Vinyl Chloride	0.33	µg/L	Discharge Conc < TQL
2-Chlorophenol	120	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	40.1	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	401	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	8.02	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	40.1	µg/L	Discharge Conc < TQL
2-Nitrophenol	8,713	µg/L	Discharge Conc < TQL
4-Nitrophenol	2,505	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	174	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.5	µg/L	Discharge Conc < TQL
Phenol	16,049	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	23.4	µg/L	Discharge Conc < TQL
Acenaphthene	90.4	µg/L	Discharge Conc ≤ 25% WQBEL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	1,204	µg/L	Discharge Conc ≤ 25% WQBEL
Benzidine	0.001	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.5	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	802	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	5.35	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	294	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.4	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	3,210	µg/L	Discharge Conc < TQL

4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
1,2-Dichlorobenzene	893	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichlorobenzene	28.1	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dichlorobenzene	253	µg/L	Discharge Conc ≤ 25% WQBEL
3,3-Dichlorobenzidine	0.35	µg/L	Discharge Conc < TQL
Diethyl Phthalate	2,407	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	2,723	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	80.2	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.84	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.84	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.5	µg/L	Discharge Conc < TQL
Fluoranthene	80.2	µg/L	Discharge Conc ≤ 25% WQBEL
Fluorene	201	µg/L	Discharge Conc ≤ 25% WQBEL
Hexachlorobenzene	0.00008	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.01	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	5.45	µg/L	Discharge Conc < TQL
Hexachloroethane	1.67	µg/L	Discharge Conc < TQL
Isophorone	136	µg/L	Discharge Conc < TQL
Naphthalene	152	µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	40.1	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.012	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.084	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	55.1	µg/L	Discharge Conc < TQL
Pyrene	80.2	µg/L	Discharge Conc ≤ 25% WQBEL
1,2,4-Trichlorobenzene	0.28	µg/L	Discharge Conc < TQL
Aldrin	0.00001	µg/L	Discharge Conc < TQL
alpha-BHC	0.007	µg/L	Discharge Conc < TQL
beta-BHC	0.13	µg/L	Discharge Conc < TQL
gamma-BHC	0.95	µg/L	Discharge Conc < TQL
delta BHC	N/A	N/A	No WQS
Chlordane	0.0003	µg/L	Discharge Conc < TQL
4,4-DDE	0.00002	µg/L	Discharge Conc < TQL
4,4-DDD	0.0001	µg/L	Discharge Conc < TQL
Dieldrin	0.000001	µg/L	Discharge Conc < TQL
alpha-Endosulfan	0.24	µg/L	Discharge Conc < TQL
beta-Endosulfan	0.24	µg/L	Discharge Conc < TQL
Endosulfan Sulfate	80.2	µg/L	Discharge Conc < TQL
Endrin	0.094	µg/L	Discharge Conc < TQL
Endrin Aldehyde	1.16	µg/L	Discharge Conc < TQL
Heptachlor	0.0001	µg/L	Discharge Conc < TQL
Heptachlor Epoxide	0.0005	µg/L	Discharge Conc < TQL
Toxaphene	0.0002	µg/L	Discharge Conc < TQL
Gross Alpha	251	pCi/L	Discharge Conc ≤ 25% WQBEL
Total Beta	835	pCi/L	Discharge Conc ≤ 25% WQBEL

Radium 226/228	66.8	pCi/L	Discharge Conc ≤ 25% WQBEL
Total Strontium	16,049	µg/L	Discharge Conc ≤ 10% WQBEL
Total Uranium	N/A	N/A	No WQS

ATTACHMENT F

WETT Test Results and Summary

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.09
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Woods Run STP

Permit No.: PA0025984

Test Completion Date: 10/25/2021

Replicate No.	Control	TIWC
1	27	16
2	24	19
3	24	24
4	27	27
5	28	29
6	24	23
7	25	22
8	24	27
9	28	21
10	25	22
11		
12		
13		
14		
15		
Mean	25.600	23.000
Std Dev.	1.713	3.944
# Replicates	10	10

T-Test Result	2.8970
Deg. of Freedom	13
Critical T Value	0.8702
Pass or Fail	**PASS**

Test Completion Date: 10/25/2022

Replicate No.	Control	TIWC
1	41	30
2	24	31
3	28	34
4	28	10
5	26	24
6	3	31
7	26	40
8	28	33
9	31	31
10	31	32
11		
12		
13		
14		
15		
Mean	26.600	29.600
Std Dev.	9.524	7.933
# Replicates	10	10

T-Test Result	2.8586
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	**PASS**

Test Completion Date: 10/30/2023

Replicate No.	Control	TIWC
1	24	25
2	24	17
3	24	26
4	20	27
5	20	22
6	27	24
7	26	24
8	23	24
9	28	22
10	23	27
11		
12		
13		
14		
15		
Mean	23.900	23.800
Std Dev.	2.644	2.974
# Replicates	10	10

T-Test Result	5.1978
Deg. of Freedom	16
Critical T Value	0.8647
Pass or Fail	**PASS**

Test Completion Date: 10/14/2024

Replicate No.	Control	TIWC
1	29	30
2	27	28
3	22	20
4	29	30
5	31	33
6	29	31
7	28	25
8	31	28
9	33	32
10	28	24
11		
12		
13		
14		
15		
Mean	28.700	28.100
Std Dev.	2.946	4.040
# Replicates	10	10

T-Test Result	4.5154
Deg. of Freedom	15
Critical T Value	0.8662
Pass or Fail	**PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.09
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Woods Run STP

Permit No.: PA0025984

Test Completion Date: 10/26/2021

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail: **PASS**

Test Completion Date: 10/25/2022

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail: **PASS**

Test Completion Date: 10/30/2023

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail: **PASS**

Test Completion Date: 10/14/2024

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail: **PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.09
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name

Woods Run STP

Permit No.

PA0025984

Replicate No.	Test Completion Date: 10/26/2021 Control	TIWC
1	1	1
2	1	1
3	1	1
4	0.9	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.975	1.000
Std Dev.	0.050	0.000
# Replicates	4	4

T-Test Result	26.1497
Deg. of Freedom	3
Critical T Value	0.7649
Pass or Fail	**PASS**

Replicate No.	Test Completion Date: 10/25/2022 Control	TIWC
1	1	0.9
2	1	1
3	0.9	1
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.975	0.975
Std Dev.	0.050	0.050
# Replicates	4	4

T-Test Result	14.8898
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	**PASS**

Replicate No.	Test Completion Date: 10/31/2023 Control	TIWC
1	1	0.9
2	1	1
3	1	0.9
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	1.000	0.950
Std Dev.	0.000	0.058
# Replicates	4	4

T-Test Result	14.6031
Deg. of Freedom	3
Critical T Value	0.7649
Pass or Fail	**PASS**

Replicate No.	Test Completion Date: 10/15/2024 Control	TIWC
1	1	1
2	0.9	1
3	1	1
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.975	1.000
Std Dev.	0.050	0.000
# Replicates	4	4

T-Test Result	26.1497
Deg. of Freedom	3
Critical T Value	0.7649
Pass or Fail	**PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.09
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name

Woods Run STP

Permit No.

PA0025984

Replicate No.	Test Completion Date: 10/26/2021 Control	TIWC
1	0.293	0.344
2	0.318	0.343
3	0.335	0.301
4	0.346	0.308
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.323	0.324
Std Dev.	0.023	0.023
# Replicates	4	4
T-Test Result	5.7273	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 10/25/2022 Control	TIWC
1	0.318	0.383
2	0.351	0.399
3	0.304	0.436
4	0.293	0.4011
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.317	0.405
Std Dev.	0.025	0.022
# Replicates	4	4
T-Test Result	11.4492	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 10/31/2023 Control	TIWC
1	0.488	0.438
2	0.475	0.498
3	0.5	0.445
4	0.496	0.461
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.490	0.461
Std Dev.	0.011	0.027
# Replicates	4	4
T-Test Result	6.6475	
Deg. of Freedom	4	
Critical T Value	0.7407	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 10/15/2024 Control	TIWC
1	0.377	0.418
2	0.349	0.408
3	0.336	0.399
4	0.331	0.414
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.348	0.410
Std Dev.	0.021	0.008
# Replicates	4	4
T-Test Result	16.9505	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

WET Summary and Evaluation

Facility Name	Woods Run STP
Permit No.	PA0025984
Design Flow (MGD)	250
Q_{7-10} Flow (cfs)	4730
PMF_a	0.0666
PMF_c	0.4612

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/25/21	10/25/22	10/30/23	10/14/24
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/26/21	10/25/22	10/30/23	10/14/24
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/26/21	10/25/22	10/31/23	10/15/24
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/26/21	10/25/22	10/31/23	10/15/24
Pimephales	Growth	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**
TIWC	**15** % Effluent
Dilution Series	**4, 8, 15, 58, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	

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: **Annually throughout the permit term**

The dilution series used for the tests was: 100%, 58%, 15%, 8%, and 4%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 15%.

Summary of Four Most Recent Test Results

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

TST Data Analysis

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

Test Date	***Ceriodaphnia* Results (Pass/Fail)**		***Pimephales* Results (Pass/Fail)**	
	Survival	**Reproduction**	**Survival**	**Growth**
10/25/21 and 10/26/21	PASS	PASS	PASS	PASS
10/25/22	PASS	PASS	PASS	PASS
10/30/23 and 10/31/23	PASS	PASS	PASS	PASS
10/14/24 and 10/15/24	PASS	PASS	PASS	PASS

***** *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:

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

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