pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0021113**
Facility Type	**Municipal**	APS ID	**624462**
Major / Minor	**Major**	Authorization ID	**1358963**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Glassport Borough**	Facility Name	**Glassport Borough STP**
Applicant Address	440 Monongahela Avenue	Facility Address	Harrison Street
	Glassport, PA 15045-1423		Glassport, PA 15045
Applicant Contact	Elaina Skiba	Facility Contact	Robert Karsnak
Applicant Phone	(412) 672-7400	Facility Phone	(412) 673-6461
Applicant Email	elainaskiba@hotmail.com	Facility Email	glassportsewageplant@gmail.com
Client ID	64304	Site ID	271455
Ch 94 Load Status	Not Overloaded	Municipality	Glassport Borough
Connection Status		County	Allegheny
Date Application Received	June 3, 2021	EPA Waived?	No
Date Application Accepted	June 24, 2021	If No, Reason	Major Facility

Purpose of Application: NPDES permit renewal for discharges of treated sewage from a publicly owned treatment works.

Summary of Review

On behalf of Glassport Borough (Glassport), KLH Engineers, Inc. submitted an application dated May 19, 2021 to renew NPDES Permit PA0021113 for discharges from the Glassport Borough Sewage Treatment Plant (Glassport Borough STP). The application was received by DEP on June 3, 2021. The permit currently in effect was issued on November 30, 2016 with an effective date of December 1, 2016 and an expiration date of November 30, 2021. The renewal application was submitted 180 days before the permit expired, so the terms and conditions of the 2016 permit were automatically extended past November 30, 2021.

In addition to updated requirements relating to Glassport's combined sewer overflows (discussed below), changes for this NPDES permit renewal include the addition of an annual reporting requirement for *E. coli* to Outfall 001 based on new water quality criteria for *E. coli* in 25 Pa. Code Chapter 93 (approved by U.S. EPA in March 2021) and related permitting policy updates; and the addition of quarterly monitoring requirements for four per- and polyfluoroalkyl substances (PFAS) to Outfall 001 according to permitting policy updates in February 2024 (discussed later in this Fact Sheet)

Combined Sewer Overflows (CSOs)

CSOs from Glassport's collection system for the Glassport Borough STP are identified in the following table.

Outfall No.	Description	Latitude	Longitude	Receiving Water
002	Lincoln St. & Monongahela Avenue; Regulator No. 1	40° 20′ 21″	-79° 53′ 54″	Monongahela River
003	Third and Monongahela Avenue; Regulator No. 5	40° 20′ 15″	-79° 53′ 54″	Monongahela River
004	Ninth and Ohio Avenue; Regulator No.4	40° 19′ 51″	-79° 53′ 42″	Monongahela River
005	Ohio and Broadway Avenue; Regulator No. 6	40° 19′ 45″	-79° 53′ 45″	Monongahela River
006	Harrison and Monongahela Avenue; Regulator No 2	40° 19′ 32″	-79° 53′ 32″	Monongahela River
106	Broadway Avenue; Regulator No. 3	40° 20′ 00″	-79° 53′ 00″	Monongahela River

Approve	Return	Deny	Signatures	Date
✓			Ryan C. Decker Ryan C. Decker, P.E. / Environmental Engineer	March 21, 2024
✓			Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineer Manager	March 26, 2024

Summary of Review

Broadway Avenue Regulator No. 3 discharges through Regulator No. 2 (Outfall 006). Therefore, Regulator No. 3 was designated as "106" to identify it as an internal outfall to Outfall 006.

Long-Term Control Plan for Glassport's CSOs

25 Pa. Code § 92a.47(b) requires dischargers of sewage from a CSO to implement nine minimum controls (NMCs) and a long-term control plan (LTCP)—as approved by DEP—to minimize or eliminate the CSO discharge's impact on the water quality of the receiving surface water.

The NPDES permit issued to Glassport on August 20, 1996 contained standard "Phase I" CSO conditions requiring Glassport to conduct a system inventory and hydraulic characterization; document and implement the NMCs; submit an LTCP and implementation schedule; implement the LTCP upon DEP's approval; and submit Annual CSO Status Reports as a supplement to the Annual Wasteload Management Report (Chapter 94 Report). Glassport submitted the system inventory and hydraulic characterization reports and documentation of its implementation of the NMCs but did not submit an LTCP. An Administrative Order was issued to Glassport on July 18, 2002 ordering Glassport to develop an LTCP for DEP's approval by August 1, 2002 and to implement the LTCP. Glassport submitted an LTCP in June 2003.

On August 14, 2007, EPA issued an Administrative Order requiring Glassport to submit an updated and amended LTCP. Glassport submitted an updated and amended LTCP in November 2008 (2008 LTCP Update). DEP deemed the 2008 LTCP Update deficient by letter dated August 26, 2014.

On March 10, 2015, Glassport submitted a second revised LTCP (2015 LTCP Update) addressing the deficiencies identified in DEP's August 26, 2014 letter. DEP approved the 2015 LTCP Update by letter dated March 31, 2015. The LTCP Update Task Implementation Schedule in that letter was as follows:

Task	Compliance Date
DEP Approval of LTCP Update	April 1, 2015
Continue Implementation of Nine Minimum Controls	Continuous
Complete Manhole Physical Survey/Visual Inspection	February 1, 2016
Complete Collection and Conveyance Sewer System CCTV inspection and Submit Detailed Report and Schedule for System Repairs and Improvements	January 1, 2017
Provide a Needs Assessment to Complete the Sewer System Repairs as discussed in Appendix G of the 2008 LTCP Update	August 1, 2017
Update Sewer System Map	August 1, 2017
Submit Evaluation and Schedule for Proposed Elimination of Stream Inflow Sources	August 1, 2017
Complete Detroit Avenue Stream Separation and Storm Water Cross-Connection Removal	April 1, 2018
Complete Sewer System Improvements and Defect Repairs	April 1, 2018
Submit Post-Construction Compliance Monitoring Plan	April 1, 2019

The 2015 LTCP Update's Task Implementation Schedule was incorporated into Glassport's renewed NPDES Permit issued on November 30, 2016.

As stated above, DEP received an application to renew NPDES Permit PA0021113 on June 3, 2021. By emailed dated March 10, 2022, DEP requested an update on the status of Glassport's implementation of the 2015 LTCP. Glassport's consultant, KLH, reported by email dated April 8, 2022 that none of the milestones identified in the 2016 NPDES permit had been completed. The only CSO-related project completed since 2015 was CSO Regulator No. 1 modifications and replacement of the Lincoln CSO outfall pipe under the CSX railroad tracks for CSO Outfall 002 in June 2021.

On July 12, 2022, the Allegheny County Health Department (ACHD) performed an NPDES Compliance Inspection with representatives of Glassport. On January 24, 2023, pursuant to the July 12, 2022 inspection, ACHD sent an inspection report and deficiencies letter to Glassport identifying various deficiencies including, among other things, the unavailability of NMC records/documentation. The letter also requested Glassport to complete the incomplete LTCP schedule milestones.

Summary of Review

On March 9, 2023, DEP met with representatives of Glassport Borough, KLH, and ACHD at the Glassport Municipal Building to discuss Glassport's non-compliance with the NPDES permit's LTCP milestones. At the meeting, DEP requested an updated LTCP schedule to implement the incomplete milestones. DEP also requested Glassport to provide updates on the issues identified in DEP's March 31, 2015 approval of the 2015 LTCP Update.

On March 23, 2023, ACHD conducted an inspection of the STP, including field analyses.

By letter dated April 28, 2023, KLH responded to ACHD's January 24, 2023 inspection report and deficiencies letter on behalf of Glassport. The letter indicated, among other things, that an LTCP Update and Revised Schedule was being prepared.

On May 8, 2023, ACHD sent a notice of violation letter to Glassport summarizing Glassport's statutory and regulatory violations, and NPDES permit violations. Among other things, the letter formally requested Glassport to notify ACHD and DEP of Glassport's plan and schedule for completing missed LTCP milestones and submitting an updated LTCP.

On June 21, 2023, KLH submitted a letter on behalf of Glassport responding to ACHD's May 8, 2023 notice of violation. In that letter, KLH provided the following updated LTCP schedule:

Task	Compliance Date
DEP Approval of LTCP Update	April 1, 2015
Continue Implementation of Nine Minimum Controls	Continuous
Complete Manhole Physical Survey/Visual Inspection	October 1, 2024
Complete Collection and Conveyance Sewer System CCTV inspection and Submit Detailed Report and Schedule for System Repairs and Improvements	October 1, 2025
Provide a Needs Assessment to Complete the Sewer System Repairs as discussed in Appendix G of the 2008 LTCP Update	April 1, 2026
Update Sewer System Map	May 1, 2026
Submit Evaluation and Schedule for Proposed Elimination of Stream Inflow Sources	May 1, 2026
Complete Detroit Avenue Stream Separation and Storm Water Cross-Connection Removal	June 1, 2027
Complete Sewer System Improvements and Defect Repairs	July 1, 2027
Submit Post-Construction Compliance Monitoring Plan	July 1, 2028

On January 25, 2024, DEP sent comments on the updated LTCP schedule to Glassport and KLH relating to: 1) the one-year timeframe between the completion of defect repairs and the submission of a Post-Construction Compliance Monitoring Plan; 2) the need for a final compliance date to achieve Glassport's selected performance standard (85% capture); and clarification of the design basis for Glassport's planned 85% capture (e.g., a design storm event or design rainfall amount).

On March 11, 2024, on behalf of Glassport, KLH submitted responses to DEP's January 25, 2024 comments and included the following updated LTCP schedule. Rather than reduce the timeframe between the completion of defect repairs and the submission of a Post-Construction Compliance Monitoring Plan, Glassport extended the timeframe for preceding tasks and extended the compliance date for submission of a Post-Construction Compliance Monitoring Plan by two months.

Task	Compliance Date	Change from Proposed 2023 Schedule
DEP Approval of LTCP Update	April 1, 2015	None
Continue Implementation of Nine Minimum Controls	Continuous	None
Complete Manhole Physical Survey/Visual Inspection	December 31, 2024	+3 months
Complete Collection and Conveyance Sewer System CCTV inspection and Submit Detailed Report and Schedule for System Repairs and Improvements	December 31, 2025	+3 months

Summary of Review

Task	Compliance Date	Change from Proposed 2023 Schedule
Provide a Needs Assessment to Complete the Sewer System Repairs as discussed in Appendix G of the 2008 LTCP Update	June 1, 2026	+2 months
Update Sewer System Map	July 1, 2026	+2 months
Submit Evaluation and Schedule for Proposed Elimination of Stream Inflow Sources	October 1, 2026	+5 months
Complete Detroit Avenue Stream Separation and Storm Water Cross-Connection Removal	November 1, 2027	+5 months
Complete Sewer System Improvements and Defect Repairs	July 1, 2028	+12 months
Submit Post-Construction Compliance Monitoring Plan (PCCMP)	September 1, 2028	+2 months
Begin PCCMP Implementation	Within 90 days of Department approval of PCCMP	New
Complete PCCMP Implementation	Within 365 days of commencement of Department approved PCCMP	New
Submit a report of the findings of Post-Construction Compliance Monitoring to the Department	Within 120 days of completion of PCCMP implementation	New
Comply with LTCP and CSO Performance Standard	Within 120 days of completion of PCCMP implementation	New

Glassport intends to meet the U.S. Environmental Protection Agency CSO Control Policy's Presumption Approach by reducing CSO volumes such that at least 85% of the combined sewage collected in the combined sewer system during precipitation events is captured and treated on a system-wide, annual average basis. The volume design basis for 85% capture will be the average annual rainfall during a typical year.

The updated LTCP schedule will be included in the draft NPDES permit. EPA will have an opportunity to review and comment on the schedule during the 30-day draft permit comment period. The updated LTCP schedule will be approved after EPA's review (including any revisions made in response to EPA's comments) and before the permit is renewed to be consistent with the requirements of 25 Pa. Code § 92a.51, which states, in part:

> Compliance schedules granted to CSO dischargers may exceed 5 years but may not exceed the period of implementation specified in an approved long-term control plan (LTCP).

Glassport's most recent LTCP schedule update will exceed the forthcoming permit's five-year term. Therefore, to include that updated schedule in the permit, it must be approved as an LTCP update before the final permit is issued. DEP has historically taken the position that issuing a permit with an LTCP schedule included does not qualify as approval, so a separate approval letter for the LTCP update will be issued.

Pretreatment Program

Glassport does not have an approved pretreatment program and does not meet the specific regulatory criteria in 40 CFR § 403.8(a) that require POTWs to establish pretreatment programs because the design flow of the Glassport Borough STP is 1.2 MGD, which is less than the 5.0 MGD applicability threshold in § 403.8(a). However, Glassport does have one industrial user, Tech Met, Inc.

Glassport's May 19, 2021 permit renewal application did not identify any industrial users (IUs), but an application update was submitted to DEP by KLH on April 12, 2022 to identify Tech Met, Inc. as a Significant Industrial User after DEP made Glassport aware of EPA's imposition of pretreatment requirements on Tech Met, Inc. and after Glassport and KLH visited Tech Met's facility on March 23, 2022.

Tech Met, Inc. conducts Metal Coating & Allied Services under SIC Code 3479 (NAICS 332812). The facility provides chemical milling and support operations for the aeronautical and medical industries. Wastewater pretreatment consists of neutralization, precipitation, settling, and filtration. Pretreatment requirements are imposed on Tech Met, Inc. by EPA through Industrial User

Summary of Review

Agreement #PAP121113. In accordance with, PAP121113, Tech Met, Inc. is subject to Pretreatment Standards for New Sources under 40 CFR § 433.17 – Metal Finish Point Source Category Effluent Limitations Guidelines. Regulated parameters include flow, pH, cadmium, chromium, copper, lead, nickel, silver, zinc, cyanide, and Total Toxic Organics. Tech Met, Inc. contributes about 2,500 gpd of process wastewater and about 2,000 gpd of sanitary wastewater to Glassport's collection system.

Based on DEP's discussions with EPA pertaining to PFAS, the General Pretreatment Program language in Part B.I.D of the permit has been updated. All POTWs will need to submit to EPA an updated listing of IUs in industrial categories expected or suspected to have PFAS discharges. The updated pretreatment program language is imposed when permits are renewed or amended with the listing submission due within six (6) months of the permit effective date. At a minimum, Tech Met, Inc. operates within one of the industries identified by EPA and would be an expected/suspected PFAS discharger.

Summary of Whole Effluent Toxicity (WET) Tests

The NPDES permit issued in 2016 required Glassport to collect discharge samples and perform WET tests to generate chronic survival and reproduction data for the cladoceran (water flea), *Ceriodaphnia dubia* and chronic survival and growth data for the fathead minnow, *Pimephales promelas*. The dilution series used for the tests was: 100%, 60%, 30%, 3%, and 1%. The Target Instream Waste Concentration (TIWC) used to analyze the results was 3%.

Glassport did not conduct annual WET tests in 2018 and 2019.

As summarized in the Whole Effluent Toxicity (WET) section of this Fact Sheet, Glassport passed all of its most recent WET tests conducted in March 2020, March 2021, April 2022, and May 2023. No WET limits will be imposed in the permit.

The TIWC in the renewed permit will be 1.0%. The dilution series in the renewed permit will be: 100%, 60%, 30%, 2%, and 1%. Annual testing will be required.

Sludge Use and Disposal Description and Location

Waste solids are stabilized using aerobic digestion. Class B biosolids are produced through aerobic digestion and the stabilized sludge is dewatered via a belt filter press and disposed of at the Kelly Run Landfill (Solid Waste Permit No. 100663).

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

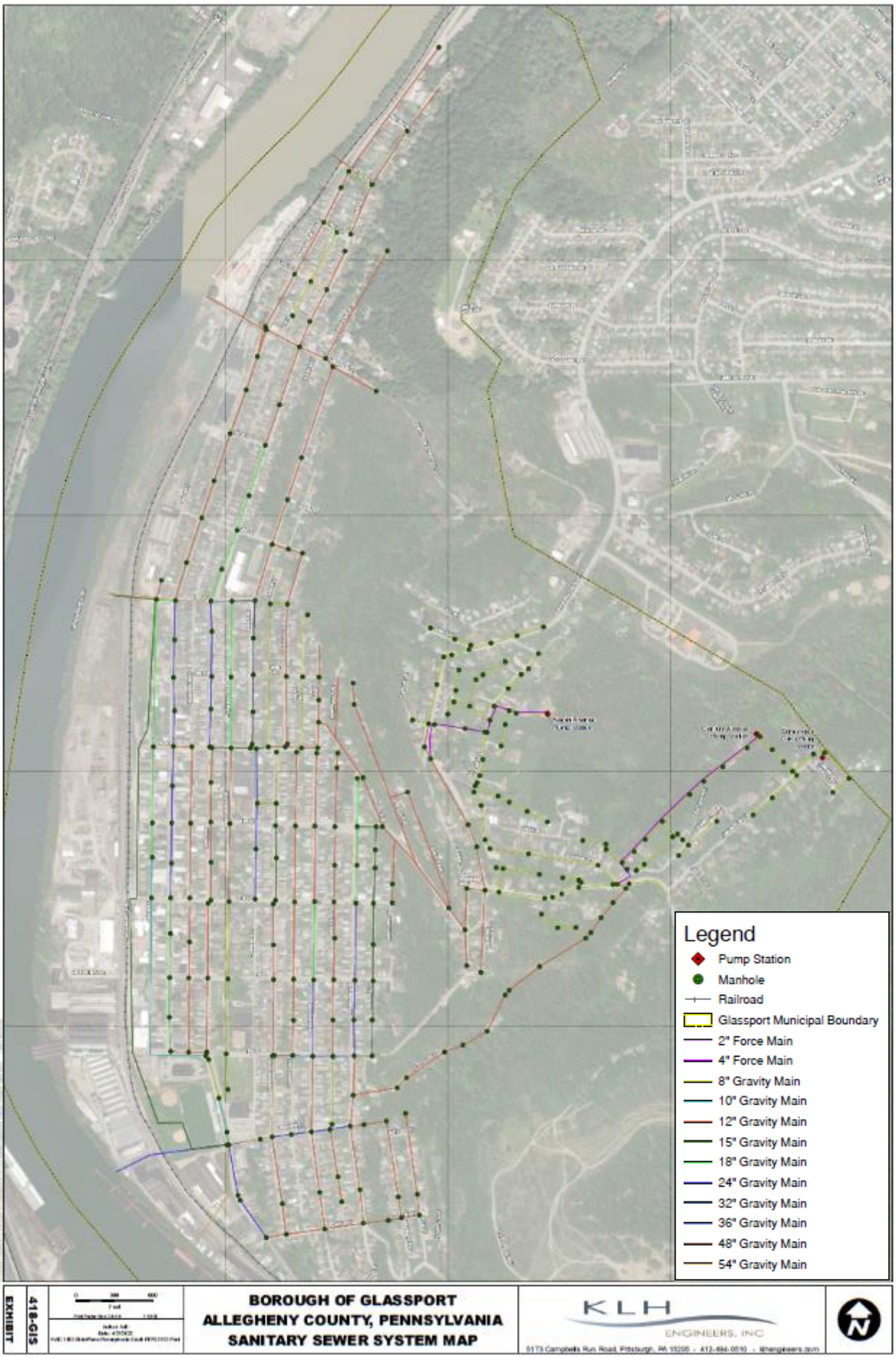
Outfall No.	001	Design Flow (MGD)	1.2
Latitude	40° 19' 52.52"	Longitude	-79° 53' 45.29"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	Treated sewage effluent		
Receiving Waters	Monongahela River (WWF)	Stream Code	37185
NHD Com ID	99408282	RMI	17.34
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)	1,060	Q_{7-10} Basis	US Army Corps. of Engrs.
Elevation (ft)	719 (normal pool)	Slope (ft/ft)	0.001
Watershed No.	19-C	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired (Fish Consumption)		
Cause(s) of Impairment	Polychlorinated Biphenyls (PCBs)		
Source(s) of Impairment	Source unknown		
TMDL Status	Final (4/9/2011)	Name	Monongahela River TMDL

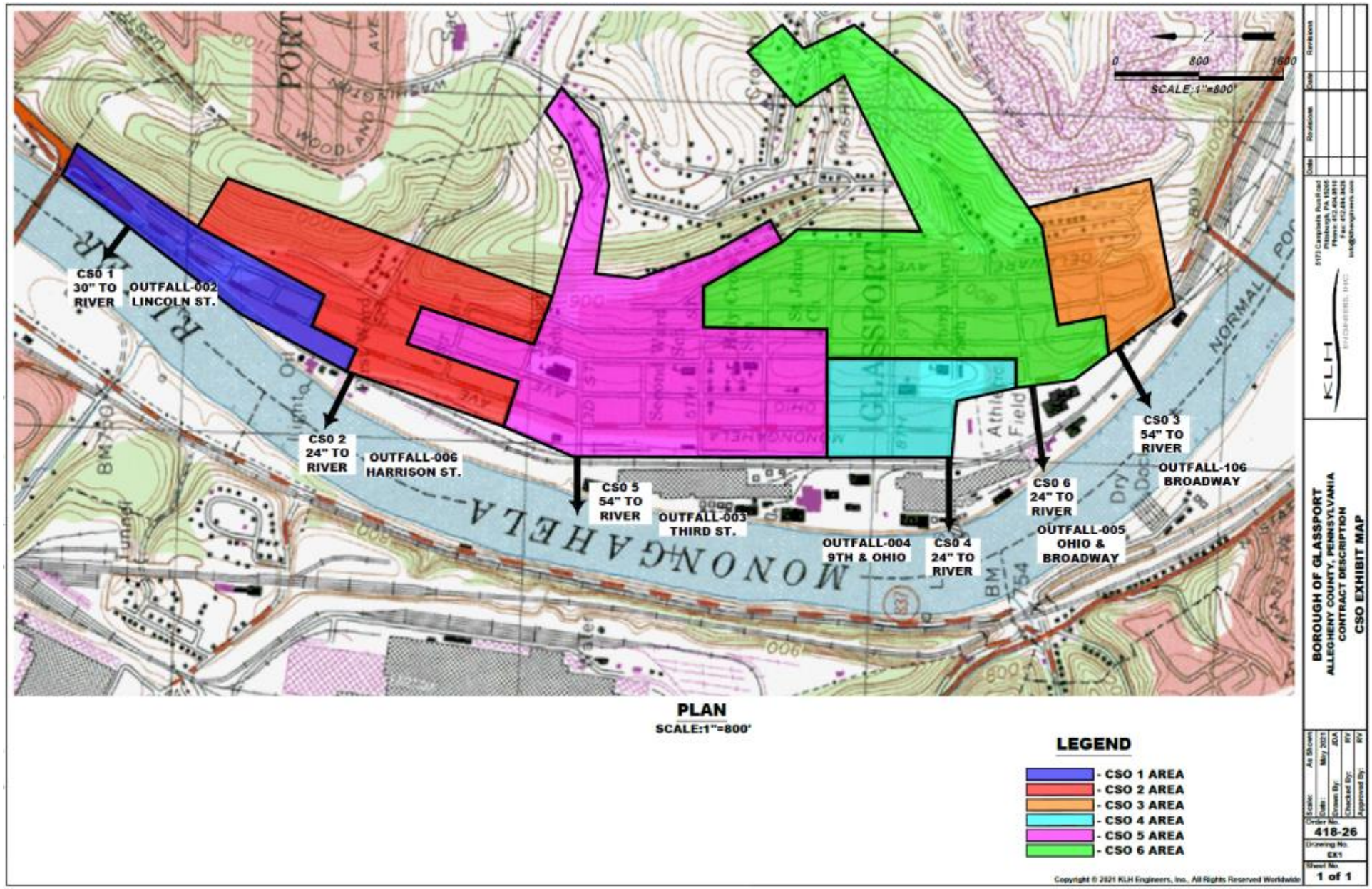
Background/Ambient Data		Data Source
pH (SU) (Summer)	7.7	WQN 732 –Monongahela River at Elizabeth (11/2010 to 3/2021) Median of data reported between July 1 and Sept. 30
Temperature (°F) (Summer)	25.4	WQN 732 – Monongahela River at Elizabeth (11/2010 to 3/2021) Median of data reported between July 1 and Sept. 30
Hardness (mg/L)	106	WQN 732 – Monongahela River at Elizabeth (11/2010 to 3/2021) Arithmetic mean of data
Other:		

Nearest Downstream Public Water Supply Intake		Pennsylvania American Water Company – Pittsburgh	
PWS ID	5020039	PWS Withdrawal (MGD)	69.0 (60 MGD safe yield)
PWS Waters	Monongahela River	Flow at Intake (cfs)	1,230
PWS RMI	4.46	Distance from Outfall (mi)	12.88

Changes Since Last Permit Issuance: None

Other Comments:


Legend
Pump Station
Manhole
Railroad
Glassport Municipal Boundary
2" Force Main
4" Force Main
8" Gravity Main
10" Gravity Main
12" Gravity Main
15" Gravity Main
18" Gravity Main
24" Gravity Main
32" Gravity Main
36" Gravity Main
48" Gravity Main
54" Gravity Main
EXHIBIT
418-GIS
BOROUGH OF GLASSPORT
ALLEGHENY COUNTY, PENNSYLVANIA
SANITARY SEWER SYSTEM MAP
KLH
ENGINEERS, INC


CS0 1
30" TO
RIVER
OUTFALL-002
LINCOLN ST.
CS0 2
24" TO
RIVER
OUTFALL-006
HARRISON ST.
CS0 5
54" TO
RIVER
OUTFALL-003
THIRD ST.
OUTFALL-004
9TH & OHIO
CS0 4
24" TO
RIVER
CS0 6
24" TO
RIVER
OUTFALL-005
OHIO &
BROADWAY
CS0 3
54" TO
RIVER
OUTFALL-106
BROADWAY
MONONGAHELA
SCALE:1"=800'
PLAN
SCALE:1"=800'
LEGEND
- CSO 1 AREA
- CSO 2 AREA
- CSO 3 AREA
- CSO 4 AREA
- CSO 5 AREA
- CSO 6 AREA
BOROUGH OF GLASSPORT
ALLEGHENY COUNTY, PENNSYLVANIA
CONTRACT DESCRIPTION
CSO EXHIBIT MAP
418-26
EX1
1 of 1
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Treatment Facility Summary		
Treatment Facility: Glassport Borough STP		
WQM Permit No.	**Issuance Date**	**Purpose**
461S23	June 30, 1961	Permit issued by the Sanitary Water Board to the Borough of Glassport for the construction of sewage interceptors and a 1.2 MGD sewage treatment plant. The collection system consisted of 3,010 feet of 10-inch sewer; 2,653 feet of 15-inch sewer; 4,008 feet of 18-inch sewer; 2,500 feet of 21-inch sewer; and 2,500 feet of 24-inch sewer. The sewage treatment plant consisted of one 6.0 MGD comminutor; a wet well; a dry well with one 833-gpm centrifugal pump and two 1,250-gpm centrifugal pumps; one air degritter; one 13,350-gallon pre-aeration tank; two 62,000-gallon sedimentation tanks; one 31,500-gallon chlorine contact tank with chlorinator; one 118,000-gallon primary anaerobic digester; one 91,000-gallon secondary anaerobic digester; one 55,200-gallon sludge reaeration tank; 15,000 sq. ft. open drying beds; one 2,630-gallon sludge concentration tank and associated appurtenances.
461S23 Modification	January 16, 1968	Permit modified by the Pennsylvania Department of Health pursuant to a December 20, 1967 Sanitary Water Board order requiring the Glassport Borough STP to effect “complete treatment” of sewage (85% BOD removal) versus the previously required “intermediate treatment” (50% BOD removal).
461S23 A-1	February 11, 1993	Permit amendment issued by the Department of Environmental Protection to the Borough of Glassport to convert the anaerobic sludge digestion system to an aerobic sludge digestion system. The anaerobic digesters had been used for years only to store sludge before it was hauled to ALCOSAN for processing. The conversion consisted of the removal of all hardware and piping associated with the anaerobic digesters except for the influent and sludge draw-off piping and pumping system and the installation of a coarse bubble aeration system. A magnetic flow meter also was installed on the waste sludge line and the electrical control center equipment was upgraded.
461S23 A-2	July 23, 2001	Letter amendment issued by the Pennsylvania Department of Environmental Protection to Glassport Borough to replace sludge drying beds (except for maybe one maintained as backup) with a 750 pounds per hour belt filter press and a polymer system to aid in sludge dewatering.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Activated Sludge with Solids Removal	Sodium Hypochlorite	0.34

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
1.2	124	Not Overloaded		

Treatment Facility Summary		
Treatment Facility: Glassport Borough STP – Collection Systems and Sewer Extensions		
WQM Permit No.	**Issuance Date**	**Purpose**
Unknown	October 5, 1908	Permit issued by the Sanitary Water Board to the Borough of Glassport for minor separate sewer extensions. Before construction of the sewers, the permit required Glassport to file a satisfactory report and plan of the existing sewer system and, by July 1, 1909, either alone or in conjunction with the city of McKeesport, devise plans for a comprehensive sewage system and treatment works (eventually filed in November 1910).

WQM Permit No.	Issuance Date	Purpose
Unknown	May 12, 1910	Permit issued by the Sanitary Water Board to the Borough of Glassport for minor separate sewer extensions.
Unknown	February 10, 1911	Permit issued by the Sanitary Water Board to the Borough of Glassport for minor separate sewer extensions.
Unknown	November 26, 1919	Permit issued by the Sanitary Water Board to the Borough of Glassport to authorize the existing combined sewer system and minor extensions, and the discharge of untreated sewage to the Monongahela River until McKeesport constructed its treatment works that would allow dry weather flow from the entire borough to be delivered to McKeesport's Tenth Ward. The permit required discharges of untreated sewage to cease by December 31, 1920. The deadline was extended by an April 28, 1921 letter to June 30, 1923.
3106 (Appl. 3965)	June 23, 1921	Permit issued by the Sanitary Water Board to the Borough of Glassport for the construction of a 15-inch sewer on Peach Alley from Pacific Avenue to Eight Street and 18-inch sewer from there to Ninth Street.
0286476	November 25, 1986	Permit issued by the Pennsylvania Department of Environmental Resources to Glassport Borough Council for 2,000 feet of 8" diameter gravity sanitary sewer to serve eleven units in the Ola Street area of Glassport. The estimated flow increase was 3,850 gallons/day.
0297406	August 19, 1998	Permit issued by the Pennsylvania Department of Environmental Protection to Glassport Borough for the construction of two pump stations: 1) the Naomi Avenue Pump Station with a trash basket, wet well, two constant-speed suction lift pumps at 80 gpm, an emergency generator, and an average design flow of 0.024 MGD and a peak design flow of 0.064 MGD; and 2) the Pennsylvania Avenue Pump Station with a trash basket, wet well, two constant-speed suction lift pumps at 80 gpm, an emergency generator, and an average design flow of 0.011 MGD and a peak design flow of 0.027 MGD. The permit also authorized the construction of 15,000 feet of 8" diameter PVC gravity sewer, 3,100 feet of 4" diameter PVC force main, and related appurtenances to serve the Washington Boulevard area of Glassport Borough.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	N/A	Collection	N/A	N/A

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
N/A	N/A		N/A	N/A

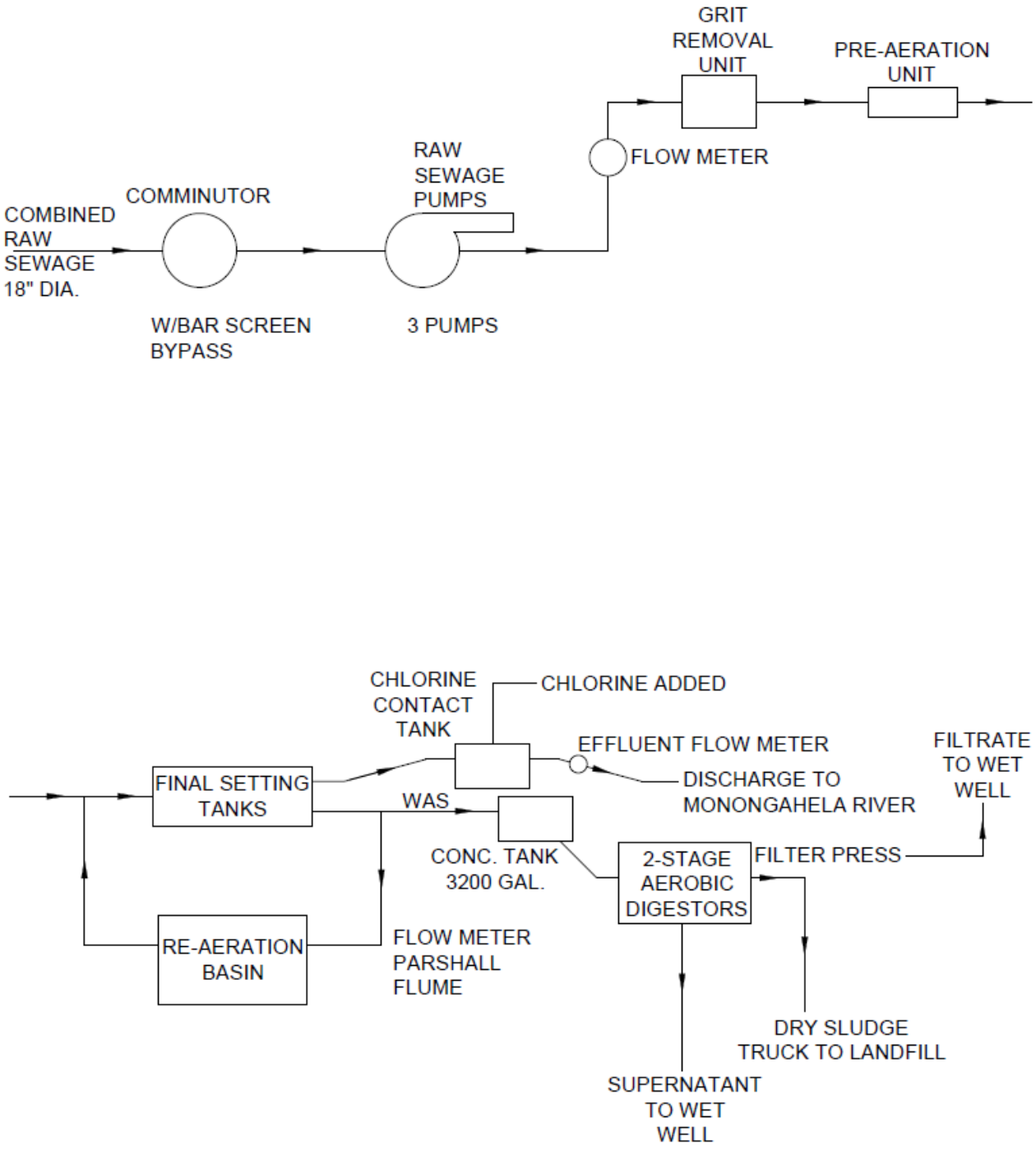
Treatment Facility Summary

Treatment Facility: Other Collection Systems

WQM Permit No.	Issuance Date	Purpose
0279488	December 20, 1979	Permit issued by the Pennsylvania Department of Environmental Resources to the Borough of Glassport for 2,500 feet of 8" diameter sanitary sewer for the Washington Boulevard and Edmundson Drive sewer extension that tied into the City of McKeesport's sewage treatment plant.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	N/A	Collection	N/A	N/A

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
N/A	N/A		N/A	N/A



KLH ENGINEERS, INC
5173 Campbells Run Road
Pittsburgh, Pa 15205
Phone: 412-494-0510 - Fax: 412-494-0426
info@klhengineers.com

GLASSPORT BOROUGH
ALLEGHENY COUNTY, PENNSYLVANIA
SEWAGE TREATMENT PLANT
PROCESS FLOW CHART

Scale:	N.T.S.
Date:	May 2021
Drawn By:	JDA
Checked By:	RV
Approved By:	RV

Order No. **418-26**
Drawing No. **EX2**
Sheet No. **1 of 1**

Compliance History

DMR Data for Outfall 001 (from December 1, 2022 to November 30, 2023)

Parameter	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23
Flow (MGD) Average Monthly	0.932	0.59	0.5	0.53	0.49	0.62	0.6	0.57	0.64	0.73	0.86	0.69
Flow (MGD) Daily Maximum	2.23	1.46	1.25	0.57	0.96	1.34	1.04	1.33	1.26	1.13	2.2	1.43
pH (S.U.) Minimum	6.2	6.2	7.1	7.0	7.0	7.2	7.0	6.7	6.7	6.7	6.8	6.9
pH (S.U.) Maximum	6.7	7.4	7.4	7.5	7.5	7.5	7.4	7.4	7.0	6.9	6.9	7.2
DO (mg/L) Minimum	4.02	4.01	4.03	4.02	4.02	4.02	4.02	4.0	4.01	4.01	4.01	4.02
TRC (mg/L) Average Monthly	0.4	0.4	0.4	0.4	0.3	0.4	0.35	0.3	0.3	0.3	0.4	0.4
TRC (mg/L) Instantaneous Maximum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5
CBOD5 (lbs/day) Average Monthly	< 50	< 20	< 22	< 11	< 17	< 18	< 20	< 24	< 21	< 48	< 27	< 23
CBOD5 (lbs/day) Weekly Average	142	< 43	63	17	26	31	27	56	27	< 68	31	38
CBOD5 (mg/L) Average Monthly	< 5	< 3	< 4	< 3	< 4	< 4	< 5	< 4	< 4	< 9	< 5	< 4
CBOD5 (mg/L) Weekly Average	9	< 4	7	5	7	6	6	6	6	< 13	5	4
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	398	345	320	247	332	208	205	309	310	310	264	256
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	699	593	600	303	1017	377	418	465	396	389	382	344
BOD5 (mg/L) Raw Sewage Influent Average Monthly	57	67	76	69	70	45	50	64	61	57	45	45
TSS (lbs/day) Average Monthly	< 107	< 34	< 26	< 19	< 25	< 27	< 22	< 41	< 27	< 31	< 36	< 35
TSS (lbs/day) Raw Sewage Influent Average Monthly	420	316	269	265	419	255	181	303	281	241	265	293
TSS (lbs/day) Raw Sewage Influent Daily Maximum	936	828	413	378	673	746	390	932	378	300	350	544

Parameter	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23
TSS (lbs/day) Weekly Average	304	< 70	< 56	22	34	35	< 26	111	< 44	47	< 55	< 44
TSS (mg/L) Average Monthly	< 10	< 6	< 5	< 5	< 6	< 6	< 5	< 7	< 5	< 6	< 6	< 6
TSS (mg/L) Raw Sewage Influent Average Monthly	53	57	69	74	99	52	43	56	56	44	45	51
TSS (mg/L) Weekly Average	20	< 7	< 7	6	10	7	< 6	13	5	9	< 9	7
Fecal Coliform (CFU/100 ml) Geometric Mean	< 36	276	< 47	< 283	< 62	37	< 107	< 88	< 16	< 15	< 70	< 35
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	7770	> 12100	> 12100	12100	> 12100	> 12000	12100	8660	180	306	4900	5600
Total Nitrogen (mg/L) Daily Maximum		7.58			12			16.2			7.58	
Ammonia (mg/L) Average Monthly	< 3.22	3.88	7.58	7.56	6.85	6.27	7.05	9.9	8.85	7.89	5.15	6.1
Ammonia (mg/L) Weekly Average	6.45	6.57	9.95	9.07	10.1	10.15	8.61	13.85	12	10.01	8.47	8.81
Total Phosphorus (mg/L) Daily Maximum		0.65			0.57			0.61			0.42	

Compliance History

Effluent Violations for Outfall 001, from: March 1, 2023 To: January 31, 2024

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	06/30/23	IMAX	8660	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	09/30/23	IMAX	> 12100	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	08/31/23	IMAX	> 12000	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	12/31/23	IMAX	> 12100	CFU/100 ml	10000	CFU/100 ml
Fecal Coliform	07/31/23	IMAX	12100	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	10/31/23	IMAX	12100	CFU/100 ml	10000	CFU/100 ml
Fecal Coliform	11/30/23	IMAX	> 12100	CFU/100 ml	10000	CFU/100 ml
Fecal Coliform	07/31/23	IMAX	12100	CFU/100 ml	1000	CFU/100 ml

Summary of Inspections:

Other Comments:

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 1.2
Latitude 40° 19' 52.00" **Longitude** -79° 53' 43.00"
Wastewater Description: Treated sewage effluent

The STP consists of a comminutor with a manual bar screen bypass, three raw sewage pumps, a grit removal unit, a contact or pre-aeration tank, two final settling tanks, and a chlorine contact tank. Return activated sludge from the final settling tanks flows through a Parshall flume to a re-aeration tank and then back into the final settling tanks. Waste activated sludge from the final settling tanks flows to a 3,200-gallon concentration tank and then to two-stage aerobic digestors and a belt filter press. Dewatered sludge is trucked to the Kelly Run Landfill and supernatant from the digestors and filtrate from the filter press is directed back to the STP's influent wet well.

001.A. Technology-Based Effluent Limitations (TBELs)

25 Pa. Code § 92a.47 – Sewage Permits

Regulations at 25 Pa. Code § 92a.47 specify TBELs and effluent standards that apply to sewage discharges. Section 92a.47(a) requires that sewage be given a minimum of secondary treatment with significant biological treatment that achieves the following:

Table 1. Regulatory TBELs for Sanitary Wastewaters

Parameter	Average Monthly (mg/L)	Average Weekly (mg/L)	Instant. Max (mg/L)	Basis
CBOD5	25	40†	50††	25 Pa. Code § 92a.47(a)(1), (a)(2) & 40 CFR §§ 133.102(a)(4)(i) & (ii)
Total Suspended Solids	30	45	60††	25 Pa. Code § 92a.47(a)(1), (a)(2) & 40 CFR §§ 133.102(b)(1) & (b)(2)
Fecal Coliform (No./100 mL) May 1 – September 30	200 (Geometric Mean)	N/A	1,000	25 Pa. Code § 92a.47(a)(4)
Fecal Coliform (No./100 mL) October 1 – April 30	2,000 (Geometric Mean)	N/A	10,000	25 Pa. Code § 92a.47(a)(5)
Total Residual Chlorine	0.5 (or facility-specific)	N/A	1.6 (or facility-specific)	25 Pa. Code § 92a.47(a)(8) & § 92a.48(b)(2)
pH (s.u.)	not less than 6.0 and not greater than 9.0			25 Pa. Code § 92a.47(a)(7) & § 95.2(1), & 40 CFR § 133.102(c)

† Outfall 001 is currently subject to a more stringent CBOD5 weekly average limit of 38 mg/L.

†† IMAX values are calculated as two times the monthly average in accordance with Chapter 2 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations. and Other Permit Conditions in NPDES Permits" [Doc. No. 362-0400-001].

The CBOD5, TSS, and pH limits are the same as those in EPA's secondary treatment regulation (40 CFR § 133.102). Outfall 001 is currently subject to a more stringent average weekly CBOD5 limit of 38 mg/L. That limit will be maintained in the renewed permit pursuant to EPA's anti-backsliding regulation (40 CFR § 122.44(l)).

Average monthly and maximum daily flows must be reported pursuant to 25 Pa. Code § 92a.61(d)(1). The existing minimum dissolved oxygen limit of 4.0 mg/L will be maintained at Outfall 001 pursuant to 40 CFR § 122.44(l) (regarding anti-backsliding) and 25 Pa. Code § 92a.61(b) (regarding reasonable monitoring requirements).

In accordance with Section I of DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits" [SOP No. BCW-PMT-033, Version 2.0, February 5, 2024] and under the authority of 25 Pa. Code § 92a.61(b), reporting for Total Nitrogen and Total Phosphorus is required for sewage discharges with design flows greater than 2,000 gpd to evaluate treatment effectiveness and to monitor nutrient loading to the receiving watershed. The SOP states that the monitoring frequencies for Total Nitrogen and Total Phosphorus should be equivalent to the monitoring frequencies for other conventional pollutants if the facility discharges to a nutrient-impaired water or potentially a lesser frequency if the receiving water is not nutrient-impaired. The Monongahela River is not impaired by nutrients, so DEP previously used its discretion to require quarterly monitoring for Total Nitrogen and Total Phosphorus, which will be maintained in the renewed permit.

Pursuant to that same SOP and under the authority of § 92a.61(b), a monthly reporting requirement for *E. coli* will be added to Outfall 001 because the design flow of the STP exceeds 1 MGD. *E. coli* was recently added to the bacteria water quality criteria in 25 Pa. Code § 93.7(a). The monitoring will be used to determine if *E. coli* concentrations require additional controls.

Mass Limits

In accordance with Table 5-3 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits" and Section IV of DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits", mass limits are calculated for CBOD5 and TSS. Average monthly and average weekly mass limits (in units of pounds per day) are calculated using the concentration limits in Table 1 (including the 38 mg/L average weekly CBOD5 limit) and the WWTP's 1.2 MGD design flow with the following formula:

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

Table 2. Mass TBELs for Sanitary Wastewaters

Parameter	Average Monthly (mg/L)	Average Weekly (mg/L)
CBOD5	250.0	380.0
Total Suspended Solids	300.0	450.0

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

Influent Monitoring

Pursuant to Section IV.E.8 of DEP's "Standard Operating Procedure (SOP) for Clean Water Program New and Reissuance Sewage Individual NPDES Permit Applications" [SOP No. BCW-PMT-002, Version 2.0, February 3, 2022], for POTWs with design flows greater than 2,000 GPD, influent BOD_5 and TSS monitoring is established in the permit with the same sample frequency and sample type used for the effluent. As explained in Section 001.C, below, the Glassport Borough STP's effluent must be analyzed for CBOD5 and TSS 2/week using 24-hour composite sampling. Therefore, influent samples must be analyzed for BOD and TSS 2/week using 24-hour composite sampling.

Per- and Polyfluoroalkyl Substances (PFAS)

In February 2024, DEP implemented a new monitoring initiative for PFAS. PFAS are a family of thousands of synthetic organic chemicals that contain a chain of strong carbon-fluorine bonds. Many PFAS are highly stable, water- and oil-resistant, and exhibit other properties that make them useful in a variety of consumer products and industrial processes. PFAS are resistant to biodegradation, photooxidation, direct photolysis, and hydrolysis and do not readily degrade naturally; thus, many PFAS accumulate 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 some PFAS, combined with decades of widespread use, have resulted in their presence in surface water, groundwater, drinking water, rainwater, soil, sediment, ice caps, outdoor and indoor air, plants, animal tissue, and human blood serum across the globe. ATSDR also reported that exposure to certain PFAS can lead to adverse human health impacts.[1] Due to their durability, toxicity, persistence, and pervasiveness, PFAS have emerged as potentially significant pollutants of concern.

In accordance with Section II.G of DEP's "Standard Operating Procedure (SOP) for Clean Water Program – Establishing Effluent Limitations for Individual Sewage Permits" [SOP No. BCW-PMT-033] and under the authority of 25 Pa. Code § 92a.61(b), DEP has determined that monitoring for a subset of common/well-studied PFAS including Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA) is necessary to help understand the extent of environmental contamination by PFAS in the Commonwealth and the extent to which point source dischargers (including POTWs) are contributors. Section II.G. of SOP BCW-PMT-033 directs permit writers to consider special monitoring requirements for PFOA, PFOS, PFBS, and HFPO-DA in the following instances:

[1] ATSDR, "Toxicological Profile for Perfluoroalkyls". Patrick N. Breysse, Ph.D., CIH Director, National Center for Environmental Health and Agency for Toxic Substances and Disease Registry Centers for Disease Control and Prevention, May 2021.

1. If sampling that is completed as part of the permit renewal application reveals a detection of PFOA, PFOS, HFPO-DA or PFBS (any of these compounds), the application manager will establish a quarterly monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds) in the permit.

2. If sampling that is completed as part of the permit renewal application demonstrates non-detect values at or below the Target QLs for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds in a minimum of 3 samples), the application manager will establish an annual monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS in the permit.

3. In all cases the application manager will include a footnote in the permit that the permittee may cease monitoring for PFOA, PFOS, HFPO-DA, and PFBS when the permittee reports non-detect values at or below the Target QL for four consecutive monitoring periods for each PFAS parameter that is analyzed. The application manager will use the following language for the footnote: *The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detect results at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L*

Glassport's application was submitted before the NPDES permit application forms were updated to require sampling for PFOA, PFOS, PFBS, and HFPO-DA, so the concentrations of those PFAS in Glassport's effluent are unknown. However, Glassport does have an industrial user, Tech Met, Inc., that operates in the metal finishing industry, which is one of EPA's target industries for its Multi-Industry PFAS Study.[2] EPA is working on a rulemaking to modify the Metal Finishing Effluent Limitations Guidelines in 40 CFR Part 433 with a focus on chromium finishing facilities.

The Tech Met, Inc. facility in Glassport is on a list of 2,034 facilities EPA identified as likely performing one or more of the following chromium finishing operations: chromium plating, chromium anodizing, chromic acid etching, or chromate conversion coating for which EPA intends to issue a mandatory questionnaire under Section 308 of the Clean Water Act to collect information and data on operations, PFAS use, wastewater generation, and wastewater management.[3]

Even though Glassport did not report results for PFOA, PFOS, PFBS, and HFPO-DA on the permit application, as a POTW that receives pretreated effluent from a facility likely to handle PFAS, it is reasonable to conclude that if Glassport did report results for PFOA, PFOS, PFBS, and HFPO-DA on the application, then the results may have been detected values, which would subject Glassport to the quarterly monitoring requirements described in Section II.G.1 of the SOP. Therefore, quarterly monitoring and reporting will be required for PFOA, PFOS, PFBS, and HFPO-DA at Outfall 001.

As stated in Section II.G.3 of the SOP, if non-detect values at or below DEP's Target QLs are reported for four consecutive monitoring periods (i.e., four consecutive quarterly results in Glassport's case), then the monitoring may be discontinued. Also, as discussed in the introductory section of this Fact Sheet, within six (6) months of the permit effective date, Glassport will be required to submit a listing of IUs in industrial categories expected or suspected of PFAS discharges to EPA.

001.B. <u>Water Quality-Based Effluent Limitations (WQBELs)</u>

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. Therefore, WQBELs for CBOD-5 and ammonia-nitrogen are re-evaluated even though there have been no changes to the STP's primary outfall.

<u>WQM 7.0 Water Quality Modeling Program</u>

WQM 7.0 is a water quality modeling program for Windows that determines Waste Load Allocations ("WLAs") and effluent limitations for carbonaceous biochemical oxygen demand ("CBOD5"), ammonia-nitrogen, and dissolved oxygen ("D.O.") for single and multiple point-source discharge scenarios. To accomplish this, the model simulates two basic processes. In the ammonia-nitrogen module, the model simulates the mixing and degradation of ammonia-nitrogen in the stream and compares calculated instream ammonia-nitrogen concentrations to ammonia-nitrogen water quality criteria. In the D.O. module, the model simulates the mixing and consumption of D.O. in the stream due to the degradation of CBOD5 and ammonia-nitrogen and compares calculated instream D.O. concentrations to D.O. water quality criteria. WQM 7.0 then determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions.

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[2] USEPA, "Multi-Industry Per- and Polyfluoroalkyl Substances (PFAS) Study – 2021 Preliminary Report". Office of Water (4303T). EPA-821-R-21-004. September 2021.

[3] https://www.regulations.gov/docket/EPA-HQ-OW-2022-0869

Water Quality Modeling for Outfall 001 with WQM 7.0

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

DEP's modeling for sewage discharges is a two-step process. First, a discharge is modeled for the summer period (May through October) using warm temperatures for the discharge and the receiving stream. Modeling for the summer period is done first because allowable ammonia concentrations in a discharge are lower at higher temperatures (i.e., warm temperatures are more likely to result in critical loading conditions). Reduced D.O. levels also appear to increase ammonia toxicity and the maximum concentration of D.O. in water is lower at higher temperatures.

The second step is to evaluate WQBELs for the winter period, but only if modeling shows that WQBELs are needed for the summer period. For the summer period, pursuant to DEP's "Implementation Guidance of Section 93.7 Ammonia Criteria" [Doc. No. 391-2000-013] (Ammonia Guidance) and in the absence of site-specific data, the discharge temperature is assumed to be 20°C. Per that same guidance, the site-specific stream temperature is 25.4°C based on the median temperature from July 1st through September 30th at Water Quality Network Station 732 – Monongahela River at Elizabeth for the period of record lasting from November 2010 through March 2021. The site-specific stream pH is 7.7 s.u., which is the median pH from that same period of record at WQN Station 732.

Table 3. 001 Modeling Inputs

Discharge Characteristics	
Parameter	**Value**
River Mile Index	17.34
Discharge Flow (MGD)	1.2
Discharge Temp. (°C) (Summer)	20.0
Discharge Temp. (°C) (Winter)	15.0
Basin/Stream Characteristics	
Parameter	**Value**
Drainage Area (sq. mi.)	5,410
Q_{7-10} (cfs)	1,060
Low-flow yield (cfs/mi^2)	0.196
Elevation (ft)	719
Slope (ft/ft)	0.001
Stream Width (ft)	775
Stream Depth (ft)	12.0
Stream Temp. (°C) (Summer)	25.0
Stream Temp. (°C) (Winter)	5.0
Stream pH (s.u.)	7.7

The Q_{7-10} flow of the Monongahela River in the vicinity of Outfall 001 is regulated to a minimum flow of 1,060 cfs, which is entered into WQM 7.0 as the stream flow at river mile index 17.34. To ensure that mixing conditions are properly represented in WQM 7.0, the reach width and reach depth are approximated as 775 feet and 12 feet, respectively. The flow used for modeling is the average design flow (1.2 MGD). The input discharge concentrations are the model's defaults: 25 mg/L for both CBOD5 and ammonia-nitrogen.

Downstream nodes are entered into WQM 7.0 at river miles 16.34 and 15.68. At RMI 16.34, the Pennsylvania American Water Company discharges 0.48 MGD of treated sewage from the Dravosburg Borough STP (PA0028401) to the Monongahela River. At RMI 15.68, the Pennsylvania American Water Company discharges 13.0 MGD of treated sewage from the McKeesport Borough STP (PA0026913) to the Monongahela River.

WQM 7.0 modeling results (see **Attachment A**) return the input discharge concentrations as the recommended limits, which means that WQBELs are not needed for CBOD5 or ammonia-nitrogen. Pursuant to DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits", for existing dischargers where modeling results for summer indicate that an average monthly limit of 25 mg/L for ammonia-nitrogen is acceptable, year-round monitoring is established for ammonia-nitrogen. Such monitoring was imposed in the previous permit and will be maintained in the renewed permit.

Toxics Management Spreadsheet Water Quality Modeling Program and Procedures for Evaluating Reasonable Potential

WQBELs are developed pursuant to Section 301(b)(1)(C) of the Clean Water Act and, per 40 CFR § 122.44(d)(1)(i), are imposed to "control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) that are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality." The Department of Environmental Protection developed the DEP Toxics Management Spreadsheet (TMS) to facilitate calculations necessary to complete a reasonable potential (RP) analysis and determine WQBELs for discharges of toxic and some nonconventional pollutants.

The TMS is a single discharge, mass-balance water quality modeling program for Microsoft Excel® that considers mixing, first-order decay, and other factors to determine WQBELs for toxic and nonconventional pollutants. Required input data including stream code, river mile index, elevation, drainage area, discharge flow rate, low-flow yield, and the hardness and pH of both the discharge and the receiving stream are entered into the TMS to establish site-specific discharge conditions. Other data such as reach dimensions, partial mix factors, and the background concentrations of pollutants in the stream also may be entered to further characterize the discharge and receiving stream. The pollutants to be analyzed by the model are identified by inputting the maximum concentration reported in the permit application or Discharge Monitoring Reports,

or by inputting an Average Monthly Effluent Concentration (AMEC) calculated using DEP's TOXCONC.xls spreadsheet for datasets of 10 or more effluent samples. Pollutants with no entered concentration data and pollutants for which numeric water quality criteria in 25 Pa. Code Chapter 93 have not been promulgated are excluded from the modeling.

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 to the input discharge concentration to determine whether permit requirements apply in accordance with the following RP thresholds:

- Establish limits in the permit where the maximum reported effluent concentration or calculated AMEC equals or exceeds 50% of the WQBEL. Use the average monthly, maximum daily, and instantaneous maximum (IMAX) limits for the permit as recommended by the TMS (or, if appropriate, use a multiplier of 2 times the average monthly limit for the maximum daily limit and 2.5 times the average monthly limit for IMAX).
- For non-conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 25% - 50% of the WQBEL.
- For conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 10% - 50% of the WQBEL.

In most cases, pollutants with effluent concentrations that are not detectable at the level of DEP's Target Quantitation Limits are eliminated as candidates for WQBELs and water quality-based monitoring.

Reasonable Potential Analysis and WQBEL Development for Outfall 001

Discharges from Outfall 001 are evaluated based on the maximum concentrations reported on the permit renewal application. The TMS model is run for Outfall 001 with the modeled discharge and receiving stream characteristics shown in Table 3 (excluding temperatures which is not required for analyses using the TMS). Pollutants for which water quality criteria have not been promulgated (e.g., TSS, oil and grease, etc.) are excluded from the modeling.

Output from the TMS model run is included in **Attachment B**. As explained previously, the TMS compares the input discharge concentrations to the calculated WQBELs using DEP's RP thresholds to evaluate the need to impose WQBELs or monitoring requirements in the permit. Based on the results of the TMS modeling, no WQBELs or water quality-based reporting requirements apply at Outfall 001.

Total Residual Chlorine

To determine if WQBELs are required for discharges containing total residual chlorine (TRC), a discharge evaluation is performed using a DEP program called TRC_CALC created with Microsoft Excel for Windows. TRC_CALC calculates TRC Waste Load Allocations (WLAs) through the application of a mass balance model which considers TRC losses due to stream and discharge chlorine demands and first-order chlorine decay. Input values for the program include flow rates and chlorine demands for the receiving stream and the discharge, the number of samples taken per month, coefficients of TRC variability, partial mix factors, and an optional factor of safety. The mass balance model calculates WLAs for acute and chronic criteria that are then converted to long-term averages using calculated multipliers. The multipliers are functions of the number of samples taken per month and the TRC variability coefficients (normally kept at default values unless site specific information is available). The most stringent limitation between the acute and chronic long-term averages is converted to an average monthly limit for comparison to the BAT average monthly limit of 0.5 mg/l from 25 Pa. Code § 92a.48(b)(2). The more stringent of these average monthly TRC limitations is imposed in the permit.

Acute and chronic partial mix factors calculated by the Toxics Management Spreadsheet (0.155 and 1.0, respectively) are used in TRC_CALC. The stream flow is the regulated minimum flow of the Monongahela River for this segment of the river, 1,060 cfs. The discharge flow is the average design flow, 1.2 MGD. The number of samples is 30 because TRC must be sampled daily.

The results of the modeling, included in **Attachment C**, indicate that no WQBELs are required for TRC, which is consistent with DEP's determinations for previous permits. Technology-based limits from 25 Pa. Code § 92a.47(a)(8) will control TRC.

Monongahela River Impairment and TMDL

The Monongahela River's fish consumption use is impaired by PCBs and chlordane. There is a final TMDL addressing PCBs and chlordane that was approved by EPA on April 9, 2001. The TMDL sets waste load allocations for point source

discharges of PCBs and chlordane to zero because no point source discharges of PCBs and chlordane were identified during development of the TMDL. The TMDL only provides load allocations for non-point sources.

The Glassport Borough STP is not expected to discharge PCBs or chlordane; has no industrial users that are expected to introduce PCBs or chlordane; and is otherwise prohibited by the TMDL from discharging those pollutants (as with all point source discharges to the river). Since the facility is not expected to discharge PCBs or chlordane, the facility will not contribute to the fish consumption use impairment caused by those pollutants and the facility is consequently unaffected by the TMDL. However, to ensure the permit reflects the requirements of the TMDL with its 'zero' wasteload allocations for PCBs and chlordane, the following narrative limitation will be included as a condition in Part C of the permit: "There shall be no point source discharges of Polychlorinated Biphenyls (PCBs) or Chlordane to the Monongahela River."

001.C. Effluent Limits and Monitoring Requirements for Outfall 001

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under 40 CFR § 122.44(l)[4] (incorporated by reference in Pennsylvania regulations at 25 Pa. Code § 92a.44), effluent limits applicable at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal; and effluent limits and monitoring requirements from the previous permit, subject to any exceptions to anti-backsliding discussed previously in this Fact Sheet. Applicable effluent limits and monitoring requirements are summarized in the table on the following page.

Table 4. Effluent Limits and Monitoring Requirements for Outfall 001

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Weekly Average	Average Monthly	Weekly Average	Instant. Maximum	
Flow (MGD)	Report	Report (Daily Max)	—	—	—	25 Pa. Code § 92a.61(h)
$CBOD_5$	250.0	380.0	25.0	38.0	50.0	25 Pa. Code § 92a.47(a)(1)
Total Suspended Solids	300.0	450.0	30.0	45.0	60.0	25 Pa. Code § 92a.47(a)(1)
CBOD5 (Influent)	—	—	—	Report	Report	25 Pa. Code § 92a.61(b)
TSS (Influent)	—	—	—	Report	Report	25 Pa. Code § 92a.61(b)
Fecal Coliform (No. /100mL) April 1 – October 31	—	—	200	—	1000	25 Pa. Code § 92a.47(a)(4) & 40 CFR § 122.44(l)
Fecal Coliform (No. /100mL) November 1 – Mar 31	—	—	2000	—	10000	25 Pa. Code § 92a.47(a)(5) & 40 CFR § 122.44(l)
E. coli (No./100mL)	—	—	—	—	Report	25 Pa. Code § 92.61(b)
Dissolved Oxygen	—	—	4.0 (Min.)	—	—	CWA § 402(a)(1); BPJ TBEL
Total Residual Chlorine	—	—	0.5	—	1.6	25 Pa. Code § 92a.47(a)(8)
Ammonia-Nitrogen	Report	—	Report	—	Report	25 Pa. Code § 92.61(b)
Total Nitrogen	—	—	—	Report (Daily Max)	—	25 Pa. Code § 92.61(b)
Total Phosphorus	—	—	—	Report (Daily Max)	—	25 Pa. Code § 92.61(b)
Perfluorooctanoic acid (PFOA)	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
Perfluorooctanesulfonic acid (PFOS)	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
Perfluorobutanesulfonic acid (PFBS)	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
Hexafluoropropylene oxide dimer acid (HFPO-DA)	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
pH (standard units)	not less than 6.0 nor greater than 9.0 standard units					25 Pa. Code § 92a.47(a)(7) & § 95.2(1)

[4] *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.)

Monitoring frequencies and sample types are established pursuant to Table 6-3 in DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits" and DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits". Dissolved oxygen, TRC, and pH must be sampled 1/day using grab sampling. CBOD5, TSS, and ammonia-nitrogen must be sampled 2/week using 24-hour composite sampling. Fecal coliform must be sampled 2/week using grab sampling. *E. coli* must be sampled 1/month using grab sampling. Total nitrogen and total phosphorus must be sampled 1/quarter using 24-hour composite sampling. Flow must be measured continuously using a flow meter. Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA) will require grab sampling 1/quarter.

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%, 60%, 30%, 3%, and 1%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 3%.

Summary of Four Most Recent Test Results

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
3/3/2020	PASS	PASS	PASS	PASS
3/1/2021-3/2/2021	PASS	PASS	PASS	PASS
4/4/2022	PASS	PASS	PASS	PASS
5/2/2023	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:

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

Acute Partial Mix Factor (PMFa): **0.155** Chronic Partial Mix Factor (PMFc): **1.0**

1. Determine IWC – Acute (IWCa):

$(Q_d \times 1.547) / ((Q_{7\text{-}10} \times PMFa) + (Q_d \times 1.547))$

[(1.2 MGD x 1.547) / ((1060 cfs x 0.155) + (1.2 MGD x 1.547))] x 100 = **1.1173%**

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

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

NOT APPLICABLE

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

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

TIWCa = IWCa / 0.3 = **% — ACUTE TEST NOT REQUIRED**

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

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

[(1.2 MGD x 1.547) / ((1060 cfs x 1) + (1.2 MGD x 1.547))] x 100 = **0.175% — Use 1%**

3. Determine Dilution Series

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

Dilution Series = 100%, 60%, 30%, 2%, and 1%.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

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

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

NOT APPLICABLE

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

NOT APPLICABLE

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	250.0	380.0	XXX	25.0	38.0 Wkly Avg	50	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids	300.0	450.0	XXX	30.0	45.0 Wkly Avg	60	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Ammonia-Nitrogen	XXX	XXX	XXX	Report	Report Wkly Avg	XXX	2/week	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
PFOA (ug/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
PFOS (ug/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab

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	Daily Maximum	Instant. Maximum		
PFBS (ug/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
HFPO-DA (ug/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab

Compliance Sampling Location: at Outfall 001

Other Comments:

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment A)
☒	Toxics Management Spreadsheet (see Attachment B)
☒	TRC Model Spreadsheet (see Attachment C)
☒	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	Standard Operating Procedure (SOP) for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits, SOP No. BCW-PMT-033, Version 2.0, February 5, 2024
☒	Standard Operating Procedure (SOP) for Clean Water Program New and Reissuance Sewage Individual NPDES Permit Applications, SOP No. BCW-PMT-002, Version 2.0, February 3, 2022
☐	Other:

ATTACHMENT A

WQM 7.0 Modeling Results

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
19A	37185	MONONGAHELA RIVER	41.500	727.00	5210.00	0.00010	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	0.100	0.00	550.00	0.000	0.000	0.0	650.00	15.00	25.00	7.50	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
Outfall 001	PA0026891	3.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.38	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
19A	37185	MONONGAHELA RIVER	16.340	718.90	5411.00	0.00100	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	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.70	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
Outfall 001	PA0028401	0.4800	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.38	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
19A	37185	MONONGAHELA RIVER	15.680	718.80	5412.00	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	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.70	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
Outfall 001	PA0026913	13.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.38	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☑
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☑
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☐
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
19A	37185	MONONGAHELA 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												
17.340	1060.00	0.00	1060.00	1.8564	0.00100	1.086	652.79	600.91	1.50	0.041	25.00	7.70
16.340	1060.10	0.00	1060.10	2.599	0.00100	1.086	653.12	601.3	1.50	0.027	25.00	7.70
Q1-10 Flow												
17.340	678.40	0.00	678.40	1.8564	0.00100	NA	NA	NA	1.17	0.052	25.00	7.70
16.340	678.46	0.00	678.46	2.599	0.00100	NA	NA	NA	1.17	0.035	25.00	7.69
Q30-10 Flow												
17.340	1441.60	0.00	1441.60	1.8564	0.00100	NA	NA	NA	1.78	0.034	25.00	7.70
16.340	1441.74	0.00	1441.74	2.599	0.00100	NA	NA	NA	1.78	0.023	25.00	7.70

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19A	37185	MONONGAHELA 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
17.340	Outfall 001	4.47	50	4.47	50	0	0
16.340	Outfall 001	4.44	50	4.48	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
17.340	Outfall 001	.83	25	.83	25	0	0
16.340	Outfall 001	.83	25	.83	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)		
17.34	Outfall 001	25	25	25	25	4	4	0	0
16.34	Outfall 001	25	25	25	25	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19A	37185	MONONGAHELA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
17.340	1.200	25.000	7.697
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
652.789	1.086	600.906	1.497
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.04	0.031	0.04	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.372	6.985	Tsivoglou	5
Reach Travel Time (days)			
0.041			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.004	2.04	0.04	7.54
0.008	2.04	0.04	7.54
0.012	2.04	0.04	7.54
0.016	2.04	0.04	7.54
0.020	2.04	0.04	7.54
0.024	2.04	0.04	7.54
0.029	2.04	0.04	7.54
0.033	2.04	0.04	7.54
0.037	2.04	0.04	7.54
0.041	2.04	0.04	7.54

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
16.340	1.680	25.000	7.696
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
653.123	1.086	601.295	1.498
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.05	0.041	0.06	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.536	6.987	Tsivoglou	5
Reach Travel Time (days)			
0.027			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.003	2.05	0.06	7.54
0.005	2.05	0.06	7.54
0.008	2.05	0.06	7.54
0.011	2.05	0.06	7.54
0.013	2.05	0.06	7.54
0.016	2.05	0.06	7.54
0.019	2.05	0.06	7.54
0.022	2.05	0.06	7.54
0.024	2.05	0.06	7.54
0.027	2.05	0.06	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19A	37185	MONONGAHELA 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)
17.340	Outfall 001	PA0021113	1.200	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

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)
16.340	Outfall 001	PA0028401	0.480	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

ATTACHMENT B

Toxics Management Spreadsheet for Outfall 001

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Glassport Borough STP** NPDES Permit No.: **PA0021113** Outfall No.: **001**

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

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
1.2	287	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		1410									
	Chloride (PWS)	mg/L		640									
	Bromide	mg/L		0.448									
	Sulfate (PWS)	mg/L		152									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		182									
	Total Antimony	µg/L		0.61									
	Total Arsenic	µg/L		0.56									
	Total Barium	µg/L		60									
	Total Beryllium	µg/L	<	0.3									
	Total Boron	µg/L		332									
	Total Cadmium	µg/L		0.2									
	Total Chromium (III)	µg/L		1									
	Hexavalent Chromium	µg/L		5.3									
	Total Cobalt	µg/L		5									
	Total Copper	µg/L		9									
	Free Cyanide	µg/L		6.4									
	Total Cyanide	µg/L		27									
	Dissolved Iron	µg/L		17									
	Total Iron	µg/L		182									
	Total Lead	µg/L		1.4									
	Total Manganese	µg/L		142									
	Total Mercury	µg/L	<	0.04									
	Total Nickel	µg/L		13									
	Total Phenols (Phenolics) (PWS)	µg/L		4									
	Total Selenium	µg/L		1.5									
	Total Silver	µg/L	<	0.5									
	Total Thallium	µg/L	<	0.5									
	Total Zinc	µg/L		57									
	Total Molybdenum	µg/L		5									
	Acrolein	µg/L	<	1.3									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	2									
	Benzene	µg/L		0.16									
	Bromoform	µg/L	<	0.37									

Group 3	Carbon Tetrachloride	µg/L	<	0.23									
	Chlorobenzene	µg/L	<	0.25									
	Chlorodibromomethane	µg/L		0.3									
	Chloroethane	µg/L	<	0.47									
	2-Chloroethyl Vinyl Ether	µg/L	<	3.1									
	Chloroform	µg/L		3.4									
	Dichlorobromomethane	µg/L		1									
	1,1-Dichloroethane	µg/L	<	0.05									
	1,2-Dichloroethane	µg/L	<	0.12									
	1,1-Dichloroethylene	µg/L	<	0.13									
	1,2-Dichloropropane	µg/L	<	0.26									
	1,3-Dichloropropylene	µg/L	<	0.47									
	1,4-Dioxane	µg/L	<	0.34									
	Ethylbenzene	µg/L	<	0.2									
	Methyl Bromide	µg/L	<	0.42									
	Methyl Chloride	µg/L	<	0.33									
	Methylene Chloride	µg/L	<	0.14									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.38									
	Tetrachloroethylene	µg/L	<	0.27									
	Toluene	µg/L		1.5									
	1,2-trans-Dichloroethylene	µg/L	<	0.08									
	1,1,1-Trichloroethane	µg/L	<	0.12									
	1,1,2-Trichloroethane	µg/L	<	0.13									
	Trichloroethylene	µg/L	<	0.29									
	Vinyl Chloride	µg/L	<	0.33									
Group 4	2-Chlorophenol	µg/L	<	0.38									
	2,4-Dichlorophenol	µg/L	<	0.43									
	2,4-Dimethylphenol	µg/L	<	0.46									
	4,6-Dinitro-o-Cresol	µg/L	<	0.35									
	2,4-Dinitrophenol	µg/L	<	2.8									
	2-Nitrophenol	µg/L	<	0.38									
	4-Nitrophenol	µg/L	<	1.3									
	p-Chloro-m-Cresol	µg/L		0.32									
	Pentachlorophenol	µg/L	<	1.7									
	Phenol	µg/L		0.43									
	2,4,6-Trichlorophenol	µg/L	<	0.46									
Group 5	Acenaphthene	µg/L	<	0.39									
	Acenaphthylene	µg/L	<	0.38									
	Anthracene	µg/L	<	0.39									
	Benzidine	µg/L	<	2.5									
	Benzo(a)Anthracene	µg/L	<	0.4									
	Benzo(a)Pyrene	µg/L	<	0.35									
	3,4-Benzofluoranthene	µg/L	<	0.39									
	Benzo(ghi)Perylene	µg/L	<	0.41									
	Benzo(k)Fluoranthene	µg/L	<	0.38									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.43									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.37									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.43									
	Bis(2-Ethylhexyl)Phthalate	µg/L		1.1									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.39									
	Butyl Benzyl Phthalate	µg/L	<	0.58									
	2-Chloronaphthalene	µg/L	<	0.39									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.39									
	Chrysene	µg/L	<	0.41									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.42									
	1,2-Dichlorobenzene	µg/L	<	0.37									
	1,3-Dichlorobenzene	µg/L	<	0.43									
	1,4-Dichlorobenzene	µg/L	<	0.43									
	3,3-Dichlorobenzidine	µg/L	<	0.1									
	Diethyl Phthalate	µg/L	<	0.56									
	Dimethyl Phthalate	µg/L	<	0.41									
	Di-n-Butyl Phthalate	µg/L	<	0.57									
	2,4-Dinitrotoluene	µg/L	<	0.44									

	2,6-Dinitrotoluene	µg/L		0.64										
	Di-n-Octyl Phthalate	µg/L	<	0.86										
	1,2-Diphenylhydrazine	µg/L		0.37										
	Fluoranthene	µg/L	<	0.42										
	Fluorene	µg/L	<	0.37										
	Hexachlorobenzene	µg/L	<	0.42										
	Hexachlorobutadiene	µg/L	<	0.48										
	Hexachlorocyclopentadiene	µg/L	<	0.72										
	Hexachloroethane	µg/L	<	0.36										
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.39										
	Isophorone	µg/L	<	0.42										
	Naphthalene	µg/L	<	0.39										
	Nitrobenzene	µg/L	<	0.51										
	n-Nitrosodimethylamine	µg/L	<	1.1										
	n-Nitrosodi-n-Propylamine	µg/L	<	0.41										
	n-Nitrosodiphenylamine	µg/L	<	0.48										
	Phenanthrene	µg/L	<	0.38										
	Pyrene	µg/L	<	0.41										
	1,2,4-Trichlorobenzene	µg/L	<	0.41										
Group 6	Aldrin	µg/L	<											
	alpha-BHC	µg/L	<											
	beta-BHC	µg/L	<											
	gamma-BHC	µg/L	<											
	delta BHC	µg/L	<											
	Chlordane	µg/L	<											
	4,4-DDT	µg/L	<											
	4,4-DDE	µg/L	<											
	4,4-DDD	µg/L	<											
	Dieldrin	µg/L	<											
	alpha-Endosulfan	µg/L	<											
	beta-Endosulfan	µg/L	<											
	Endosulfan Sulfate	µg/L	<											
	Endrin	µg/L	<											
	Endrin Aldehyde	µg/L	<											
	Heptachlor	µg/L	<											
	Heptachlor Epoxide	µg/L	<											
	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	<											
	2,3,7,8-TCDD	ng/L	<											
Group 7	Gross Alpha	pCi/L												
	Total Beta	pCi/L	<											
	Radium 226/228	pCi/L	<											
	Total Strontium	µg/L	<											
	Total Uranium	µg/L	<											
	Osmotic Pressure	mOs/kg												

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Glassport Borough STP, NPDES Permit No. PA0021113, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Monongahela 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	037185	17.34	719	5410	0.001		Yes
End of Reach 1	037185	16.34	718.9	5411	0.001		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	17.34	0.196	1060			775	12					106	7.7		
End of Reach 1	16.34	0.196	1060			775	12								

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	17.34														
End of Reach 1	16.34														

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Glassport Borough STP, NPDES Permit No. PA0021113, Outfall 001

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

☑ ***Hydrodynamics***

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
17.34	1,060		1,060	1.856	0.001	12.	775.	64.583	0.114	0.535	624.079
16.34	1,060		1,060								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
17.34	3274.21		3274.21	1.856	0.001	19.7	775.	39.34	0.215	0.285	297.398
16.34	3274.207		3274.21								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.155 Analysis Hardness (mg/l): 108.02 Analysis pH: 7.68

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	67,143	
Total Antimony	0	0		0	1,100	1,100	98,476	
Total Arsenic	0	0		0	340	340	30,438	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	1,880,001	
Total Boron	0	0		0	8,100	8,100	725,143	
Total Cadmium	0	0		0	2.171	2.31	207	Chem Translator of 0.941 applied
Total Chromium (III)	0	0		0	606.933	1,921	171,946	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	1,459	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	8,505	
Total Copper	0	0		0	14.453	15.1	1,348	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	1,970	

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	70.234	90.1	8,064	Chem Translator of 0.78 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	147	Chem Translator of 0.85 applied
Total Nickel	0	0		0	499.822	501	44,836	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	3.673	4.32	387	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	5,819	
Total Zinc	0	0		0	125.098	128	11,451	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	269	
Acrylonitrile	0	0		0	650	650	58,191	
Benzene	0	0		0	640	640	57,295	
Bromoform	0	0		0	1,800	1,800	161,143	
Carbon Tetrachloride	0	0		0	2,800	2,800	250,667	
Chlorobenzene	0	0		0	1,200	1,200	107,429	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	1,611,429	
Chloroform	0	0		0	1,900	1,900	170,095	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	1,342,858	
1,1-Dichloroethylene	0	0		0	7,500	7,500	671,429	
1,2-Dichloropropane	0	0		0	11,000	11,000	984,762	
1,3-Dichloropropylene	0	0		0	310	310	27,752	
Ethylbenzene	0	0		0	2,900	2,900	259,619	
Methyl Bromide	0	0		0	550	550	49,238	
Methyl Chloride	0	0		0	28,000	28,000	2,506,668	
Methylene Chloride	0	0		0	12,000	12,000	1,074,286	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	89,524	
Tetrachloroethylene	0	0		0	700	700	62,667	
Toluene	0	0		0	1,700	1,700	152,191	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	608,762	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	268,572	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	304,381	
Trichloroethylene	0	0		0	2,300	2,300	205,905	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	50,133	
2,4-Dichlorophenol	0	0		0	1,700	1,700	152,191	
2,4-Dimethylphenol	0	0		0	660	660	59,086	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	7,162	
2,4-Dinitrophenol	0	0		0	660	660	59,086	
2-Nitrophenol	0	0		0	8,000	8,000	716,191	
4-Nitrophenol	0	0		0	2,300	2,300	205,905	
p-Chloro-m-Cresol	0	0		0	160	160	14,324	
Pentachlorophenol	0	0		0	17.294	17.3	1,548	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	41,181	

Acenaphthene	0	0		0	83	83.0	7,430	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	26,857	
Benzo(a)Anthracene	0	0		0	0.5	0.5	44.8	
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	2,685,715	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	402,857	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	24,171	
Butyl Benzyl Phthalate	0	0		0	140	140	12,533	
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	73,410	
1,3-Dichlorobenzene	0	0		0	350	350	31,333	
1,4-Dichlorobenzene	0	0		0	730	730	65,352	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	358,095	
Dimethyl Phthalate	0	0		0	2,500	2,500	223,810	
Di-n-Butyl Phthalate	0	0		0	110	110	9,848	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	143,238	
2,6-Dinitrotoluene	0	0		0	990	990	88,629	
1,2-Diphenylhydrazine	0	0		0	15	15.0	1,343	
Fluoranthene	0	0		0	200	200	17,905	
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	895	
Hexachlorocyclopentadiene	0	0		0	5	5.0	448	
Hexachloroethane	0	0		0	60	60.0	5,371	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	895,238	
Naphthalene	0	0		0	140	140	12,533	
Nitrobenzene	0	0		0	4,000	4,000	358,095	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	1,521,905	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	26,857	
Phenanthrene	0	0		0	5	5.0	448	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	11,638	

☑ ***CFC*** CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): 106.32 Analysis pH: 7.70

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	125,839	
Total Arsenic	0	0		0	150	150	85,800	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	2,345,190	
Total Boron	0	0		0	1,600	1,600	915,196	
Total Cadmium	0	0		0	0.257	0.28	162	Chem Translator of 0.906 applied
Total Chromium (III)	0	0		0	77.927	90.6	51,830	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	5,946	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	10,868	
Total Copper	0	0		0	9.437	9.83	5,623	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	2,974	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	857,996	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.690	3.44	1,967	Chem Translator of 0.782 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	518	Chem Translator of 0.85 applied
Total Nickel	0	0		0	54.772	54.9	31,424	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	2,854	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	7,436	
Total Zinc	0	0		0	124.432	126	72,185	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	1,716	
Acrylonitrile	0	0		0	130	130	74,360	
Benzene	0	0		0	130	130	74,360	
Bromoform	0	0		0	370	370	211,639	
Carbon Tetrachloride	0	0		0	560	560	320,319	
Chlorobenzene	0	0		0	240	240	137,279	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	2,001,992	
Chloroform	0	0		0	390	390	223,079	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	1,773,193	
1,1-Dichloroethylene	0	0		0	1,500	1,500	857,996	
1,2-Dichloropropane	0	0		0	2,200	2,200	1,258,395	
1,3-Dichloropropylene	0	0		0	61	61.0	34,892	
Ethylbenzene	0	0		0	580	580	331,759	
Methyl Bromide	0	0		0	110	110	62,920	
Methyl Chloride	0	0		0	5,500	5,500	3,145,987	
Methylene Chloride	0	0		0	2,400	2,400	1,372,794	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	120,120	
Tetrachloroethylene	0	0		0	140	140	80,080	
Toluene	0	0		0	330	330	188,759	

1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	800,797	
1,1,1-Trichloroethane	0	0		0	610	610	348,919	
1,1,2-Trichloroethane	0	0		0	680	680	388,958	
Trichloroethylene	0	0		0	450	450	257,399	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	62,920	
2,4-Dichlorophenol	0	0		0	340	340	194,479	
2,4-Dimethylphenol	0	0		0	130	130	74,360	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	9,152	
2,4-Dinitrophenol	0	0		0	130	130	74,360	
2-Nitrophenol	0	0		0	1,600	1,600	915,196	
4-Nitrophenol	0	0		0	470	470	268,839	
p-Chloro-m-Cresol	0	0		0	500	500	285,999	
Pentachlorophenol	0	0		0	13.268	13.3	7,589	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	52,052	
Acenaphthene	0	0		0	17	17.0	9,724	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	33,748	
Benzo(a)Anthracene	0	0		0	0.1	0.1	57.2	
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	3,431,986	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	520,518	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	30,888	
Butyl Benzyl Phthalate	0	0		0	35	35.0	20,020	
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	91,520	
1,3-Dichlorobenzene	0	0		0	69	69.0	39,468	
1,4-Dichlorobenzene	0	0		0	150	150	85,800	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	457,598	
Dimethyl Phthalate	0	0		0	500	500	285,999	
Di-n-Butyl Phthalate	0	0		0	21	21.0	12,012	
2,4-Dinitrotoluene	0	0		0	320	320	183,039	
2,6-Dinitrotoluene	0	0		0	200	200	114,400	
1,2-Diphenylhydrazine	0	0		0	3	3.0	1,716	
Fluoranthene	0	0		0	40	40.0	22,880	
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	1,144	

Hexachlorocyclopentadiene	0	0		0	1	1.0	572	
Hexachloroethane	0	0		0	12	12.0	6,864	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	1,201,195	
Naphthalene	0	0		0	43	43.0	24,596	
Nitrobenzene	0	0		0	810	810	463,318	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	1,944,792	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	33,748	
Phenanthrene	0	0		0	1	1.0	572	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	14,872	

☑ ***THH*** CCT (min): ###### PMF: 1 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	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	3,203	
Total Arsenic	0	0		0	10	10.0	5,720	
Total Barium	0	0		0	2,400	2,400	1,372,794	
Total Boron	0	0		0	3,100	3,100	1,773,193	
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	4	4.0	2,288	
Dissolved Iron	0	0		0	300	300	171,599	
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	571,998	
Total Mercury	0	0		0	0.050	0.05	28.6	
Total Nickel	0	0		0	610	610	348,919	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
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	137	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	1,716	
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	57,200	
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	3,260	
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	18,876	
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	38,896	
Methyl Bromide	0	0		0	100	100.0	57,200	
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	32,604	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	57,200	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	5,719,976	
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	17,160	
2,4-Dichlorophenol	0	0		0	10	10.0	5,720	
2,4-Dimethylphenol	0	0		0	100	100.0	57,200	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	1,144	
2,4-Dinitrophenol	0	0		0	10	10.0	5,720	
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	2,287,991	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	40,040	
Anthracene	0	0		0	300	300	171,599	
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	114,400	
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	57.2	
2-Chloronaphthalene	0	0		0	800	800	457,598	
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	1,000	1,000	571,998	
1,3-Dichlorobenzene	0	0		0	7	7.0	4,004	
1,4-Dichlorobenzene	0	0		0	300	300	171,599	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	343,199	
Dimethyl Phthalate	0	0		0	2,000	2,000	1,143,995	
Di-n-Butyl Phthalate	0	0		0	20	20.0	11,440	
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	11,440	
Fluorene	0	0		0	50	50.0	28,600	
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	2,288	
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	19,448	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	5,720	
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	11,440	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	40.0	

☑ ***CRL*** CCT (min): ###### PMF: 1 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	N/A	N/A	N/A	
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	0.06	0.06	106	
Benzene	0	0		0	0.58	0.58	1,024	
Bromoform	0	0		0	7	7.0	12,353	
Carbon Tetrachloride	0	0		0	0.4	0.4	706	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	1,412	
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	0.95	0.95	1,677	
1,2-Dichloroethane	0	0		0	9.9	9.9	17,471	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	1,588	
1,3-Dichloropropylene	0	0		0	0.27	0.27	476	
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	20	20.0	35,295	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	353	
Tetrachloroethylene	0	0		0	10	10.0	17,647	
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	971	
Trichloroethylene	0	0		0	0.6	0.6	1,059	
Vinyl Chloride	0	0		0	0.02	0.02	35.3	
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	52.9	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	2,647	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.0001	0.0001	0.18	
Benzo(a)Anthracene	0	0		0	0.001	0.001	1.76	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.18	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	1.76	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	17.6	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	52.9	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	565	
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	0.12	0.12	212	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.18	
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	0.05	0.05	88.2	
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	88.2	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	88.2	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	52.9	
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	0.14	
Hexachlorobutadiene	0	0		0	0.01	0.01	17.6	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	176	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	1.76	
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	0.0007	0.0007	1.24	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	8.82	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	5,824	

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	

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

No. Samples/Month: 4

Pollutants	*Mass Limits*		*Concentration Limits*				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			

☑ ***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
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	43,036	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	3,203	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	5,720	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	1,205,005	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	464,788	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	132	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	51,830	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	935	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	5,451	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	864	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	1,262	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	171,599	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	857,996	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	1,967	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	571,998	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	28.6	µg/L	Discharge Conc < TQL
Total Nickel	28,738	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	2,854	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	248	µg/L	Discharge Conc ≤ 10% WQBEL

Total Thallium	137	µg/L	Discharge Conc < TQL
Total Zinc	7,340	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	172	µg/L	Discharge Conc < TQL
Acrylonitrile	106	µg/L	Discharge Conc < TQL
Benzene	1,024	µg/L	Discharge Conc ≤ 25% WQBEL
Bromoform	12,353	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	706	µg/L	Discharge Conc < TQL
Chlorobenzene	57,200	µg/L	Discharge Conc < TQL
Chlorodibromomethane	1,412	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	1,032,861	µg/L	Discharge Conc < TQL
Chloroform	3,260	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	1,677	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	17,471	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	18,876	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	1,588	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	476	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	38,896	µg/L	Discharge Conc < TQL
Methyl Bromide	31,560	µg/L	Discharge Conc < TQL
Methyl Chloride	1,606,673	µg/L	Discharge Conc < TQL
Methylene Chloride	35,295	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	353	µg/L	Discharge Conc < TQL
Tetrachloroethylene	17,647	µg/L	Discharge Conc < TQL
Toluene	32,604	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-trans-Dichloroethylene	57,200	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	172,144	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	971	µg/L	Discharge Conc < TQL
Trichloroethylene	1,059	µg/L	Discharge Conc < TQL
Vinyl Chloride	35.3	µg/L	Discharge Conc < TQL
2-Chlorophenol	17,160	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	5,720	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	37,872	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	1,144	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	5,720	µg/L	Discharge Conc < TQL
2-Nitrophenol	459,049	µg/L	Discharge Conc < TQL
4-Nitrophenol	131,977	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	9,181	µg/L	Discharge Conc ≤ 25% WQBEL
Pentachlorophenol	52.9	µg/L	Discharge Conc < TQL
Phenol	2,287,991	µg/L	Discharge Conc ≤ 25% WQBEL
2,4,6-Trichlorophenol	2,647	µg/L	Discharge Conc < TQL
Acenaphthene	4,763	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS

Anthracene	171,599	µg/L	Discharge Conc < TQL
Benzidine	0.18	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	1.76	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.18	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	1.76	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	17.6	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	52.9	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	114,400	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	565	µg/L	Discharge Conc ≤ 25% WQBEL
4-Bromophenyl Phenyl Ether	15,493	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	57.2	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	457,598	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	212	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.18	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	47,053	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	4,004	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	41,888	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	88.2	µg/L	Discharge Conc < TQL
Diethyl Phthalate	229,525	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	143,453	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	6,312	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	88.2	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	88.2	µg/L	Discharge Conc ≤ 25% WQBEL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	52.9	µg/L	Discharge Conc ≤ 25% WQBEL
Fluoranthene	11,440	µg/L	Discharge Conc < TQL
Fluorene	28,600	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.14	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	17.6	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	287	µg/L	Discharge Conc < TQL
Hexachloroethane	176	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	1.76	µg/L	Discharge Conc < TQL
Isophorone	19,448	µg/L	Discharge Conc < TQL
Naphthalene	8,033	µg/L	Discharge Conc < TQL
Nitrobenzene	5,720	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	1.24	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	8.82	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	5,824	µg/L	Discharge Conc < TQL
Phenanthrene	287	µg/L	Discharge Conc < TQL
Pyrene	11,440	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	40.0	µg/L	Discharge Conc < TQL

ATTACHMENT C

TRC Modeling Results

TRC EVALUATION – Outfall 001

1060	**= Q stream (cfs)**	**0.5**	**= CV Daily**
1.2	**= Q discharge (MGD)**	**0.5**	**= CV Hourly**
30	**= no. samples**	**0.155**	**= AFC_Partial Mix Factor**
0.3	**= Chlorine Demand of Stream**	**1**	**= CFC_Partial Mix Factor**
0	**= Chlorine Demand of Discharge**	**15**	**= AFC_Criteria Compliance Time (min)**
0.5	**= BAT/BPJ Value**	**720**	**= CFC_Criteria Compliance Time (min)**
	= % Factor of Safety (FOS)		**=Decay Coefficient (K)**

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	**1.3.2.iii**	WLA afc = 28.252	**1.3.2.iii**	WLA cfc = 177.591
PENTOXSD TRG	**5.1a**	LTAMULT afc = 0.373	**5.1c**	LTAMULT cfc = 0.581
PENTOXSD TRG	**5.1b**	LTA_afc= 10.527	**5.1d**	LTA_cfc = 103.243

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

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

ATTACHMENT D

WET Testing Results

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.02
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Glassport Borough STP

Permit No.: PA0021113

Test Completion Date: 3/3/2020

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: 3/1/2021

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
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	9	10

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

Test Completion Date: 4/4/2022

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: 5/2/2023

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**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.02
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Glassport Borough STP

Permit No.: PA0021113

Test Completion Date: 3/3/2020

Replicate No.	Control	TIWC
1	33	29
2	32	28
3	29	29
4	24	30
5	25	32
6	32	37
7	31	28
8	37	32
9	31	25
10	32	29
11		
12		
13		
14		
15		
Mean	30.600	29.900
Std Dev.	3.806	3.213
# Replicates	10	10

T-Test Result	5.1136
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	PASS

Test Completion Date: 3/1/2021

Replicate No.	Control	TIWC
1	23	27
2	23	30
3	26	24
4	24	24
5	27	25
6	25	26
7	29	20
8	26	27
9	30	31
10		22
11		
12		
13		
14		
15		
Mean	25.889	25.600
Std Dev.	2.472	3.373
# Replicates	9	10

T-Test Result	5.0158
Deg. of Freedom	15
Critical T Value	0.8662
Pass or Fail	PASS

Test Completion Date: 4/4/2022

Replicate No.	Control	TIWC
1	23	22
2	23	27
3	25	22
4	25	22
5	26	24
6	27	25
7	21	25
8	25	28
9	28	23
10	26	25
11		
12		
13		
14		
15		
Mean	24.900	24.300
Std Dev.	2.079	2.111
# Replicates	10	10

T-Test Result	6.7782
Deg. of Freedom	16
Critical T Value	0.8647
Pass or Fail	PASS

Test Completion Date: 5/2/2023

Replicate No.	Control	TIWC
1	22	23
2	23	27
3	22	19
4	24	24
5	20	26
6	22	21
7	20	21
8	21	23
9	20	20
10	26	22
11		
12		
13		
14		
15		
Mean	22.000	22.600
Std Dev.	1.944	2.547
# Replicates	10	10

T-Test Result	6.5725
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	Pimephales
Endpoint	Survival
TIWC (decimal)	0.02
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Glassport Borough STP

Permit No.: PA0021113

Test Completion Date: 3/3/2020

Replicate No.	Control	TIWC
1	1	1
2	1	0.9
3	0.8	1
4	1	0.9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.950	0.950
Std Dev.	0.100	0.058
# Replicates	4	4

T-Test Result	9.5653
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	**PASS**

Test Completion Date: 3/2/2021

Replicate No.	Control	TIWC
1	0.7	1
2	1	1
3	0.6	0.9
4	0.9	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.800	0.975
Std Dev.	0.183	0.050
# Replicates	4	4

T-Test Result	7.7172
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	**PASS**

Test Completion Date: 4/4/2022

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	0.9
4	0.9	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**

Test Completion Date: 5/2/2023

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

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	Growth
TIWC (decimal)	0.02
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Glassport Borough STP

Permit No.: PA0021113

Replicate No.	Test Completion Date: 3/3/2020 Control	TIWC
1	0.377	0.291
2	0.342	0.27
3	0.254	0.381
4	0.336	0.319
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.327	0.315
Std Dev.	0.052	0.048
# Replicates	4	4
T-Test Result	2.2504	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 3/2/2021 Control	TIWC
1	0.279	0.44
2	0.408	0.409
3	0.225	0.455
4	0.368	0.484
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.320	0.447
Std Dev.	0.083	0.031
# Replicates	4	4
T-Test Result	5.9345	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 4/4/2022 Control	TIWC
1	0.455	0.448
2	0.413	0.477
3	0.456	0.418
4	0.41	0.439
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.434	0.446
Std Dev.	0.025	0.024
# Replicates	4	4
T-Test Result	7.7583	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 5/2/2023 Control	TIWC
1	0.373	0.37
2	0.362	0.366
3	0.401	0.418
4	0.366	0.4
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.376	0.389
Std Dev.	0.018	0.025
# Replicates	4	4
T-Test Result	7.5992	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

WET Summary and Evaluation

Facility Name	Glassport Borough STP
Permit No.	PA0021113
Design Flow (MGD)	1.2
Q_{7-10} Flow (cfs)	1060
PMF_a	0.155
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	3/3/20	3/1/21	4/4/22	5/2/23
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	3/3/20	3/1/21	4/4/22	5/2/23
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	3/3/20	3/2/21	4/4/22	5/2/23
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	3/3/20	3/2/21	4/4/22	5/2/23
Pimephales	Growth	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**
TIWC	**1** % Effluent
Dilution Series	**1, 2, 30, 60, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	