pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0025941**
Facility Type	**Municipal**	APS ID	**862251**
Major / Minor	**Major**	Authorization ID	**1320263**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Canonsburg Houston Joint Authority**	Facility Name	**Canonsburg Houston Joint WWTP**
Applicant Address	68 E Pike Street	Facility Address	315 Curry Hill Road
	Canonsburg, PA 15317-1375		Canonsburg, PA 15317-1375
Applicant Contact	Allison Deater	Facility Contact	Richard Dodds
Applicant Phone	(724) 678-7773	Facility Phone	(814)-725-8659
Client ID	64436	Site ID	246449
Ch 94 Load Status	Not Overloaded	Municipality	Cecil Township
Connection Status	No Limitations	County	Washington
Date Application Received	July 6, 2020	EPA Waived?	No
Date Application Accepted	July 14, 2020	If No, Reason	Major Facility, Pretreatment

Purpose of Application: Application for renewal of a NPDES Permit for discharge of sewage effluent

Summary of Review

Canonsburg Houston Joint Authority (CHJA) has applied for a renewal of NPDES Permit No. PA0025941. NPDES Permit No. PA0025941 was previously issued by the PA Department of Environmental Protection (DEP) on January 20, 2016 and expired on January 31, 2021. The application was submitted in a timely manner, so the permit was granted an administrative extension.

Sewage from this facility is treated by screening, grit removal, primary clarification, Sequential Batch Reactors (SBRs), chlorine disinfection, and dechlorination. The plant has installed ultraviolet (UV) disinfection since the last permit cycle as approved under 6374406-A11 and described in Treatment Facility Summary of this Fact Sheet. Sewage sludge produced at this facility is anaerobically digested, dewatered with a filter press, and disposed of at Arden Landfill in Washington County.

The facility currently has one sewage outfall (Outfall 001) and two stormwater outfalls (Outfalls 002 and 003). Outfall 001 discharges to Chartiers Creek which is classified as a warm water fishery (WWF) and is located in State Watershed No. 20-F. Outfalls 002 and 003 both discharge to Chartiers Creek as well. The stormwater outfalls from sewage facilities currently do not have sampling requirements and are only subject to Best Management Practices (BMPs). Part C IV. of the Draft Permit contains language titled “Requirements Applicable to Stormwater Outfalls”.

The applicant is currently enrolled in and will continue to use eDMR.

The applicant has complied with Act 14 Notifications and no comments were received.

Changes for this NPDES permit renewal include:

- Removal of the TRC limits and addition of UV monitoring requirement,

Approve	Deny	Signatures	Date
X		Stephanie Conrad / Environmental Engineering Specialist	June 22, 2022
x		Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineer Manager	March 24, 2023

Summary of Review

- More stringent summer and winter ammonia-nitrogen limit,
- More stringent summer and winter $CBOD_5$ limit,
- Addition of Water Quality Based Effluent Limits for total copper, free cyanide, total mercury, and chloroform,
- Addition of monitoring requirements for total boron, dissolve iron, total iron, total zinc, chlorodibromomethane, and dichlorobromomethane,
- Relocation of outfall from 40° 16' 2", -80° 9' 54" to 40° 16' 8", -80° 9' 44".
- Change of the River Mile Index from 29.99 to 26.82, and
- Expansion of design flow rate from 6.0 to 8.4

Plant Expansion History

Act 537 approval was documented with a letter dated December 1, 2010. The plan proposed expanding the plant to hydraulic capacity of 8.4 MGD. This expansion was carried out in two phases. Phase I, which was approved by way of letter dated December 19, 2012, approved to re-rate the plant from 5.0 MGD to 6.0 MGD. Work was completed in 2013 and the NPDES permit was amended to reflect the initial rate change. WQM Permit No. 6374406 A-11 was issued on January 27, 2020 and approved construction to upgrade the plant and change the permitted hydraulic capacity from 6.0 MGD to 8.4 MGD. The permitted hydraulic capacity of 8.4 MGD will be used to prepare the annual Municipal Wasteload Management Report and determine whether a "hydraulic overload" situation exists. The Design Organic Capacity was not amended and remains 10,000 lbs/day BOD.

Anti-Backsliding

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

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

The facility is not seeking to revise the previously permitted effluent limits.

EPA Approved Industrial User Pre-treatment Program

Canonsburg Houston Joint Wastewater Treatment Plant (WWTP) implements a pre-treatment program that imposes local limits on industrial users of the treatment plant. According to information provided in the application, the United States Environmental Protection Agency approved the pre-treatment program in 2017. The WWTP does not have significant industrial users.

The WWTP has seven industrial users. Five of the users have an Industrial User Permit with the Authority. Perryman Company discharges 1,250 gpd from a wire surface pickling operation. Ameteck Specialty Metal Products discharges 15,000 gpd of process wastewater associated with metal powder production. Ameri-Precision Metals, Inc. discharges 23,735 gpd and is an iron and steel manufacturer. FTS International Services, LLC discharges 6,000 gpd of truck wash water. Pennsylvania Transformer Technology, Inc. discharges 15,750 gpd of sanitary flow from an electronic transformer manufacturer.

Summary of Review

The two final users do not have an Industrial User Permit. Accutrex Products, Inc. discharges 5,250 gpd of domestic wastewater and air compressor condensate. All Clad Metalcrafters discharges 3,000 gpd of sanitary flow from a cookware manufacturer.

Summary of Whole Effluent Toxicity (WET) Tests

The 2016 permit required CHJA to collect discharge samples and perform WET tests to generate chronic survival and reproduction data for the *cladoceran* (water flea) and *Ceriodaphnia dubia*, and chronic survival and growth data for the fathead minnow (*pimephales promelas*). The dilution series for the tests was: 9%, 17%, 34%, 67%, and 100%. The Target Instream Waste Concentration (TIWC) used to analyze the results was 34%.

CHJA passed all of its most recent WET tests conducted in October 2017, October 2018, October 2019, and October 2020. No Wet limits will therefore be imposed in this permit.

The design flow was re-rated from 6.0 MGD to 8.4 MGD. Because of this, the TIWC and the dilution series have changed. The TIWC in this permit will be 41% and the dilution series will be 10%, 21%, 41%, 71%, and 100%. Annual testing will be imposed.

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)	8.4
Latitude	40º 16' 8"	Longitude	-80º 9' 44.00"
Quad Name	Canonsburg	Quad Code	1604
Wastewater Description:	Sewage Effluent		

Receiving Waters	Chartiers Creek (WWF)	Stream Code	36777
NHD Com ID	99692518	RMI	26.82
Drainage Area	87.7	Yield (cfs/mi^2)	0.034
Q_{7-10} Flow (cfs)	2.0	Q_{7-10} Basis	USGS Stream Stats
Elevation (ft)	940	Slope (ft/ft)	0.0021
Watershed No.	20-F	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired		
Cause(s) of Impairment	Nutrients, Pathogens, Polychlorinated Biphenyls (PCBs), Polychlorinated Biphenyls (PCBs), Siltation, Turbidity		
Source(s) of Impairment	Habitat Modification - Other Than Hydromodification, Source Unknown		
TMDL Status	Final, Final	Name	Chartiers Watershed, Chartiers Creek

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

Nearest Downstream Public Water Supply Intake	West View Water Authority		
PWS Waters	Ohio River	Flow at Intake (MGD)	40
PWS RMI	975.9	Distance from Outfall (mi)	29.6

Changes Since Last Permit Issuance: The outfall location has changed from 40º 16’ 2”, -80º 9’ 54” to 40º 16’ 8”, -80º 9’ 44”. Q_{7-10} flow, drainage area, and low flow yield were all updated to match USGS Stream Stats.

Other Comments: None

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	002	Design Flow (MGD)	NA
Latitude	40° 16’ 05.00”	Longitude	80° 9’ 54.00”
Quad Name	Canonsburg	Quad Code	1604
Wastewater Description:	Storm Water		
Receiving Waters	Chartiers Creek	Stream Code	36777

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	003	Design Flow (MGD)	NA
Latitude	40° 16’ 2.00”	Longitude	80° 9’ 54.00”
Quad Name	Canonsburg	Quad Code	1604
Wastewater Description:	Storm Water		
Receiving Waters	Chartiers Creek	Stream Code	36777

Treatment Facility Summary

Treatment Facility Name: Canonsburg Houston Joint WWTP

WQM Permit No.	Issuance Date	Purpose
	1962	Permit issued by PADEP for plant expansion including installation of: • Two anaerobic digesters • Flow metering • Grit removal chamber • Two primary clarifiers • Sludge drying
6369407	August 20, 1969	Permit issued by PADEP approving plant construction including: • Sand filter • Settling • Flotation • Screening • Grit Removal • Disinfection • Flow Equalization
6374406	1974	Permit issued by PADEP approving plant expansion including: • One (1) grit chamber • Primary clarifier • Forty (40) Rotating Biological Contactor units • Two chlorine contact tanks • One aerobic digester • One vacuum filter
	1978	Permit issued by PADEP approving plant expansion including: • Flow expansion from 5.0 to 5.6 • One grit chamber • One primary clarifier • Two (2) chlorine contact tanks • One anaerobic digester • One vacuum filter
6384404	1984	Permit issued by DEP approving sewer modifications to address Inflow and Infiltration
6374406-A1	March 19, 1990	Permit issued to CHJA by PADEP approving plant modifications including: • Two (2) chlorine contact tanks • Abandonment of thee vacuum filter • Two (2) biological towers and related pump stations • Gravity belt filter press • Biogas cogeneration facility
6374406-A2	May 1990	Permit issued to CHJA by PADEP approving installation of gas mixers in the existing primary anaerobic digester
6374406-A3	March 24, 2000	Permit issued by PADEP approving plant modifications including: • Wet weather flow expansion from 17.71 mgd to 20.94 mgd • Replacement of pump station impellers • Replacement of pumps with two 7,300 gpm pumps • Replacement of pump station control gate structures • Replacement of the emergency generator
6374406-A4	March 8, 2000	Permit issued to CHJA by PADEP approving plant modifications including: • Reconstruction of the headworks

		• Modifications to the largest primary clarifier • Abandonment of 40 existing Rotating Biological Contactor (RBC) • Repurposing of the existing RBC basin to an aerated equalization basin. • Modification of exiting clarifiers to facilitate chemical addition • Increase in interconnecting piping capacity • Construction of a blower and chemical storage building.
6374406-A5	April 9, 2001	Permit issued to CHJA by PADEP approving the construction of: • Installation of 3,750 LF of 12-inch force main • Installation of 300 LF of 18-2-inch interceptor • Replacement of 130 LF of existing 21-inch interceptor with 24-inch interceptor
6374406-A6	June 29, 2007	Permit issued to CHJA by PADEP approving: • Replacement of 900 LF of 21-inch interceptor with 27-inch pipe • Replacement of 145 LF of 24-inchinterceptor with 30-inch pipe
6374406-A7	May 28, 2008	Permit issued to CHJA by PADEP approving plant modification including: • Modification to the headworks • Modification to Final Clarifiers 1 and 2 • Modification to Primary Clarifier 3
6374406-A8	May 1, 2013	Permit issued to CHJA by PADEP approving: • New Pump Station • New Pipe Tunnel • New Sludge Thickener • New Headworks Building • New Sludge pumping • New odor control systems • Conversion of existing tanks to wet weather storage
6374406-A9	May 22, 2014	Permit issued to CHJA by PADEP approving the expansion of Chartiers Creek Pump Station from 2.0 MGD to 4.0 MGD by installing two new submersible pumps
6374406-A10	January 29, 2018	Permit issued to CHJA by PADEP approved installation of Chemical Dechlorination with Sodium Bisulfate.
6374406-A11	January 27, 2020	Permit issued to C HJA by PADEP approving the following upgrades: • New biotower pump station • Retrofitting of two existing biotowers • Vortex grit chamber • Clarifier pump station • Two new secondary clarifiers • Ultraviolet disinfection system • Effluent flow meter and composite sampler • Relocated outfall • New effluent water system • SCADA system • Diesel generator

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	SBR	Gas Chlorine	8.4

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
8.4	10,000	Not Overloaded	Belt Filtration	Landfill

Changes Since Last Permit Issuance:

Other Comments:

Compliance History

Operations Compliance Check Summary Report

Facility: Canonsburg-Houston STP

NPDES Permit No.: PA0025941

Compliance Review Period: 11/16/2016 – 11/16/2021

Open Violations by Client Summary: None

Inspection Summary

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC	# OF VIOLATIONS
2585553	04/19/2017	Incident-Response to Accident or Event	PA Dept of Environmental Protection	Violation(s) Noted	2
2599571	03/08/2017	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted	1
2944725	10/15/2019	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted	5
2628475	08/23/2017	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted	4
2685979	01/24/2018	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted	0
3230849	08/05/2021	Complaint Inspection	PA Dept of Environmental Protection	No Violations Noted	0
2805040	10/01/2018	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted	1
3230853	08/05/2021	Administrative/File Review	PA Dept of Environmental Protection	Administratively Closed	0
3230847	08/05/2021	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted	0
3230851	08/05/2021	Complaint Inspection	PA Dept of Environmental Protection	No Violations Noted	0
2795454	10/22/2018	Routine/Partial Inspection	PA Dept of Environmental Protection	No Violations Noted	0

Violation Summary

VIOL ID	VIOLATION DATE	VIOLATION TYPE DESC	RESOLVED DATE
783795	04/19/2017	NPDES - Failure to orally notify DEP within 4 hours of a pollution incident or submit written report within 5 days of incident	04/19/2017
783796	04/19/2017	NPDES - Illegal discharge to waters of the Commonwealth from a sanitary sewer overflow (SSO)	04/19/2017
786921	03/08/2017	NPDES - Violation of effluent limits in Part A of permit	04/27/2017
794997	08/23/2017	NPDES - Violation of effluent limits in Part A of permit	08/23/2017
794998	08/23/2017	NPDES - Unauthorized bypass occurred	08/23/2017
794999	08/23/2017	NPDES - Failure to orally notify DEP within 4 hours of a pollution incident or submit written report within 5 days of incident	08/23/2017
795090	08/23/2017	NPDES - Failure to submit monitoring report(s) or properly complete monitoring reports	08/23/2017
833825	10/01/2018	NPDES - Violation of effluent limits in Part A of permit	11/15/2018
864960	10/15/2019	NPDES - Violation of effluent limits in Part A of permit	10/15/2019
864961	10/15/2019	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance	10/15/2019
864962	10/15/2019	NPDES - Discharge contained floating materials, scum, sheet, foam, oil, grease or substances that produced an observable change or resulted in deposits in receiving waters	10/15/2019
864963	10/15/2019	CSL - Unauthorized, unpermitted discharge of sewage to waters of the Commonwealth	10/15/2019
864964	10/15/2019	NPDES - Failure to submit monitoring report(s) or properly complete monitoring reports	10/15/2019

Enforcement Summary

ENF ID	ENF TYPE DESC	EXECUTED DATE	VIOLATIONS	PENALTY AMOUNT	ENF FINAL STATUS	ENF CLOSED DATE
352722	Field Order	04/19/2017	92A.47(C)		Comply/Closed	06/21/2017
357503	Notice of Violation	08/23/2017	92A.41(A)12B; 92A.41(A)13B; 92A.41(B); 92A.44		Administrative Close Out	08/20/2019
364689	Consent Assessment of Civil Penalty	04/26/2018	92A.41(B)	$19,633.00	Comply/Closed	04/26/2018
352723	Notice of Violation	04/19/2017	92A.41(B); 92A.47(C)		Administrative Close Out	08/20/2019
369675	Consent Assessment of Civil Penalty	11/15/2018	92A.44	$9,500.00	Comply/Closed	11/15/2018
353835	Consent Assessment of Civil Penalty	04/27/2017	92A.44	$1,563.00	Comply/Closed	04/27/2017
379700	Notice of Violation	10/15/2019	92A.41(A)12B; 92A.41(A)5; 92A.41(C); 92A.44; CSL201		Administrative Close Out	04/13/2021

DMR Violation Summary

Effluent limit violation summary 11/16/2016 – 11/16/2021:

MONITORING END DATE	OUTFALL	PARAMETER	SAMPLE VALUE	PERMIT VALUE	UNIT OF MEASURE	STATISTICAL BASE CODE
03/31/2017	001	Total Residual Chlorine (TRC)	0.7	0.4	mg/L	Average Monthly
05/31/2017	001	Fecal Coliform	2420	1000	CFU/100 ml	Instantaneous Maximum
06/30/2017	001	Fecal Coliform	9400	1000	CFU/100 ml	Instantaneous Maximum
07/31/2017	001	Fecal Coliform	350	200	CFU/100 ml	Geometric Mean
07/31/2017	001	Total Residual Chlorine (TRC)	0.5	0.4	mg/L	Average Monthly
07/31/2017	001	Fecal Coliform	38730	1000	CFU/100 ml	Instantaneous Maximum
07/31/2017	001	Total Residual Chlorine (TRC)	1.3	1.0	mg/L	Instantaneous Maximum
08/31/2017	001	Total Residual Chlorine (TRC)	0.7	0.4	mg/L	Average Monthly
08/31/2017	001	Fecal Coliform	3076	1000	CFU/100 ml	Instantaneous Maximum
08/31/2017	001	Total Residual Chlorine (TRC)	2.9	1.0	mg/L	Instantaneous Maximum
09/30/2017	001	Total Residual Chlorine (TRC)	0.5	0.4	mg/L	Average Monthly
09/30/2017	001	Fecal Coliform	2420	1000	CFU/100 ml	Instantaneous Maximum
09/30/2017	001	Total Residual Chlorine (TRC)	1.25	1.0	mg/L	Instantaneous Maximum
10/31/2017	001	Total Residual Chlorine (TRC)	0.6	0.4	mg/L	Average Monthly
10/31/2017	001	Total Residual Chlorine (TRC)	1.5	1.0	mg/L	Instantaneous Maximum
11/30/2017	001	Total Residual Chlorine (TRC)	0.5	0.4	mg/L	Average Monthly
11/30/2017	001	Total Residual Chlorine (TRC)	1.3	1.0	mg/L	Instantaneous Maximum
12/31/2017	001	Total Residual Chlorine (TRC)	0.7	0.4	mg/L	Average Monthly
12/31/2017	001	Total Residual Chlorine (TRC)	1.9	1.0	mg/L	Instantaneous Maximum
01/31/2018	001	Total Residual Chlorine (TRC)	0.5	0.4	mg/L	Average Monthly
02/28/2018	001	Total Residual Chlorine (TRC)	0.5	0.4	mg/L	Average Monthly
05/31/2018	001	Fecal Coliform	495	200	CFU/100 ml	Geometric Mean

05/31/2018	001	Fecal Coliform	2420	1000	CFU/100 ml	Instantaneous Maximum
06/30/2018	001	pH	5.9	6.0	S.U.	Minimum
06/30/2018	001	Fecal Coliform	241	200	CFU/100 ml	Geometric Mean
06/30/2018	001	Fecal Coliform	2420	1000	CFU/100 ml	Instantaneous Maximum
07/31/2018	001	Total Residual Chlorine (TRC)	1.3	1.0	mg/L	Instantaneous Maximum
08/31/2018	001	Fecal Coliform	2420	1000	CFU/100 ml	Instantaneous Maximum
09/30/2018	001	Fecal Coliform	287	200	CFU/100 ml	Geometric Mean
09/30/2018	001	Fecal Coliform	2420	1000	CFU/100 ml	Instantaneous Maximum
11/30/2018	001	Fecal Coliform	3944	2000	CFU/100 ml	Geometric Mean
11/30/2018	001	Fecal Coliform	23100	10000	CFU/100 ml	Instantaneous Maximum
12/31/2018	001	Fecal Coliform	2247	2000	CFU/100 ml	Geometric Mean
12/31/2018	001	Fecal Coliform	24000	10000	CFU/100 ml	Instantaneous Maximum
01/31/2019	001	Total Residual Chlorine (TRC)	1.1	1.0	mg/L	Instantaneous Maximum
05/31/2019	001	Fecal Coliform	2420	1000	CFU/100 ml	Instantaneous Maximum
06/30/2019	001	Fecal Coliform	2420	1000	CFU/100 ml	Instantaneous Maximum
08/31/2019	001	Fecal Coliform	2590	1000	CFU/100 ml	Instantaneous Maximum
08/31/2019	001	Total Residual Chlorine (TRC)	1.5	1.0	mg/L	Instantaneous Maximum
10/31/2019	001	pH	5.8	6.0	S.U.	Minimum
10/31/2019	001	Fecal Coliform	36540	10000	CFU/100 ml	Instantaneous Maximum
05/31/2020	001	Fecal Coliform	1203.0	1000	CFU/100 ml	Instantaneous Maximum
06/30/2020	001	Fecal Coliform	2420	1000	CFU/100 ml	Instantaneous Maximum
07/31/2020	001	pH	5.8	6.0	S.U.	Minimum
08/31/2020	001	pH	5.3	6.0	S.U.	Minimum
09/30/2020	001	pH	5.1	6.0	S.U.	Minimum
09/30/2020	001	Fecal Coliform	2420	1000	CFU/100 ml	Instantaneous Maximum
11/30/2020	001	pH	9.7	9.0	S.U.	Maximum
05/31/2021	001	Ammonia-Nitrogen	< 5.8	3.5	mg/L	Average Monthly

05/31/2021	001	Ammonia-Nitrogen	10.8	5.3	mg/L	Weekly Average
05/31/2021	001	Fecal Coliform	1987	1000	CFU/100 ml	Instantaneous Maximum
06/30/2021	001	Ammonia-Nitrogen	3.7	3.5	mg/L	Average Monthly
06/30/2021	001	Ammonia-Nitrogen	6.0	5.3	mg/L	Weekly Average
06/30/2021	001	Fecal Coliform	1414	1000	CFU/100 ml	Instantaneous Maximum
07/31/2021	001	Ammonia-Nitrogen	3.8	3.5	mg/L	Average Monthly
07/31/2021	001	Fecal Coliform	2420	1000	CFU/100 ml	Instantaneous Maximum
08/31/2021	001	Ammonia-Nitrogen	6.0	3.5	mg/L	Average Monthly
08/31/2021	001	Ammonia-Nitrogen	8.3	5.3	mg/L	Weekly Average
08/31/2021	001	Fecal Coliform	1120	1000	CFU/100 ml	Instantaneous Maximum
09/30/2021	001	Ammonia-Nitrogen	4.8	3.5	mg/L	Average Monthly
09/30/2021	001	Ammonia-Nitrogen	6.9	5.3	mg/L	Weekly Average
09/30/2021	001	Fecal Coliform	2420	1000	CFU/100 ml	Instantaneous Maximum

Compliance Status:

Facility has no current compliance issues in eFACTs, although it has had numerous effluent violations which have been addressed by CACP's, and an upgrade is in progress to eliminate persistent violations.

Completed by: David Roote

Completed date: 11/16/2021

Compliance History

DMR Data for Outfall 001 (from September 1, 2021 to August 31, 2022)

Parameter	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21
Flow (MGD) Average Monthly	2.869	2.975	3.099	4.46	4.9168	4.653	7.136	4.961	5.049	3.519	3.77	3.374
Flow (MGD) Daily Maximum	4.193	5.077	5.401	15.095	9.0082	6.831	16.903	15.218	10.741	4.681	10.072	11.288
pH (S.U.) Minimum	6.7	6.9	6.8	7.0	7.0	6.9	6.9	6.8	6.5	6.7	6.7	6.6
pH (S.U.) Maximum	7.3	7.4	7.4	7.8	7.5	7.5	7.6	7.6	7.7	7.6	7.7	7.7
DO (mg/L) Minimum	6.0	6.0	6.5	6.9	7.3	8.0	8.7	8.0	5.2	7.2	5.4	6.0
TRC (mg/L) Average Monthly	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01
TRC (mg/L) Instantaneous Maximum	< 0.02	0.07	0.03	0.03	0.07	< 0.01	< 0.02	0.03	0.1	< 0.01	< 0.01	< 0.01
$CBOD_5$ (lbs/day) Average Monthly	210.8	185.5	181.9	< 284.7	< 460.7	< 352.6	380.6	336.4	533.5	243.6	401.5	273.3
$CBOD_5$ (lbs/day) Weekly Average	281.8	236.7	199.2	574.1	612.3	412.2	486.9	386.5	1010.8	314.6	836.2	428.9
$CBOD_5$ (mg/L) Average Monthly	9	7	7	< 7.0	< 11	< 9	6	8	13	8	12	10
$CBOD_5$ (mg/L) Weekly Average	10	9	9	11	15.0	11.0	8.0	9.0	21.0	9.0	17	11
BOD_5 (lbs/day) Raw Sewage Influent Average Monthly	2869	3302	3358	3565	3695	3502	4282	4488	4841	3877	4239	3415
BOD_5 (lbs/day) Raw Sewage Influent Daily Maximum	4193	5781	5726	10273	10748	7138	17480	10343	11452	7196	10895	12050
BOD_5 (mg/L) Raw Sewage Influent Average Monthly	147	134	130	104	89	91	69	117	133	135	144	125
TSS (lbs/day) Average Monthly	< 171.0	< 186.8	< 206.6	< 288.2	< 313.1	< 249.4	394.9	< 263.7	< 278.1	154.3	< 250.7	< 184.3

TSS (lbs/day) Raw Sewage Influent Average Monthly	2717	2558	2692	3089	2611	2229	3658	3583	3989	2721	3558	2625
TSS (lbs/day) Raw Sewage Influent Daily Maximum	6389	5302	5307	9038	9716	5793	12405	9645	11206	5070	8360	11674
TSS (lbs/day) Weekly Average	< 239.1	258.9	255.3	533.4	< 445.0	< 303.5	688.7	< 323.8	550.2	193.8	401.5	< 302.0
TSS (mg/L) Average Monthly	< 7	< 8	< 8	< 8	< 7	< 6	< 8	< 7	< 6	< 5	< 8	< 6
TSS (mg/L) Raw Sewage Influent Average Monthly	115	104	108	89	60	58	61	91	99	95	122	93
TSS (mg/L) Weekly Average	< 11	12	10	11	11	< 8	< 18.0	< 10	8	< 6	13	7.0
Fecal Coliform (CFU/100 ml) Geometric Mean	< 43	28	25	57	< 11	< 4	23	17	< 11	< 9	32	67
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	614	2420	326	2420	2420	24	2420	2420	2420	1987	2420	2420
Total Nitrogen (mg/L) Daily Maximum			14.1			28			36.9			15.8
Ammonia (lbs/day) Average Monthly	369.5	467.1	260.6	244.8	334.1	302.8	387.0	298.1	314.4	158.3	193.0	131.2
Ammonia (lbs/day) Weekly Average	470.5	581.0	343.1	423.9	387.1	352.0	456.3	313.0	540.0	208.8	318.5	225.1
Ammonia (mg/L) Average Monthly	15.4	18.8	10.4	6.7	8.4	7.8	6.4	7.7	7.5	5.4	6.1	4.8
Ammonia (mg/L) Weekly Average	18.2	20.6	16.4	7.8	9.7	8.3	8.6	10.1	14.4	6.4	6.7	6.9
Total Phosphorus (mg/L) Daily Maximum			1.43			3.25			3.44			1.59
Total Aluminum (mg/L) Daily Maximum			< 0.10			< 0.1			< 0.1			0.12
Total Iron (mg/L) Daily Maximum			0.15			0.2			0.21			0.24
Total Manganese (mg/L) Daily Maximum			0.05			0.08			0.04			0.03

Compliance History

Effluent Violations for Outfall 001, from: October 1, 2021 to: August 31, 2022

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	07/31/22	IMAX	2420	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	05/31/22	IMAX	2420	CFU/100 ml	1000	CFU/100 ml
Ammonia	07/31/22	Avg Mo	467.1	lbs/day	175.4	lbs/day
Ammonia	08/31/22	Avg Mo	369.5	lbs/day	175.4	lbs/day
Ammonia	06/30/22	Avg Mo	260.6	lbs/day	175.4	lbs/day
Ammonia	02/28/22	Avg Mo	387.0	lbs/day	350.7	lbs/day
Ammonia	10/31/21	Avg Mo	193.0	lbs/day	175.4	lbs/day
Ammonia	05/31/22	Avg Mo	244.8	lbs/day	175.4	lbs/day
Ammonia	06/30/22	Wkly Avg	343.1	lbs/day	265.5	lbs/day
Ammonia	12/31/21	Wkly Avg	540.0	lbs/day	526.1	lbs/day
Ammonia	07/31/22	Wkly Avg	581.0	lbs/day	265.5	lbs/day
Ammonia	10/31/21	Wkly Avg	318.5	lbs/day	265.5	lbs/day
Ammonia	05/31/22	Wkly Avg	423.9	lbs/day	265.5	lbs/day
Ammonia	08/31/22	Wkly Avg	470.5	lbs/day	265.5	lbs/day
Ammonia	10/31/21	Avg Mo	6.1	mg/L	3.5	mg/L
Ammonia	03/31/22	Avg Mo	7.8	mg/L	7.0	mg/L
Ammonia	05/31/22	Avg Mo	6.7	mg/L	3.5	mg/L

Ammonia	08/31/22	Avg Mo	15.4	mg/L	3.5	mg/L
Ammonia	01/31/22	Avg Mo	7.7	mg/L	7.0	mg/L
Ammonia	06/30/22	Avg Mo	10.4	mg/L	3.5	mg/L
Ammonia	07/31/22	Avg Mo	18.8	mg/L	3.5	mg/L
Ammonia	04/30/22	Avg Mo	8.4	mg/L	7.0	mg/L
Ammonia	12/31/21	Avg Mo	7.5	mg/L	7.0	mg/L
Ammonia	08/31/22	Wkly Avg	18.2	mg/L	5.3	mg/L
Ammonia	12/31/21	Wkly Avg	14.4	mg/L	10.5	mg/L
Ammonia	10/31/21	Wkly Avg	6.7	mg/L	5.3	mg/L
Ammonia	07/31/22	Wkly Avg	20.6	mg/L	5.3	mg/L
Ammonia	06/30/22	Wkly Avg	16.4	mg/L	5.3	mg/L
Ammonia	05/31/22	Wkly Avg	7.8	mg/L	5.3	mg/L

Summary of Inspections: This facility was last inspected in August 2021 as a result of a complaint. The facility also received a compliance evaluation and Administrative/file review. The inspections did not result in any violations.

Other Comments: None.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 8.4
Latitude 40º 16' 8" **Longitude** -80º 9' 44"
Wastewater Description: Sewage Effluent

Technology-Based Limitations (TBELs)

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
Flow (MGD)	Report	Average Monthly	-	92a.27, 92a.61
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)
Ammonia-Nitrogen	25	Average Monthly	-	BPJ
Dissolved Oxygen	4.0	Min	-	BPJ
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Total Nitrogen	Report	Average Monthly	-	92a.61
Total Phosphorus	Report	Average Monthly	-	92a.61
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)

Water Quality-Based Limitations (WQBELs)

This design flow of this facility is being increased from 6.0 to 8.4 MGD. The effluent is being remodeled to reflect the new design flow. Additionally, 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.

Chartiers Creek has a 15-mile segment that receives effluent from four municipal sewage treatment facilitates. This segment encompasses Washington East Washington STP (PA0026212) at RMI 36.26, Canonsburg Houston Joint WWTP at RMI 26.82, Donaldson's Crossroads STP (PA0028703) at RMI 24.17, and The Village of Lawrence STP (PA0255696) at RMI 21.7. All of the dischargers were previously modeled together. As part of the modeling effort for this renewal, effluent limits were evaluated both for the four facilities modeled together and Canonsburg Houston Joint WWTP modeled as a single discharge. The difference between the effluent limit results were negligible. The effluent limits for this facility are being modeled as a single discharger.

WQM 7.0 Water Quality Modeling

DEP's WQM 7.0 version 1.1 model is a Microsoft Access Program used for sewage dischargers to determine whether TBELs are sufficient to meet in-stream water quality criteria for ammonia-nitrogen, carbonaceous biochemical oxygen demand ($CBOD_5$), and dissolved oxygen (DO). To accomplish this, the model simultaneously simulates mixing and degradation of ammonia-nitrogen and mixing and consumption of DO through $CBOD_5$ and ammonia-nitrogen degradation. WQM 7.0 determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions.

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

River Mile Index (RMI) was measured in eMAP PA as the distance from the facility's outfall to the mouth of Chartier's Creek. Elevation was read by applying a topo map in eMAP PA. Discharge point drainage area, downstream drainage area, discharge point Q_{7-10} Flow, and low-flow yield were generated using USGS Stream Stats. These output files are included in Attachment A. In the absence of site-specific data, discharge temperature, stream temperature, and stream pH were assumed to be 20, 25, and 7 in accordance with the Ammonia Guidance, Width to Depth Ration was assumed to be 10.

The discharge flow used for modeling is the permitted hydraulic capacity (8.4 MGD) while input discharge concentrations for $CBOD_5$, ammonia-nitrogen, and DO are the previous permit's effluent limits. Width to depth ratio was assumed to be 10. Reach slope was calculated as a function of end of node elevation, point of discharge elevation, and reach length.

WQM 7.0 modeling inputs are documented in the table below:

Discharge Characteristics		Basin/Stream Characteristics	
Parameter	**Value**	**Parameter**	**Value**
River Mile Index (RMI)	26.82	Drainage Area	87.7
Discharge Flow (MGD)	8.4	$Q_{7-10\ (cfs)}$	2.01
Discharge Temp (^oC) (Summer)	20.0	Low-flow yield (cfs/mi^2)	0.0229
Ammonia-Nitrogen (summer)	3.5	Elevation (ft)	940
Ammonia-Nitrogen (winter)	7.0	Stream Width/Depth	10
$CBOD_5$ (summer)	20	Stream Temp (^oC) (Summer)	25
$CBOD_5$ (winter)	25	Stream pH (s.u.)	7
		Reach Slope	0.0021

WQM 7.0 modeling confirmed that Water Quality based effluent limitations are necessary to meet in-stream water quality criteria for $CBOD_5$, ammonia-nitrogen, and Dissolved Oxygen. In accordance with DEP's SOP *Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033, Revised March 24, 2021, Version 1.9], winter ammonia-nitrogen limits are assessed by comparing the winter WQM 7.0 output value with one calculated from a summer limit using a multiplier of three. The more restrictive of the two limits in then imposed. For this facility, the winter ammonia-nitrogen limit to be imposed was generated using WQM 7.0 modeling. WQM 7.0 modeling output files are included in Attachment B.

The facility is receiving new concentration and mass loading limits for $CBOD_5$ summer, $CBOD_5$ winter, ammonia-nitrogen summer, and ammonia-nitrogen winter. The facility is also receiving new mass loading limits for TSS. Based on historic eDMR data, the facility as currently operating should be able to meet the new, more restrictive $CBOD_5$ limits and will be unable to meet the new, more restrictive ammonia-nitrogen limits. Because of this, a compliance period of three years will be given to meet the new, more restrictive ammonia-nitrogen limits in accordance with Section IV. G.3 of DEP's SOP *New and Reissuance Sewage Individual NPDES Permit Applications* [SOP No. BCW-PMT-002].

Monitoring requirements for UV Transmittance will begin on the permit effective date.

Parameter	Limit (mg/l)	SBC	Model
Dissolved Oxygen	5.0	Instantaneous Minimum	WQM 7.0
Ammonia-Nitrogen (summer)	2.16	Average Monthly	WQM 7.0
Ammonia-Nitrogen (winter)	4.47	Average Monthly	WQM 7.0
$CBOD_5$ (summer)	12	Average Monthly	WQM 7.0

$CBOD_5$ (winter)	20	Average Monthly	WQM 7.0

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

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

The TMS evaluates each pollutant by computing a wasteload allocation for each applicable criterion, determining the most stringent governing WQBEL, and comparing that governing WQBEL to the input discharge concentration to determine whether permit requirements. As documented in Section I.C of DEP's SOP *Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers* [SOP No. BCW-PMT-037], the following scenarios apply:

- 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.

- 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.

TMS requires input data including stream code, RMI, elevation, drainage area, low flow yield, discharge hardness and pH, and stream hardness and pH. The same discharge and basin characteristic values are used as for the WQM 7.0. Discharge pH and hardness are taken from the effluent sample results reported in the application. In the absence of site-specific data, stream pH and hardness defaults to 7.0 s.u. and 100 mg/L in accordance with the DEP's *Toxics Management Spreadsheet (TMS) Instructions.* When known, additional information may be filled in to further define the model. In this case, width, depth, and velocity output values of 56.29 ft, 0.801 ft, and 0.33 ft/s were taken from the WQM 7.0 model and input into TMS. Additionally, Acute and Chronic Mix Factors were both calculated for the WET Test to be 1 and were included in the TMS Model.

A "Reasonable Potential Analysis" (Toxic Management Spreadsheet Version 1.3) was conducted. The TMS modeling results determined that limits were necessary for total copper, free cyanide, total mercury, dichlorobromomethane, chloroform, and chlorodibromomethane. The results also recommend monitoring for total boron, dissolved iron, total iron, and total zinc. Therefore, A Pre-Draft Letter/Survey for Toxic Pollutants was emailed to the permittee on November 16, 2021 and the Authority's Engineer responded on November 16, 2021. This response is included in Attachment C.

As part of the Pre-Draft Survey, the Authority chose to take additional samples for the parameters listed above. The additional sampling resulted in a sample size of at least ten for each parameter of concern. DEP's Standard Operating Procedure (SOP) for *Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers* [SOP No. BCW-PMT-037] documents that when the sample size is ten or more, average monthly effluent concentrations and coefficients of variance will be calculated using DEP's TOXCONC Spreadsheet and those values will be used in the TMS Spreadsheet. The exception as stated in the SOP is that when the sample size is ten or greater and an outlier is suspected in the data set, then the median of the data should be used in the TMS Spreadsheet. For both dichlorobromomethane and chlorodibromomethane, nine of the ten sample results were measured as non-detect at or below the department's target quantitation level. In these two cases, an outlier is suspected and the median of the data (0.5 ug/L) was input into TMS.

As part of the pre-draft survey, the authority stated that dichlorobromomethane and chlorodibromomethane present in the effluent are likely due to byproduct formation from chlorine disinfection. Chlorine disinfection was replaced with UV disinfection during the work approved under WQM Permit No. 6374406-A11. After two years of UV disinfection operation, if the weekly sampling results for these two compounds are non-detect at a method detection level equal to or less than

the department's target quantitation level, then the authority may apply to amend their permit to remove the monitoring requirement.

Using the values tabulated in TOXCONC, the TMS Spreadsheet Model was re-evaluated. Output files for TOXCONC are provided in Attachment D and TMS output files are provided in Attachment E.

The following limitations were determined through water quality modeling:

Parameter	Limit (ug/l)	SBC	Model
Total Copper (ug/L)	18.5	Average Monthly	TMS Version 1.3
Free Cyanide (ug/L)	4.62	Average Monthly	TMS Version 1.3
Total Mercury (ug/L)	0.058	Average Monthly	TMS Version 1.3
Chloroform (ug/L)	6.58	Average Monthly	TMS Version 1.3

Additionally, monitoring will be required for total boron, dissolved iron, total iron, total zinc, chlorodibromomethane, and dichlorobromomethane.

Part C. IV (Titled '"WQBELs for Toxic Pollutants") has been added to the permit. The Authority shall collect site-specific data and conduct a TRE. The Authority will have three years to complete the required studies and submit a Final WQBEL Compliance Report to the Department before having to comply with final permit limits for total copper, free cyanide, total mercury, and chloroform.

Total Maximum Daily Load (TMDL) Considerations

Chartiers Creek TMDL

Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's Water Quality Planning and Management Regulation (codified at Title 40 of the Code of Federal Regulations Part 130) requires states to develop a TMDL for impaired water quality criteria for the pollutant. TMDLs also provide a scientific basis for States to establish water-quality based controls for reducing pollution to both point and non-point sources in order to restore and maintain the quality of the state's water resources (USEPA 1991a). Chartiers Creek was included in the state's 1996 Section 303(d) list because of Polychlorinated Biphenyls (PCBs) and Chlordane which are anticipated to be legacy contaminants as well as a current Industrial Discharger.

In accordance with 40 CFR § 122.44(d)(1)(vii)(B), when developing WQBELs, the permitting authority shall ensure that effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation (WLA) for the discharge prepared by the State and approved by the EPA pursuant to 40 CFR § 130.7.

Canonsburg Houston Joint WWTP (PA0025941) discharges to Chartiers Creek for which a TMDL, *Total Maximum Daily Load – PCB and Chlordane – Chartiers Creek,* was finalized on March 8, 2001. According to the TMDL, the use of both PCB and Chlordane has been banned in the United States, so there will be no new point sources to which controls can be applied. PCB and Chlordane present in the main stem of Chartiers Creek are believed to reside primarily in the sediment due to historical use and improper disposal practices. Long-term natural attenuation coupled with the implementation on the existing source identified in the TMDL (i.e., Cooper Power System) is expected to reduce PCB and Chlordane contamination from the Chartiers Creek sediments over time. Due to this and the fact that the TMDL is currently monitoring the levels of PCBs and chlordane in fish, this facility will not be assigned wasteload allocations. No monitoring of PCBs and Chlordane will also be applied.

This facility accepts flow from five permitted industrial users. Perryman Company, Amteck Specialty Metal Products, and Ameri-Precision Metals are all categorical users whose effluent limit guidelines can be found at 40 CFR part 471.65, 40 CFR part 471, and 40 CFR part 420.106 respectively. The ELGs for all three companies do not include PCBs. Pennsylvania Transformer Technology, Inc produces electronic transformers, however, only sanitary flow is accepted from this industrial user. The industrial users are not anticipated to contribute to the PCB impairment of the receiving stream.

Chartiers Watershed TMDL

Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's Water Quality Planning and Management Regulation (codified at Title 40 of the Code of Federal Regulations Part 130) requires states to develop a TMDL for impaired water quality criteria for the pollutant. TMDLs also provide a scientific basis for States to establish water-quality based controls for reducing pollution to both point and non-point sources in order to restore and maintain the quality of the state's water resources (USEPA 1991a) Stream reaches within the Chartiers Watershed, are included in the state's 1996 and 1998 Section 303(d) lists because of pH and metal impairments including aluminum, iron, and manganese.

Canonsburg Houston Joint WWTP (PA0025941) discharges to the Chartiers Watershed, for which a TMDL was finalized in April 2003. The TMDL addresses aluminum, iron, and manganese impairment due to acid mine drainage.

The previous permit imposed a monitoring and report requirement for aluminum, iron, and manganese. The highest reported value for the last three years of eDMR data is reported below along with the in-stream water quality criteria for each pollutant of concern.

Parameter	Highest Reported Value (mg/l)	Criteria (mg/L)
Aluminum, Total	0.12	0.75
Iron, Total	0.24	1.5
Manganese, Total	0.08	1.0

In accordance with 25 PA Code §92a.61, a quarterly monitoring requirement for iron, manganese, and aluminum will again be imposed in the permit to continue verification that the sewage discharge is not contributing to stream impairment.

Additional Considerations

In accordance with Section 1.A. of DEP's 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 § 93.7(a) and § 92.a.61, sewage discharges will include monitoring, at a minimum, for *E. coli*, in new and reissued permits, with a monitoring frequency of 1/month for design flows >= 1 MGD.

In accordance with Section 1.A. of the Department's SOP for *Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033 Version 1.9], and under the authority of 25 Pa. Code § 92a.61(b), monitoring for total nitrogen and total phosphorus will be imposed in the permit. The intent of monitoring is to evaluate the nutrient load from the wastewater treatment facility and the impacts that load may have on the quality of the receiving stream(s). The SOP states that a monitoring frequency shall be imposed equivalent to that imposed or conventional pollutants if the facility discharges to a nutrient impaired stream or a lesser frequency if the receiving water is not nutrient-impaired. The receiving stream, Chartiers Creek, is not impaired for nutrients, therefore, a monitoring frequency of 1/quarter monitor and report requirement for total nitrogen and total phosphorus will be imposed.

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

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Discharges, from the Department's *Technical Guidance for the Development and Specification of Effluent Limitations* Doc. No. 362-0400-001].

Mass Loading

In accordance with Section 1.A. of DEP's SOP for *Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033] and table 5.3 of DEP's *Technical Guidance for the Development and Specification of Effluent Limitations* Doc. No. 362-0400-001], mass loading limits are applicable for POTWs. Current policy requires average

monthly mass loading limits be established for $CBOD_5$, TSS, and ammonia-nitrogen and average weekly mass loading limits be established for $CBOD_5$ and TSS. Mass loading limits are calculated according to the following equation:

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

The following mass loading limits are being imposed:

Parameter	Average Monthly (lbs/day)	Weekly Average (lbs/day)
Ammonia-Nitrogen $_{summer}$	151.3	226.9
Ammonia-Nitrogen $_{winter}$	313.1	469.7
$CBOD_{5\ summer}$ (mg/L)	840	1260
$CBOD_{5\ winter}$ (mg/L)	1400	2100
TSS (mg/L)	2100	3150

Whole Effluent Toxicity (WET)

The 2016 permit required CHJA to collect discharge samples and perform WET tests to generate chronic survival and reproduction data for the *cladoceran* (water flea) and *Ceriodaphnia dubia*, and chronic survival and growth data for the fathead minnow (*pimephales promelas*). The dilution series for the tests was: 9%, 17%, 34%, 67%, and 100%. The Target Instream Waste Concentration (TIWC) used to analyze the results was 34%.

Analysis of the four most recent WET tests, conducted October 2017, October 2018, October 2019, and October 2020, is included in Attachment F. There is no reasonable potential, therefore, no WET limits will be imposed in this permit. An annual monitoring requirement will be added to Part C.V.B of the permit.

Complete mix time is calculated as a function of discharge flow rate and receiving stream characteristics ($Q_{7\text{-}10}$ flow, velocity, width, depth, and slope). WQM 7.0 output data was used for receiving stream characteristics. Complete mixing time was calculated to be 2.36 minutes.

Partial Mix Factors are determined based on complete mix time. Complete mix time is less than 15 minutes, therefore the Acute Partial Mix Factor (PMFA) is 1.0. Similarly, because complete mix time is less than 12 hours, Chronic Partial Mix Factor (PMFc) is 1.0.

Acute instream waste concentration (IWCa) is calculated as a function of discharge flow, stream flow, and PMFa.

Acute IWCa = (Q_d x 1.547) / (($Q_{7\text{-}10}$ x PMFa) + (Q_d x 1.547))

[(8.4 MGD x 1.547) / ((2.01 cfs x 1) + (8.4 MGD x 1.547))] x 100 = 1.0

IWCa is calculated to be 100%, which is greater than 1%. Therefore, Chronic Tests are Required.

Chronic instream waste concentration (IWCc) is calculated as a function of discharge flow, stream flow, and PMFc

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

[(8.4 MGD x 1.547) / ((2.01 cfs x 1.0) + (8.4 MGD x 1.547))] x 100 = **0.866**

IWCc is calculated to be 87%.

In accordance with Attachment D of DEP's SOP for *Whole Effluent Toxicity (WET)* [SOP No. BPNPSM-PMT-031], when IWCc is calculated to be 87%, then the Dilution Series is: 22%, 44%, 87%, 94%, and 100%.

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 Three Years Following Permit Issue Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (µg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Total Copper	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Free Cyanide	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Mercury	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Chloroform	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Ammonia Nov 1 - Apr 30	175.4	365.5	XXX	3.5	5.3	7.0	1/day	24-Hr Composite
Ammonia May 1 - Oct 31	350.7	526.1	XXX	7.0	10.5	14.0	1/day	24-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: None

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: Three Years Following Permit Issuance 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	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Total Copper (ug/L)	1.3	1.78	XXX	18.5	25.4	25.4	1/week	24-Hr Composite
Free Cyanide (ug/L)	0.32	0.59	XXX	4.62	8.49	11.5	1/week	24-Hr Composite
Total Mercury (ug/L)	0.004	0.007	XXX	0.058	0.11	0.14	1/week	24-Hr Composite
Chloroform (ug/L)	0.46	0.85	XXX	6.58	12.1	16.4	1/week	24-Hr Composite
Ammonia Nov 1 - Apr 30	313.1	469.7 Wkly Avg	XXX	4.47	6.70 Wkly Avg	8.94	1/day	24-Hr Composite
Ammonia May 1 - Oct 31	151.3	226.9 Wkly Avg	XXX	2.16	3.24 Wkly Avg	4.32	1/day	24-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: None

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	Daily Maximum	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
CBOD5 Nov 1 - Apr 30	1400	2100 Wkly Avg	XXX	20	30 Wkly Avg	40	1/day	24-Hr Composite
CBOD5 May 1 - Oct 31	840	1260 Wkly Avg	XXX	12	18 Wkly Avg	24	1/day	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/day	24-Hr Composite
TSS	2100.0	3150.0 Wkly Avg	XXX	30.0	45.0 Wkly Avg	60	1/day	24-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/day	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/day	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
Total Boron (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Dissolved Iron (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Iron (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Manganese	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
Total Zinc (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Chlorodibromo-methane (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	4 Grabs/24 Hours
Dichlorobromo-methane (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	4 Grabs/24 Hours

Compliance Sampling Location: Outfall 001

Other Comments: None

ATTACHMENT A

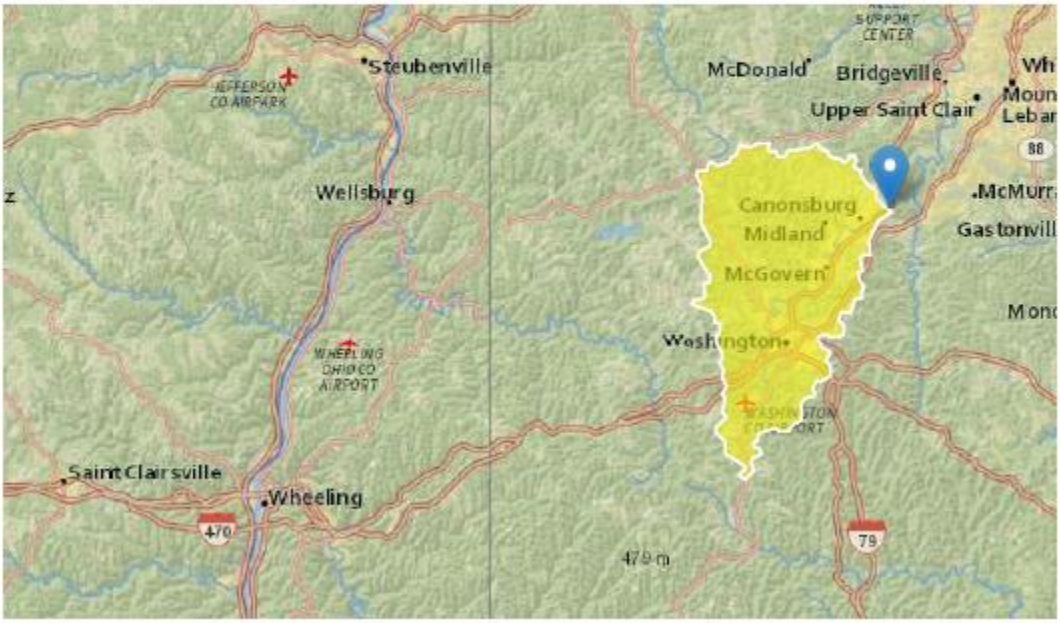
USGS Stream Stats Output Files

Discharge Point

Permit No. PA0025941

StreamStats Report

Region ID: PA
Workspace ID: PA20221109162825400000
Clicked Point (Latitude, Longitude): 40.26863, -80.16234
Time: 2022-11-09 11:28:46 -0500



Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	87.7	square miles	2.26	1400
ELEV	Mean Basin Elevation	1161	feet	1050	2580

Low-Flow Statistics Flow Report [Low Flow Region 4]

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	4.47	ft^3/s	43	43
30 Day 2 Year Low Flow	6.98	ft^3/s	38	38
7 Day 10 Year Low Flow	2.01	ft^3/s	66	66
30 Day 10 Year Low Flow	3.06	ft^3/s	54	54
90 Day 10 Year Low Flow	5	ft^3/s	41	41

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

End of Reach

Permit No. PA0025941

StreamStats Report

Region ID: PA
Workspace ID: PA20221018123224224000
Clicked Point (Latitude, Longitude): 40.27887, -80.13797
Time: 2022-10-18 08:32:45 -0400

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	139	square miles
ELEV	Mean Basin Elevation	1157	feet

ATTACHMENT B

WQM 7.0 Modeling Results

Summer Modeling

Permit No. PA0025941

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
20F	36777	CHARTIERS CREEK	26.820	940.00	87.70	0.00210	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	0.023	0.00	0.00	0.000	0.000	10.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Canonsburg Hous	PA0025941	0.0000	8.4000	0.0000	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	20.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	3.50	0.00	0.00	0.70

Permit No. PA0025941

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
20F	36777	CHARTIERS CREEK	24.170	910.00	139.00	0.00210	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	0.023	0.00	0.00	0.000	0.000	10.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

Parameter Data

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

Permit No. PA0025941

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

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												
26.820	2.01	0.00	2.01	12.9948	0.00210	.801	56.29	70.32	0.33	0.486	20.67	7.00
Q1-10 Flow												
26.820	1.29	0.00	1.29	12.9948	0.00210	NA	NA	NA	0.32	0.500	20.45	7.00
Q30-10 Flow												
26.820	2.73	0.00	2.73	12.9948	0.00210	NA	NA	NA	0.34	0.474	20.87	7.00

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Permit No. PA0025941

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		

Permit No. PA0025941

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
26.820	Canonsburg Hou	16.15	7	16.15	7	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
26.820	Canonsburg Hou	1.78	2.16	1.78	2.16	1	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)		
26.82	Canonsburg Hous	12.96	12.96	2.16	2.16	5	5	0	0

Permit No. PA0025941

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
26.820	8.400	20.669	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
56.295	0.801	70.323	0.333
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
11.49	0.943	1.87	0.737
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.434	4.847	Tsivoglou	5
Reach Travel Time (days)			
0.486			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.049	10.96	1.80	5.22
0.097	10.45	1.74	5.09
0.146	9.97	1.68	5.02
0.195	9.51	1.62	5.01
0.243	9.07	1.56	5.04
0.292	8.65	1.51	5.10
0.340	8.25	1.46	5.18
0.389	7.87	1.40	5.27
0.438	7.51	1.35	5.38
0.486	7.16	1.31	5.49

Permit No. PA0025941

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

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)
26.820	Canonsburg Hous	PA0025941	0.000	CBOD5	12.96		
				NH3-N	2.16	4.32	
				Dissolved Oxygen			5

Winter Modeling

Permit No. PA0025941

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
20F	36777	CHARTIERS CREEK	26.820	940.00	87.70	0.00210	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	0.046	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Canonsburg Hous	PA0025941	0.0000	8.4000	0.0000	0.000	15.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	12.51	0.00	0.00
NH3-N	7.00	0.00	0.00	0.70

Permit No. PA0025941

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
20F	36777	CHARTIERS CREEK	24.170	910.00	139.00	0.00210	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	0.046	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

Parameter Data

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

Permit No. PA0025941

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

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												
26.820	4.01	0.00	4.01	12.9948	0.00210	.81	58.77	72.55	0.36	0.454	12.64	7.00
Q1-10 Flow												
26.820	2.57	0.00	2.57	12.9948	0.00210	NA	NA	NA	0.34	0.477	13.35	7.00
Q30-10 Flow												
26.820	5.45	0.00	5.45	12.9948	0.00210	NA	NA	NA	0.37	0.433	12.04	7.00

Permit No. PA0025941

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		

Permit No. PA0025941

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
26.820	Canonsburg Hou	24.1	14	24.1	14	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
26.820	Canonsburg Hou	3.15	4.47	3.15	4.47	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)		
26.82	Canonsburg Hous	21.23	21.23	4.47	4.47	5	5	0	0

Permit No. PA0025941

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
26.620	8.400	12.642	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
58.773	0.810	72.545	0.357
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
16.70	1.230	3.42	0.397
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.771	4.298	Tsivoglou	5
Reach Travel Time (days)			
0.454			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.045	16.05	3.36	6.31
0.091	15.42	3.30	5.97
0.136	14.82	3.24	5.73
0.181	14.24	3.18	5.57
0.227	13.69	3.12	5.47
0.272	13.15	3.07	5.43
0.317	12.64	3.01	5.42
0.363	12.15	2.96	5.45
0.408	11.67	2.91	5.50
0.454	11.22	2.86	5.57

Permit No. PA0025941

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Eff. Limit 30-day Ave. (mg/L)	Eff. Limit Maximum (mg/L)	Eff. Limit Minimum (mg/L)
26.820	Canonsburg Hous	PA0025941	0.000	CBOD5	21.23		
				NH3-N	4.47	8.94	
				Dissolved Oxygen			5

ATTACHMENT C

Pre-Draft Survey Response

Permit No. PA0025941

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Clean Water

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

Permittee Name: **Canonsburg Houston Joint Authority** Permit No.: **PA0025941**

Pollutant(s) identified by DEP that may require WQBELs: copper(T), cyanide(F), mercury(T), chlorodibromomethane, chloroform, and dichlorobromomethane

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

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

The proposed list of WQBELs includes chlorodibromomethane, chloroform, and dichlorobromomethane. Research at other WWTPs has shown that each of these chlorinated organic compounds is likely to have formed in the existing chlorination system due to dynamics with the nitrogen in the treated wastewater. Copper is present in most wastewater systems primarily due to aggressive potable water systems stripping copper from household plumbing. Potential sources of mercury and free cyanide would need to be researched.

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

If Yes, describe prior studies and results:

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

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

The proposed list of WQBELs includes chlorodibromomethane, chloroform, and dichlorobromomethane; each of these chlorinated organic compounds is likely to have formed in the existing chlorine disinfection system. Since the Authority's current plant upgrades include a change from chlorination to UV disinfection, these three parameters are likely to achieve proposed WQBELs once the new disinfection system is in use.

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

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

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

☐	Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
☐	Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
☐	Background / ambient pollutant concentrations	Year(s) Studied:
☐	Chemical translator(s) (metals)	Year(s) Studied:
☐	Slope and width of receiving waters	Year(s) Studied:
☐	Velocity of receiving waters at design conditions	Year(s) Studied:
☐	Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
☐	Volatilization rates (highly volatile organics)	Year(s) Studied:
☐	Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

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

ATTACHMENT D

TOXCONC Output Files

Bromodichloromethane

Permit No. PA0025941

	Facility:	Canonsburg Houston Joint WWTP				
	NPDES #:	PA0025941				
	Outfall No:	001				
	n (Samples/Month):	12				
	Reviewer/Permit Engineer:	Conrad				
Parameter Name	omodichloromethane					
Units	µg/L					
Detection Limit	0.5					
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*					
03/28/22	< 0.5					
04/04/22	< 0.5					
04/11/22	< 0.5					
04/18/22	< 0.5					
04/25/22	< 0.5					
05/02/22	< 0.5					
05/09/22	< 0.5					
08/27/20	<0.5					
09/09/20	8.4					
09/21/20	<0.5					

		Reviewer/Permit Engineer:	Conrad
Facility:	Canonsburg Houston Joint WWTP		
NPDES #:	PA0025941		
Outfall No:	001		
n (Samples/Month):	12		
Parameter	**Distribution Applied**	**Coefficient of Variation (daily)**	**Avg. Monthly**
romodichloromethane (µg/	Normal	0.7094159	2.2394114

Chloroform

Permit No. PA0025941

	Facility:	Canonsburg Houston Joint WWTP				
	NPDES #:	PA0025941				
	Outfall No:	001				
	n (Samples/Month):	12				
	Reviewer/Permit Engineer:	Conrad				
Parameter Name	Chloroform					
Units	µg/L					
Detection Limit	0.5					
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*					
03/28/22	1.81					
04/04/22	2.15					
04/11/22	1.3					
04/18/22	1.4					
04/25/22	1.41					
05/02/22	2.12					
05/09/22	0.67					
08/27/20	<0.5					
09/09/20	19.5					
09/21/20	<0.5					

		Reviewer/Permit Engineer:	Conrad
Facility:	Canonsburg Houston Joint WWTP		
NPDES #:	PA0025941		
Outfall No:	001		
n (Samples/Month):	12		
Parameter	**Distribution Applied**	**Coefficient of Variation (daily)**	**Avg. Monthly**
Chloroform (µg/L)	Normal	1.0839287	4.4709706

Total Copper

Permit No. PA0025941

Facility:	Canonsburg Houston Joint WWTP					
NPDES #:	PA0025941					
Outfall No:	001					
n (Samples/Month):	12					
Reviewer/Permit Engineer:	Conrad					
Parameter Name	Copper					
Units	µg/L					
Detection Limit	0.002					
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*					
03/28/22	13.6					
04/04/22	17.2					
04/11/22	12.5					
04/18/22	14.8					
04/25/22	15.5					
05/02/22	18.5					
05/09/22	< 10					
08/27/20	23					
09/09/20	20					
09/21/20	25					

		Reviewer/Permit Engineer:	Conrad
Facility:	Canonsburg Houston Joint WWTP		
NPDES #:	PA0025941		
Outfall No:	001		
n (Samples/Month):	12		
Parameter	**Distribution Applied**	**Coefficient of Variation (daily)**	**Avg. Monthly**
Copper (µg/L)	Normal	0.3734529	17.4167955

Dibromochloromethane

Permit No. PA0025941

	Facility:	Canonsburg Houston Joint WWTP				
	NPDES #:	PA0025941				
	Outfall No:	001				
	n (Samples/Month):	12				
	Reviewer/Permit Engineer:	Conrad				
Parameter Name	bromochloromethane					
Units	µg/L					
Detection Limit	0.5					
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*					
03/28/22	< 0.5					
04/04/22	< 0.5					
04/11/22	< 0.5					
04/18/22	< 0.5					
04/25/22	< 0.5					
05/02/22	< 0.5					
05/09/22	< 0.5					
08/27/20	<0.5					
09/09/20	1.7					
09/21/20	<0.5					

		Reviewer/Permit Engineer:	Conrad
Facility:	Canonsburg Houston Joint WWTP		
NPDES #:	PA0025941		
Outfall No:	001		
n (Samples/Month):	12		

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
bromochloromethane (µg/	Normal	0.1602023	1.1828195

Cyanide

Permit No. PA0025941

Facility:	Canonsburg Houston Joint WWTP					
NPDES #:	PA0025941					
Outfall No:	001					
n (Samples/Month):	12					
Reviewer/Permit Engineer:	Conrad					
Parameter Name	Free Cyanide					
Units	µg/L					
Detection Limit						
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*					
03/28/22	2					
04/04/22	7					
04/11/22	5					
04/18/22	< 5					
04/25/22	8					
05/02/22	< 5					
05/09/22	1					
08/27/20	15					
09/09/20	13					
09/21/20	7					

Reviewer/Permit Engineer: Conrad

Facility: Canonsburg Houston Joint WWTP
NPDES #: PA0025941
Outfall No: 001
n (Samples/Month): 12

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
Free Cyanide (µg/L)	Normal	1.0689501	9.7447220

Dissolved Iron

Permit No. PA0025941

	Facility:	Canonsburg Houston Joint WWTP				
	NPDES #:	PA0025941				
	Outfall No:	001				
	n (Samples/Month):	12				
	Reviewer/Permit Engineer:	Conrad				
Parameter Name	Dissolved Iron					
Units	µg/L					
Detection Limit	0.02					
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*					
03/28/22	70					
04/04/22	100					
04/11/22	70					
04/18/22	120					
04/25/22	80					
05/02/22	100					
05/09/22	130					
08/27/20	80					
09/09/20	70					
09/21/20	110					

		Reviewer/Permit Engineer:	Conrad
Facility:	Canonsburg Houston Joint WWTP		
NPDES #:	PA0025941		
Outfall No:	001		
n (Samples/Month):	12		
Parameter	**Distribution Applied**	**Coefficient of Variation (daily)**	**Avg. Monthly**
Dissolved Iron (µg/L)	Normal	0.2382952	108.1564299

Mercury

Permit No. PA0025941

Facility:	Canonsburg Houston Joint WWTP					
NPDES #:	PA0025941					
Outfall No:	001					
n (Samples/Month):	12					
Reviewer/Permit Engineer:	Conrad					
Parameter Name	Mercury					
Units	µg/L					
Detection Limit	0.04					
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*					
03/28/22	ND					
04/04/22	ND					
04/11/22	ND					
04/18/22	0.2					
04/25/22	ND					
05/02/22	0.1					
05/09/22	ND					
08/27/20	3.7					
09/09/20	ND					
09/21/20	ND					

Reviewer/Permit Engineer: Conrad

Facility: Canonsburg Houston Joint WWTP
NPDES #: PA0025941
Outfall No: 001
n (Samples/Month): 12

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
Mercury (µg/L)	Normal	1.2480197	2.2655801

Zinc

Permit No. PA0025941

Facility:	Canonsburg Houston Joint WWTP					
NPDES #:	PA0025941					
Outfall No:	001					
n (Samples/Month):	12					
Reviewer/Permit Engineer:	Conrad					
Parameter Name	Zinc					
Units	µg/L					
Detection Limit	0.002					
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*					
03/28/22	56.6					
04/04/22	67.6					
04/11/22	56.7					
04/18/22	53.2					
04/25/22	71					
05/02/22	81.3					
05/09/22	33.7					
08/27/20	88					
09/09/20	59					
09/21/20	101					

Reviewer/Permit Engineer: Conrad

Facility: Canonsburg Houston Joint WWTP
NPDES #: PA0025941
Outfall No: 001
n (Samples/Month): 12

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
Zinc (µg/L)	Normal	0.3171278	81.6087579

ATTACHMENT E

TMS Spreadsheet Modeling Output

Permit No. PA0025941

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: Canonsburg Houston Joint WWTP NPDES Permit No.: PA0025941 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
8.4	202	6.8	1	1				

					0 if left blank		0.6 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	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		590									
	Chloride (PWS)	mg/L		101									
	Bromide	mg/L		0.15									
	Sulfate (PWS)	mg/L		137									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		24									
	Total Antimony	µg/L	<	2									
	Total Arsenic	µg/L		0.7									
	Total Barium	µg/L		46									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		260									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L	<	4									
	Hexavalent Chromium	µg/L	<	1									
	Total Cobalt	µg/L	<	1									
	Total Copper	µg/L		17.4167955			0.3735						
	Free Cyanide	µg/L		9.744722			1.069						
	Total Cyanide	µg/L		18									
	Dissolved Iron	µg/L		108.15643			0.2383						
	Total Iron	µg/L		210									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		26									
	Total Mercury	µg/L		2.2655801			1.248						
	Total Nickel	µg/L	<	4									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L	<	5									
	Total Silver	µg/L	<	0.4									
	Total Thallium	µg/L	<	2									
	Total Zinc	µg/L		81.6087579			0.3171						
	Total Molybdenum	µg/L		8									
	Acrolein	µg/L	<	2									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	5									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L	<	0.5									

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Group 3	Carbon Tetrachloride	µg/L	<	0.5									
	Chlorobenzene	µg/L	<	0.5									
	Chlorodibromomethane	µg/L		0.5									
	Chloroethane	µg/L	<	0.5									
	2-Chloroethyl Vinyl Ether	µg/L	<	5									
	Chloroform	µg/L		4.4709706			1.0839						
	Dichlorobromomethane	µg/L		0.5									
	1,1-Dichloroethane	µg/L	<	0.5									
	1,2-Dichloroethane	µg/L	<	0.5									
	1,1-Dichloroethylene	µg/L	<	0.5									
	1,2-Dichloropropane	µg/L	<	0.5									
	1,3-Dichloropropylene	µg/L	<	0.5									
	1,4-Dioxane	µg/L	<	2									
	Ethylbenzene	µg/L	<	0.5									
	Methyl Bromide	µg/L	<	0.5									
	Methyl Chloride	µg/L	<	0.5									
	Methylene Chloride	µg/L		0.7									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5									
	Tetrachloroethylene	µg/L	<	0.5									
	Toluene	µg/L	<	0.5									
	1,2-trans-Dichloroethylene	µg/L	<	0.5									
	1,1,1-Trichloroethane	µg/L	<	0.5									
	1,1,2-Trichloroethane	µg/L	<	0.5									
	Trichloroethylene	µg/L	<	0.5									
	Vinyl Chloride	µg/L	<	0.5									
Group 4	2-Chlorophenol	µg/L	<	10									
	2,4-Dichlorophenol	µg/L	<	10									
	2,4-Dimethylphenol	µg/L	<	10									
	4,6-Dinitro-o-Cresol	µg/L	<	10									
	2,4-Dinitrophenol	µg/L	<	10									
	2-Nitrophenol	µg/L	<	10									
	4-Nitrophenol	µg/L	<	10									
	p-Chloro-m-Cresol	µg/L	<	10									
	Pentachlorophenol	µg/L	<	10									
	Phenol	µg/L	<	10									
	2,4,6-Trichlorophenol	µg/L	<	10									
Group 5	Acenaphthene	µg/L	<	2.5									
	Acenaphthylene	µg/L	<	2.5									
	Anthracene	µg/L	<	2.5									
	Benzidine	µg/L	<	50									
	Benzo(a)Anthracene	µg/L	<	2.5									
	Benzo(a)Pyrene	µg/L	<	2.5									
	3,4-Benzofluoranthene	µg/L	<	2.5									
	Benzo(ghi)Perylene	µg/L	<	2.5									
	Benzo(k)Fluoranthene	µg/L	<	2.5									
	Bis(2-Chloroethoxy)Methane	µg/L	<	5									
	Bis(2-Chloroethyl)Ether	µg/L	<	5									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	5									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	5									
	4-Bromophenyl Phenyl Ether	µg/L	<	5									
	Butyl Benzyl Phthalate	µg/L	<	5									
	2-Chloronaphthalene	µg/L	<	5									
	4-Chlorophenyl Phenyl Ether	µg/L	<	5									
	Chrysene	µg/L	<	2.5									
	Dibenzo(a,h)Anthrancene	µg/L	<	2.5									
	1,2-Dichlorobenzene	µg/L	<	0.5									
	1,3-Dichlorobenzene	µg/L	<	0.5									
	1,4-Dichlorobenzene	µg/L	<	0.5									
	3,3-Dichlorobenzidine	µg/L	<	5									
	Diethyl Phthalate	µg/L	<	5									
	Dimethyl Phthalate	µg/L	<	5									
	Di-n-Butyl Phthalate	µg/L	<	5									
	2,4-Dinitrotoluene	µg/L	<	5									

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	2,6-Dinitrotoluene	µg/L	<	5									
	Di-n-Octyl Phthalate	µg/L	<	5									
	1,2-Diphenylhydrazine	µg/L	<	10									
	Fluoranthene	µg/L	<	2.5									
	Fluorene	µg/L	<	2.5									
	Hexachlorobenzene	µg/L	<	5									
	Hexachlorobutadiene	µg/L	<	0.5									
	Hexachlorocyclopentadiene	µg/L	<	5									
	Hexachloroethane	µg/L	<	5									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	2.5									
	Isophorone	µg/L	<	5									
	Naphthalene	µg/L	<	0.5									
	Nitrobenzene	µg/L	<	5									
	n-Nitrosodimethylamine	µg/L	<	5									
	n-Nitrosodi-n-Propylamine	µg/L	<	5									
	n-Nitrosodiphenylamine	µg/L	<	5									
	Phenanthrene	µg/L	<	2.5									
	Pyrene	µg/L	<	2.5									
	1,2,4-Trichlorobenzene	µg/L	<	0.5									
Group 6	Aldrin	µg/L	<	0.02									
	alpha-BHC	µg/L	<	0.02									
	beta-BHC	µg/L	<	0.02									
	gamma-BHC	µg/L	<	0.02									
	delta BHC	µg/L	<	0.02									
	Chlordane	µg/L	<	0.5									
	4,4-DDT	µg/L	<	0.02									
	4,4-DDE	µg/L	<	0.02									
	4,4-DDD	µg/L	<	0.02									
	Dieldrin	µg/L	<	0.02									
	alpha-Endosulfan	µg/L	<	0.02									
	beta-Endosulfan	µg/L	<	0.02									
	Endosulfan Sulfate	µg/L	<	0.02									
	Endrin	µg/L	<	0.02									
	Endrin Aldehyde	µg/L	<	0.02									
	Heptachlor	µg/L	<	0.02									
	Heptachlor Epoxide	µg/L	<	0.02									
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<	0.5									
	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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Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Canonsburg Houston Joint WWTP, NPDES Permit No. PA0025941, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: Chartier's Creek

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	036777	26.82	940	87.7			Yes
End of Reach 1	036777	24.17	902	139			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	26.82	0.0229				56.29	0.801	0.33				100	7		
End of Reach 1	24.17	0.0229													

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	26.82														
End of Reach 1	24.17														

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Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Canonsburg Houston Joint WWTP, NPDES Permit No. PA0025941, Outfall 001

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

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 2.083 PMF: 1 Analysis Hardness (mg/l): 188.35 Analysis pH: 6.82

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	866	
Total Antimony	0	0		0	1,100	1,100	1,270	
Total Arsenic	0	0		0	340	340	393	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	24,246	
Total Boron	0	0		0	8,100	8,100	9,352	
Total Cadmium	0	0		0	3.725	4.06	4.69	Chem Translator of 0.918 applied
Total Chromium (III)	0	0		0	956.939	3,028	3,496	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	18.8	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	110	
Total Copper	0	0		0	24.403	25.4	29.3	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	25.4	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	127.724	183	211	Chem Translator of 0.699 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1.9	Chem Translator of 0.85 applied
Total Nickel	0	0		0	799.978	802	925	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	9.557	11.2	13.0	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	75.0	
Total Zinc	0	0		0	200.367	205	237	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	3.46	

Acrylonitrile	0	0		0	650	650	750	
Benzene	0	0		0	640	640	739	
Bromoform	0	0		0	1,800	1,800	2,078	
Carbon Tetrachloride	0	0		0	2,800	2,800	3,233	
Chlorobenzene	0	0		0	1,200	1,200	1,385	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	20,782	
Chloroform	0	0		0	1,900	1,900	2,194	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	17,318	
1,1-Dichloroethylene	0	0		0	7,500	7,500	8,659	
1,2-Dichloropropane	0	0		0	11,000	11,000	12,700	
1,3-Dichloropropylene	0	0		0	310	310	358	
Ethylbenzene	0	0		0	2,900	2,900	3,348	
Methyl Bromide	0	0		0	550	550	635	
Methyl Chloride	0	0		0	28,000	28,000	32,327	
Methylene Chloride	0	0		0	12,000	12,000	13,855	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,155	
Tetrachloroethylene	0	0		0	700	700	808	
Toluene	0	0		0	1,700	1,700	1,963	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	7,851	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	3,464	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	3,925	
Trichloroethylene	0	0		0	2,300	2,300	2,655	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	647	
2,4-Dichlorophenol	0	0		0	1,700	1,700	1,963	
2,4-Dimethylphenol	0	0		0	660	660	762	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	92.4	
2,4-Dinitrophenol	0	0		0	660	660	762	
2-Nitrophenol	0	0		0	8,000	8,000	9,236	
4-Nitrophenol	0	0		0	2,300	2,300	2,655	
p-Chloro-m-Cresol	0	0		0	160	160	185	
Pentachlorophenol	0	0		0	7.294	7.29	8.42	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	531	
Acenaphthene	0	0		0	83	83.0	95.8	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	346	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.58	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	34,636	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	5,195	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	312	
Butyl Benzyl Phthalate	0	0		0	140	140	162	

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	947	
1,3-Dichlorobenzene	0	0		0	350	350	404	
1,4-Dichlorobenzene	0	0		0	730	730	843	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	4,618	
Dimethyl Phthalate	0	0		0	2,500	2,500	2,886	
Di-n-Butyl Phthalate	0	0		0	110	110	127	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	1,847	
2,6-Dinitrotoluene	0	0		0	990	990	1,143	
1,2-Diphenylhydrazine	0	0		0	15	15.0	17.3	
Fluoranthene	0	0		0	200	200	231	
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	11.5	
Hexachlorocyclopentadiene	0	0		0	5	5.0	5.77	
Hexachloroethane	0	0		0	60	60.0	69.3	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	11,545	
Naphthalene	0	0		0	140	140	162	
Nitrobenzene	0	0		0	4,000	4,000	4,618	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	19,627	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	346	
Phenanthrene	0	0		0	5	5.0	5.77	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	150	
Aldrin	0	0		0	3	3.0	3.46	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	0.95	0.95	1.1	
Chlordane	0	0		0	2.4	2.4	2.77	
4,4-DDT	0	0		0	1.1	1.1	1.27	
4,4-DDE	0	0		0	1.1	1.1	1.27	
4,4-DDD	0	0		0	1.1	1.1	1.27	
Dieldrin	0	0		0	0.24	0.24	0.28	
alpha-Endosulfan	0	0		0	0.22	0.22	0.25	
beta-Endosulfan	0	0		0	0.22	0.22	0.25	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.086	0.086	0.099	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.52	0.52	0.6	
Heptachlor Epoxide	0	0		0	0.5	0.5	0.58	
Toxaphene	0	0		0	0.73	0.73	0.84	

☑ CFC CCT (min): 2.083 PMF: 1 Analysis Hardness (mg/l): 188.35 Analysis pH: 6.82

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	254	
Total Arsenic	0	0		0	150	150	173	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	4,734	
Total Boron	0	0		0	1,600	1,600	1,847	
Total Cadmium	0	0		0	0.382	0.43	0.5	Chem Translator of 0.883 applied
Total Chromium (III)	0	0		0	124.478	145	167	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	12.0	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	21.9	
Total Copper	0	0		0	15.383	16.0	18.5	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	6.0	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,732	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	4.977	7.12	8.22	Chem Translator of 0.699 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.05	Chem Translator of 0.85 applied
Total Nickel	0	0		0	88.853	89.1	103	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	5.76	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	15.0	
Total Zinc	0	0		0	202.006	205	237	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	3.46	
Acrylonitrile	0	0		0	130	130	150	
Benzene	0	0		0	130	130	150	
Bromoform	0	0		0	370	370	427	
Carbon Tetrachloride	0	0		0	560	560	647	
Chlorobenzene	0	0		0	240	240	277	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	4,041	
Chloroform	0	0		0	390	390	450	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	3,579	
1,1-Dichloroethylene	0	0		0	1,500	1,500	1,732	
1,2-Dichloropropane	0	0		0	2,200	2,200	2,540	
1,3-Dichloropropylene	0	0		0	61	61.0	70.4	
Ethylbenzene	0	0		0	580	580	670	
Methyl Bromide	0	0		0	110	110	127	
Methyl Chloride	0	0		0	5,500	5,500	6,350	

Methylene Chloride	0	0		0	2,400	2,400	2,771	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	242	
Tetrachloroethylene	0	0		0	140	140	162	
Toluene	0	0		0	330	330	381	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	1,616	
1,1,1-Trichloroethane	0	0		0	610	610	704	
1,1,2-Trichloroethane	0	0		0	680	680	785	
Trichloroethylene	0	0		0	450	450	520	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	127	
2,4-Dichlorophenol	0	0		0	340	340	393	
2,4-Dimethylphenol	0	0		0	130	130	150	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	18.5	
2,4-Dinitrophenol	0	0		0	130	130	150	
2-Nitrophenol	0	0		0	1,600	1,600	1,847	
4-Nitrophenol	0	0		0	470	470	543	
p-Chloro-m-Cresol	0	0		0	500	500	577	
Pentachlorophenol	0	0		0	5.596	5.6	6.46	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	105	
Acenaphthene	0	0		0	17	17.0	19.6	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	68.1	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.12	
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	6,927	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	1,051	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	62.3	
Butyl Benzyl Phthalate	0	0		0	35	35.0	40.4	
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	185	
1,3-Dichlorobenzene	0	0		0	69	69.0	79.7	
1,4-Dichlorobenzene	0	0		0	150	150	173	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	924	
Dimethyl Phthalate	0	0		0	500	500	577	
Di-n-Butyl Phthalate	0	0		0	21	21.0	24.2	
2,4-Dinitrotoluene	0	0		0	320	320	369	
2,6-Dinitrotoluene	0	0		0	200	200	231	
1,2-Diphenylhydrazine	0	0		0	3	3.0	3.46	

Fluoranthene	0	0		0	40	40.0	46.2	
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	2.31	
Hexachlorocyclopentadiene	0	0		0	1	1.0	1.15	
Hexachloroethane	0	0		0	12	12.0	13.9	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	2,425	
Naphthalene	0	0		0	43	43.0	49.6	
Nitrobenzene	0	0		0	810	810	935	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	3,925	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	68.1	
Phenanthrene	0	0		0	1	1.0	1.15	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	30.0	
Aldrin	0	0		0	0.1	0.1	0.12	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0043	0.004	0.005	
4,4-DDT	0	0		0	0.001	0.001	0.001	
4,4-DDE	0	0		0	0.001	0.001	0.001	
4,4-DDD	0	0		0	0.001	0.001	0.001	
Dieldrin	0	0		0	0.056	0.056	0.065	
alpha-Endosulfan	0	0		0	0.056	0.056	0.065	
beta-Endosulfan	0	0		0	0.056	0.056	0.065	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.036	0.036	0.042	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.0038	0.004	0.004	
Heptachlor Epoxide	0	0		0	0.0038	0.004	0.004	
Toxaphene	0	0		0	0.0002	0.0002	0.0002	

☑ ***THH*** CCT (min): 2.083 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	6.47	
Total Arsenic	0	0		0	10	10.0	11.5	
Total Barium	0	0		0	2,400	2,400	2,771	

Total Boron	0	0		0	3,100	3,100	3,579	
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	4.62	
Dissolved Iron	0	0		0	300	300	346	
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	1,155	
Total Mercury	0	0		0	0.050	0.05	0.058	
Total Nickel	0	0		0	610	610	704	
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	0.28	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	3.46	
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	115	
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	6.58	
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	38.1	
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	78.5	
Methyl Bromide	0	0		0	100	100.0	115	
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	65.8	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	115	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	11,545	
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	34.6	

2,4-Dichlorophenol	0	0		0	10	10.0	11.5	
2,4-Dimethylphenol	0	0		0	100	100.0	115	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	2.31	
2,4-Dinitrophenol	0	0		0	10	10.0	11.5	
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	4,618	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	80.8	
Anthracene	0	0		0	300	300	346	
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	231	
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	0.12	
2-Chloronaphthalene	0	0		0	800	800	924	
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	1,155	
1,3-Dichlorobenzene	0	0		0	7	7.0	8.08	
1,4-Dichlorobenzene	0	0		0	300	300	346	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	693	
Dimethyl Phthalate	0	0		0	2,000	2,000	2,309	
Di-n-Butyl Phthalate	0	0		0	20	20.0	23.1	
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	23.1	
Fluorene	0	0		0	50	50.0	57.7	
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	4.62	
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	39.3	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	11.5	

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	23.1	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.081	
Aldrin	0	0		0	N/A	N/A	N/A	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	4.2	4.2	4.85	
Chlordane	0	0		0	N/A	N/A	N/A	
4,4-DDT	0	0		0	N/A	N/A	N/A	
4,4-DDE	0	0		0	N/A	N/A	N/A	
4,4-DDD	0	0		0	N/A	N/A	N/A	
Dieldrin	0	0		0	N/A	N/A	N/A	
alpha-Endosulfan	0	0		0	20	20.0	23.1	
beta-Endosulfan	0	0		0	20	20.0	23.1	
Endosulfan Sulfate	0	0		0	20	20.0	23.1	
Endrin	0	0		0	0.03	0.03	0.035	
Endrin Aldehyde	0	0		0	1	1.0	1.15	
Heptachlor	0	0		0	N/A	N/A	N/A	
Heptachlor Epoxide	0	0		0	N/A	N/A	N/A	
Toxaphene	0	0		0	N/A	N/A	N/A	

☑ *CRL* CCT (min): 20.900 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	0.12	
Benzene	0	0		0	0.58	0.58	1.19	
Bromoform	0	0		0	7	7.0	14.4	
Carbon Tetrachloride	0	0		0	0.4	0.4	0.82	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	1.64	
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	1.95	
1,2-Dichloroethane	0	0		0	9.9	9.9	20.3	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	1.85	
1,3-Dichloropropylene	0	0		0	0.27	0.27	0.55	
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	41.0	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	0.41	
Tetrachloroethylene	0	0		0	10	10.0	20.5	
Toluene	0	0		0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0		0	0.55	0.55	1.13	
Trichloroethylene	0	0		0	0.6	0.6	1.23	
Vinyl Chloride	0	0		0	0.02	0.02	0.041	
2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	0.030	0.03	0.062	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	3.08	

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	0.0002	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.002	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0002	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.002	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.021	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.062	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	0.66	
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	0.25	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.0002	
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	0.1	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	0.1	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.1	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.062	
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	0.0002	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.021	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	0.21	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.002	
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	0.001	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.01	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	6.77	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	
Aldrin	0	0		0	0.0000008	8.00E-07	0.000002	
alpha-BHC	0	0		0	0.0004	0.0004	0.0008	
beta-BHC	0	0		0	0.008	0.008	0.016	
gamma-BHC	0	0		0	N/A	N/A	N/A	

Chlordane	0	0		0	0.0003	0.0003	0.0006	
4,4-DDT	0	0		0	0.00003	0.00003	0.00006	
4,4-DDE	0	0		0	0.00002	0.00002	0.00004	
4,4-DDD	0	0		0	0.0001	0.0001	0.0002	
Dieldrin	0	0		0	0.000001	0.000001	0.000002	
alpha-Endosulfan	0	0		0	N/A	N/A	N/A	
beta-Endosulfan	0	0		0	N/A	N/A	N/A	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	N/A	N/A	N/A	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.000006	0.000006	0.00001	
Heptachlor Epoxide	0	0		0	0.00003	0.00003	0.00006	
Toxaphene	0	0		0	0.0007	0.0007	0.001	

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Boron	Report	Report	Report	Report	Report	µg/L	1,847	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	1.3	1.78	18.5	25.4	25.4	µg/L	18.5	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Free Cyanide	0.32	0.59	4.62	8.49	11.5	µg/L	4.62	THH	Discharge Conc ≥ 50% WQBEL (RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	346	THH	Discharge Conc > 10% WQBEL (no RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	1,732	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Mercury	0.004	0.007	0.058	0.11	0.14	µg/L	0.058	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	205	AFC	Discharge Conc > 10% WQBEL (no RP)
Chlorodibromomethane	Report	Report	Report	Report	Report	µg/L	1.64	CRL	Discharge Conc > 25% WQBEL (no RP)
Chloroform	0.46	0.85	6.58	12.1	16.5	µg/L	6.58	THH	Discharge Conc ≥ 50% WQBEL (RP)
Dichlorobromomethane	Report	Report	Report	Report	Report	µg/L	1.95	CRL	Discharge Conc > 25% WQBEL (no RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
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	750	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	11.5	µg/L	Discharge Conc ≤ 10% WQBEL

Total Barium	2,771	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Cadmium	0.5	µg/L	Discharge Conc < TQL
Total Chromium (III)	167	µg/L	Discharge Conc < TQL
Hexavalent Chromium	12.0	µg/L	Discharge Conc < TQL
Total Cobalt	21.9	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Total Lead	8.22	µg/L	Discharge Conc < TQL
Total Manganese	1,155	µg/L	Discharge Conc ≤ 10% WQBEL
Total Nickel	103	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	5.76	µg/L	Discharge Conc < TQL
Total Silver	11.2	µg/L	Discharge Conc < TQL
Total Thallium	0.28	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.0	µg/L	Discharge Conc < TQL
Acrylonitrile	0.12	µg/L	Discharge Conc < TQL
Benzene	1.19	µg/L	Discharge Conc < TQL
Bromoform	14.4	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	0.82	µg/L	Discharge Conc < TQL
Chlorobenzene	115	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	4,041	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	20.3	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	38.1	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	1.85	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	0.55	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	78.5	µg/L	Discharge Conc < TQL
Methyl Bromide	115	µg/L	Discharge Conc < TQL
Methyl Chloride	6,350	µg/L	Discharge Conc < TQL
Methylene Chloride	41.0	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2,2-Tetrachloroethane	0.41	µg/L	Discharge Conc < TQL
Tetrachloroethylene	20.5	µg/L	Discharge Conc < TQL
Toluene	65.8	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	115	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	704	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	1.13	µg/L	Discharge Conc < TQL
Trichloroethylene	1.23	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.041	µg/L	Discharge Conc < TQL
2-Chlorophenol	34.6	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	11.5	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	115	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	2.31	µg/L	Discharge Conc < TQL

2,4-Dinitrophenol	11.5	µg/L	Discharge Conc < TQL
2-Nitrophenol	1,847	µg/L	Discharge Conc < TQL
4-Nitrophenol	543	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	160	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.062	µg/L	Discharge Conc < TQL
Phenol	4,618	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	3.08	µg/L	Discharge Conc < TQL
Acenaphthene	19.6	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	346	µg/L	Discharge Conc < TQL
Benzidine	0.0002	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.002	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.0002	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.002	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.021	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.062	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	231	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	0.66	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	62.3	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.12	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	924	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	0.25	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.0002	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	185	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	8.08	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	173	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	0.1	µg/L	Discharge Conc < TQL
Diethyl Phthalate	693	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	577	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	23.1	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.1	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.1	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.062	µg/L	Discharge Conc < TQL
Fluoranthene	23.1	µg/L	Discharge Conc < TQL
Fluorene	57.7	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.0002	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.021	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	1.15	µg/L	Discharge Conc < TQL
Hexachloroethane	0.21	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.002	µg/L	Discharge Conc < TQL
Isophorone	39.3	µg/L	Discharge Conc < TQL

Naphthalene	49.6	µg/L	Discharge Conc < TQL
Nitrobenzene	11.5	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.001	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.01	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	6.77	µg/L	Discharge Conc < TQL
Phenanthrene	1.15	µg/L	Discharge Conc < TQL
Pyrene	23.1	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.081	µg/L	Discharge Conc < TQL
Aldrin	0.000002	µg/L	Discharge Conc < TQL
alpha-BHC	0.0008	µg/L	Discharge Conc < TQL
beta-BHC	0.016	µg/L	Discharge Conc < TQL
gamma-BHC	0.95	µg/L	Discharge Conc < TQL
delta BHC	N/A	N/A	No WQS
Chlordane	0.0006	µg/L	Discharge Conc < TQL
4,4-DDT	0.00006	µg/L	Discharge Conc < TQL
4,4-DDE	0.00004	µg/L	Discharge Conc < TQL
4,4-DDD	0.0002	µg/L	Discharge Conc < TQL
Dieldrin	0.000002	µg/L	Discharge Conc < TQL
alpha-Endosulfan	0.065	µg/L	Discharge Conc < TQL
beta-Endosulfan	0.065	µg/L	Discharge Conc < TQL
Endosulfan Sulfate	23.1	µg/L	Discharge Conc < TQL
Endrin	0.035	µg/L	Discharge Conc < TQL
Endrin Aldehyde	1.15	µg/L	Discharge Conc < TQL
Heptachlor	0.00001	µg/L	Discharge Conc < TQL
Heptachlor Epoxide	0.00006	µg/L	Discharge Conc < TQL
Toxaphene	0.0002	µg/L	Discharge Conc < TQL

ATTACHMENT F

Summary and Analysis of WET Test Results

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

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

The dilution series used for the tests was: 100%, 67%, 34%, 17%, and 9%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 0.334.

Summary of Four Most Recent Test Results

TST Data Analysis

Test Date	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	**Reproduction**	**Survival**	**Growth**
10/10/2017	PASS	PASS	PASS	PASS
10/16/2018-10/17/2018	PASS	PASS	PASS	PASS
10/22/2018-	PASS	PASS	PASS	PASS
10/26/2020-10/27/2020	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**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.34
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Canonsburg Houston STP

Permit No.: PA0025941

Replicate No.	Test Completion Date 10/10/2017 Control	TIWC
1	28	21
2	28	30
3	0	36
4	31	40
5	34	28
6	31	30
7	24	35
8	20	32
9	23	31
10	32	32
11		
12		
13		
14		
15		
Mean	25.100	31.500
Std Dev.	9.860	5.083
# Replicates	10	10
T-Test Result	4.4669	
Deg. of Freedom	17	
Critical T Value	0.8633	
Pass or Fail	PASS	

Replicate No.	Test Completion Date 10/17/2018 Control	TIWC
1	31	31
2	27	25
3	23	30
4	32	17
5	36	24
6	26	35
7	29	31
8	22	36
9	27	30
10	20	27
11		
12		
13		
14		
15		
Mean	27.300	28.600
Std Dev.	4.900	5.602
# Replicates	10	10
T-Test Result	3.8351	
Deg. of Freedom	16	
Critical T Value	0.8647	
Pass or Fail	PASS	

Replicate No.	Test Completion Date 10/22/2019 Control	TIWC
1	36	35
2	34	39
3	37	34
4	34	33
5	31	37
6	30	29
7	37	36
8	31	33
9	32	38
10	31	34
11		
12		
13		
14		
15		
Mean	33.300	34.800
Std Dev.	2.669	2.898
# Replicates	10	10
T-Test Result	8.8209	
Deg. of Freedom	16	
Critical T Value	0.8647	
Pass or Fail	PASS	

Replicate No.	Test Completion Date 10/26/2020 Control	TIWC
1	31	40
2	25	23
3	37	37
4	35	33
5	22	38
6	35	36
7	40	42
8	33	38
9	25	36
10	27	38
11		
12		
13		
14		
15		
Mean	31.000	36.100
Std Dev.	5.981	5.195
# Replicates	10	10
T-Test Result	5.9201	
Deg. of Freedom	17	
Critical T Value	0.8633	
Pass or Fail	PASS	

Permit No. PA0025941

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.34
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Canonsburg Houston STP

Permit No.: PA0025941

Replicate No.	Test Completion Date 10/10/2017 Control	TIWC
1	1	1
2	1	1
3	0	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	0.900	1.000
Std Dev.	0.316	0.000
# Replicates	10	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

Replicate No.	Test Completion Date 10/17/2018 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	

Replicate No.	Test Completion Date 10/22/2019 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	

Replicate No.	Test Completion Date 10/26/2020 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	

Permit No. PA0025941

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.34
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Canonsburg Houston STP

Permit No.: PA0025941

Replicate No.	Test Completion Date: 10/10/2017 Control	TIWC
1	1	0.8
2	1	0.8
3	1	0.9
4	1	0.6
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	1.000	0.775
Std Dev.	0.000	0.126
# Replicates	4	4
T-Test Result	3.3197	
Deg. of Freedom	3	
Critical T Value	0.7649	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 10/16/2018 Control	TIWC
1	1	1
2	1	0.8
3	1	0.9
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	1.000	0.925
Std Dev.	0.000	0.096
# Replicates	4	4
T-Test Result	8.0674	
Deg. of Freedom	3	
Critical T Value	0.7649	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 10/22/2019 Control	TIWC
1	1	1
2	1	1
3	0.9	1
4	1	0.9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.975	0.975
Std Dev.	0.050	0.050
# Replicates	4	4
T-Test Result	14.8898	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 10/27/2020 Control	TIWC
1	1	0.9
2	0.9	1
3	1	0.9
4	0.7	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.900	0.950
Std Dev.	0.141	0.058
# Replicates	4	4
T-Test Result	7.9353	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Permit No. PA0025941

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.34
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Canonsburg Houston STP

Permit No.: PA0025941

Replicate No.	Test Completion Date 10/10/2017 Control	TIWC
1	0.566	0.44
2	0.503	0.435
3	0.516	0.593
4	0.47	0.352
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.514	0.455
Std Dev.	0.040	0.100
# Replicates	4	4
T-Test Result	1.3297	
Deg. of Freedom	4	
Critical T Value	0.7407	
Pass or Fail	PASS	

Replicate No.	Test Completion Date 10/16/2018 Control	TIWC
1	0.274	0.268
2	0.217	0.248
3	0.414	0.228
4	0.214	0.237
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.280	0.245
Std Dev.	0.094	0.017
# Replicates	4	4
T-Test Result	0.9799	
Deg. of Freedom	4	
Critical T Value	0.7407	
Pass or Fail	PASS	

Replicate No.	Test Completion Date 10/22/2019 Control	TIWC
1	0.37	0.287
2	0.346	0.262
3	0.306	0.282
4	0.273	0.222
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.324	0.263
Std Dev.	0.043	0.030
# Replicates	4	4
T-Test Result	0.9356	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Replicate No.	Test Completion Date 10/27/2020 Control	TIWC
1	0.386	0.389
2	0.398	0.429
3	0.322	0.277
4	0.199	0.295
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.326	0.348
Std Dev.	0.091	0.073
# Replicates	4	4
T-Test Result	2.0524	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	