pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0027243**
Facility Type	**Municipal**	APS ID	**802582**
Major / Minor	**Major**	Authorization ID	**1264374**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**North Huntingdon Township Municipal Authority**	Facility Name	**Youghiogheny STP**
Applicant Address	11265 Center Highway	Facility Address	4222 Turner Valley Road
	North Huntingdon, PA 15642-2018		North Huntingdon, PA 15642-2846
Applicant Contact	Mr. Michael L. Branthoover	Facility Contact	Mr. Chris Sanner
Applicant Phone	(724) 863-2860	Facility Phone	Same as Applicant
Client ID	41738	Site ID	243623
Ch 94 Load Status	Not Overloaded	Municipality	North Huntingdon Township
Connection Status	No Limitations	County	Westmoreland
Date Application Received	March 6, 2019	EPA Waived?	No
Date Application Accepted	March 9, 2019	If No, Reason	Major Facility

Purpose of Application: Application for a renewal of an existing NPDES Permit for the discharge of treated Sewage.

Summary of Review

The applicant has applied for a renewal of an existing NPDES Permit, Permit No. PA0027243, which was previously issued by the Department on August 15, 2014. That permit expired on August 31, 2019.

WQM Permit 6573448 A-5, issued on October 6, 2003, approved STP expansion with a hydraulic design capacity of 3.313 MGD and organic capacity of 5,524 lbs/day. The existing treatment process consists of primary clarifiers, trickling filter, rotating biological contactors (RBCs), final clarifiers and chlorination.

The receiving stream, Youghiogheny River, is classified as a WWF and is located in State Watershed No. 19-D.

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

The application states there are no stormwater related outfalls located at the STP. Part C will not contain language titled "Requirements Applicable to Stormwater Outfalls".

Sludge use and disposal description and location(s): Sludge is anaerobically treated/stabilized, dewatered and disposed of at the Westmoreland Sanitary Landfill, Westmoreland County, PA.

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*,

Approve	Deny	Signatures	Date
X		William C. Mitchell, E.I.T. / Environmental Engineering Specialist	February 19, 2021
X		Christopher Kriley, P.E. / Clean Water Program Manager	February 22, 2021

Summary of Review
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)	3.313
Latitude	40º 17' 47.00"	Longitude	-79º 47' 4.00"
Quad Name	McKeesport	Quad Code	1607
Wastewater Description:	Sewage Effluent		
Receiving Waters	Youghiogheny River (WWF)	Stream Code	37456
NHD Com ID	69912409	RMI	9.3
Drainage Area	1739	Yield (cfs/mi^2)	0.2933
Q_{7-10} Flow (cfs)	510	Q_{7-10} Basis	US Army Corp of Engineers, Youghiogheny River @ Sutersville
Elevation (ft)	728	Slope (ft/ft)	0.00021
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use	**All**	Existing Use Qualifier	None
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake	Westmoreland County Municipal Authority, McKeesport Plant		
PWS Waters	Youghiogheny River	Flow at Intake (cfs)	510
PWS RMI	1.3	Distance from Outfall (mi)	8.0

Changes Since Last Permit Issuance: None

Other Comments: N/A

Treatment Facility Summary

Treatment Facility Name: Youghiogheny STP

WQM Permit No.	Issuance Date
6573448-A5	10/6/03
6573448-A6	7/23/04
6573448-A7	8/27/12

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Attached Growth using Trickling Filter and RBCs	Chlorination	2018 2.513 MGD

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
3.313	5,524	Not Overloaded	Anaerobic Digestion and Belt Filter Press	Landfill

Changes Since Last Permit Issuance: None

Other Comments: N/A

Compliance History

Operations Compliance Check Summary Report

Facility: Youghiogheny STP

NPDES Permit No.: PA0027243

Compliance Review Period: 2/2016 - 2/2021

Inspection Summary:

INSP ID	INSPECTED DATE	INSP TYPE	INSPECTION RESULT DESC	CREATION DATE	# OF VIOLATIONS
2883275	04/02/2019	Compliance Evaluation	No Violations Noted	05/21/2019	0
2781494	09/13/2018	Incident-Response to Accident or Event	Administratively Closed	09/28/2018	0
2781473	09/12/2018	Incident-Response to Accident or Event	Violation(s) Noted	09/28/2018	1
2766844	08/23/2018	Compliance Evaluation	No Violations Noted	08/23/2018	0
2487859	05/26/2016	Compliance Evaluation	Violation(s) Noted	05/27/2016	1

Violation Summary:

VIOL ID	VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE	INSPECTED DATE	INSP TYPE
829203	09/12/2018	92A.47(C)	NPDES - Illegal discharge to waters of the Commonwealth from a sanitary sewer overflow (SSO)	12/12/2018	09/12/2018	Incident-Response to Accident or Event
760202	05/26/2016	92A.47(C)	NPDES - Illegal discharge to waters of the Commonwealth from a sanitary sewer overflow (SSO)	05/27/2016	05/26/2016	Compliance Evaluation

Open Violations by Client ID:

No open violations for Client ID 41738

Enforcement Summary:

ENF ID	ENF TYPE	ENF TYPE DESC	ENF CREATION DATE	VIOLATIONS	ENF FINALSTATUS	ENF CLOSED DATE
367864	NOV	Notice of Violation	09/28/2018	92A.47(C)	Comply/Closed	04/02/2019
343355	NOV	Notice of Violation	05/27/2016	92A.47(C)	Administrative Close Out	08/20/2019

DMR Violation Summary:

MONITORING START DATE	MONITORING END DATE	NON COMPLIANCE CATEGORY	PARAMETER	SAMPLE VALUE	PERMIT VALUE	STATISTICAL BASE CODE
04/01/2020	04/30/2020	Concentration 3 Effluent Violation	Fecal Coliform	24196	10000	Instantaneous Maximum
09/01/2018	09/30/2018	Concentration 3 Effluent Violation	Fecal Coliform	2419.6	1000	Instantaneous Maximum
07/01/2018	07/31/2018	Concentration 3 Effluent Violation	Fecal Coliform	2419.6	1000	Instantaneous Maximum
07/01/2017	07/31/2017	Concentration 3 Effluent Violation	Fecal Coliform	1732.9	1000	Instantaneous Maximum
12/01/2016	12/31/2016	Concentration 3 Effluent Violation	Total Residual Chlorine (TRC)	1.8	1.6	Instantaneous Maximum
05/01/2016	05/31/2016	Concentration 3 Effluent Violation	Fecal Coliform	2419.6	1000	Instantaneous Maximum

Compliance Status:

Completed by: John Murphy

Completed date: 2/4/2021

Other Comments: Permit issuance is recommended. There are some effluent exceedances, but only one in the last two years. Ops will monitor.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 3.313
Latitude 40º 17' 47.00" **Longitude** -79º 47' 4.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	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)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Comments: Water Quality Analysis Modeling for CBOD5, DO and Ammonia-Nitrogen is not necessary, and we will again re-impose Federal Minimum Secondary Effluent Limitations due to the large dilution available in the Youghiogheny River. Q7-10 flow of the Youghiogheny River at the point of discharge is 510 cfs. The instream to wasteflow dilution ration = total stream flow (515.135 cfs) / discharge flow (5.135 cfs) = 100/1.

For existing discharges (NPDES Renewal Applications), if WQM7.0 modeling results for summer indicates that an average monthly warm period limit of 25 mg/L (default in model) is acceptable for ammonia-nitrogen, a year-round monitoring requirement, at a minimum should be established. Due to the large dilution ration discussed above, assume that a monthly warm period limit of 25 mg/L is acceptable for ammonia-nitrogen and impose a year-round monitoring requirement for ammonia-nitrogen that is consistent with Table 6-3 of the Permit Writers Manual. Application data for Outfall # 001 indicates that the max average monthly concentration value of ammonia-nitrogen in the discharge is 5.96 mg/L.

The attached TRC_CALC Spreadsheet confirms that the above Technology-Based Limitation for TRC applies to this discharge.

Water Quality-Based Limitations

A “Reasonable Potential Analysis” (Attachment Toxic Management Spreadsheet) was conducted. No limitations were determined through water quality modeling, using DEPs Toxic Management Spreadsheet (TMS) Version 1.1, and no WQBELs will be imposed on this facility during this permit cycle. The TMS recommended Monitoring for total copper because the discharge concentration is greater than 10% of the WQBEL.

For modeling purposes, the river width is 246 ft, the river depth is 1.16 ft, and velocity is 1.8 fps. Data taken previous Fact Sheet.

Best Professional Judgment (BPJ) Limitations

Comments: A monitoring requirement for DO was imposed in the previously issued NPDES Renewal Permit. Review of eDMR data shows that the facility consistently reports a minimum DO concentration value greater than 4.0 mg/L.

A Dissolved Oxygen minimum limitation of 4.0 mg/L will be implemented based on the standard in 25 PA Code Chapter 93 and best professional judgment (BPJ).

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.

Additional Considerations:

For pH, DO and TRC, a monitoring frequency 1/day has been imposed. In general, less frequent monitoring may be established only when the permittee demonstrates that there will be no discharge on days where monitoring is not required.

Nutrient monitoring is required to establish the nutrient load from the wastewater treatment facility and the impacts that load may have on the quality of the receiving stream(s). A 1/quarter monitor and report requirement for Total N & Total P has been added to the permit as per Chapter 92.a.61.

Mass loading limits are applicable for publicly owned treatment works. Current policy requires average monthly mass loading limits be established for CBOD5, TSS, and NH_3-N and average weekly mass loading limits be established for CBOD5 and TSS. Average monthly mass loading limits (lbs/day) are based on the formula: design flow (MGD) x concentration limit (mg/L) x conversion factor (8.34).

For POTWs with design flows greater than 2,000 GPD influent BOD_5 and TSS monitoring must be established in the permit, and the monitoring should be consistent with the same frequency and sample type as is used for other effluent parameters.

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Dischargers, from the Departments Technical Guidance for the Development and Specification of Effluent Limitations. Please note that Monitoring Requirements were changed for Flow to 2/week Metered to be consistent with the guidance.

Total Dissolved Solids (TDS) and its Major Constituents

Total Dissolved Solids (TDS) and its major constituents including sulfate, chloride, and bromide have emerged as pollutants of concern in several major watersheds in the Commonwealth. The conservative nature of these solids allows them to accumulate in surface waters and they may remain a concern even if the immediate downstream public water supply is not directly impacted. Bromide has been linked to formation of disinfection byproducts at increased levels in public water systems.

Based on these concerns and under the authority of §92a.61, DEP has determined it should implement increased monitoring in NPDES permits for these parameters: TDS, sulfate, chloride, bromide, and 1,4-dioxane.

Increased monitoring in NPDES permits will only occur when the following conditions are met:

- Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.

- Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Discharges of 0.1 MGD or less should monitor and report for bromide if the concentration of bromide in the discharge exceeds 10 mg/L.

- Where the concentration of 1,4-dioxane (CAS 123-91-1) in a discharge exceeds 10 µg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for 1,4-dioxane. Discharges of 0.1 MGD or less should monitor and report for 1,4-dioxane if the concentration of 1,4-dioxane in the discharge exceeds 100 µg/L.

Monitoring is not required for TDS, sulfate, chloride, bromide & 1,4-dioxane. Concentrations of bromide is less than 1 mg/L (application reports 0.078 mg/L), TDS is less than 1000 mg/L (application reports 440 mg/L) & 1,4-dioxane is less than 10 ug/L (application reports ND and the QL used is 10.4 ug/L).

Whole Effluent Toxicity (WET)

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

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

The dilution series used for the tests was: 100%, 60%, 30%, 2%, and 1%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 2.0.

TST Data Analysis

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

	***Ceriodaphnia* Results (Pass/Fail)**		***Pimephales* Results (Pass/Fail)**	
Test Date	**Survival**	**Reproduction**	**Survival**	**Growth**
11/01/2016	PASS	PASS	PASS	PASS
10/31/2017	PASS	PASS	PASS	PASS
05/22/2018	PASS	PASS	PASS	PASS
10/01/2019	PASS	PASS	PASS	PASS

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

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

☐ **YES** ☒ **NO**

Comments: N/A

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

Acute Partial Mix Factor (PMFa): **0.058** Chronic Partial Mix Factor (PMFc): **0.400**

1. Determine IWC – Acute (IWCa):

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

[(3.313 MGD x 1.547) / ((510 cfs x 0.058) + (3.313 MGD x 1.547))] x 100 = **14.81%**

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

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

N/A

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

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

TIWCa = 14.81 / 0.3 = 49.37**%**

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

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

[(3.313 MGD x 1.547) / ((510 cfs x 0.400) + (3.313 MGD x 1.547))] x 100 = **2.0%**

3. Determine Dilution Series

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

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

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

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

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

N/A

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

N/A

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	2/week	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	690.0	1050.0	XXX	25.0	38.0	50	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	825.0	1240.0	XXX	30.0	45.0	60	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite
Ammonia-Nitrogen	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Copper	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	24-Hr Composite

Compliance Sampling Location: Outfall # 001

Copy of TRC_CALC

TRC EVALUATION

510	= Q stream (cfs)	0.5	= CV Daily
3.313	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	0.058	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	0.4	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 1.860	1.3.2.iii	WLA cfc = 12.390
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.693	5.1d	LTA_cfc = 7.203

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

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

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.1, October 2020

Discharge Information

Instructions | Discharge | Stream

Facility: **Youghiogheny STP** NPDES Permit No.: **PA0027243** 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
3.313	161.33	7.35	0.058	0.4				

	Discharge Pollutant	Units	Max Discharge Conc		0 if left blank: Trib Conc	0 if left blank: Stream Conc	0.5 if left blank: Daily CV	0.5 if left blank: Hourly CV	0 if left blank: Stream CV	0 if left blank: Fate Coeff	0 if left blank: FOS	1 if left blank: Criteria Mod	1 if left blank: Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		463									
	Chloride (PWS)	mg/L		121									
	Bromide	mg/L		0.175									
	Sulfate (PWS)	mg/L		69.9									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		144									
	Total Antimony	µg/L	<	5									
	Total Arsenic	µg/L		1									
	Total Barium	µg/L		49									
	Total Beryllium	µg/L	<	0.3									
	Total Boron	µg/L		254									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L		0.6									
	Hexavalent Chromium	µg/L	<	4.1									
	Total Cobalt	µg/L		6									
	Total Copper	µg/L		23									
	Free Cyanide	µg/L		7									
	Total Cyanide	µg/L		7									
	Dissolved Iron	µg/L		85									
	Total Iron	µg/L		283									
	Total Lead	µg/L		0.45									
	Total Manganese	µg/L		53									
	Total Mercury	µg/L	<	0.04									
	Total Nickel	µg/L		10									
	Total Phenols (Phenolics) (PWS)	µg/L	<	75									
	Total Selenium	µg/L		0.75									
	Total Silver	µg/L	<	0.9									
	Total Thallium	µg/L	<	0.5									
	Total Zinc	µg/L		39									
	Total Molybdenum	µg/L	<	2									
	Acrolein	µg/L	<	0.85									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	1.14									
	Benzene	µg/L	<	0.13									
	Bromoform	µg/L	<	0.36									

Group 3	Carbon Tetrachloride	µg/L	<	0.31										
	Chlorobenzene	µg/L		0.33										
	Chlorodibromomethane	µg/L	<	0.31										
	Chloroethane	µg/L	<	0.58										
	2-Chloroethyl Vinyl Ether	µg/L	<	0.25										
	Chloroform	µg/L	<	0.27										
	Dichlorobromomethane	µg/L	<	0.2										
	1,1-Dichloroethane	µg/L	<	0.21										
	1,2-Dichloroethane	µg/L	<	0.19										
	1,1-Dichloroethylene	µg/L	<	0.25										
	1,2-Dichloropropane	µg/L	<	0.24										
	1,3-Dichloropropylene	µg/L	<	0.27										
	1,4-Dioxane	µg/L	<	10.4										
	Ethylbenzene	µg/L	<	0.24										
	Methyl Bromide	µg/L	<	0.4										
	Methyl Chloride	µg/L	<	0.25										
	Methylene Chloride	µg/L	<	0.3										
	1,1,2,2-Tetrachloroethane	µg/L	<	0.31										
	Tetrachloroethylene	µg/L	<	0.32										
	Toluene	µg/L		0.69										
	1,2-trans-Dichloroethylene	µg/L	<	0.28										
	1,1,1-Trichloroethane	µg/L	<	0.2										
	1,1,2-Trichloroethane	µg/L	<	0.23										
	Trichloroethylene	µg/L	<	0.21										
	Vinyl Chloride	µg/L	<	0.43										
Group 4	2-Chlorophenol	µg/L	<	17.4										
	2,4-Dichlorophenol	µg/L	<	21.4										
	2,4-Dimethylphenol	µg/L	<	13.5										
	4,6-Dinitro-o-Cresol	µg/L	<	41.2										
	2,4-Dinitrophenol	µg/L	<	58.5										
	2-Nitrophenol	µg/L	<	21.2										
	4-Nitrophenol	µg/L	<	50.9										
	p-Chloro-m-Cresol	µg/L	<	22										
	Pentachlorophenol	µg/L	<	1										
	Phenol	µg/L	<	41.1										
	2,4,6-Trichlorophenol	µg/L	<	29.5										
Group 5	Acenaphthene	µg/L	<	16.5										
	Acenaphthylene	µg/L	<	19.7										
	Anthracene	µg/L	<	20.6										
	Benzidine	µg/L	<	3.8										
	Benzo(a)Anthracene	µg/L	<	1.4										
	Benzo(a)Pyrene	µg/L	<	1.4										
	3,4-Benzofluoranthene	µg/L	<	1.4										
	Benzo(ghi)Perylene	µg/L	<	31.7										
	Benzo(k)Fluoranthene	µg/L	<	1.4										
	Bis(2-Chloroethoxy)Methane	µg/L	<	22.5										
	Bis(2-Chloroethyl)Ether	µg/L	<	2.9										
	Bis(2-Chloroisopropyl)Ether	µg/L	<	21.7										
	Bis(2-Ethylhexyl)Phthalate	µg/L		1.6										
	4-Bromophenyl Phenyl Ether	µg/L	<	18.3										
	Butyl Benzyl Phthalate	µg/L		0.2										
	2-Chloronaphthalene	µg/L	<	24.2										
	4-Chlorophenyl Phenyl Ether	µg/L	<	24.9										
	Chrysene	µg/L	<	1.4										
	Dibenzo(a,h)Anthrancene	µg/L	<	1.4										
	1,2-Dichlorobenzene	µg/L	<	33										
	1,3-Dichlorobenzene	µg/L	<	33										
	1,4-Dichlorobenzene	µg/L	<	31.6										
	3,3-Dichlorobenzidine	µg/L	<	2.9										
	Diethyl Phthalate	µg/L		0.29										
	Dimethyl Phthalate	µg/L	<	26.8										
	Di-n-Butyl Phthalate	µg/L		0.15										
	2,4-Dinitrotoluene	µg/L	<	2.9										

	2,6-Dinitrotoluene	µg/L		0.76										
	Di-n-Octyl Phthalate	µg/L	<	36.3										
	1,2-Diphenylhydrazine	µg/L	<	2.9										
	Fluoranthene	µg/L	<	26.2										
	Fluorene	µg/L	<	23										
	Hexachlorobenzene	µg/L	<	2.9										
	Hexachlorobutadiene	µg/L	<	5										
	Hexachlorocyclopentadiene	µg/L	<	2.9										
	Hexachloroethane	µg/L	<	32.9										
	Indeno(1,2,3-cd)Pyrene	µg/L	<	1.4										
	Isophorone	µg/L	<	29.9										
	Naphthalene	µg/L	<	17.3										
	Nitrobenzene	µg/L	<	35.7										
	n-Nitrosodimethylamine	µg/L	<	2.9										
	n-Nitrosodi-n-Propylamine	µg/L	<	2.9										
	n-Nitrosodiphenylamine	µg/L	<	20.4										
	Phenanthrene	µg/L	<	1.4										
	Pyrene	µg/L	<	31										
	1,2,4-Trichlorobenzene	µg/L	<	17.3										
Group 6	Aldrin	µg/L	<	0.0047										
	alpha-BHC	µg/L	<	0.0019										
	beta-BHC	µg/L	<	0.0076										
	gamma-BHC	µg/L		0.0037										
	delta BHC	µg/L	<	0.0028										
	Chlordane	µg/L	<	0.033										
	4,4-DDT	µg/L	<	0.0057										
	4,4-DDE	µg/L	<	0.0066										
	4,4-DDD	µg/L	<	0.0066										
	Dieldrin	µg/L	<	0.0063										
	alpha-Endosulfan	µg/L	<	0.0028										
	beta-Endosulfan	µg/L	<	0.0057										
	Endosulfan Sulfate	µg/L	<	0.0038										
	Endrin	µg/L	<	0.0076										
	Endrin Aldehyde	µg/L	<	0.0095										
	Heptachlor	µg/L	<	0.0028										
	Heptachlor Epoxide	µg/L	<	0.0038										
	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	<	0.18										
	2,3,7,8-TCDD	ng/L	<											
Group 7	Gross Alpha	pCi/L												
	Total Beta	pCi/L	<											
	Radium 226/228	pCi/L	<											
	Total Strontium	µg/L	<											
	Total Uranium	µg/L	<											
	Osmotic Pressure	mOs/kg												

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.1, October 2020

Stream / Surface Water Information

Youghiogheny STP, NPDES Permit No. PA0027243, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: Youghiogheny River

No. Reaches to Model: 1

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	037456	9.3	728	1739	0.00021		Yes
End of Reach 1	037456	1.3	719.3	1764			Yes

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

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	9.3	0.2933	510			246	1.16	1.8				100	7		
End of Reach 1	1.3	0.2933													

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	9.3														
End of Reach 1	1.3														

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Toxics Management Spreadsheet
Version 1.1, October 2020

Model Results

Youghiogheny STP, NPDES Permit No. PA0027243, Outfall 001

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

☑ ***Hydrodynamics***

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

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
9.3	510		510	5.125	0.00021	1.16	246.	212.069	1.8	0.272	4490.719
1.3	517.333		517.3325								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
9.3	1727.45		1727.45	5.125	0.00021	1.978	246.	124.364	3.55	0.138	2045.285
1.3	1749.136		1749.14								

☑ ***Wasteload Allocations***

☑ *AFC* CCT (min): 15 PMF: 0.058 Analysis Hardness (mg/l): 109.06 Analysis pH: 7.04

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	5,079	
Total Antimony	0	0		0	1,100	1,100	7,449	
Total Arsenic	0	0		0	340	340	2,302	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	142,201	
Total Boron	0	0		0	8,100	8,100	54,849	
Total Cadmium	0	0		0	2.191	2.33	15.8	Chem Translator of 0.94 applied
Total Chromium (III)	0	0		0	611.693	1,936	13,108	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	110	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	643	
Total Copper	0	0		0	14.583	15.2	103	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	149	

Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	70.966	91.2	617	Chem Translator of 0.778 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	11.2	Chem Translator of 0.85 applied
Total Nickel	0	0		0	503.872	505	3,419	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.734	4.39	29.7	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	440	
Total Zinc	0	0		0	126.113	129	873	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	20.3	
Acrylonitrile	0	0		0	650	650	4,401	
Benzene	0	0		0	640	640	4,334	
Bromoform	0	0		0	1,800	1,800	12,189	
Carbon Tetrachloride	0	0		0	2,800	2,800	18,960	
Chlorobenzene	0	0		0	1,200	1,200	8,126	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	121,886	
Chloroform	0	0		0	1,900	1,900	12,866	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	101,572	
1,1-Dichloroethylene	0	0		0	7,500	7,500	50,786	
1,2-Dichloropropane	0	0		0	11,000	11,000	74,486	
1,3-Dichloropropylene	0	0		0	310	310	2,099	
Ethylbenzene	0	0		0	2,900	2,900	19,637	
Methyl Bromide	0	0		0	550	550	3,724	
Methyl Chloride	0	0		0	28,000	28,000	189,601	
Methylene Chloride	0	0		0	12,000	12,000	81,258	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	6,771	
Tetrachloroethylene	0	0		0	700	700	4,740	
Toluene	0	0		0	1,700	1,700	11,511	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	46,046	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	20,314	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	23,023	
Trichloroethylene	0	0		0	2,300	2,300	15,574	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	3,792	
2,4-Dichlorophenol	0	0		0	1,700	1,700	11,511	
2,4-Dimethylphenol	0	0		0	660	660	4,469	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	542	
2,4-Dinitrophenol	0	0		0	660	660	4,469	
2-Nitrophenol	0	0		0	8,000	8,000	54,172	
4-Nitrophenol	0	0		0	2,300	2,300	15,574	
p-Chloro-m-Cresol	0	0		0	160	160	1,083	
Pentachlorophenol	0	0		0	9.054	9.05	61.3	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	3,115	

Acenaphthene	0	0		0	83	83.0	562	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	2,031	
Benzo(a)Anthracene	0	0		0	0.5	0.5	3.39	
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	203,144	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	30,472	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	1,828	
Butyl Benzyl Phthalate	0	0		0	140	140	948	
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	5,553	
1,3-Dichlorobenzene	0	0		0	350	350	2,370	
1,4-Dichlorobenzene	0	0		0	730	730	4,943	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	27,086	
Dimethyl Phthalate	0	0		0	2,500	2,500	16,929	
Di-n-Butyl Phthalate	0	0		0	110	110	745	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	10,834	
2,6-Dinitrotoluene	0	0		0	990	990	6,704	
1,2-Diphenylhydrazine	0	0		0	15	15.0	102	
Fluoranthene	0	0		0	200	200	1,354	
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	67.7	
Hexachlorocyclopentadiene	0	0		0	5	5.0	33.9	
Hexachloroethane	0	0		0	60	60.0	406	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	67,715	
Naphthalene	0	0		0	140	140	948	
Nitrobenzene	0	0		0	4,000	4,000	27,086	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	115,115	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	2,031	
Phenanthrene	0	0		0	5	5.0	33.9	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	880	
Aldrin	0	0		0	3	3.0	20.3	
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	6.43	
Chlordane	0	0		0	2.4	2.4	16.3	
4,4-DDT	0	0		0	1.1	1.1	7.45	
4,4-DDE	0	0		0	1.1	1.1	7.45	

4,4-DDD	0	0		0	1.1	1.1	7.45	
Dieldrin	0	0		0	0.24	0.24	1.63	
alpha-Endosulfan	0	0		0	0.22	0.22	1.49	
beta-Endosulfan	0	0		0	0.22	0.22	1.49	
Endrin	0	0		0	0.086	0.086	0.58	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.52	0.52	3.52	
Heptachlor Epoxide	0	0		0	0.5	0.5	3.39	
Toxaphene	0	0		0	0.73	0.73	4.94	

☑ *CFC* CCT (min): 720 PMF: 0.400 Analysis Hardness (mg/l): 101.5 Analysis pH: 7.01

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	8,977	
Total Arsenic	0	0		0	150	150	6,120	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	167,293	
Total Boron	0	0		0	1,600	1,600	65,285	
Total Cadmium	0	0		0	0.249	0.27	11.2	Chem Translator of 0.908 applied
Total Chromium (III)	0	0		0	75.026	87.2	3,560	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	424	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	775	
Total Copper	0	0		0	9.071	9.45	386	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	212	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	150,762	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.558	3.24	132	Chem Translator of 0.789 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	37.0	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.667	52.8	2,155	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	204	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	530	
Total Zinc	0	0		0	119.642	121	4,951	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	122	
Acrylonitrile	0	0		0	130	130	5,304	
Benzene	0	0		0	130	130	5,304	
Bromoform	0	0		0	370	370	15,097	
Carbon Tetrachloride	0	0		0	560	560	22,850	
Chlorobenzene	0	0		0	240	240	9,793	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	

2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	142,811	
Chloroform	0	0		0	390	390	15,913	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	126,490	
1,1-Dichloroethylene	0	0		0	1,500	1,500	61,205	
1,2-Dichloropropane	0	0		0	2,200	2,200	89,767	
1,3-Dichloropropylene	0	0		0	61	61.0	2,489	
Ethylbenzene	0	0		0	580	580	23,666	
Methyl Bromide	0	0		0	110	110	4,488	
Methyl Chloride	0	0		0	5,500	5,500	224,418	
Methylene Chloride	0	0		0	2,400	2,400	97,928	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	8,569	
Tetrachloroethylene	0	0		0	140	140	5,712	
Toluene	0	0		0	330	330	13,465	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	57,125	
1,1,1-Trichloroethane	0	0		0	610	610	24,890	
1,1,2-Trichloroethane	0	0		0	680	680	27,746	
Trichloroethylene	0	0		0	450	450	18,361	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	4,488	
2,4-Dichlorophenol	0	0		0	340	340	13,873	
2,4-Dimethylphenol	0	0		0	130	130	5,304	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	653	
2,4-Dinitrophenol	0	0		0	130	130	5,304	
2-Nitrophenol	0	0		0	1,600	1,600	65,285	
4-Nitrophenol	0	0		0	470	470	19,178	
p-Chloro-m-Cresol	0	0		0	30	30.0	1,224	
Pentachlorophenol	0	0		0	6.946	6.95	283	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	3,713	
Acenaphthene	0	0		0	17	17.0	694	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	2,407	
Benzo(a)Anthracene	0	0		0	0.1	0.1	4.08	
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	244,819	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	37,131	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	2,203	
Butyl Benzyl Phthalate	0	0		0	35	35.0	1,428	
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	6,529	
1,3-Dichlorobenzene	0	0		0	69	69.0	2,815	
1,4-Dichlorobenzene	0	0		0	150	150	6,120	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	32,643	
Dimethyl Phthalate	0	0		0	500	500	20,402	
Di-n-Butyl Phthalate	0	0		0	21	21.0	857	
2,4-Dinitrotoluene	0	0		0	320	320	13,057	
2,6-Dinitrotoluene	0	0		0	200	200	8,161	
1,2-Diphenylhydrazine	0	0		0	3	3.0	122	
Fluoranthene	0	0		0	40	40.0	1,632	
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	81.6	
Hexachlorocyclopentadiene	0	0		0	1	1.0	40.8	
Hexachloroethane	0	0		0	12	12.0	490	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	85,687	
Naphthalene	0	0		0	43	43.0	1,755	
Nitrobenzene	0	0		0	810	810	33,051	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	138,731	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	2,407	
Phenanthrene	0	0		0	1	1.0	40.8	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	1,061	
Aldrin	0	0		0	0.1	0.1	4.08	
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	0.18	
4,4-DDT	0	0		0	0.001	0.001	0.041	
4,4-DDE	0	0		0	0.001	0.001	0.041	
4,4-DDD	0	0		0	0.001	0.001	0.041	
Dieldrin	0	0		0	0.056	0.056	2.28	
alpha-Endosulfan	0	0		0	0.056	0.056	2.28	
beta-Endosulfan	0	0		0	0.056	0.056	2.28	
Endrin	0	0		0	0.036	0.036	1.47	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.0038	0.004	0.16	
Heptachlor Epoxide	0	0		0	0.0038	0.004	0.16	
Toxaphene	0	0		0	0.0002	0.0002	0.008	

☑ ***THH*** CCT (min): 720 PMF: 0.400 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	229	
Total Arsenic	0	0		0	10	10.0	408	
Total Barium	0	0		0	2,400	2,400	98,026	
Total Boron	0	0		0	3,100	3,100	126,617	
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	140	140	5,718	
Dissolved Iron	0	0		0	300	300	12,253	
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	40,844	
Total Mercury	0	0		0	0.050	0.05	2.04	
Total Nickel	0	0		0	610	610	24,915	
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	9.8	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	6	6.0	245	
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	130	130	5,310	
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	N/A	N/A	N/A	
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	1,348	
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	530	530	21,648	
Methyl Bromide	0	0		0	47	47.0	1,920	
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	1,300	1,300	53,098	
1,2-trans-Dichloroethylene	0	0		0	140	140	5,718	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
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	81	81.0	3,308	
2,4-Dichlorophenol	0	0		0	77	77.0	3,145	
2,4-Dimethylphenol	0	0		0	380	380	15,521	
4,6-Dinitro-o-Cresol	0	0		0	13	13.0	531	
2,4-Dinitrophenol	0	0		0	69	69.0	2,818	
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	10,400	10,400	424,781	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	670	670	27,366	
Anthracene	0	0		0	8,300	8,300	339,008	
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	1,400	1,400	57,182	
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	150	150	6,127	
2-Chloronaphthalene	0	0		0	1,000	1,000	40,844	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	420	420	17,155	
1,3-Dichlorobenzene	0	0		0	420	420	17,155	
1,4-Dichlorobenzene	0	0		0	420	420	17,155	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	17,000	17,000	694,354	
Dimethyl Phthalate	0	0		0	270,000	270,000	11,027,974	
Di-n-Butyl Phthalate	0	0		0	2,000	2,000	81,689	
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	130	130	5,310	

Fluorene	0	0		0	1,100	1,100	44,929	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	40	40.0	1,634	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.0038	0.004	0.16	
Isophorone	0	0		0	35	35.0	1,430	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	17	17.0	694	
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	830	830	33,901	
1,2,4-Trichlorobenzene	0	0		0	35	35.0	1,430	
Aldrin	0	0		0	N/A	N/A	N/A	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	0.098	0.098	4.0	
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	62	62.0	2,532	
beta-Endosulfan	0	0		0	62	62.0	2,532	
Endrin	0	0		0	0.059	0.059	2.41	
Endrin Aldehyde	0	0		0	0.29	0.29	11.8	
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	0.00028	0.0003	0.011	

☑ *CRL* CCT (min): 720 PMF: 0.593 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	0.051	0.051	10.2	
Benzene	0	0		0	1.2	1.2	241	
Bromoform	0	0		0	4.3	4.3	864	
Carbon Tetrachloride	0	0		0	0.23	0.23	46.2	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.4	0.4	80.4	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	1,146	
Dichlorobromomethane	0	0		0	0.55	0.55	111	
1,2-Dichloroethane	0	0		0	0.38	0.38	76.4	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	0.34	0.34	68.3	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	4.6	4.6	924	
1,1,2,2-Tetrachloroethane	0	0		0	0.17	0.17	34.2	
Tetrachloroethylene	0	0		0	0.69	0.69	139	
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	0.59	0.59	119	
Trichloroethylene	0	0		0	2.5	2.5	502	
Vinyl Chloride	0	0		0	0.025	0.025	5.02	
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	0.270	0.27	54.3	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.4	1.4	281	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.000086	0.00009	0.017	
Benzo(a)Anthracene	0	0		0	0.0038	0.004	0.76	
Benzo(a)Pyrene	0	0		0	0.0038	0.004	0.76	
3,4-Benzofluoranthene	0	0		0	0.0038	0.004	0.76	
Benzo(k)Fluoranthene	0	0		0	0.0038	0.004	0.76	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	6.03	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	1.2	1.2	241	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.0038	0.004	0.76	
Dibenzo(a,h)Anthrancene	0	0		0	0.0038	0.004	0.76	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.021	0.021	4.22	
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	10.0	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	10.0	
1,2-Diphenylhydrazine	0	0		0	0.036	0.036	7.24	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00028	0.0003	0.056	
Hexachlorobutadiene	0	0		0	0.44	0.44	88.4	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	1.4	1.4	281	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.00069	0.0007	0.14	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	1.0	

n-Nitrosodiphenylamine	0	0		0	3.3	3.3	663	
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	0.000049	0.00005	0.01	
alpha-BHC	0	0		0	0.0026	0.003	0.52	
beta-BHC	0	0		0	0.0091	0.009	1.83	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0008	0.0008	0.16	
4,4-DDT	0	0		0	0.00022	0.0002	0.044	
4,4-DDE	0	0		0	0.00022	0.0002	0.044	
4,4-DDD	0	0		0	0.00031	0.0003	0.062	
Dieldrin	0	0		0	0.000052	0.00005	0.01	
alpha-Endosulfan	0	0		0	N/A	N/A	N/A	
beta-Endosulfan	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	0.000079	0.00008	0.016	
Heptachlor Epoxide	0	0		0	0.000039	0.00004	0.008	
Toxaphene	0	0		0	0.00028	0.0003	0.056	

☑ ***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 Copper	Report	Report	Report	Report	Report	µg/L	65.9	AFC	Discharge Conc > 10% 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	3,255	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	229	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	408	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	91,145	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS

Total Boron	35,156	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	10.1	µg/L	Discharge Conc < TQL
Total Chromium (III)	3,560	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	70.7	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	412	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	95.5	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	12,253	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	150,762	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	132	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	40,844	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	2.04	µg/L	Discharge Conc < TQL
Total Nickel	2,155	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	204	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	19.1	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	9.8	µg/L	Discharge Conc < TQL
Total Zinc	560	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	13.0	µg/L	Discharge Conc < TQL
Acrylonitrile	10.2	µg/L	Discharge Conc < TQL
Benzene	241	µg/L	Discharge Conc < TQL
Bromoform	864	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	46.2	µg/L	Discharge Conc < TQL
Chlorobenzene	5,208	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	80.4	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	78,124	µg/L	Discharge Conc < TQL
Chloroform	1,146	µg/L	Discharge Conc < TQL
Dichlorobromomethane	111	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	76.4	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	1,348	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	47,743	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	68.3	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	12,587	µg/L	Discharge Conc < TQL
Methyl Bromide	1,920	µg/L	Discharge Conc < TQL
Methyl Chloride	121,527	µg/L	Discharge Conc < TQL
Methylene Chloride	924	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	34.2	µg/L	Discharge Conc < TQL
Tetrachloroethylene	139	µg/L	Discharge Conc < TQL
Toluene	7,378	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-trans-Dichloroethylene	5,718	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	13,021	µg/L	Discharge Conc < TQL

1,1,2-Trichloroethane	119	µg/L	Discharge Conc < TQL
Trichloroethylene	502	µg/L	Discharge Conc < TQL
Vinyl Chloride	5.02	µg/L	Discharge Conc < TQL
2-Chlorophenol	2,431	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dichlorophenol	3,145	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dimethylphenol	2,865	µg/L	Discharge Conc ≤ 25% WQBEL
4,6-Dinitro-o-Cresol	347	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dinitrophenol	2,818	µg/L	Discharge Conc ≤ 25% WQBEL
2-Nitrophenol	34,722	µg/L	Discharge Conc ≤ 25% WQBEL
4-Nitrophenol	9,983	µg/L	Discharge Conc ≤ 25% WQBEL
p-Chloro-m-Cresol	694	µg/L	Discharge Conc ≤ 25% WQBEL
Pentachlorophenol	39.3	µg/L	Discharge Conc < TQL
Phenol	424,781	µg/L	Discharge Conc ≤ 25% WQBEL
2,4,6-Trichlorophenol	281	µg/L	Discharge Conc ≤ 25% WQBEL
Acenaphthene	360	µg/L	Discharge Conc ≤ 25% WQBEL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	339,008	µg/L	Discharge Conc ≤ 25% WQBEL
Benzidine	0.017	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.76	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.76	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.76	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.76	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	6.03	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	57,182	µg/L	Discharge Conc ≤ 25% WQBEL
Bis(2-Ethylhexyl)Phthalate	241	µg/L	Discharge Conc ≤ 25% WQBEL
4-Bromophenyl Phenyl Ether	1,172	µg/L	Discharge Conc ≤ 25% WQBEL
Butyl Benzyl Phthalate	608	µg/L	Discharge Conc ≤ 25% WQBEL
2-Chloronaphthalene	40,844	µg/L	Discharge Conc ≤ 25% WQBEL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	0.76	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.76	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	3,559	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichlorobenzene	1,519	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dichlorobenzene	3,168	µg/L	Discharge Conc ≤ 25% WQBEL
3,3-Dichlorobenzidine	4.22	µg/L	Discharge Conc < TQL
Diethyl Phthalate	17,361	µg/L	Discharge Conc ≤ 25% WQBEL
Dimethyl Phthalate	10,851	µg/L	Discharge Conc ≤ 25% WQBEL
Di-n-Butyl Phthalate	477	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dinitrotoluene	10.0	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	10.0	µg/L	Discharge Conc ≤ 25% WQBEL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	7.24	µg/L	Discharge Conc < TQL
Fluoranthene	868	µg/L	Discharge Conc ≤ 25% WQBEL

Fluorene	44,929	µg/L	Discharge Conc ≤ 25% WQBEL
Hexachlorobenzene	0.056	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	43.4	µg/L	Discharge Conc ≤ 25% WQBEL
Hexachlorocyclopentadiene	21.7	µg/L	Discharge Conc < TQL
Hexachloroethane	260	µg/L	Discharge Conc ≤ 25% WQBEL
Indeno(1,2,3-cd)Pyrene	0.16	µg/L	Discharge Conc < TQL
Isophorone	1,430	µg/L	Discharge Conc ≤ 25% WQBEL
Naphthalene	608	µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	694	µg/L	Discharge Conc ≤ 25% WQBEL
n-Nitrosodimethylamine	0.14	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	1.0	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	663	µg/L	Discharge Conc ≤ 25% WQBEL
Phenanthrene	21.7	µg/L	Discharge Conc < TQL
Pyrene	33,901	µg/L	Discharge Conc ≤ 25% WQBEL
1,2,4-Trichlorobenzene	564	µg/L	Discharge Conc ≤ 25% WQBEL
Aldrin	0.01	µg/L	Discharge Conc < TQL
alpha-BHC	0.52	µg/L	Discharge Conc < TQL
beta-BHC	1.83	µg/L	Discharge Conc < TQL
gamma-BHC	4.0	µg/L	Discharge Conc ≤ 25% WQBEL
delta BHC	N/A	N/A	No WQS
Chlordane	0.16	µg/L	Discharge Conc < TQL
4,4-DDT	0.041	µg/L	Discharge Conc < TQL
4,4-DDE	0.041	µg/L	Discharge Conc < TQL
4,4-DDD	0.041	µg/L	Discharge Conc < TQL
Dieldrin	0.01	µg/L	Discharge Conc < TQL
alpha-Endosulfan	0.95	µg/L	Discharge Conc < TQL
beta-Endosulfan	0.95	µg/L	Discharge Conc < TQL
Endosulfan Sulfate	N/A	N/A	No WQS
Endrin	0.37	µg/L	Discharge Conc < TQL
Endrin Aldehyde	11.8	µg/L	Discharge Conc < TQL
Heptachlor	0.016	µg/L	Discharge Conc < TQL
Heptachlor Epoxide	0.008	µg/L	Discharge Conc < TQL
Toxaphene	0.008	µg/L	Discharge Conc < TQL

Applicant:	North Huntingdon Township MA
Name of plant:	Youghiogheny STP
Permit Number:	PA0027243
Municipality:	North Huntingdon Township
County:	Westmoreland
Receiving stream:	Youghiogheny River

The following program will calulate partial mix factors for acute and chronic conditions:

calculated fields

net stream flow (Qs cfs)=	**510**
discharge flow (Qd mgd)=	**3.313**
velocity (fps)=	**1.8**
width (feet) =	**246**
depth (feet) =	**1.16**
slope (ft/ft) =	**0.00021**

complete mix time (min) = **4490.55**

FOR ACUTE CONDITIONS: IF COMPLETE MIX TIME < 15 MINUTES
THEN PMF = 1, IF > 15 MINUTES CALCULATE PMFa

PMFa = 0.058
or 5.78 %

FOR CHRONIC CONDITIONS: IF COMPLETE MIX TIME < 720 MINUTES
THEN PMF = 1, IF > 720 MINUTES CALCULATE PMFc

PMFc = 0.400
or 40.04 %

IWCc=[Qd * 1.547] / [(Qs*PMFc) + (Qd * 1.547)] = 0.0245

Target IWCc=IWCc/1= 0.024 **2.45 %**

IWCa=[Qd * 1.547] / [(Qs*PMFa) + (Qd * 1.547)] = 0.1481

Target IWCa=IWCa/0.3= 0.494 **or** **49.37 %**

WET tests should pass if percentage for C.dubia LC50 and P.promelas LC50 are greater than the target IWCa (acute) or NOEC > target IWCc (chronic).

Program written by David Ponchione on April 8, 1999

Program run by : W. Mitchell **on** **February 3, 2021**

For Department use only

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.02
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Youghiogheny STP

Permit No.: PA0027243

Test Completion Date: 11/1/2016

Replicate No.	Control	TIWC
1	0.439	0.419
2	0.391	0.506
3	0.403	0.318
4	0.45	0.5311
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.421	0.444
Std Dev.	0.028	0.096
# Replicates	4	4
T-Test Result	2.5908	
Deg. of Freedom	3	
Critical T Value	0.7649	
Pass or Fail	PASS	

Test Completion Date: 10/31/2017

Replicate No.	Control	TIWC
1	0.448	0.394
2	0.463	0.448
3	0.414	0.443
4	0.37	0.476
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.424	0.440
Std Dev.	0.041	0.034
# Replicates	4	4
T-Test Result	5.3181	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Test Completion Date: 5/22/2018

Replicate No.	Control	TIWC
1	0.18	0.293
2	0.258	0.176
3	0.255	0.185
4	0.3211	0.291
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.254	0.236
Std Dev.	0.058	0.064
# Replicates	4	4
T-Test Result	1.1873	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Test Completion Date: 10/1/2019

Replicate No.	Control	TIWC
1	0.314	0.321
2	0.296	0.274
3	0.29	0.284
4	0.254	0.329
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.289	0.302
Std Dev.	0.025	0.027
# Replicates	4	4
T-Test Result	5.1900	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

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

Facility Name: Youghiogheny STP

Permit No.: PA0027243

Replicate No.	Test Completion Date: 11/1/2016 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: 10/31/2017 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: 5/22/2018 Control	TIWC
1	1	1
2	0	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	0
11		
12		
13		
14		
15		
Mean	0.900	0.900
Std Dev.	0.316	0.316
# Replicates	10	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 10/1/2019 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	0
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	0.900
Std Dev.	0.000	0.316
# Replicates	10	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.02
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Youghiogheny STP

Permit No.: PA0027243

Replicate No.	Test Completion Date: 11/1/2016 Control	TIWC
1	1	0.8
2	0.8	1
3	1	0.8
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.950	0.900
Std Dev.	0.100	0.115
# Replicates	4	4

T-Test Result	5.7698
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	**PASS**

Replicate No.	Test Completion Date: 10/31/2017 Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	4	4

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

Replicate No.	Test Completion Date: 5/22/2018 Control	TIWC
1	0.5	0.9
2	0.9	0.5
3	1	0.6
4	0.9	0.9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.825	0.725
Std Dev.	0.222	0.206
# Replicates	4	4

T-Test Result	2.0754
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	**PASS**

Replicate No.	Test Completion Date: 10/1/2019 Control	TIWC
1	0.9	1
2	0.5	0.7
3	0.8	0.9
4	1	0.9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.800	0.875
Std Dev.	0.216	0.126
# Replicates	4	4

T-Test Result	4.4394
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	**PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

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

Facility Name: Youghiogheny STP

Permit No.: PA0027243

Replicate No.	Test Completion Date: 11/1/2016 Control	TIWC
1	35	29
2	35	33
3	34	35
4	36	37
5	35	37
6	38	34
7	34	36
8	34	36
9	37	34
10	34	41
11		
12		
13		
14		
15		
Mean	35.200	35.200
Std Dev.	1.398	3.120
# Replicates	10	10
T-Test Result	8.4548	
Deg. of Freedom	13	
Critical T Value	0.8702	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 10/31/2017 Control	TIWC
1	21	23
2	13	21
3	20	21
4	22	22
5	18	24
6	21	22
7	19	20
8	20	20
9	25	23
10	27	18
11		
12		
13		
14		
15		
Mean	20.600	21.400
Std Dev.	3.806	1.776
# Replicates	10	10
T-Test Result	5.5959	
Deg. of Freedom	17	
Critical T Value	0.8633	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 5/22/2018 Control	TIWC
1	32	35
2	0	32
3	31	31
4	32	34
5	34	36
6	26	37
7	29	35
8	30	36
9	27	34
10	31	0
11		
12		
13		
14		
15		
Mean	27.200	31.000
Std Dev.	9.852	11.045
# Replicates	10	10
T-Test Result	2.5224	
Deg. of Freedom	16	
Critical T Value	0.8647	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 10/1/2019 Control	TIWC
1	35	29
2	34	29
3	35	33
4	32	38
5	34	30
6	37	36
7	34	33
8	26	32
9	34	0
10	35	30
11		
12		
13		
14		
15		
Mean	33.600	29.000
Std Dev.	2.951	10.614
# Replicates	10	10
T-Test Result	1.1083	
Deg. of Freedom	11	
Critical T Value	0.8755	
Pass or Fail	PASS	

WET Summary and Evaluation

Facility Name	Youghiogheny STP
Permit No.	PA0027243
Design Flow (MGD)	3.313
Q_{7-10} Flow (cfs)	510
PMF_a	0.058
PMF_c	0.4

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	11/1/16	10/31/17	5/22/18	10/1/19
Pimephales	Growth	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	11/1/16	10/31/17	5/22/18	10/1/19
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	11/1/16	10/31/17	5/22/18	10/1/19
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	11/1/16	10/31/17	5/22/18	10/1/19
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

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