

Application Type Renewal  
 Facility Type Municipal  
 Major / Minor Major

**NPDES PERMIT FACT SHEET  
INDIVIDUAL SEWAGE**

Application No. PA0025950  
 APS ID 613598  
 Authorization ID 1227345

**Applicant and Facility Information**

Applicant Name	<u>Monongahela City Washington County</u>	Facility Name	<u>Monongahela City</u>
Applicant Address	<u>521 W Main Street</u> <u>Monongahela, PA 15063-2615</u>	Facility Address	<u>Route 837</u> <u>Monongahela, PA 15063</u>
Applicant Contact	<u>James Roberts</u>	Facility Contact	<u></u>
Applicant Phone	<u>(724) 258-9598</u>	Facility Phone	<u></u>
Client ID	<u>43673</u>	Site ID	<u>267957</u>
Ch 94 Load Status	<u>Existing Hydraulic Overload</u>	Municipality	<u>Monongahela City</u>
Connection Status	<u></u>	County	<u>Washington</u>
Date Application Received	<u>May 7, 2018</u>	EPA Waived?	<u>No</u>
Date Application Accepted	<u>May 8, 2018</u>	If No, Reason	<u>Major Facility</u>
Purpose of Application	<u>Renewal of NPDES Permit</u>		

**Summary of Review**

**Overview**

The permittee applied to renew the permit on 5/7/18. The permit expired on 10/31/2018. The most recent WQM Permit 6370414 amendment approved a flow rate of 1.5 MGD.

The facility has a CSO discharge referred to as the "West Alley CSO". The 2018 application stated that there were 45 CSO events in the past year. Recent data included in the PCCMP plan submitted in 2024 showed a considerable reduction in untreated volume. This is due to sewer separation projects, construction of an equalization tank, and raising a weir in the sewage collection system.

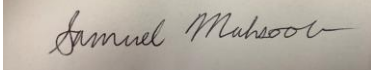

**Facility Information**

The sewage effluent discharge location, Outfall 001, is located at 40° 12' 30", -79° 56' 20". The facility discharges to the Monongahela River, which is classified as a Warm-Water Fishery (WWF).

The facility has a CSO discharge, Outfall 006, located 40° 12' 26", -79° 56' 55". The outfall is referred to as the "West Alley CSO". It discharges to the Mon River.

The facility also has 3 stormwater outfalls that discharge to Dry Run, a tributary of the Mon River.

The facility consists of screening, grit removal, primary sedimentation in three tanks followed by conventional activated in two tanks and secondary sedimentation in three tanks. Primary sedimentation solids and excess waste activated sludge solids

Approve	Return	Deny	Signatures	Date
x			 Sam Mahsoob, EIT / Environmental Engineering Specialist	3/31/2026
x			 Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineer Manager	3/31/2026

**Summary of Review**

are anaerobically digested in two tanks and dewatered on a belt filter press. Dewatered digested sewage sludge solids are disposed of in a permitted sanitary landfill. The final effluent is chlorinated in two tanks.

Outfall Summary

Outfall No.	Latitude	Longitude	Description	Receiving Stream
001	40° 12' 30"	-79° 56' 20"	Sewage Effluent	Monongahela River
006	40° 12' 26"	-79° 56' 55"	Combined Sewer Overflow	Monongahela River
SW-1	40° 12' 27"	-79° 56' 16"	Lawn catchbasin	Dry Run
SW-2	40° 12' 26"	-79° 56' 15"	Roadway	Dry Run
SW-3	40° 12' 27"	-79° 56' 15"	Roof Drain	Dry Run

**Long-Term Control Plan (LTCP)**

The long-term control plan was received on 3/3/03. The LTCP Plan was approved on 9/22/2009.

Proposed Projects

Task Description	Date
<b>Construction of STP Equalization Tank According to COA Schedule</b>	
Receive Part II Permit approvals	March 21, 2003
Receive Notice of PENNVEST award	March 27, 2003
Advertise for construction bids	April 1, 2003
Open bids for construction	May 1, 2003
Close on PENNVEST funding	July 15, 2003
Issue construction Notice to Proceed	July 16, 2004
STP equalization tank construction completed	July 15, 2004
Begin tank operation	July 16, 2004
Prepare Report on 1-year Operation in compliance with COA	August 16, 2005
<b>Construction of Conveyance Pipe</b>	
Obtain PENNVEST or other funding	August 16, 2007
Conduct field work	August 15, 2009
Complete preliminary design	August 15, 2010
Complete final design	August 14, 2013
Advertise bids and award contract	August 14, 2014
Complete construction	August 12, 2022
Begin conveyance pipe operation	August 12, 2023

The following projects were completed as of 2022 and were listed in the PCCMP.

Implemented Projects

Milestone	Completion Date
<b>3.5 MG Equalization Tank Construction</b>	<b>2006</b>
<b>Chess Street Sewer Separation Project</b>	<b>2013</b>
<b>West Alley CSO Structure flow monitor installation</b>	<b>2014</b>
<b>MACM Interceptor CCTV Inspections</b>	<b>2015</b>
<b>Replacement of CSO backflow preventer</b>	<b>2015</b>
<b>CCTV Inspections (Phase 1)</b>	<b>2016</b>
<b>GIS Project</b>	<b>2016</b>
<b>5<sup>th</sup> Street and Main Street Sewer Separation</b>	<b>2017</b>
<b>CCTV Inspections (Phase 2)</b>	<b>2019</b>

**Summary of Review**

Recent data included in the PCCMP plan submitted in 2024 showed a considerable reduction in untreated volume.

**Nine Minimum Controls (NMC)**

The NMC plan for the facility was received on 1/4/2000. The following controls were recommended:

- Proper operation and regular maintenance programs for the sewer system and CSO, including diversion chamber rehabilitation, weekly/post-storm inspection of diversion chamber and outfall, biannual catch basin cleaning, and a sewer cleaning program.
- Maximum use of the collection system for storage, including proper operation and regular maintenance and optimum regulator settings.
- Continued prevention of CSOs during dry weather through weekly/post-storm inspection of diversion chambers and outfalls and a sewer cleaning program.
- Maximizing flow to treatment plant by diversion chamber rehabilitation.
- Control of solid and floatable materials in CSOs by installing a bar screen in the diversion chamber.
- Pollution prevention programs to reduce contaminants in CSOs, such as improved street cleaning in the CSO area, biweekly street cleaning of all roads (with and without curbs), and weekly street cleaning in last week of October
- Pollution prevention programs to reduce contaminants in CSOs, such as improved street cleaning in the CSO area, biweekly street cleaning of all roads (with and without curbs), and weekly street cleaning in last week of October and first week of November for leaf control
- Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts; for example, CSO Plan Advisory Committee (CPAC) meetings, mailing flyers with sewer bills, and posting a CSO warning sign at the CSO discharge point
- Monitoring to effectively characterize CSO impacts and effectiveness of CSO controls through flow monitoring, rain gauging, and visual inspection

**Post-Construction Compliance Monitoring Plan**

The consultant for the permittee, Hatch, submitted a PCCM Plan on July 2022. The permittee has installed flow monitors at the CSO and has reported a percent capture rate of 92%. Below is a summary of the analysis of data between 2014 and 2021.

Parameter	Value	Unit
Number of Events	895	Events
Sum of Total Wet Weather Flows	122	MG
Sum of Untreated Flows	10.1	MG
Percent Capture	91.7	%

However, the permittee did not indicate that they are doing any water quality testing at the CSO outfall. A technical deficiency letter was communicated to the consultant and permittee on 1/30/26. DEP met with the consultants and permittee on 2/25/26 to clarify water quality testing requirements. PCCMP approval is pending as of the issue of this draft permit. A LTCP schedule has been included in the permit to reflect requirements to submit a revised PCCM Plan and implementation following DEP approval.

Task	Due Date
Submit for approval a revised Post-Construction Compliance Monitoring Plan (PCCMP)	Six months from Permit Effective Date
Begin PCCMP Implementation	Within 90 days of Department Approval of PCCMP

**Summary of Review**

Complete PCCMP Implementation	Within 365 days of commencement of Department Approved PCCMP
Submit a report of the findings of PCCMP	Within 120 days of completion of PCCMP implementation
Compliance with LTCP and CSO Performance Standard effective under Phase 2 permitting	Within 120 days of completion of PCCMP implementation
If the findings of the Post-Construction Compliance Monitoring Plan indicate that Phase 1 and Phase 2 are not sufficient to meet the Presumption Approach requirements of the CSO Control Policy and the Department's compliance criteria, submit a Phase 3 plan to the Department designed to achieve ultimate compliance with the CSO Control Policy and all Water Quality Standards with an implementation schedule to complete Phase 3 in the fastest time reasonably practicable.	Within 180 days of PCCMP report submission
Implement Phase 3 Construction	Upon Department approval
Submit Annual CSO Status Report with Chapter 94 Report	March 31 of each year
Submit DMR Supplemental Reports for CSOs	Within 28 days of the end of each month

**Pre-treatment Program**

The permittee does not have any industrial users, and therefore no pretreatment program.

**Act 14 Notifications**

Act 14 Notifications were provided to Carroll Township and Washington County on 4/20/2018.

**Client ID Compliance Check**

The permittee has no violations by client ID.

**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.	<u>001</u>	Design Flow (MGD)	<u>1.5</u>
Latitude	<u>40° 12' 30"</u>	Longitude	<u>-79° 56' 20"</u>
Quad Name	<u></u>	Quad Code	<u></u>
Wastewater Description: <u>Treated Sewage Effluent</u>			
Receiving Waters	<u>Monongahela River</u>	Stream Code	<u>37185</u>
NHD Com ID	<u>99409158</u>	RMI	<u>31</u>
Drainage Area	<u>5300</u>	Yield (cfs/mi <sup>2</sup> )	<u>0.077</u>
Q <sub>7-10</sub> Flow (cfs)	<u>408</u>	Q <sub>7-10</sub> Basis	<u>USGS StreamStats</u>
Elevation (ft)	<u>723</u>	Slope (ft/ft)	<u>0.00005</u>
Watershed No.	<u>19-C</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	<u></u>	Existing Use Qualifier	<u></u>
Exceptions to Use	<u></u>	Exceptions to Criteria	<u></u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>POLYCHLORINATED BIPHENYLS (PCBS)</u>		
Source(s) of Impairment	<u>SOURCE UNKNOWN</u>		
TMDL Status	<u></u>	Name	<u></u>
Background/Ambient Data		Data Source	
pH (SU)	<u></u>		<u></u>
Temperature (°F)	<u></u>		<u></u>
Hardness (mg/L)	<u>146</u>	USGS	<u></u>
Other:	<u></u>		<u></u>
Nearest Downstream Public Water Supply Intake	<u>PA AMER WATER CO-PITTSBURGH</u>		
PWS Waters	<u>Mon River</u>	Flow at Intake (MGD)	<u>70</u>
PWS RMI	<u>25</u>	Distance from Outfall (mi)	<u>6</u>

Changes Since Last Permit Issuance: NONE

Other Comments: NONE

**Discharge, Receiving Waters and Water Supply Information**

Outfall No. 006 Design Flow (MGD) 0  
 Latitude 40° 12' 26" Longitude -79° 56' 55"  
 Quad Name \_\_\_\_\_ Quad Code \_\_\_\_\_  
 Wastewater Description: Untreated Combined Sewer Overflow

Receiving Waters Monongahela River (WWF) Stream Code \_\_\_\_\_  
 NHD Com ID 99409154 RMI \_\_\_\_\_  
 Drainage Area \_\_\_\_\_ Yield (cfs/mi<sup>2</sup>) \_\_\_\_\_  
 Q<sub>7-10</sub> Flow (cfs) \_\_\_\_\_ Q<sub>7-10</sub> Basis \_\_\_\_\_  
 Elevation (ft) \_\_\_\_\_ Slope (ft/ft) \_\_\_\_\_  
 Watershed No. 19-C Chapter 93 Class. WWF  
 Existing Use \_\_\_\_\_ Existing Use Qualifier \_\_\_\_\_  
 Exceptions to Use \_\_\_\_\_ Exceptions to Criteria \_\_\_\_\_  
 Assessment Status Impaired  
 Cause(s) of Impairment POLYCHLORINATED BIPHENYLS (PCBS)  
 Source(s) of Impairment SOURCE UNKNOWN  
 TMDL Status Final Name Monongahela River TMDL

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

Nearest Downstream Public Water Supply Intake \_\_\_\_\_  
 PWS Waters \_\_\_\_\_ Flow at Intake (cfs) \_\_\_\_\_  
 PWS RMI \_\_\_\_\_ Distance from Outfall (mi) \_\_\_\_\_

**Discharge, Receiving Waters and Water Supply Information**

Outfall No.	<u>SW-1</u>	Design Flow (MGD)	<u>0</u>
Latitude	<u>40° 12' 27"</u>	Longitude	<u>-79° 56' 16"</u>
Quad Name	_____	Quad Code	_____
Wastewater Description: <u>Stormwater</u>			

Receiving Waters	<u>Dry Run (WWF)</u>	Stream Code	<u>77379</u>
NHD Com ID	<u>99409158</u>	RMI	_____
Drainage Area	_____	Yield (cfs/mi <sup>2</sup> )	_____
Q <sub>7-10</sub> Flow (cfs)	_____	Q <sub>7-10</sub> Basis	_____
Elevation (ft)	_____	Slope (ft/ft)	_____
Watershed No.	<u>19-C</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	_____	Existing Use Qualifier	_____
Exceptions to Use	_____	Exceptions to Criteria	_____

Assessment Status Attaining Use(s)

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 \_\_\_\_\_

PWS Waters	_____	Flow at Intake (cfs)	_____
PWS RMI	_____	Distance from Outfall (mi)	_____

**Discharge, Receiving Waters and Water Supply Information**

Outfall No. SW-2 Design Flow (MGD) 0

Latitude 40° 12' 26" Longitude -79° 56' 15"

Quad Name \_\_\_\_\_ Quad Code \_\_\_\_\_

Wastewater Description: Stormwater

Receiving Waters Dry Run (WWF) Stream Code 77379

NHD Com ID 99409312 RMI \_\_\_\_\_

Drainage Area \_\_\_\_\_ Yield (cfs/mi<sup>2</sup>) \_\_\_\_\_

Q<sub>7-10</sub> Flow (cfs) \_\_\_\_\_ Q<sub>7-10</sub> Basis \_\_\_\_\_

Elevation (ft) \_\_\_\_\_ Slope (ft/ft) \_\_\_\_\_

Watershed No. 19-C Chapter 93 Class. WWF

Existing Use \_\_\_\_\_ Existing Use Qualifier \_\_\_\_\_

Exceptions to Use \_\_\_\_\_ Exceptions to Criteria \_\_\_\_\_

Assessment Status Attaining Use(s)

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 \_\_\_\_\_

PWS Waters \_\_\_\_\_ Flow at Intake (cfs) \_\_\_\_\_

PWS RMI \_\_\_\_\_ Distance from Outfall (mi) \_\_\_\_\_

**Discharge, Receiving Waters and Water Supply Information**

Outfall No.	<u>SW-3</u>	Design Flow (MGD)	<u>0</u>
Latitude	<u>40° 12' 27"</u>	Longitude	<u>-79° 56' 15"</u>
Quad Name	_____	Quad Code	_____
Wastewater Description: <u>Stormwater</u>			

Receiving Waters	<u>Dry Run (WWF)</u>	Stream Code	<u>77379</u>
NHD Com ID	<u>99409308</u>	RMI	_____
Drainage Area	_____	Yield (cfs/mi <sup>2</sup> )	_____
Q <sub>7-10</sub> Flow (cfs)	_____	Q <sub>7-10</sub> Basis	_____
Elevation (ft)	_____	Slope (ft/ft)	_____
Watershed No.	<u>19-C</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	_____	Existing Use Qualifier	_____
Exceptions to Use	_____	Exceptions to Criteria	_____
Assessment Status	<u>Attaining Use(s)</u>		

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 \_\_\_\_\_

PWS Waters	_____	Flow at Intake (cfs)	_____
PWS RMI	_____	Distance from Outfall (mi)	_____

Treatment Facility Summary				
Treatment Facility Name: Monongahela City STP				
WQM Permit No.		Issuance Date		
6370414 A-5		12/8/25		
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Activated Sludge With Solids Removal	Gas Chlorine	1.24
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
1.5	1214	Existing Hydraulic Overload*	Anaerobic digestion	Landfill

Changes Since Last Permit Issuance:

\*The permittee is operating under a Corrective Action Plan to address unauthorized discharges.

Two WQM amendments were issued since the last NPDES permit was issued. A Wedgewater Sludge Drying Bed, continuous mechanical bar screen, and dual auger washer compactor were added, while a clear pass mechanical bar screen was removed.

## Treatment Plant Summary

## System Map

Compliance History

**Operations Compliance Check Summary Report**

**Facility:** MONONGAHELA CITY STP

**NPDES Permit No.:** PA0025950

**Compliance Review Period:** 3/1/21-3/3/26

**Inspection Summary:**

INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
07/16/2025	Chapter 94 Inspection	PA Dept of Environmental Protection	Administratively Closed
10/26/2023	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted
10/26/2023	Combined Sewer Overflow-Non-Sampling	PA Dept of Environmental Protection	No Violations Noted
11/09/2021	Combined Sewer Overflow-Non-Sampling	PA Dept of Environmental Protection	No Violations Noted
11/09/2021	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted
11/08/2021	Administrative/File Review	PA Dept of Environmental Protection	No Violations Noted
07/02/2021	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted

**Violation Summary:**

VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE	VIOLATION COMMENT
10/26/2023	92A.44	NPDES - Violation of effluent limits in Part A of permit	01/11/2024	Effluent non compliances for Fecal (8/21), TRC (2/22), and CBOD (1/23)
10/26/2023	92A.41(A)13B	NPDES - Unauthorized bypass occurred	01/11/2024	Wet Weather Discharges 1/1/22, 2/5/22, 2/25/22, 5/8/22, 10/1/22, 11/11/22, 8/15/22
07/02/2021	92A.44	NPDES - Violation of effluent limits in Part A of permit	07/02/2021	

**Open Violations by Client ID:**

No open violations for Client ID 43673

**Enforcement Summary:**

ENF TYPE	ENF TYPE DESC	EXECUTED DATE	VIOLATIONS	AMOUNT RECEIVED	ENF FINALSTATUS	ENF CLOSED DATE
CACP	Consent Assessment of Civil Penalty	05/20/2021	92A.41(A)13B; 92A.44; 92A.61(C)	\$9,000.00	Comply/Closed	07/02/2021

**Effluent Violation Summary:**

<u>MON PD</u>	<u>PARAMETER</u>	<u>REPORTED VALUE</u>	<u>PERMIT LIMIT</u>	<u>UNIT</u>	<u>STAT BASE CODE</u>	<u>FACILITY COMMENTS</u>
Nov-25	Fecal Coliform	> 2420	10000	CFU/100 ml	Instantaneous Maximum	
Aug-25	Fecal Coliform	3683	1000	CFU/100 ml	Instantaneous Maximum	Experienced some chlorinator issues. Added chlorine tablets manually to correct
Jun-25	Fecal Coliform	3266	1000	CFU/100 ml	Instantaneous Maximum	For 6.18.2025
Apr-24	Carbonaceous Biochemical Oxygen Demand (CBOD5)	318	313	lbs/day	Average Monthly	Shutdown aeration and RAS
Apr-24	Carbonaceous Biochemical Oxygen Demand (CBOD5)	569	469	lbs/day	Weekly Average	Shutdown aeration and RAS
Nov-23	Total Suspended Solids	50	45	mg/L	Weekly Average	
Jan-23	Carbonaceous Biochemical Oxygen Demand (CBOD5)	332	313	lbs/day	Average Monthly	Due to increased turbidity from Increased monthly flow. Operator changed out influent and effluent tubing immediately, and cBOD5 numbers are back to where they normally are.
Jan-23	Carbonaceous Biochemical Oxygen Demand (CBOD5)	566	469	lbs/day	Weekly Average	Due to increased turbidity from Increased monthly flow. Operator changed out influent and effluent tubing immediately, and cBOD5 numbers are back to where they normally are.
Aug-21	Fecal Coliform	2420	1000	CFU/100 ml	Instantaneous Maximum	Fecal overage due to heavy rainfall over a short period of time. Plant operations staff immediately reacted by increasing the chlorine feed rate

**Unauthorized Discharges:**

<b>MONITORING PERIOD</b>	<b>DISCHARGE COMMENTS</b>
Aug-25	Experienced a pump fault during one of the only rain events of the month. Reset pump, corrected issue
Jul-25	Due to heavy rain over a short time
Jun-25	High flow due to heavy rain
Jun-25	High flow due to heavy rain and severe weather
Jun-25	High flow due to severe weather
Jun-25	High flow due to severe weather
Jun-25	High flows due to heavy rain
Apr-25	Due to a steady, heavy rain event
Apr-25	Heavy, steady rain event as well as river flooding. Intermittent overflow
Apr-25	This was caused by a very brief power glitch on a windy night. No SCADA calls for generator or high wet well. SCADA integrator corrected issue
Oct-24	Severe Weather
May-24	2.5 inches of rain over the course of a few hours
Apr-24	2.5 inches of rain in 3 hours
Apr-24	Very heavy rain in a short time period
Apr-24	Very heavy rain in a short timeframe
Jan-24	Heavy rain led to a brief bypass at our outfall 002
Jul-23	Due to rainfall over 24 hours. Reported to DEP at the time of event, but I inadvertently forgot to report and upload last month
Nov-22	Brief bypass due to a rain event and pump fault
Oct-22	Hurricane Ian combined with a pump fault
May-22	EQ tank bypass due to almost 2 inches of rain and rising river level
Feb-22	Due to a pump fault during a rain event
Feb-22	Due to heavy rain, snow melt, subsequent flooding
Jan-22	Due to heavy rain and snow melt
Sep-21	Heavy rain totaling 1.61 inches over a short period of time

Jul-21	MACM Outfall #002 discharged 139,000 gallons during a very heavy rain event (1.55 inches). Discharge lasted about an hour. No impact observed. Notified DEP next morning.
Mar-21	EQ Tank Bypass due to heavy rain, snow melt. Caused localized flooding.

**Compliance Status:** There are currently no open violations or pending enforcement actions for Monongahela City STP. The Municipal Authority is working under an approved Corrective Action Plan to address hydraulic overloading.

**Completed by:** Amanda Illar **Completed date:** 3/3/26

Compliance History

DMR Data for Outfall 001 (from February 1, 2025 to January 31, 2026)

Parameter	JAN-26	DEC-25	NOV-25	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25
Flow (MGD) Average Monthly	0.974	0.998	0.919	0.93	0.846	0.885	1.581	2.183	1.416	1.853	1.007	1.705
Flow (MGD) Daily Maximum	1.202	1.497	2.132	1.880	1.830	1.192	2.666	3.629	2.534	3.680	1.414	3.454
pH (S.U.) Minimum	6.6	6.6	6.6	6.1	6.6	6.2	6.7	6.1	6.8	6.7	6.0	6.6
pH (S.U.) Maximum	7.0	7.0	7.3	6.8	6.9	6.9	7.4	7.4	7.2	7.3	7.1	7.2
DO (mg/L) Minimum	5.50	5.40	4.50	5.0	4.60	5.0	4.80	5.20	5.80	5.60	5.20	6.60
TRC (mg/L) Average Monthly	0.13	0.11	0.14	0.12	0.18	0.16	0.23	0.27	0.30	0.41	0.27	0.25
TRC (mg/L) Instantaneous Maximum	0.59	0.77	0.69	0.60	0.86	0.66	0.87	1.05	0.94	1.32	0.64	0.99
CBOD5 (lbs/day) Average Monthly	127	< 48	< 87	90	68	< 38	144	171	< 159	210	93	157
CBOD5 (lbs/day) Weekly Average	181	63	192	94	143	52	374	303	223	378	119	202
CBOD5 (mg/L) Average Monthly	16	< 6	< 9	9	8	< 5	9	9	< 12	13	12	12
CBOD5 (mg/L) Weekly Average	25	8	20	14	11	7	19	13	18	25	16	15
BOD5 (lbs/day) Raw Sewage Influent   Average Monthly	927	1170	1276	1280	1152	1074	< 693	754	1332	1404	1118	1158
BOD5 (lbs/day) Raw Sewage Influent   Daily Maximum	1342	1606	2573	2948	1904	2624	1252	1424	3808	2976	1555	1894
BOD5 (mg/L) Raw Sewage Influent   Average Monthly	116	143	159	151	158	135	< 76	51	117	99	145	89
TSS (lbs/day) Average Monthly	65	33	< 54	53	44	< 29	91	< 94	95	92	47	126

**NPDES Permit Fact Sheet  
Monongahela City**

**NPDES Permit No. PA0025950**

TSS (lbs/day) Raw Sewage Influent   Average Monthly	1017	1547	1585	2027	1614	1607	1204	1408	1371	1757	1119	1333
TSS (lbs/day) Raw Sewage Influent   Daily Maximum	1454	2710	3486	6334	2982	4623	3276	4008	3618	4824	1834	2677
TSS (lbs/day) Weekly Average	77	42	< 123	51	90	< 43	175	139	147	149	95	171
TSS (mg/L) Average Monthly	8	4	< 5	6	5	< 4	6	< 5	7	6	6	9
TSS (mg/L) Raw Sewage Influent   Average Monthly	127	188	196	205	209	196	146	87	109	116	146	103
TSS (mg/L) Weekly Average	12	6	13	9	6	< 5	9	8	9	8	9	14
Fecal Coliform (CFU/100 ml) Geometric Mean	11	17	6	< 4	< 4	< 8	< 13	< 13	< 7	< 8	< 4	< 5
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	2420	2420	> 2420	12	30	3683	3922	3266	560	689	4	< 10
Total Nitrogen (mg/L) Daily Maximum		17.19			22.44			9.227			24.89	
Ammonia (lbs/day) Average Monthly	140	163	123	73	111	93	133	144	124	118	110	112
Ammonia (mg/L) Average Monthly	17	18	16	10	16	12	10	8	9	9	14	9
Total Phosphorus (mg/L) Daily Maximum		2.14			3.06			1.04			2.14	
Acute WET - Pimephales Survival (TUa) Daily Maximum		1.0			GG			GG			GG	

**Compliance History**

**Effluent Violations for Outfall 001, from: March 1, 2025 To: January 31, 2026**

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	06/30/25	IMAX	3266	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	07/31/25	IMAX	3922	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	08/31/25	IMAX	3683	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	07/31/25	IMAX	3922	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	11/30/25	IMAX	> 2420	CFU/100 ml	10000	CFU/100 ml

**Development of Effluent Limitations**

Outfall No. <u>001</u>	Design Flow (MGD) <u>1.5</u>
Latitude <u>40° 12' 30.00"</u>	Longitude <u>-79° 56' 20.00"</u>
Wastewater Description: <u>Sewage Effluent</u>	

**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
Flow	Report	Average Monthly	-	§§ 92a.27, 92a.61
Flow	Report	Max Daily	-	§§ 92a.27, 92a.61
CBOD <sub>5</sub>	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)
	45	Average Weekly	133.102(b)(2)	92a.47(a)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2
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)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)
E. Coli (No./100 ml)	-	Report		93a.61
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)
Total Residual Chlorine	1.6	IMAX	-	92a.47-48
Ammonia-Nitrogen	25	Average Monthly	-	BPJ
Ammonia-Nitrogen	50	IMAX	-	BPJ
Dissolved Oxygen	4.0	IMIN	-	BPJ

### Water-Quality Based Effluent Limitations

Pursuant to EPA's approval of Pennsylvania's 2017 Triennial Review of Water Quality Standards and corresponding regulatory changes published in the *Pennsylvania Bulletin* on July 11, 2020, new water quality criteria for ammonia-nitrogen apply to waters of the Commonwealth. Therefore, WQBELs for CBOD-5 and ammonia-nitrogen are re-evaluated even though there have been no changes to discharges from the STP's primary outfall.

#### WQM 7.0 Water Quality Modeling Program

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

#### Water Quality Modeling with WQM 7.0

The WQM 7.0 model was run for Outfall 001 to determine whether WQBELs are necessary for CBOD<sub>5</sub>, ammonia-nitrogen, and D.O. Input values for the WQM 7.0 model are shown in Table 3.

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

The second step is to evaluate WQBELs for the winter period, but only if modeling shows that WQBELs are needed for the summer period. For the summer period, pursuant to DEP's "Implementation Guidance of Section 93.7 Ammonia Criteria" [Doc. No. 391-2000-013] (Ammonia Guidance) and in the absence of site-specific data, the discharge temperature is assumed to be 20°C. Per that same guidance, the site-specific stream temperature is 25°C based on the median temperature from July through September at Water Quality Network Station 702 – Monongahela River at Charleroi for the period of record lasting from September 1999 through August 2020. The site-specific stream pH is 7.5 s.u., which is the median pH at WQN Station 702 from that same period of record.

**Outfall 001 WQM 7.0 Inputs**

<b>Discharge Characteristics</b>	
<b>Parameter</b>	<b>Value</b>
River Mile Index	31
Discharge Flow (MGD)	1.5
Discharge Temp. (°C) (Summer)	20.0
Discharge Temp. (°C) (Winter)	15.0
<b>Basin/Stream Characteristics</b>	
<b>Parameter</b>	<b>Value</b>
Drainage Area (sq. mi.)	5,300
Q <sub>7-10</sub> (cfs)	550
Low-flow yield (cfs/mi <sup>2</sup> )	0.104
Elevation (ft)	723
Slope (ft/ft)	0.000 1
Stream Width (ft)	793
Stream Depth (ft)	15.0
Stream Temp. (°C) (Summer)	25.0
Stream Temp. (°C) (Winter)	5.0
Stream pH (s.u.)	7.5

The Q<sub>7-10</sub> flow of the Monongahela River in the vicinity of Outfall 001 is regulated at minimum of about 550 cfs, which is entered into WQM 7.0 as the stream flow at river mile index 31. To ensure that mixing conditions are properly represented in WQM 7.0, the reach width and reach depth are approximated as 793 feet and 15 feet, respectively. The flow used for modeling is the average design flow (1.5 MGD). The input discharge concentrations are the model defaults: 25 mg/L for both CBOD5 and ammonia-nitrogen.

Downstream nodes are entered into WQM 7.0 at river miles 31 and 25. At RMI 38.25, the Mon City STP discharges treated sewage at an average rate of 1.5 MGD. At RMI 25, Pennsylvania American Water Company has a 70 MGD potable water supply withdrawal (PWS ID 5020039).

WQM 7.0 modeling returns the input discharge concentrations as the recommended limits (see **Attachment 3&4**), which means that WQBELs are not needed for CBOD5 or ammonia-nitrogen. Pursuant to DEP’s “Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits”, for existing dischargers where modeling results for summer indicate that an average monthly limit of 25 mg/L for ammonia-nitrogen is acceptable, a year-round monitoring requirement for ammonia-nitrogen is established. Reporting of average monthly and average weekly ammonia-nitrogen concentrations was required at Outfall 001 in the previous permit. Reporting of average monthly ammonia-nitrogen concentrations will be maintained in the renewed permit but reporting of average weekly ammonia-nitrogen concentrations is no longer required and will be removed from the permit. However, pursuant to the SOP referenced above, reporting of average monthly ammonia-nitrogen mass loading is added to the permit. Reporting of

IMAX concentrations also is changed to reporting of Daily Maximum concentrations because the sample type is 24-hour composite.

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

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

The TMS is a single discharge, mass-balance water quality modeling program for Microsoft Excel® that considers mixing, first-order decay, and other factors to determine WQBELs for toxic and nonconventional pollutants. Required input data including stream code, river mile index, elevation, drainage area, discharge flow rate, low-flow yield, and the hardness and pH of both the discharge and the receiving stream are entered into the TMS to establish site-specific discharge conditions. Other data such as reach dimensions, partial mix factors, and the background concentrations of pollutants in the stream also may be entered to further characterize the discharge and receiving stream. The pollutants to be analyzed by the model are identified by inputting the maximum concentration reported in the permit application or Discharge Monitoring Reports, or by inputting an Average Monthly Effluent Concentration (AMEC) calculated using DEP’s TOXCONC.xls spreadsheet for datasets of 10 or more effluent samples. Pollutants with no entered concentration data and pollutants for which numeric water quality criteria in 25 Pa. Code Chapter 93 have not been promulgated are excluded from the modeling.

The TMS evaluates each pollutant by computing a Wasteload Allocation for each applicable criterion, determining the most stringent governing WQBEL, and comparing that governing WQBEL to the input discharge concentration to determine whether permit requirements apply in accordance with the following RP thresholds:

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

for the permit as recommended by the TMS (or, if appropriate, use a multiplier of 2 times the average monthly limit for the maximum daily limit and 2.5 times the average monthly limit for IMAX).

- For non-conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 25% - 50% of the WQBEL.
- For conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 10% - 50% of the WQBEL.

In most cases, pollutants with effluent concentrations less than DEP's Target Quantitation Limits are eliminated as candidates for WQBELs and water quality-based monitoring.

Reasonable Potential Analysis and WQBEL Development for Outfall 001

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

Output from the TMS model run is included in **Attachment 6**. As explained previously, the TMS compares the input discharge concentrations to the calculated WQBELs using DEP's Reasonable Potential thresholds to evaluate the need to impose WQBELs or monitoring requirements in the permit. Based on the results of the TMS modeling, limits for copper and zinc will be imposed.

<b>Pollutant</b>	<b>Average Monthly (mg/L)</b>	<b>Maximum Daily (mg/L)</b>	<b>IMAX (mg/L)</b>
Total Copper	0.36	0.55	0.89
Total Zinc	2.94	4.58	7.34

**A pre-draft survey letter was sent to the permittee on 3/2/26. The permittee has 30 days to respond to the survey.**

Total Residual Chlorine

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

The results of the modeling, included in **Attachment 5**, indicate that no WQBELs are required for TRC, which is consistent with DEP's determinations for previous permits. Technology-based limits from 25 Pa. Code § 92a.47(a)(8) will control TRC.

Monongahela River Impairment and TMDL

The Monongahela River's fish consumption use is impaired by PCBs and chlordane. There is a final TMDL addressing PCBs and chlordane that was approved by EPA on April 9, 2001. The TMDL sets waste load allocations for point source discharges of PCBs and chlordane to zero because no point source discharges of PCBs and chlordane were identified during development of the TMDL. The TMDL only provides load allocations for non-point sources.

The Mon City STP is not expected to discharge PCBs or chlordanes and is otherwise prohibited by the TMDL from discharging those pollutants (as with all point source discharges to the river). Outfall 001 effluent analyses for the application confirm that chlordanes are not detectable in the effluent. PCBs are not part of the required analyses for sewage discharges. Since the facility is not expected to discharge PCBs or chlordanes, the facility will not contribute to the fish consumption use impairment caused by those pollutants and the facility is consequently unaffected by the TMDL. This rationale applies to all discharges from the Mon City STP.

**Additional Considerations**

**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. 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.

*(40 CFR 122.44 (l)(2) Establishing limitations, standards, and other permit conditions., 40 CFR Ch. I (7-1-21 Edition))*

There is a permit limitation listed under the Proposed Backsliding section below that will be made less stringent under 112.44 (l)(2)(i). No other limitations in this permit have been made less stringent.

**Proposed Backsliding**

The existing permit has WET limitations. The permit application contained the four most recent valid effluent test results, showing that the facility passed each of these four tests. These results constitute new information which was not available at the time of the original permit. Please see the Anti-Backsliding Analysis for additional details.

The permit limitations for Whole Effluent Toxicity are removed from this permit.

The following exceptions to anti-backsliding are acceptable under EPA's anti-backsliding regulation 40 CFR 122.44(l)(2)(i):

(B)

(1) Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or

(2) The Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b);

*(40 CFR 122.44 (l)(2)(i) Establishing limitations, standards, and other permit conditions., 40 CFR Ch. I (7-1-21 Edition))*

The testing type has also changed from Acute to Chronic based on DEP WET Spreadsheet analysis. **The spreadsheet is referenced in Attachment 7.**

**E. Coli**

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  $\geq 1$  MGD, 1/quarter for design flows  $\geq 0.05$  and  $< 1$  MGD, 1/year for design flows of 0.002 – 0.05 MGD.

*(Note 12 SOP-Establishing Effluent Limitations for Individual Sewage Permits Final November 9, 2012, Revised February 5, 2024, Version 2.0. and 25 PA Code 92a.61(b).)*

**Influent Monitoring**

For POTWs with design flows greater than 2,000 GPD, influent BOD5 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. BOD5 and TSS influent loads will once again be reported for monthly average and daily maximum values in lbs/day and monthly average concentrations in mg/L.

*(Section IV.E.8. SOP – New and Reissuance Individual Sewage NPDES Permits Final November 9, 2012, Revised February 3, 2022, Version 2.0.)*

**Nutrient Monitoring**

Nutrient monitoring is required by the SOP for Effluent Limitations for Individual Sewage Permits. Monitoring is included 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). The receiving stream is not listed as impaired for nutrients, therefore at the discretion of the application manager, a monitoring frequency less than the equivalent of conventional pollutants in Table 6-3 of the Permit Writer's Manual has been selected.

*(Section I.A, Note 7 & 8, SOP for Clean Water Program, Establishing Effluent Limitations for Individual Sewage Permits, Final November 9, 2012, Revised March 24, 2021, Version 1.9 and 25 PA Code 92a.61(b).)*

Table 6-3 – Self-Monitoring Requirements for SEWAGE Discharges

Plant Design Flow (MGD)	Flow Monitoring	C-BOD <sub>5</sub> or BOD <sub>5</sub>	Suspended Solids	pH	Fecal Coliform	Chlorine Residual	NH <sub>3</sub> -N	Phosphorus	DO	Toxics
Single Residence (Individual Permit)	2/year by estimate	2/year*	2/year*	1/month*	2/year*	1/month*	2/year*	2/year*	2/year*	N/A
.0005 to .002	weekly, using average pump rate or weir (a)	1/month*	1/month*	daily*	1/month*	daily*	1/month*	1/month*	daily*	N/A
.002 to .01	weekly, using average pump rate or weir (a)	2/month*	2/month*	daily*	2/month*	daily*	2/month*	2/month*	daily*	N/A
0.01 to 0.1	weekly, using average pump rate or weir (a)	2/month*	2/month*	daily*	2/month*	daily*	2/month*	2/month*	Daily*	1/week*
0.1 to 1.0	meter	1/week**	1/week**	daily*	1/week*	daily*	1/week**	1/week**	daily*	1/week****
<b>1.0 to 5.0</b>	<b>meter</b>	<b>2/week***</b>	<b>2/week***</b>	<b>daily*</b>	<b>2/week*</b>	<b>daily*</b>	<b>2/week***</b>	<b>2/week***</b>	<b>daily*</b>	<b>1/week****</b>
5.0 to 25.0	meter	daily***	daily***	daily*	daily*	1/shift*	daily***	daily***	daily*	1/week****
over 25.0	meter	daily***	daily***	1/shift*	daily*	1/shift*	1/shift***	1/shift***	1/shift*	1/week****

\* Grab sample-these should be most representative of the effluent and are to be taken at a time when the normal daily maximum flow would reach the sampling point.

\*\* 8-hour composite sample.

\*\*\* 24-hour composite sample.

\*\*\*\* Same sample type as for Industrial Process Wastewater (See Table 6-4).

**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%, 66%, 31%, 16%, and 8%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 31.

**Summary of Four Most Recent Test Results**

TST Data Analysis

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

Test Date	Ceriodaphnia Results (Pass/Fail)		Pimephales Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
12/22/2014	PASS	-	PASS	-
11/22/2015	PASS	-	PASS	-
11/14/2016	PASS	-	PASS	-
11/21/2017	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

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

Acute Partial Mix Factor (PMFa): **0.113**

Chronic Partial Mix Factor (PMFc): **0.782**

**1. Determine IWC – Acute (IWC<sub>a</sub>):**

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

$$[(1.5 \text{ MGD} \times 1.547) / ((550 \text{ cfs} \times 0.113) + (1.5 \text{ MGD} \times 1.547))] \times 100 = \mathbf{3.60\%}$$

Is IWC<sub>a</sub> < 1%?  YES  NO

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

**2b. Determine Target IWC<sub>c</sub> (If Chronic Tests Required)**

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

$$[(1.5 \text{ MGD} \times 1.547) / ((550 \text{ cfs} \times .782) + (1.5 \text{ MGD} \times 1.547))] \times 100 = \mathbf{0.54\%}$$

**3. Determine Dilution Series**

(NOTE – check Attachment C of WET SOP for dilution series based on TIWC<sub>a</sub> or TIWC<sub>c</sub>, 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**

**PMF and PMFc were determined from the TMS Spreadsheet. The spreadsheet is referenced in Attachment 5.**

**Proposed Effluent Limitations and Monitoring Requirements**

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the “NPDES Permit Writer’s Manual” (386-0400-001), SOPs and/or BPJ.

**Outfall 001, Effective Period: Beginning of 37<sup>th</sup> Month from Permit Effective Date through Permit Expiration Date.**

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Copper	XXX	XXX	XXX	0.36	XXX	0.89	1/week	Grab
Total Zinc	XXX	XXX	XXX	2.94	XXX	7.34	1/week	Grab

Compliance Sampling Location: Outfall 001

Other Comments: The permittee will have 3 years to comply with the new limits.

**Proposed Effluent Limitations and Monitoring Requirements**

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the “NPDES Permit Writer’s Manual” (386-0400-001), SOPs and/or BPJ.

**Outfall 001, Effective Period: Permit Effective Date through End of 36<sup>th</sup> Month from Permit Effective Date.**

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Copper	XXX	XXX	XXX	Report	XXX	Report	1/week	Grab
Total Zinc	XXX	XXX	XXX	Report	XXX	Report	1/week	Grab

Compliance Sampling Location: Outfall 001

Other Comments: Monitoring for Copper and Zinc will be implemented at permit issuance to determine the extent of the issue.

**Proposed Effluent Limitations and Monitoring Requirements**

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the “NPDES Permit Writer’s Manual” (386-0400-001), SOPs and/or BPJ.

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
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

Compliance Sampling Location: Outfall 001

Other Comments: WET Tests were changed to Chronic Tests.

**Proposed Effluent Limitations and Monitoring Requirements**

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the “NPDES Permit Writer’s Manual” (386-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	2/week	Grab
DO	XXX	XXX	4.0	XXX	XXX	XXX	2/week	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	313	469	XXX	25	40	50	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	376	563	XXX	30	45	60	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Ammonia-Nitrogen	Report	XXX	XXX	Report	XXX	XXX	2/week	Grab

Outfall 001 , Continued (from Phase 1 through Permit Expiration Date )

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
E. Coli	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab

Compliance Sampling Location: Outfall 001

Other Comments: E. Coli monitoring was added.

Attachment 1  
USGS StreamStats  
Upstream

StreamStats Report

Region ID: PA  
 Workspace ID: PA20250819183943675000  
 Clicked Point (Latitude, Longitude): 40.20941, -79.93854  
 Time: 2025-08-19 14:40:16 -0400



[Collapse All](#)

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	5300	square miles
ELEV	Mean Basin Elevation	1830	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	5300	square miles	2.26	1400

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
ELEV	Mean Basin Elevation	1830	feet	1050	2580
Low-Flow Statistics Disclaimers [Low Flow Region 4]					
One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.					
Low-Flow Statistics Flow Report [Low Flow Region 4]					
Statistic		Value	Unit		
7 Day 2 Year Low Flow		698	ft <sup>3</sup> /s		
30 Day 2 Year Low Flow		926	ft <sup>3</sup> /s		
7 Day 10 Year Low Flow		408	ft <sup>3</sup> /s		
30 Day 10 Year Low Flow		477	ft <sup>3</sup> /s		
90 Day 10 Year Low Flow		707	ft <sup>3</sup> /s		
<i>Low-Flow Statistics Citations</i>					
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. ( <a href="http://pubs.usgs.gov/sir/2006/5130/">http://pubs.usgs.gov/sir/2006/5130/</a> )					

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Application Version: 4.29.2  
 StreamStats Services Version: 1.2.22  
 NSS Services Version: 2.2.1

# Attachment 2

## USGS StreamStats

### Downstream

DS StreamStats Report

Region ID: PA  
 Workspace ID: PA20250819185242279000  
 Clicked Point (Latitude, Longitude): 40.21059, -79.94620  
 Time: 2025-08-19 14:53:12 -0400



[Collapse All](#)

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	5300	square miles
ELEV	Mean Basin Elevation	1830	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	5300	square miles	2.26	1400

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
ELEV	Mean Basin Elevation	1830	feet	1050	2580

Low-Flow Statistics Disclaimers [Low Flow Region 4]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

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

Statistic	Value	Unit
7 Day 2 Year Low Flow	698	ft <sup>3</sup> /s
30 Day 2 Year Low Flow	926	ft <sup>3</sup> /s
7 Day 10 Year Low Flow	408	ft <sup>3</sup> /s
30 Day 10 Year Low Flow	477	ft <sup>3</sup> /s
90 Day 10 Year Low Flow	707	ft <sup>3</sup> /s

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/>)

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Application Version: 4.29.2

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

# Attachment 3

## WQM 7.0 Model - Summer

**Input Data WQM 7.0**

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
19A	37185	MONONGAHELA RIVER	31.000	723.00	5300.00	0.00000	0.00	<input checked="" type="checkbox"/>

**Stream Data**

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.104	0.00	550.00	0.000	0.000	0.0	793.00	15.00	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
MON CITY STP	PA0025950	1.5000	0.0000	0.0000	0.000	25.00	7.00

**Parameter Data**

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

**Input Data WQM 7.0**

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
19A	37185	MONONGAHELA RIVER	30.620	722.90	5300.10	0.00000	0.00	<input checked="" type="checkbox"/>

**Stream Data**

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.104	0.00	550.00	0.000	0.000	0.0	808.00	15.00	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	25.00	7.00

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

**Input Data WQM 7.0**

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
19A	37185	MONONGAHELA RIVER	25.000	721.90	5300.20	0.00000	70.00	<input checked="" type="checkbox"/>

**Stream Data**

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.104	0.00	550.00	0.000	0.000	0.0	900.00	15.00	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	25.00	7.00

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

**WQM 7.0 Modeling Specifications**

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

**WQM 7.0 Hydrodynamic Outputs**

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
19A		37185				MONONGAHELA RIVER						
RMI	Stream Flow	PWS With	Net Stream Flow	Disc Analysis Flow	Reach Slope	Depth	Width	W/D Ratio	Velocity	Reach Trav Time	Analysis Temp	Analysis pH
	(cfs)	(cfs)	(cfs)	(cfs)	(ft/ft)	(ft)	(ft)		(fps)	(days)	(°C)	
<b>Q7-10 Flow</b>												
31.000	550.00	0.00	550.00	2.3205	0.00005	15	793	52.87	0.05	0.500	25.00	7.00
30.620	550.00	0.00	550.00	2.3205	0.00003	15	808	53.87	0.05	7.536	25.00	7.00
<b>Q1-10 Flow</b>												
31.000	352.00	0.00	352.00	2.3205	0.00005	NA	NA	NA	0.03	0.780	25.00	7.00
30.620	352.00	0.00	352.00	2.3205	0.00003	NA	NA	NA	0.03	11.748	25.00	7.00
<b>Q30-10 Flow</b>												
31.000	748.00	0.00	748.00	2.3205	0.00005	NA	NA	NA	0.06	0.368	25.00	7.00
30.620	748.00	0.00	748.00	2.3205	0.00003	NA	NA	NA	0.06	5.548	25.00	7.00

**WQM 7.0 Wasteload Allocations**

SWP Basin      Stream Code                      Stream Name  
 19A                      37185                                      MONONGAHELA RIVER

**NH3-N Acute Allocations**

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
31.000	MON CITY STP	11.07	50	11.07	50	0	0
30.620		NA	NA	11.07	NA	NA	NA

**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
31.000	MON CITY STP	1.37	25	1.37	25	0	0
30.620		NA	NA	1.37	NA	NA	NA

**Dissolved Oxygen Allocations**

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
31.00	MON CITY STP	25	25	25	25	4	4	0	0
30.62		NA	NA	NA	NA	NA	NA	NA	NA

**WQM 7.0 D.O. Simulation**

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>			
19A	37185	MONONGAHELA RIVER			
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
31.000	1.500	25.000		7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
793.000	15.000	52.867		0.046	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>		<u>Reach Kn (1/days)</u>	
2.10	0.049	0.11		1.029	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
8.362	0.054	O'Connor		5	
<u>Reach Travel Time (days)</u>					
0.500					
<b>Subreach Results</b>					
	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>	
	0.050	2.09	0.10	7.54	
	0.100	2.08	0.09	7.54	
	0.150	2.08	0.09	7.54	
	0.200	2.07	0.09	7.54	
	0.250	2.06	0.08	7.54	
	0.300	2.06	0.08	7.54	
	0.350	2.05	0.07	7.54	
	0.400	2.05	0.07	7.54	
	0.450	2.04	0.07	7.54	
	0.500	2.03	0.06	7.54	
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
30.620	1.500	25.000		7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
808.000	15.000	53.867		0.046	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>		<u>Reach Kn (1/days)</u>	
2.03	0.002	0.06		1.029	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
7.538	0.053	O'Connor		5	
<u>Reach Travel Time (days)</u>					
7.536					
<b>Subreach Results</b>					
	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>	
	0.754	2.03	0.03	7.42	
	1.507	2.03	0.01	7.38	
	2.261	2.02	0.01	7.38	
	3.015	2.02	0.00	7.40	
	3.768	2.02	0.00	7.43	
	4.522	2.01	0.00	7.46	
	5.276	2.01	0.00	7.49	
	6.029	2.01	0.00	7.52	
	6.783	2.00	0.00	7.54	
	7.536	2.00	0.00	7.54	

**WQM 7.0 Effluent Limits**

<u>SWP Basin</u>		<u>Stream Code</u>	<u>Stream Name</u>				
19A		37185	MONONGAHELA RIVER				
RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
31.000	MON CITY STP	PA0025950	1.500	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

# Attachment 4

## WQM 7.0 Model - Winter

**Input Data WQM 7.0**

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
19A	37185	MONONGAHELA RIVER	31.000	723.00	5300.00	0.00000	0.00	<input checked="" type="checkbox"/>

**Stream Data**

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.208	0.00	550.00	0.000	0.000	0.0	793.00	15.00	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
MON CITY STP	PA0025950	1.5000	0.0000	0.0000	0.000	15.00	7.00

**Parameter Data**

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	12.34	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

**Input Data WQM 7.0**

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
19A	37185	MONONGAHELA RIVER	30.620	722.90	5300.10	0.00000	0.00	<input checked="" type="checkbox"/>

**Stream Data**

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.208	0.00	550.00	0.000	0.000	0.0	808.00	15.00	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	25.00	7.00

**Parameter Data**

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

**Input Data WQM 7.0**

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
19A	37185	MONONGAHELA RIVER	25.000	721.90	5300.20	0.00000	70.00	<input checked="" type="checkbox"/>

**Stream Data**

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.208	0.00	550.00	0.000	0.000	0.0	900.00	15.00	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	25.00	7.00

**Parameter Data**

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

### WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

**WQM 7.0 Hydrodynamic Outputs**

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
19A		37185				MONONGAHELA RIVER						
RMI	Stream Flow	PWS With	Net Stream Flow	Disc Analysis Flow	Reach Slope	Depth	Width	W/D Ratio	Velocity	Reach Trav Time	Analysis Temp	Analysis pH
	(cfs)	(cfs)	(cfs)	(cfs)	(ft/ft)	(ft)	(ft)		(fps)	(days)	(°C)	
<b>Q7-10 Flow</b>												
31.000	550.00	0.00	550.00	2.3205	0.00005	15	793	52.87	0.05	0.500	5.04	7.00
30.620	550.00	0.00	550.00	2.3205	0.00003	15	808	53.87	0.05	7.536	5.04	7.00
<b>Q1-10 Flow</b>												
31.000	352.00	0.00	352.00	2.3205	0.00005	NA	NA	NA	0.03	0.780	5.07	7.00
30.620	352.00	0.00	352.00	2.3205	0.00003	NA	NA	NA	0.03	11.748	5.07	7.00
<b>Q30-10 Flow</b>												
31.000	748.00	0.00	748.00	2.3205	0.00005	NA	NA	NA	0.06	0.368	5.03	7.00
30.620	748.00	0.00	748.00	2.3205	0.00003	NA	NA	NA	0.06	5.548	5.03	7.00

**WQM 7.0 Wasteload Allocations**

SWP Basin      Stream Code                      Stream Name  
19A                      37185                                      MONONGAHELA RIVER

**NH3-N Acute Allocations**

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
31.000	MON CITY STP	24.1	50	24.1	50	0	0
30.620		NA	NA	24.1	NA	NA	NA

**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
31.000	MON CITY STP	4.36	25	4.36	25	0	0
30.620		NA	NA	4.36	NA	NA	NA

**Dissolved Oxygen Allocations**

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
31.00	MON CITY STP	25	25	25	25	4	4	0	0
30.62		NA	NA	NA	NA	NA	NA	NA	NA

**WQM 7.0 D.O.Simulation**

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
19A	37185	MONONGAHELA RIVER		
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>
31.000	1.500	5.042		7.000
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>
793.000	15.000	52.867		0.046
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>		<u>Reach Kn (1/days)</u>
2.10	0.063	0.11		0.221
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>
12.305	0.034	O'Connor		5
<u>Reach Travel Time (days)</u>	<b>Subreach Results</b>			
0.500	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>
	0.050	2.09	0.10	11.44
	0.100	2.09	0.10	11.44
	0.150	2.09	0.10	11.44
	0.200	2.08	0.10	11.44
	0.250	2.08	0.10	11.44
	0.300	2.08	0.10	11.44
	0.350	2.07	0.10	11.44
	0.400	2.07	0.10	11.44
	0.450	2.07	0.10	11.44
	0.500	2.06	0.09	11.44
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>
30.620	1.500	5.042		7.000
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>
808.000	15.000	53.867		0.046
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>		<u>Reach Kn (1/days)</u>
2.06	0.008	0.09		0.221
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>
11.442	0.033	O'Connor		5
<u>Reach Travel Time (days)</u>	<b>Subreach Results</b>			
7.536	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>
	0.754	2.06	0.08	11.40
	1.507	2.05	0.07	11.37
	2.261	2.04	0.06	11.34
	3.015	2.04	0.05	11.33
	3.768	2.03	0.04	11.32
	4.522	2.03	0.03	11.32
	5.276	2.02	0.03	11.32
	6.029	2.01	0.02	11.32
	6.783	2.01	0.02	11.33
	7.536	2.00	0.02	11.34

**WQM 7.0 Effluent Limits**

<u>SWP Basin</u>		<u>Stream Code</u>		<u>Stream Name</u>			
19A		37185		MONONGAHELA RIVER			
RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
31.000	MON CITY STP	PA0025950	1.500	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

# Attachment 5

## TRC Model

TRC\_CALC

TRC EVALUATION				
Input appropriate values in A3:A9 and D3:D9				
550	= Q stream (cfs)		0.5	= CV Daily
1.5	= Q discharge (MGD)		0.5	= CV Hourly
30	= no. samples		1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)			= Decay Coefficient (K)
Source	Reference	AFC Calculations		Reference
TRC	1.3.2.iii	WLA_afc = 75.628		1.3.2.iii
PENTOXSD TRG	5.1a	LTAMULT_afc = 0.373		5.1c
PENTOXSD TRG	5.1b	LTA_afc = 28.181		5.1d
				WLA_cfc = 73.724
				LTAMULT_cfc = 0.581
				LTA_cfc = 42.859
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	$1.5*((av\_mon\_limit/AML\_MULT)/LTAMULT\_afc)$			

# Attachment 6 TMS Spreadsheet



## Discharge Information

Instructions Discharge Stream

Facility: Monongahela City STP NPDES Permit No.: PA0025950 Outfall No.: 001

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

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q <sub>7-10</sub>	Q <sub>h</sub>
1.5	146	7						

Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
			Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L	500								
	Chloride (PWS)	mg/L	144								
	Bromide	mg/L	< 0.023								
	Sulfate (PWS)	mg/L	103								
	Fluoride (PWS)	mg/L									
Group 2	Total Aluminum	µg/L	23.3								
	Total Antimony	µg/L	0.38								
	Total Arsenic	µg/L	0.42								
	Total Barium	µg/L	39								
	Total Beryllium	µg/L	< 0.24								
	Total Boron	µg/L	155								
	Total Cadmium	µg/L	< 0.088								
	Total Chromium (III)	µg/L	0.177								
	Hexavalent Chromium	µg/L	< 0.25								
	Total Cobalt	µg/L	2								
	Total Copper	mg/L	7.9								
	Free Cyanide	µg/L	< 2.4								
	Total Cyanide	µg/L	< 2.4								
	Dissolved Iron	µg/L	122								
	Total Iron	µg/L	37.6								
	Total Lead	µg/L	0.33								
	Total Manganese	µg/L	170								
	Total Mercury	µg/L	< 0.00059								
	Total Nickel	µg/L	5.6								
	Total Phenols (Phenolics) (PWS)	µg/L	< 0.07								
	Total Selenium	µg/L	< 2.9								
	Total Silver	µg/L	< 0.09								
	Total Thallium	µg/L	< 0.12								
Total Zinc	mg/L	19.9									
Total Molybdenum	µg/L	1.1									
Acrolein	µg/L	< 0.93									
Acrylamide	µg/L	< 0.48									
Acrylonitrile	µg/L	< 0.21									
Benzene	µg/L	< 0.43									
Bromoform	µg/L	< 0.41									

Group 3	Carbon Tetrachloride	µg/L	<	0.26																	
	Chlorobenzene	µg/L	<	0.24																	
	Chlorodibromomethane	µg/L	<	0.32																	
	Chloroethane	µg/L	<	2.11																	
	2-Chloroethyl Vinyl Ether	µg/L		5.04																	
	Chloroform	µg/L	<	0.25																	
	Dichlorobromomethane	µg/L	<	0.3																	
	1,1-Dichloroethane	µg/L	<	0.4																	
	1,2-Dichloroethane	µg/L	<	0.29																	
	1,1-Dichloroethylene	µg/L	<	0.37																	
	1,2-Dichloropropane	µg/L	<	0.37																	
	1,3-Dichloropropylene	µg/L	<																		
	1,4-Dioxane	µg/L		2																	
	Ethylbenzene	µg/L	<	0.3																	
	Methyl Bromide	µg/L	<	0.48																	
	Methyl Chloride	µg/L	<	0.44																	
	Methylene Chloride	µg/L	<	0.33																	
	1,1,2,2-Tetrachloroethane	µg/L	<	0.45																	
	Tetrachloroethylene	µg/L	<	0.37																	
	Toluene	µg/L	<	0.19																	
	1,2-trans-Dichloroethylene	µg/L	<	0.44																	
1,1,1-Trichloroethane	µg/L	<	0.42																		
1,1,2-Trichloroethane	µg/L	<	0.25																		
Trichloroethylene	µg/L	<	0.42																		
Vinyl Chloride	µg/L	<	0.29																		
Group 4	2-Chlorophenol	µg/L		0.11																	
	2,4-Dichlorophenol	µg/L		0.29																	
	2,4-Dimethylphenol	µg/L		0.2																	
	4,6-Dinitro- <i>o</i> -Cresol	µg/L	<	0.19																	
	2,4-Dinitrophenol	µg/L	<	0.26																	
	2-Nitrophenol	µg/L		0.16																	
	4-Nitrophenol	µg/L	<	0.61																	
	<i>p</i> -Chloro- <i>m</i> -Cresol	µg/L		0.24																	
	Pentachlorophenol	µg/L	<	0.27																	
	Phenol	µg/L																			
	2,4,6-Trichlorophenol	µg/L		0.21																	
Group 5	Acenaphthene	µg/L	<	0.31																	
	Acenaphthylene	µg/L		0.11																	
	Anthracene	µg/L	<	0.02																	
	Benzidine	µg/L	<	0.22																	
	Benzo(a)Anthracene	µg/L		0.09																	
	Benzo(a)Pyrene	µg/L	<	0.05																	
	3,4-Benzofluoranthene	µg/L	<	0.1																	
	Benzo(ghi)Perylene	µg/L	<	0.05																	
	Benzo(k)Fluoranthene	µg/L	<	0.17																	
	Bis(2-Chloroethoxy)Methane	µg/L		0.13																	
	Bis(2-Chloroethyl)Ether	µg/L	<	0.1																	
	Bis(2-Chloroisopropyl)Ether	µg/L		0.11																	
	Bis(2-Ethylhexyl)Phthalate	µg/L		0.63																	
	4-Bromophenyl Phenyl Ether	µg/L	<	0.1																	
	Butyl Benzyl Phthalate	µg/L		0.17																	
	2-Chloronaphthalene	µg/L		0.19																	
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.11																	
	Chrysene	µg/L	<	0.05																	
	Dibenzo(a,h)Anthracene	µg/L	<	0.011																	
	1,2-Dichlorobenzene	µg/L		0.09																	
	1,3-Dichlorobenzene	µg/L		0.1																	
	1,4-Dichlorobenzene	µg/L		0.09																	
	3,3-Dichlorobenzidine	µg/L	<	0.23																	
Diethyl Phthalate	µg/L	<	0.04																		
Dimethyl Phthalate	µg/L		0.12																		
Di- <i>n</i> -Butyl Phthalate	µg/L		0.34																		
2,4-Dinitrotoluene	µg/L	<	0.17																		





Stream / Surface Water Information

Monongahela City STP, NPDES Permit No. PA0025950, Outfall 001

Instructions Discharge **Stream**

Receiving Surface Water Name: Monongahela River No. Reaches to Model: 1

- Statewide Criteria
- Great Lakes Criteria
- ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi <sup>2</sup> )*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	037185	31	723	5300			Yes
End of Reach 1	037185	30.62	722.9	5300.1			Yes

Q<sub>7-10</sub>

Location	RMI	LFY (cfs/mi <sup>2</sup> )*	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	31	0.103	550			740	20					146	7		
End of Reach 1	30.62	0.103	550			740	20					146	7		

Q<sub>h</sub>

Location	RMI	LFY (cfs/mi <sup>2</sup> )*	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	31														
End of Reach 1	30.62														



Model Results

Monongahela City STP, NPDES Permit No. PA0025950, Outfall 001

Instructions 
  Results 
 


 All 
  Inputs 
  Results 
  Limits

Hydrodynamics

**Q<sub>7-10</sub>**

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)
31	550		550	2.321	0.00005	20.	740.	37.	0.037	0.622	1178.685
30.62	550		550								

**Q<sub>h</sub>**

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)
31	1845.29		1845.29	2.321	0.00005	34.023	740.	21.75	0.073	0.316	534.375
30.62	1845.295		1845.29								

Wasteload Allocations

AFC

CCT (min):

PMF:

Analysis Hardness (mg/l):

Analysis pH:

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	20,803	
Total Antimony	0	0		0	1,100	1,100	30,512	
Total Arsenic	0	0		0	340	340	9,431	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	582,497	
Total Boron	0	0		0	8,100	8,100	224,677	
Total Cadmium	0	0		0	2,909	3.13	86.9	Chem Translator of 0.928 applied
Total Chromium (III)	0	0		0	776.783	2,458	68,185	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	452	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	2,635	
Total Copper	0	0		0	19.197	20.0	555	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	610	

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	97.263	132	3,666	Chem Translator of 0.736 applied
Total Manganese	0	0	0	N/A	N/A	N/A	
Total Mercury	0	0	0	1.400	1.65	45.7	Chem Translator of 0.85 applied
Total Nickel	0	0	0	644.922	646	17,925	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	6.167	7.26	201	Chem Translator of 0.85 applied
Total Thallium	0	0	0	65	65.0	1,803	
Total Zinc	0	0	0	161.477	165	4,580	Chem Translator of 0.978 applied
Acrolein	0	0	0	3	3.0	83.2	
Acrylamide	0	0	0	N/A	N/A	N/A	
Acrylonitrile	0	0	0	650	650	18,030	
Benzene	0	0	0	640	640	17,752	
Bromoform	0	0	0	1,800	1,800	49,928	
Carbon Tetrachloride	0	0	0	2,800	2,800	77,666	
Chlorobenzene	0	0	0	1,200	1,200	33,286	
Chlorodibromomethane	0	0	0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0	0	18,000	18,000	499,283	
Chloroform	0	0	0	1,900	1,900	52,702	
Dichlorobromomethane	0	0	0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0	0	15,000	15,000	416,069	
1,1-Dichloroethylene	0	0	0	7,500	7,500	208,034	
1,2-Dichloropropane	0	0	0	11,000	11,000	305,117	
Ethylbenzene	0	0	0	2,900	2,900	80,440	
Methyl Bromide	0	0	0	550	550	15,256	
Methyl Chloride	0	0	0	28,000	28,000	776,662	
Methylene Chloride	0	0	0	12,000	12,000	332,855	
1,1,2,2-Tetrachloroethane	0	0	0	1,000	1,000	27,738	
Tetrachloroethylene	0	0	0	700	700	19,417	
Toluene	0	0	0	1,700	1,700	47,154	
1,2-trans-Dichloroethylene	0	0	0	6,800	6,800	188,618	
1,1,1-Trichloroethane	0	0	0	3,000	3,000	83,214	
1,1,2-Trichloroethane	0	0	0	3,400	3,400	94,309	
Trichloroethylene	0	0	0	2,300	2,300	63,797	
Vinyl Chloride	0	0	0	N/A	N/A	N/A	
2-Chlorophenol	0	0	0	560	560	15,533	
2,4-Dichlorophenol	0	0	0	1,700	1,700	47,154	
2,4-Dimethylphenol	0	0	0	660	660	18,307	
4,6-Dinitro-o-Cresol	0	0	0	80	80.0	2,219	
2,4-Dinitrophenol	0	0	0	660	660	18,307	
2-Nitrophenol	0	0	0	8,000	8,000	221,903	
4-Nitrophenol	0	0	0	2,300	2,300	63,797	
p-Chloro-m-Cresol	0	0	0	160	160	4,438	
Pentachlorophenol	0	0	0	8.723	8.72	242	
2,4,6-Trichlorophenol	0	0	0	460	460	12,759	
Acenaphthene	0	0	0	83	83.0	2,302	

Anthracene	0	0	0	N/A	N/A	N/A	
Benzidine	0	0	0	300	300	8,321	
Benzo(a)Anthracene	0	0	0	0.5	0.5	13.9	
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	832,138	
Bis(2-Chloroisopropyl)Ether	0	0	0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0	0	4,500	4,500	124,821	
4-Bromophenyl Phenyl Ether	0	0	0	270	270	7,489	
Butyl Benzyl Phthalate	0	0	0	140	140	3,883	
2-Chloronaphthalene	0	0	0	N/A	N/A	N/A	
Chrysene	0	0	0	N/A	N/A	N/A	
Dibenzo(a,h)Anthracene	0	0	0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0	0	820	820	22,745	
1,3-Dichlorobenzene	0	0	0	350	350	9,708	
1,4-Dichlorobenzene	0	0	0	730	730	20,249	
3,3-Dichlorobenzidine	0	0	0	N/A	N/A	N/A	
Diethyl Phthalate	0	0	0	4,000	4,000	110,952	
Dimethyl Phthalate	0	0	0	2,500	2,500	69,345	
Di-n-Butyl Phthalate	0	0	0	110	110	3,051	
2,4-Dinitrotoluene	0	0	0	1,600	1,600	44,381	
2,6-Dinitrotoluene	0	0	0	990	990	27,461	
1,2-Diphenylhydrazine	0	0	0	15	15.0	416	
Fluoranthene	0	0	0	200	200	5,548	
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	277	
Hexachlorocyclopentadiene	0	0	0	5	5.0	139	
Hexachloroethane	0	0	0	60	60.0	1,664	
Indeno(1,2,3-cd)Pyrene	0	0	0	N/A	N/A	N/A	
Isophorone	0	0	0	10,000	10,000	277,379	
Naphthalene	0	0	0	140	140	3,883	
Nitrobenzene	0	0	0	4,000	4,000	110,952	
n-Nitrosodimethylamine	0	0	0	17,000	17,000	471,545	
n-Nitrosodi-n-Propylamine	0	0	0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0	0	300	300	8,321	
Phenanthrene	0	0	0	5	5.0	139	
Pyrene	0	0	0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0	0	130	130	3,606	

**CFC**      CCT (min):       PMF:       Analysis Hardness (mg/l):       Analysis pH:

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	40,974	
Total Arsenic	0	0		0	150	150	27,937	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	763,608	
Total Boron	0	0		0	1,600	1,600	297,993	
Total Cadmium	0	0		0	0.320	0.36	66.7	Chem Translator of 0.893 applied
Total Chromium (III)	0	0		0	101.043	117	21,882	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	1,936	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	3,539	
Total Copper	0	0		0	12.375	12.9	2,401	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	968	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	357,027	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	3,790	5,15	959	Chem Translator of 0.736 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	169	Chem Translator of 0.85 applied
Total Nickel	0	0		0	71.631	71.8	13,381	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	929	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	2,421	
Total Zinc	0	0		0	162,798	165	30,751	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	559	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	130	130	24,212	
Benzene	0	0		0	130	130	24,212	
Bromoform	0	0		0	370	370	68,911	
Carbon Tetrachloride	0	0		0	560	560	104,298	
Chlorobenzene	0	0		0	240	240	44,699	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	651,860	
Chloroform	0	0		0	390	390	72,636	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	577,362	
1,1-Dichloroethylene	0	0		0	1,500	1,500	279,369	
1,2-Dichloropropane	0	0		0	2,200	2,200	409,741	
Ethylbenzene	0	0		0	580	580	108,023	
Methyl Bromide	0	0		0	110	110	20,487	
Methyl Chloride	0	0		0	5,500	5,500	1,024,352	
Methylene Chloride	0	0		0	2,400	2,400	446,990	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	39,112	
Tetrachloroethylene	0	0		0	140	140	26,074	
Toluene	0	0		0	330	330	61,461	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	260,744	

1,1,1-Trichloroethane	0	0		0	610	610	113,610	
1,1,2-Trichloroethane	0	0		0	680	680	126,647	
Trichloroethylene	0	0		0	450	450	83,811	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	20,487	
2,4-Dichlorophenol	0	0		0	340	340	63,324	
2,4-Dimethylphenol	0	0		0	130	130	24,212	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	2,980	
2,4-Dinitrophenol	0	0		0	130	130	24,212	
2-Nitrophenol	0	0		0	1,600	1,600	297,993	
4-Nitrophenol	0	0		0	470	470	87,536	
p-Chloro-m-Cresol	0	0		0	500	500	93,123	
Pentachlorophenol	0	0		0	6.693	6.69	1,246	
2,4,6-Trichlorophenol	0	0		0	91	91.0	16,948	
Acenaphthene	0	0		0	17	17.0	3,166	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	10,989	
Benzo(a)Anthracene	0	0		0	0.1	0.1	18.6	
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	1,117,475	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	169,484	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	10,057	
Butyl Benzyl Phthalate	0	0		0	35	35.0	6,519	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthracene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	29,799	
1,3-Dichlorobenzene	0	0		0	69	69.0	12,851	
1,4-Dichlorobenzene	0	0		0	150	150	27,937	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	148,997	
Dimethyl Phthalate	0	0		0	500	500	93,123	
Di-n-Butyl Phthalate	0	0		0	21	21.0	3,911	
2,4-Dinitrotoluene	0	0		0	320	320	59,599	
2,6-Dinitrotoluene	0	0		0	200	200	37,249	
1,2-Diphenylhydrazine	0	0		0	3	3.0	559	
Fluoranthene	0	0		0	40	40.0	7,450	
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	372	
Hexachlorocyclopentadiene	0	0		0	1	1.0	186	
Hexachloroethane	0	0		0	12	12.0	2,235	

Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A
Isophorone	0	0		0	2,100	2,100	391,116
Naphthalene	0	0		0	43	43.0	8,009
Nitrobenzene	0	0		0	810	810	150,859
n-Nitrosodimethylamine	0	0		0	3,400	3,400	633,236
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A
n-Nitrosodiphenylamine	0	0		0	59	59.0	10,989
Phenanthrene	0	0		0	1	1.0	186
Pyrene	0	0		0	N/A	N/A	N/A
1,2,4-Trichlorobenzene	0	0		0	26	26.0	4,842

THH      CCT (min):       PMF:       Analysis Hardness (mg/l):       Analysis pH:

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	1,043	
Total Arsenic	0	0		0	10	10.0	1,862	
Total Barium	0	0		0	2,400	2,400	446,990	
Total Boron	0	0		0	3,100	3,100	577,362	
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	745	
Dissolved Iron	0	0		0	300	300	55,874	
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	186,246	
Total Mercury	0	0		0	0.050	0.05	9.31	
Total Nickel	0	0		0	610	610	113,610	
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	44.7	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	559	
Acrylamide	0	0		0	N/A	N/A	N/A	
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	18,625
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	1,062
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	6,146
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A
Ethylbenzene	0	0		0	68	68.0	12,665
Methyl Bromide	0	0		0	100	100.0	18,625
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	10,616
1,2-trans-Dichloroethylene	0	0		0	100	100.0	18,625
1,1,1-Trichloroethane	0	0		0	10,000	10,000	1,862,458
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	5,587
2,4-Dichlorophenol	0	0		0	10	10.0	1,862
2,4-Dimethylphenol	0	0		0	100	100.0	18,625
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	372
2,4-Dinitrophenol	0	0		0	10	10.0	1,862
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
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A
Acenaphthene	0	0		0	70	70.0	13,037
Anthracene	0	0		0	300	300	55,874
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	37,249
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	18.6
2-Chloronaphthalene	0	0		0	800	800	148,997
Chrysene	0	0		0	N/A	N/A	N/A

Dibenzo(a,h)Anthracene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	186,246	
1,3-Dichlorobenzene	0	0		0	7	7.0	1,304	
1,4-Dichlorobenzene	0	0		0	300	300	55,874	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	111,747	
Dimethyl Phthalate	0	0		0	2,000	2,000	372,492	
Di-n-Butyl Phthalate	0	0		0	20	20.0	3,725	
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	3,725	
Fluorene	0	0		0	50	50.0	9,312	
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	745	
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	6,332	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	1,862	
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	3,725	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	13.0	

**CRL** CCT (min):  PMF:  Analysis Hardness (mg/l):  Analysis pH:

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
Acrylamide	0	0		0	0.07	0.07	55.7
Acrylonitrile	0	0		0	0.06	0.06	47.8
Benzene	0	0		0	0.58	0.58	462
Bromoform	0	0		0	7	7.0	5,574
Carbon Tetrachloride	0	0		0	0.4	0.4	318
Chlorobenzene	0	0		0	N/A	N/A	N/A
Chlorodibromomethane	0	0		0	0.8	0.8	637
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	756
1,2-Dichloroethane	0	0		0	9.9	9.9	7,883
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A
1,2-Dichloropropane	0	0		0	0.9	0.9	717
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	15,924
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	159
Tetrachloroethylene	0	0		0	10	10.0	7,962
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	438
Trichloroethylene	0	0		0	0.6	0.6	478
Vinyl Chloride	0	0		0	0.02	0.02	15.9
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	23.9
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	1,194
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	0.08
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.8
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.08
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.8
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	7.96
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	23.9
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	255
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	95.5
Dibenzo(a,h)Anthracene	0	0		0	0.0001	0.0001	0.08
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	39.8
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	39.8
2,6-Dinitrotoluene	0	0		0	0.05	0.05	39.8
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	23.9
Fluoranthene	0	0		0	N/A	N/A	N/A
Fluorene	0	0		0	N/A	N/A	N/A
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.064
Hexachlorobutadiene	0	0		0	0.01	0.01	7.96
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A
Hexachloroethane	0	0		0	0.1	0.1	79.6
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.8
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	0.56
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	3.98
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	2,628
Phenanthrene	0	0		0	N/A	N/A	N/A
Pyrene	0	0		0	N/A	N/A	N/A
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A

Recommended WQBELs & Monitoring Requirements

No. Samples/Month: **4**

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Copper	4.45	6.94	0.36	0.55	0.89	mg/L	0.36	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	36.7	57.3	2.94	4.58	7.34	mg/L	2.94	AFC	Discharge Conc ≥ 50% WQBEL (RP)

Other Pollutants without Limits or Monitoring

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

Pollutants	Governing WQBEL	Units	Comments
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	13,334	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	1,043	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	1,862	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	373,357	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	144,009	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	55.7	µg/L	Discharge Conc < TQL
Total Chromium (III)	21,882	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	290	µg/L	Discharge Conc < TQL
Total Cobalt	1,689	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	391	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	55,874	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	357,027	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	959	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	186,246	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	9.31	µg/L	Discharge Conc < TQL
Total Nickel	11,489	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	929	µg/L	Discharge Conc < TQL
Total Silver	129	µg/L	Discharge Conc < TQL
Total Thallium	44.7	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	53.3	µg/L	Discharge Conc < TQL
Acrylamide	55.7	µg/L	Discharge Conc ≤ 25% WQBEL

Acrylonitrile	47.8	µg/L	Discharge Conc < TQL
Benzene	462	µg/L	Discharge Conc < TQL
Bromoform	5,574	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	318	µg/L	Discharge Conc < TQL
Chlorobenzene	18,625	µg/L	Discharge Conc < TQL
Chlorodibromomethane	637	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	320,020	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroform	1,062	µg/L	Discharge Conc < TQL
Dichlorobromomethane	756	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	7,883	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	6,146	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	717	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	12,665	µg/L	Discharge Conc < TQL
Methyl Bromide	9,778	µg/L	Discharge Conc < TQL
Methyl Chloride	497,809	µg/L	Discharge Conc < TQL
Methylene Chloride	15,924	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	159	µg/L	Discharge Conc < TQL
Tetrachloroethylene	7,962	µg/L	Discharge Conc < TQL
Toluene	10,616	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	18,625	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	53,337	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	438	µg/L	Discharge Conc < TQL
Trichloroethylene	478	µg/L	Discharge Conc < TQL
Vinyl Chloride	15.9	µg/L	Discharge Conc < TQL
2-Chlorophenol	5,587	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dichlorophenol	1,862	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dimethylphenol	11,734	µg/L	Discharge Conc ≤ 25% WQBEL
4,6-Dinitro-o-Cresol	372	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	1,862	µg/L	Discharge Conc < TQL
2-Nitrophenol	142,231	µg/L	Discharge Conc ≤ 25% WQBEL
4-Nitrophenol	40,891	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	2,845	µg/L	Discharge Conc ≤ 25% WQBEL
Pentachlorophenol	23.9	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	1,194	µg/L	Discharge Conc ≤ 25% WQBEL
Acenaphthene	1,476	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	55,874	µg/L	Discharge Conc < TQL
Benzidine	0.08	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.8	µg/L	Discharge Conc ≤ 25% WQBEL
Benzo(a)Pyrene	0.08	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.8	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS

Benzo(k)Fluoranthene	7.96	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	23.9	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	37,249	µg/L	Discharge Conc ≤ 25% WQBEL
Bis(2-Ethylhexyl)Phthalate	255	µg/L	Discharge Conc ≤ 25% WQBEL
4-Bromophenyl Phenyl Ether	4,800	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	18.6	µg/L	Discharge Conc ≤ 25% WQBEL
2-Chloronaphthalene	148,997	µg/L	Discharge Conc ≤ 25% WQBEL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	95.5	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthracene	0.08	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	14,579	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichlorobenzene	1,304	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dichlorobenzene	12,979	µg/L	Discharge Conc ≤ 25% WQBEL
3,3-Dichlorobenzidine	39.8	µg/L	Discharge Conc < TQL
Diethyl Phthalate	71,116	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	44,447	µg/L	Discharge Conc ≤ 25% WQBEL
Di-n-Butyl Phthalate	1,956	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dinitrotoluene	39.8	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	39.8	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	23.9	µg/L	Discharge Conc < TQL
Fluoranthene	3,556	µg/L	Discharge Conc < TQL
Fluorene	9,312	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.064	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	7.96	µg/L	Discharge Conc ≤ 25% WQBEL
Hexachlorocyclopentadiene	88.9	µg/L	Discharge Conc < TQL
Hexachloroethane	79.6	µg/L	Discharge Conc ≤ 25% WQBEL
Indeno(1,2,3-cd)Pyrene	0.8	µg/L	Discharge Conc < TQL
Isophorone	6,332	µg/L	Discharge Conc ≤ 25% WQBEL
Naphthalene	2,489	µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	1,862	µg/L	Discharge Conc ≤ 25% WQBEL
n-Nitrosodimethylamine	0.56	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	3.98	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	2,628	µg/L	Discharge Conc < TQL
Phenanthrene	88.9	µg/L	Discharge Conc ≤ 25% WQBEL
Pyrene	3,725	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	13.0	µg/L	Discharge Conc ≤ 25% WQBEL

# Attachment 7

## WET Tests

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet						
Type of Test	Acute		Facility Name	Municipal Authority of the City of Monongahela		
Species Tested	Ceriodaphnia		Permit No.	PA0025950		
Endpoint	Survival					
TIWC (decimal)	0.31					
No. Per Replicate	10					
TST b value	0.8					
TST alpha value	0.1					
Test Completion Date			Test Completion Date			
Replicate	12/20/2014		Replicate	11/20/2015		
No.	Control	TIWC	No.	Control	TIWC	
1	1	1	1	1	1	
2	1	1	2	1	1	
3	1	1	3	1	1	
4	1	1	4	1	1	
5	1	1	5	1	1	
6			6			
7			7			
8			8			
9			9			
10			10			
11			11			
12			12			
13			13			
14			14			
15			15			
Mean	1.000	1.000	Mean	1.000	1.000	
Std Dev.	0.000	0.000	Std Dev.	0.000	0.000	
# Replicates	5	5	# Replicates	5	5	
T-Test Result			T-Test Result			
Deg. of Freedom			Deg. of Freedom			
Critical T Value			Critical T Value			
Pass or Fail	PASS		Pass or Fail	PASS		
Test Completion Date			Test Completion Date			
Replicate	11/12/2016		Replicate	11/19/2017		
No.	Control	TIWC	No.	Control	TIWC	
1	1	1	1	1	1	
2	1	1	2	1	1	
3	1	1	3	1	1	
4	1	0.8	4	1	1	
5	1	1	5	1	1	
6			6			
7			7			
8			8			
9			9			
10			10			
11			11			
12			12			
13			13			
14			14			
15			15			
Mean	1.000	0.960	Mean	1.000	1.000	
Std Dev.	0.000	0.089	Std Dev.	0.000	0.000	
# Replicates	5	5	# Replicates	5	5	
T-Test Result	8.1944		T-Test Result			
Deg. of Freedom	4		Deg. of Freedom			
Critical T Value	1.5332		Critical T Value			
Pass or Fail	PASS		Pass or Fail	PASS		

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet						
Type of Test	Acute		Facility Name	Municipal Authority of the City of Monongahela		
Species Tested	Pimephales		Permit No.	PA0025950		
Endpoint	Survival					
TIWC (decimal)	0.31					
No. Per Replicate	10					
TST b value	0.8					
TST alpha value	0.1					
<b>Test Completion Date</b>			<b>Test Completion Date</b>			
Replicate	12/22/2014		Replicate	11/22/2015		
No.	Control	TIWC	No.	Control	TIWC	
1	1	1	1	1	1	
2	1	1	2	1	1	
3	1	0.9	3	1	1	
4	0.9	1	4	1	1	
5			5			
6			6			
7			7			
8			8			
9			9			
10			10			
11			11			
12			12			
13			13			
14			14			
15			15			
Mean	0.975	0.975	Mean	1.000	1.000	
Std Dev.	0.050	0.050	Std Dev.	0.000	0.000	
# Replicates	4	4	# Replicates	4	4	
T-Test Result	11.6270		T-Test Result			
Deg. of Freedom	5		Deg. of Freedom			
Critical T Value	1.4759		Critical T Value			
Pass or Fail	PASS		Pass or Fail	PASS		
<b>Test Completion Date</b>			<b>Test Completion Date</b>			
Replicate	11/14/2016		Replicate	11/21/2017		
No.	Control	TIWC	No.	Control	TIWC	
1	1	1	1	0.8	0.8	
2	1	1	2	0.9	1	
3	1	1	3	1	1	
4	0.9	1	4	0.9	1	
5			5			
6			6			
7			7			
8			8			
9			9			
10			10			
11			11			
12			12			
13			13			
14			14			
15			15			
Mean	0.975	1.000	Mean	0.900	0.950	
Std Dev.	0.050	0.000	Std Dev.	0.082	0.100	
# Replicates	4	4	# Replicates	4	4	
T-Test Result	19.8623		T-Test Result	6.6434		
Deg. of Freedom	3		Deg. of Freedom	5		
Critical T Value	1.6377		Critical T Value	1.4759		
Pass or Fail	PASS		Pass or Fail	PASS		

**WET Summary and Evaluation**

<b>Facility Name</b>	Mon City STP
<b>Permit No.</b>	PA0025950
<b>Design Flow (MGD)</b>	1.5
<b>Q<sub>7-10</sub> Flow (cfs)</b>	550
<b>PMF<sub>a</sub></b>	0.113
<b>PMF<sub>c</sub></b>	0.782

Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Ceriodaphnia	Survival	12/20/14	11/20/15	11/12/16	11/19/17
		PASS	PASS	PASS	PASS

Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Pimephales	Survival	12/22/14	11/22/15	11/14/16	11/21/17
		PASS	PASS	PASS	PASS

Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date

Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date

Reasonable Potential? NO

**Permit Recommendations**

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