pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0218081**
Facility Type	**Industrial**	APS ID	**1108974**
Major / Minor	**Minor**	Authorization ID	**1475907**

NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

Applicant and Facility Information

Applicant Name	**Whemco Steel Castings Inc.**	Facility Name	**WHEMCO Steel Castings Inc.**
Applicant Address	601 West 7th Avenue	Facility Address	601 West 7th Avenue
	Homestead, PA 15120-1064		Homestead, PA 15120-1064
Applicant Contact	Christopher Coholich	Facility Contact	Same as applicant
Applicant Phone	(412) 390-2711	Facility Phone	Same as applicant
Applicant email	ccoholich@whemco.com	Applicant email	Same as applicant
Client ID	216968	Site ID	501839
SIC Code	3547	Municipality	West Homestead Borough
SIC Description	Manufacturing - Rolling Mill Machinery	County	Allegheny
Date Application Received	March 1, 2024	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Renewal NPDES Permit Coverage

Summary of Review

On March 1, 2024, on behalf of Whemco Steel Castings Inc, SE Technologies submitted an application to renew the NPDES Permit PA0218081 for their machining, heat treating and finishing of cast steel rolls facility. The Facility has a SIC Code of 3547 (Rolling mill machinery) and North American Industry Classification System Code of 333519 (Rolling mill and other metalworking machinery manufacturing).

The permit was initially effective from January 1, 2000, to December 30, 2004, replacing the General Permit PAR116114. It approved discharges from 14 outfalls (001-014). A Water Quality Management (WQM) permit was requested for the quench water treatment equipment.

On March 30, 2000, WHEMCO submitted a WQM permit application for an existing treatment system managing wastewaters from a spray quench process, which had not been previously permitted. WQM Permit 0200203 was issued on July 5, 2000, to modify the existing treatment system to better treat batches of quench water from the mill heat treat operations.

The permit was amended on August 10, 2000, resulting in the removal of Outfalls 002, 009, 010, 011, 012, and 013. This change was made because Outfalls 002, 009, 010, 011, and 012 were found to discharge into ALCOSAN's sanitary combined sewer, while Outfall 013 discharged into storm sewer lines that ultimately flowed into stormwater Outfall 003.

The permit has been renewed twice more, with new effective periods of:

- November 1, 2005 to October 31, 2010
- September 1, 2019 to August 31, 2024

Approve	Deny	Signatures	Date
X		Angela Rohrer / Environmental Engineering Specialist	July 15, 2024
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	August 30, 2024

Summary of Review

WHEMCO machines, fits and erects metal parts and produces mill rolls and machine tools at the West Homestead Plant. The equipment used for these purposes includes lathes, boring mills, planers, shapers, grinders, heat treat furnaces and welders.

The facility is sited on 36.6 acres located in the Borough of West Homestead and the City of Pittsburgh, Allegheny County, Pennsylvania. All the industrial activities are conducted in buildings constructed on the property. The buildings cover approximately 16 acres and the remainder of the property is currently vacant. Most of the vacant area is grassed.

The industrial activities conducted at the West Homestead Plant are conducted in two buildings. One of the buildings is located at the extreme west end of the property and is known as the Hays Plant. The only activity conducted at the Hays Plant is heat treating. The other building is located at the eastern end of the property and is known as the Homestead Plant. All the machining, fitting and erecting performed at the facility is performed at the Homestead Plant. In addition, the Homestead Plant is also equipped to perform and performs some heat treating. There is only one process water discharge from the Facility, namely Roll Quench Wastewater. Mill rolls that are heat treated at the Hays Plant are cooled on a rig that spins the rolls as potable water is applied through sprays.

The NPDES permit authorizes discharges through seven Outfalls, which are detailed in the table below.

Outfall	Name of receiving water	Wastewater or stormwater description
001	West Run (WWF)	Receives stormwater from the roof drains and surface flow on the northeast section of Building 1.
003	Monongahela River (WWF)	Receives stormwater from the roof drains and surface flow on the southeast section of Building 1.
004	Streets Run (WWF)	Receives stormwater from the roof drains on the northern side of Building 2.
005	Streets Run (WWF)	Receives stormwater from the roof drains and surface flow from the northeast side of the Building 2.
006	Streets Run (WWF)	Receives non-contact cooling water from sealus furnace bearings, and contact cooling water from IMP 106 during the quenching process and incidental bearing water.
IMP 106	Outfall 006 (Streets Run)	Receives contact cooling water from the quenching of the steel rolls, and incidental bearing water.
008	Streets Run (WWF)	Receives stormwater from the roof drains and surface flow from the eastern side of the Building 2.
014	Streets Run (WWF)	Receives stormwater from the roof drains and surface flow from the southeastern side of the Building 2.

The site was last inspected on July 27, 2022, no violations were noted.

The permittee has no open violations.

It is recommended that a Draft NPDES Permit be published for public comment in response to this application.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0
Latitude	40º 24' 11"	Longitude	-79º 55' 08"
Quad Name	Pittsburgh East	Quad Code	1506
Wastewater Description:	Stormwater		
Receiving Waters	West Run (WWF)	Stream Code	37199
NHD Com ID	134839896	RMI	0.34
Drainage Area	1.51	Yield (cfs/mi^2)	0.0086
Q_{7-10} Flow (cfs)	0.013	Q_{7-10} Basis	USGS Streamstats
Elevation (ft)	747	Slope (ft/ft)	0.0001
Watershed No.	19-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Siltation		
Source(s) of Impairment	Acid Mine Drainage		
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	PA American Water Co-Pittsburgh (69 MGD)		
PWS Waters	Monongahela River	Flow at Intake (cfs)	1,230
PWS RMI	4.76	Distance from Outfall (mi)	2.52

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	003	Design Flow (MGD)	0
Latitude	40º 23' 52"	Longitude	-79º 55' 33"
Quad Name	Pittsburgh East	Quad Code	1506
Wastewater Description:	Stormwater		
Receiving Waters	Monongahela River (WWF)	Stream Code	37185
NHD Com ID	99407732	RMI	6.69
Drainage Area	7,350	Yield (cfs/mi^2)	0.167
Q_{7-10} Flow (cfs)	1,230	Q_{7-10} Basis	U.S. Army Corps of Engineers
Elevation (ft)	755	Slope (ft/ft)	0.0001
Watershed No.	19-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens, Polychlorinated Biphenyls (PCBS)		
Source(s) of Impairment	source unknown		
TMDL Status	Final	Name	Monongahela River TMDL
Nearest Downstream Public Water Supply Intake	PA American Water Co-Pittsburgh (69 MGD)		
PWS Waters	Monongahela River	Flow at Intake (cfs)	1,230
PWS RMI	4.76	Distance from Outfall (mi)	1.93

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	004	Design Flow (MGD)	0
Latitude	40º 23' 33.64"	Longitude	-79º 55' 55.22"
Quad Name	Pittsburgh East	Quad Code	1506
Wastewater Description:	Stormwater		

Receiving Waters	Streets Run (WWF)	Stream Code	37189
NHD Com ID	99407814	RMI	0.42
Drainage Area	9.86	Yield (cfs/mi^2)	0.013
Q_{7-10} Flow (cfs)	0.132	Q_{7-10} Basis	USGS Streamstats
Elevation (ft)	737	Slope (ft/ft)	0.0001
Watershed No.	19-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, Siltation		
Source(s) of Impairment	Acid Mine Drainage, Urban Runoff/Storm Sewers		
TMDL Status	Final	Name	Streets Run

Nearest Downstream Public Water Supply Intake	PA American Water Co-Pittsburgh (69 MGD)		
PWS Waters	Monongahela River	Flow at Intake (cfs)	1,230
PWS RMI	4.76	Distance from Outfall (mi)	1.73

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	005	Design Flow (MGD)	0
Latitude	40º 23' 32"	Longitude	-79º 55' 56"
Quad Name	Pittsburgh East	Quad Code	1506
Wastewater Description:	Stormwater		
Receiving Waters	Streets Run (WWF)	Stream Code	37189
NHD Com ID	99407814	RMI	0.42
Drainage Area	9.86	Yield (cfs/mi^2)	0.013
Q_{7-10} Flow (cfs)	0.132	Q_{7-10} Basis	USGS Streamstats
Elevation (ft)	737	Slope (ft/ft)	0.0001
Watershed No.	19-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, Siltation		
Source(s) of Impairment	Acid Mine Drainage, Urban Runoff/Storm Sewers		
TMDL Status	Final	Name	Streets Run
Nearest Downstream Public Water Supply Intake	PA American Water Co-Pittsburgh (69 MGD)		
PWS Waters	Monongahela River	Flow at Intake (cfs)	1,230
PWS RMI	4.76	Distance from Outfall (mi)	1.73

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	006 (IMP 106)	Design Flow (MGD)	0.057
Latitude	40º 23' 32"	Longitude	-79º 55' 56"
Quad Name	Pittsburgh East	Quad Code	1506
Wastewater Description:	Non-contact cooling water and contact cooling water		
Receiving Waters	Streets Run (WWF)	Stream Code	37189
NHD Com ID	99407814	RMI	0.42
Drainage Area	9.86	Yield (cfs/mi^2)	0.013
Q_{7-10} Flow (cfs)	0.132	Q_{7-10} Basis	USGS Streamstats
Elevation (ft)	737	Slope (ft/ft)	0.0001
Watershed No.	19-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, Siltation		
Source(s) of Impairment	Acid Mine Drainage, Urban Runoff/Storm Sewers		
TMDL Status	Final	Name	Streets Run
Nearest Downstream Public Water Supply Intake	PA American Water Co-Pittsburgh (69 MGD)		
PWS Waters	Monongahela River	Flow at Intake (cfs)	1,230
PWS RMI	4.76	Distance from Outfall (mi)	1.73

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	008	Design Flow (MGD)	0
Latitude	40º 23' 31"	Longitude	-79º 55' 56"
Quad Name	Pittsburgh East	Quad Code	1506
Wastewater Description:	Stormwater		
Receiving Waters	Streets Run (WWF)	Stream Code	37189
NHD Com ID	99407814	RMI	0.42
Drainage Area	9.86	Yield (cfs/mi^2)	0.013
Q_{7-10} Flow (cfs)	0.132	Q_{7-10} Basis	USGS Streamstats
Elevation (ft)	737	Slope (ft/ft)	0.0001
Watershed No.	19-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, Siltation		
Source(s) of Impairment	Acid Mine Drainage, Urban Runoff/Storm Sewers		
TMDL Status	Final	Name	Streets Run
Nearest Downstream Public Water Supply Intake	PA American Water Co-Pittsburgh (69 MGD)		
PWS Waters	Monongahela River	Flow at Intake (cfs)	1,230
PWS RMI	4.76	Distance from Outfall (mi)	1.73

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	014	Design Flow (MGD)	0
Latitude	40º 23' 32"	Longitude	-79º 55' 56"
Quad Name	Pittsburgh East	Quad Code	1506
Wastewater Description:	Stormwater		
Receiving Waters	Streets Run (WWF)	Stream Code	37189
NHD Com ID	99407814	RMI	0.42
Drainage Area	9.86	Yield (cfs/mi^2)	0.013
Q_{7-10} Flow (cfs)	0.132	Q_{7-10} Basis	USGS Streamstats
Elevation (ft)	737	Slope (ft/ft)	0.0001
Watershed No.	19-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, Siltation		
Source(s) of Impairment	Acid Mine Drainage, Urban Runoff/Storm Sewers		
TMDL Status	Final	Name	Streets Run
Nearest Downstream Public Water Supply Intake	PA American Water Co-Pittsburgh (69 MGD)		
PWS Waters	Monongahela River	Flow at Intake (cfs)	1,230
PWS RMI	4.76	Distance from Outfall (mi)	1.73

Changes Since Last Permit Issuance:

Other Comments:

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.0 (varied)
Latitude 40º 24' 11" **Longitude** -79º 55' 08"
Wastewater Description: Stormwater

Technology-Based Limitations

Stormwater Technology Limits

Outfall 001 will be subject to PAG-03 General Stormwater Permit conditions as a minimum requirement because the outfall discharges stormwater associated with industrial activity. The SIC code for the site is 3547 (Rolling mill machinery) and the corresponding appendix of the PAG-03 that would apply to the facility is Appendix U (Industrial Machinery and equipment). The reporting requirements applicable to stormwater discharges are shown in Table 1 below. Along with the monitoring requirements, sector specific BMPs included in Appendix U of the PAG-03 will also be included in Part C of the Draft Permit.

Table 1. PAG-03 Appendix (U) Monitoring Requirements

Parameter	Max Daily Concentration	Benchmark Value Mg/L
Total Nitrogen (mg/L)	Monitor and Report	XXX
Total Phosphorus (mg/L)	Monitor and Report	XXX
pH (S.U)	Monitor and Report	9.0
Total Suspended Solids (TSS) (mg/L)	Monitor and Report	100
Oil and Grease (mg/L)	Monitor and Report	30
Nitrate + Nitrite-Nitrogen (mg/L)	Monitor and Report	3.0
Total Aluminum (mg/L)	Monitor and Report	XXX
Total Iron (mg/L)	Monitor and Report	XXX
Total Zinc (mg/L)	Monitor and Report	XXX

Water Quality-Based Limitations

Stormwater WQBELs

Water quality analyses are typically performed under low-flow (Q7-10) conditions. Stormwater discharges occur at variable rates and frequencies but not however during Q7-10 conditions. Since the discharge from Outfall 001 is composed entirely of stormwater, a formal water quality analysis cannot be accurately conducted. Accordingly, water quality-based effluent limitations based on water quality analyses are not proposed.

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l) and are displayed below in Table 2. These limitations are currently imposed on Outfall 001.

Table 2. Current Effluent Limitation at Outfall 001

Parameter	Max Daily Concentration	Measurement Frequency	Sample Type
pH	Report	1/6 months	Grab
Total Suspended Solids	Report	1/6 months	Grab
Oil and Grease	Report	1/6 months	Grab
Zinc, Total	Report	1/6 months	Grab

Proposed Effluent Limitations and Monitoring Requirements

Outfall 001 will be subject to the semi-annual monitoring requirements in Appendix U of the PAG-03 General Permit. The proposed effluent monitoring requirements for Outfall 001 are displayed in Table 3 below. A Part C condition is included in the Draft Permit requiring development and submission of a Corrective Action Plan whenever there are two or more consecutive exceedances of the benchmark values, which are also included in the Part C condition. The benchmark values are also displayed below in Table 3. These values are not effluent limitations, an exceedance of the benchmark value is not a violation. As described above, if there are two consecutive exceedances of the benchmark value, a Corrective Action Plan must be conducted to evaluate site stormwater controls and BMPs. Benchmark monitoring is a feedback tool, along with routine inspections and visual assessments, for assessing the effectiveness of stormwater controls and BMPs. An exceedance of the benchmark provides permittees with an indication that the facility's controls may not be sufficiently controlling pollutants in stormwater.

Table 3: Proposed Effluent Limitation at Outfall 001

Parameters	Mass (lb/day)		Concentration (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
pH (S.U)	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Suspended Solids (TSS)	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Nitrate + Nitrite-Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Calculation
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Zinc	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab

Development of Effluent Limitations

Outfall No.	003	**Design Flow (MGD)**	0.0 (varied)
Latitude	40º 23' 52"	**Longitude**	-79º 55' 33"
Wastewater Description:	Stormwater		

Technology-Based Limitations

Stormwater Technology Limits

Outfall 003 will be subject to PAG-03 General Stormwater Permit conditions as a minimum requirement because the outfall discharges stormwater associated with industrial activity. The SIC code for the site is 3547 (Rolling mill machinery) and the corresponding appendix of the PAG-03 that would apply to the facility is Appendix U (Industrial Machinery and equipment). The reporting requirements applicable to stormwater discharges are shown in Table ***1***4 below. Along with the monitoring requirements, sector specific BMPs included in Appendix U of the PAG-03 will also be included in Part C of the Draft Permit.

Table 4: PAG-03 Appendix (U) Monitoring Requirements

Parameter	Max Daily Concentration	Benchmark Value Mg/L
Total Nitrogen (mg/L)	Monitor and Report	XXX
Total Phosphorus (mg/L)	Monitor and Report	XXX
pH (S.U)	Monitor and Report	9.0
Total Suspended Solids (TSS) (mg/L)	Monitor and Report	100
Oil and Grease (mg/L)	Monitor and Report	30
Nitrate + Nitrite-Nitrogen (mg/L)	Monitor and Report	3.0
Total Aluminum (mg/L)	Monitor and Report	XXX
Total Iron (mg/L)	Monitor and Report	XXX
Total Zinc (mg/L)	Monitor and Report	XXX

Water Quality-Based Limitations

Stormwater WQBELs

Water quality analyses are typically performed under low-flow (Q7-10) conditions. Stormwater discharges occur at variable rates and frequencies but not however during Q7-10 conditions. Since the discharge from Outfall 003 is composed entirely of stormwater, a formal water quality analysis cannot be accurately conducted. Accordingly, water quality-based effluent limitations based on water quality analyses are not proposed.

Total Maximum Daily Load (TMDL)

Stormwater discharges from Whemco Steel Castings are located within the Monongahela River Watershed, for which the Department has developed a TMDL. The Monongahela River Watershed TMDL was finalized on March 1, 1999 to address impairments resulting from PCBs and Chlordane. Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's ("EPA's") Water Quality Planning and Management Regulations (codified at Title 40 of the Code of Federal Regulations Part 130) require states to develop a TMDL for impaired water bodies. A TMDL establishes the amount of a pollutant that a water body can assimilate without exceeding its water quality standard for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and non-point sources to restore and maintain the quality of the state's water resources (USEPA 1991). The Monongahela River Watershed TMDL does not include a waste load allocation for Whemco Steel Castings and the facility does not discharge PCBs or Chlordane. Water quality criteria for the TMDL watershed does not apply to the stormwater discharges from Whemco Steel Castings.

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l) and are displayed below in Table 5. These limitations are currently imposed on Outfall 003.

Table 5: Current Effluent Limitation at Outfall 003

Parameter	Max Daily Concentration	Measurement Frequency	Sample Type
pH	Report	1/6 months	Grab
Total Suspended Solids	Report	1/6 months	Grab
Oil and Grease	Report	1/6 months	Grab
Zinc, Total	Report	1/6 months	Grab

Proposed Effluent Limitations and Monitoring Requirements

Outfall 003 will be subject to the semi-annual monitoring requirements in Appendix U of the PAG-03 General Permit. The proposed effluent monitoring requirements for Outfall 003 are displayed in Table 6 below. A Part C condition is included in the Draft Permit requiring development and submission of a Corrective Action Plan whenever there are two or more consecutive exceedances of the benchmark values, which are also included in the Part C condition. The benchmark values are also displayed below in Table 6. These values are not effluent limitations, an exceedance of the benchmark value is not a violation. As described above, if there are two consecutive exceedances of the benchmark value, a Corrective Action Plan must be conducted to evaluate site stormwater controls and BMPs. Benchmark monitoring is a feedback tool, along with routine inspections and visual assessments, for assessing the effectiveness of stormwater controls and BMPs. An exceedance of the benchmark provides permittees with an indication that the facility's controls may not be sufficiently controlling pollutants in stormwater.

Table 6: Proposed Effluent Limitation at Outfall 003

Parameters	Mass (lb/day)		Concentration (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
pH (S.U)	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Suspended Solids (TSS)	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Nitrate + Nitrite-Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Calculation
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Zinc	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab

Development of Effluent Limitations

Outfall No.	004	**Design Flow (MGD)**	0.0 (varied)
Latitude	40º 23' 33.64"	**Longitude**	-79º 55' 55.22"
Wastewater Description:	Stormwater		

Outfall No.	005	**Design Flow (MGD)**	0.0 (varied)
Latitude	40º 23' 32"	**Longitude**	-79º 55' 56"
Wastewater Description:	Stormwater		

Outfall No.	008	**Design Flow (MGD)**	0.0 (varied)
Latitude	40º 23' 31"	**Longitude**	-79º 55' 56"
Wastewater Description:	Stormwater		

Outfall No.	014	**Design Flow (MGD)**	0.0 (varied)
Latitude	40º 23' 32"	**Longitude**	-79º 55' 56"
Wastewater Description:	Stormwater		

Technology-Based Limitations

Stormwater Technology Limits

Outfalls 004, 005, 008 and 014 will be subject to PAG-03 General Stormwater Permit conditions as a minimum requirement because the outfall discharges stormwater associated with industrial activity. The SIC code for the site is 3547 (Rolling mill machinery) and the corresponding appendix of the PAG-03 that would apply to the facility is Appendix U (Industrial Machinery and equipment). The reporting requirements applicable to stormwater discharges are shown in Table ***1***7 below. Along with the monitoring requirements, sector specific BMPs included in Appendix U of the PAG-03 will also be included in Part C of the Draft Permit.

Table 7: PAG-03 Appendix (U) Monitoring Requirements

Parameter	Max Daily Concentration	Benchmark Value mg/L
Total Nitrogen (mg/L)	Monitor and Report	XXX
Total Phosphorus (mg/L)	Monitor and Report	XXX
pH (S.U)	Monitor and Report	9.0
Total Suspended Solids (TSS) (mg/L)	Monitor and Report	100
Oil and Grease (mg/L)	Monitor and Report	30
Nitrate + Nitrite-Nitrogen (mg/L)	Monitor and Report	3.0
Total Aluminum (mg/L)	Monitor and Report	XXX
Total Iron (mg/L)	Monitor and Report	XXX
Total Zinc (mg/L)	Monitor and Report	XXX

Water Quality-Based Limitations

Stormwater WQBELs

Water quality analyses are typically performed under low-flow (Q7-10) conditions. Stormwater discharges occur at variable rates and frequencies but not however during Q7-10 conditions. Since the discharge from Outfalls 004, 005, 008 and 014 is composed entirely of stormwater, a formal water quality analysis cannot be accurately conducted. Accordingly, water quality-based effluent limitations based on water quality analyses are not proposed.

Total Maximum Daily Load (TMDL)

The discharges from Outfalls 004, 005, 008 and 014 are located within the Streets Run Watershed for which the Department has developed a TMDL. The TMDL was finalized in February 2009 and establishes waste load allocations for the discharge of aluminum and iron within the Streets Run Watershed. Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's Water Quality Planning and Management Regulations (codified at Title 40 of the *Code of Federal Regulations* Part 130) require states to develop a TMDL for impaired water bodies. A TMDL establishes the amount of a pollutant that a water body can assimilate without exceeding the water quality criteria for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and non-point sources in order to restore and maintain the quality of the state's water resources (USEPA 1991a). Stream reaches within the Streets Run Watershed are included in the state's Section 303(d) list because of various impairments, including metals, pH and sediment. The TMDL does not include a specific waste load allocation for these Outfalls. Allocations were provided only for IMP 106. Therefore, only monitor and report for aluminum and iron will be imposed at Outfalls 003, 004, 005, 008 and 014.

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l) and are displayed below in Table 8.

Table 8: Current Effluent Limitation at Outfalls 004, 005, 008 and 014

Parameter	Max Daily Concentration	Measurement Frequency	Sample Type
pH	Report	1/6 months	Grab
Total Suspended Solids	Report	1/6 months	Grab
Oil and Grease	Report	1/6 months	Grab
Zinc, Total	Report	1/6 months	Grab

Proposed Effluent Limitations and Monitoring Requirements

Outfalls 004, 005, 008 and 014 will be subject to the semi-annual monitoring requirements in Appendix U of the PAG-03 General Permit. The proposed effluent monitoring requirements for Outfalls 004, 005, 008 and 014 are displayed in Table 9 below. A Part C condition is included in the Draft Permit requiring development and submission of a Corrective Action Plan whenever there are two or more consecutive exceedances of the benchmark values, which are also included in the Part C condition. The benchmark values are also displayed below in Table 6. These values are not effluent limitations, an exceedance of the benchmark value is not a violation. As described above, if there are two consecutive exceedances of the benchmark value, a Corrective Action Plan must be conducted to evaluate site stormwater controls and BMPs. Benchmark monitoring is a feedback tool, along with routine inspections and visual assessments, for assessing the effectiveness of stormwater controls and BMPs. An exceedance of the benchmark provides permittees with an indication that the facility's controls may not be sufficiently controlling pollutants in stormwater.

Table 9: Proposed Effluent Limitation at Outfalls 004, 005, 008 and 014

Parameters	Mass (lb/day)		Concentration (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
pH (S.U)	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Suspended Solids (TSS)	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Nitrate + Nitrite-Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Calculation
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Zinc	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab

Development of Effluent Limitations

Outfall No.	006 (IMP 106)	**Design Flow (MGD)**	0.057
Latitude	40º 23' 32"	**Longitude**	-79º 55' 56"

Wastewater Description: Non-contact cooling water and contact cooling water

Technology-Based Effluent Limitations (TBELs)

Whemco Steel Castings is not subject to Federal Effluent Limitation Guidelines (ELGs).

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1).

Temperature limits will be imposed per the Department's "*Implementation Guidance for Temperature Criteria*." As a policy, DEP normally imposes a maximum temperature limit of 110°F on discharges that contain residual heat. The limit is intended as a safety measure to protect sampling personnel or anyone who may come into contact with the heated discharge where it enters the receiving water.

Pennsylvania regulations at 25 Pa. Code § 92a.48(b) require the imposition of technology-based TRC limits for facilities that use chlorination and that are not already subject to TRC limits based on applicable federal ELGs or a facility-specific BPJ evaluation. Total residual chlorine levels were detected in the effluent at 1.1 mg/L. Therefore, effluent limitations/monitoring of TRC will be required.

Effluent standards for pH are also imposed on industrial wastes by 25 Pa. Code § 95.2(1) as indicated in Table 10.

Table 10: Regulatory Effluent Standards and Monitoring Requirements for Outfall 006

Parameter	Monthly Average	Daily Maximum	IMAX	Units
Flow	Monitor and Report		XXX	MGD
Temperature	XXX	XXX	110	°F
Total Residual Chlorine (TRC)	0.5	XXX	1.6	mg/L
pH	Not less than 6.0 nor greater than 9.0			S.U.

Oil and Grease

In accordance with Section I.C.2 of DEP's "Standard Operating Procedure (SOP) for Clean Water Program – Establishing Effluent Limitations for Individual Industrial Permits" [SOP No. BCW-PMT-032] and under the authority of 25 Pa. Code § 95.2(2)(ii), DEP has determined that if the maximum concentration of Oil and Grease in the discharge is 4 mg/L or greater, monitoring requirement should be established. The concentration reported in the application for Oil and Grease at Outfall 006 is 4.1 mg/L, therefore, monthly reporting of Oil and Grease will be required.

Per- and Polyfluoroalkyl Substances (PFAS)

In February 2024, DEP implemented a new monitoring initiative for PFAS consistent with an EPA memorandum that provides guidance to states for addressing PFAS discharges. PFAS are a family of thousands of synthetic organic chemicals that contain a chain of strong carbon-fluorine bonds. Many PFAS are highly stable, water- and oil-resistant, and exhibit other properties that make them useful in a variety of consumer products and industrial processes. PFAS are resistant to biodegradation, photooxidation, direct photolysis, and hydrolysis and do not readily degrade naturally; thus, many PFAS accumulate over time. According to the United States Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR), the environmental persistence and mobility of some PFAS, combined with decades of widespread use, have resulted in their presence in surface water, groundwater, drinking water, rainwater, soil, sediment, ice caps, outdoor and indoor air, plants, animal tissue, and human blood serum across the globe. ATSDR also reported that exposure to certain PFAS can lead to adverse human health impacts Due to their durability, toxicity, persistence, and pervasiveness, PFAS have emerged as potentially significant pollutants of concern.

In accordance with Section II.I of DEP's "Standard Operating Procedure (SOP) for Clean Water Program – Establishing Effluent Limitations for Individual Industrial Permits" [SOP No. BCW-PMT-032] and under the authority of 25 Pa. Code § 92a.61(b), DEP has determined that monitoring for a subset of common/well-studied PFAS including Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer

acid (HFPO-DA) is necessary to help understand the extent of environmental contamination by PFAS in the Commonwealth and the extent to which point source dischargers are contributors. SOP BCW-PMT-032 directs permit writers to consider special monitoring requirements for PFOA, PFOS, PFBS, and HFPO-DA in the following instances:

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

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

c. In all cases the application manager will include a condition in the permit that the permittee may cease monitoring for PFOA, PFOS, HFPO-DA and PFBS when the permittee reports non-detect values at or below the Target QL for four consecutive monitoring periods for each PFAS parameter that is analyzed. Use the following language: The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detects at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees should enter a No Discharge Indicator (NODI) Code of “GG” on DMRs.

WHEMCO Steel Castings’ application was submitted after the NPDES permit application forms were updated to require sampling for PFOA, PFOS, PFBS, and HFPO-DA, however, the Department provided 6-month grace period for use of the old application forms. According to EPA’s guidance, WHEMCO Steel Castings does not operate in one of the industries EPA expects to be a source for PFAS. Therefore, annual reporting of PFOA, PFOS, PFBS, and HFPO-DA will be required consistent with Section II.I.b of SOP BCW-PMT-032.

As stated in Section II.I.c of the SOP, if non-detect values at or below DEP’s Target QLs are reported for four consecutive monitoring periods (i.e., four consecutive annual results in USHHS, CDC, NIOSH Pittsburgh’s case), then the monitoring may be discontinued.

Water Quality-Based Effluent Limitations

Total Maximum Daily Load TMDL

The discharges from Outfall 006 are located within the Streets Run Watershed for which the Department has developed a TMDL. The TMDL was finalized in February 2009 and establishes waste load allocations for the discharge of aluminum and iron within the Streets Run Watershed. Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency’s Water Quality Planning and Management Regulations (codified at Title 40 of the *Code of Federal Regulations* Part 130) require states to develop a TMDL for impaired water bodies. A TMDL establishes the amount of a pollutant that a water body can assimilate without exceeding the water quality criteria for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and non-point sources in order to restore and maintain the quality of the state’s water resources (USEPA 1991a). Stream reaches within the Streets Run Watershed are included in the state’s Section 303(d) list because of various impairments, including metals, pH and sediment. The TMDL does not include a specific waste load allocation for this Outfall. Allocations were provided only for the IMP 106.

Toxics Management Spread Sheet

The Department of Environmental Protection (DEP) has developed the DEP Toxics Management Spreadsheet (“TMS”) to facilitate calculations necessary for completing a reasonable potential (RP) analysis and determining water quality-based effluent limitations for discharges of toxic pollutants. The Toxics Management Spreadsheet is a macro-enabled Excel binary file that combines the functions of the PENTOXSD model and the Toxics Screening Analysis spreadsheet to evaluate the reasonable potential for discharges to cause excursions above water quality standards and to determine WQBELs. The Toxics Management Spread Sheet is a single discharge, this-balance water quality calculation spread sheet that includes consideration for mixing, first-order decay and other factors to determine recommended WQBELs for toxic substances and several non-toxic substances. Required input data including stream code, river mile index, elevation, drainage area, discharge name, NPDES permit number, discharge flow rate and the discharge concentrations for parameters in the permit application or in DMRs, which are entered into the spread sheet to establish site-specific discharge conditions. Other data

such as low flow yield, reach dimensions and partial mix factors may also be entered to further characterize the conditions of the discharge and receiving water. Discharge concentrations for the parameters are chosen to represent the "worst case" quality of the discharge (i.e., maximum reported discharge concentrations). The spread sheet then evaluates each parameter by computing a Waste Load Allocation for each applicable criterion, determining a recommended maximum WQBEL and comparing that recommended WQBEL with the input discharge concentration to determine which is more stringent. Based on this evaluation, the Toxics Management Spread sheet recommends average monthly and maximum daily WQBELs.

Reasonable Potential Analysis and WQBEL Development for Outfall 006

Discharges from Outfall 006 are evaluated based on concentrations reported on the application and on the DMRs; data from those sources are entered into the Toxics Management Spread Sheet. The maximum reported value of the parameters from the application form or from previous DMRs is used as the input concentration in the Toxics Management Spread Sheet. All toxic pollutants whose maximum concentrations, as reported in the permit application or on DMRs, are greater than the most stringent applicable water quality criterion are considered to be pollutants of concern. [This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion]. The Toxics Management Spread Sheet is run with the discharge and receiving stream characteristics shown in Table 11. For IW discharges, the design flow used in modeling is the average flow during production or operation taken from the permit application. Pollutants for which water quality standards have not been promulgated (e.g., TSS, oil and grease) are excluded from the analysis. All the parameters are evaluated using the model to determine the water quality-based effluent limits applicable to the discharge and the receiving stream. The spreadsheet then compares the reported discharge concentrations to the calculated water quality-based effluent limitations to determine if a reasonable potential exists to exceed the calculated WQBELs. Effluent limitations are established in the draft permit where a pollutant's maximum reported discharge concentration equals or exceeds 50% of the WQBEL. For non-conservative pollutants, monitoring requirements are established where the maximum reported concentration is between 25% - 50% of the WQBEL. For conservative pollutants, monitoring requirements are established where the maximum reported concentration is between 10% - 50% of the WQBEL. The information described above including the maximum reported discharge concentrations, the most stringent water quality criteria, the pollutant-of-concern (reasonable potential) determinations, the calculated WQBELs, and the WQBEL/monitoring recommendations are displayed in the Toxics Management Spread Sheet in Attachment C of this Fact Sheet.

Table 11: TMS Inputs for Outfall 006

Parameter	**Value**
River Mile Index	0.42
Discharge Flow (MGD)	0.057
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	9.86
Q_{7-10} (cfs)	0.132
Low-flow yield (cfs/mi^2)	0.013
Elevation (ft)	737
Slope	0.0001

The Toxics Management Spread Sheet indicates that new WQBELs are needed for Total Copper, Total Zinc, Acrolein, Acrylonitrile, Chloroform, Dichlorobromethane, and Bis (2-Ethylhexyl) Phthalate.

Table 12. Water Quality Based Effluent Limitation (WQBELs) at Outfall 006

Parameter	Mass Limits		Concentration Limits			Discharge Concentrations (µg/L)	Target QLs (µg/L)
	Average Monthly (lb/day)	Maximum Daily (lb/day)	Average Monthly (µg/L)	Maximum Daily (µg/L)	IMAX (µg/L)		
Total Copper	0.008	0.012	16.3	25.4	40.7	8.8	4.0
Total Zinc	0.068	0.11	142	222	356	190.0	5.0
Acrolein	0.002	0.003	4.4	6.87	11.0	<16.0	2.0
Acrylonitrile	0.0004	0.0007	0.92	1.44	2.3	<7.80	5.0
Chloroform	0.007	0.011	14.2	22.2	35.6	12.0	0.5
Bis (2-Ethylhexyl) Phthalate	0.002	0.004	4.91	7.67	12.3	<7.1	5.0
Dichlorobromethane	Report	Report	Report	Report	-	3.7	0.5

The calculated water quality-based effluent limits (WQBELs) for Acrylonitrile and Bis (2-Ethylhexyl) Phthalate are necessary to comply with state water quality standards but may be less than quantitation limits (QLs), as defined in 25 Pa. Code § 252.1, that are generally achievable by conventional analytical technology. The permittee shall analyze the parameter(s) using methods that will achieve the Department Target QL(s). For the purpose of compliance, a statistical value reported on the DMR that is less than the QL(s) (i.e., “non-detect”) will be considered to be in compliance.

Outfall 006 received WQBELs (Water Quality-Based Effluent Limits) for Acrolein, Acrylonitrile, and Bis(2-Ethylhexyl) Phthalate, despite being non-detectable. This is because the analytical method used had a high reporting limit, making it uncertain whether these compounds are present in the discharge at concentrations that would require WQBELs.

During the 30-days comment period, the Department will allow Whemco Steel Castings Inc to resample the discharge, and have the samples analyzed for Acrolein, Acrylonitrile, and Bis(2-Ethylhexyl) Phthalate using a quantitation limit (QL) that is no greater than the Target QLs identified. DEP will re-evaluate the need for WQBELs and reporting requirements for these parameters based on any new analytical results.

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 discharge chlorine demands for the receiving stream, the number of samples taken per month, coefficients of TRC variability, partial mix factors, and an optional factor of safety. The mass balance model calculates WLAs for acute and chronic criteria that are then converted to long term averages using calculated multipliers. The multipliers are functions of the number of samples taken per month and the TRC variability coefficients (normally kept at default values unless site specific information is available). The most stringent limitation between the acute and chronic long-term averages is converted to an average monthly limit for comparison to the BAT average monthly limit of 0.5 mg/L from 25 Pa. Code § 92a.48(b)(2). The more stringent of these average monthly TRC limitations is then proposed. The results of the modeling, included in Attachment D, indicate that average monthly limits of 0.123 mg/L and daily maximum limits of 0.646 mg/L are required for TRC.

Table 13. TRC limits from TRC_CALC

Parameter	Monthly Avg (mg/L)	Daily Max (mg/L)
Total Residual Chlorine	0.276	0.646

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l) and are displayed below in Table 14. These limitations are currently imposed on Outfall 006. Monitoring for Total Iron was previously imposed based on the TMDL for Streets Run. A monthly average mass loading limit of 1.17 lb/day was established for Outfall 006.

Table 14: Current Limitations at Outfall 006

Parameter	Mass Units (lb/day)		Concentrations (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
Flow (MGD)	Report	-	-	-	-	-	2/month	Measured
pH (S.U.)	-	-	6.0	-	-	9.0	2/month	Grab
Temperature (°F)	-	-	-	Report	-	110[a]	2/month	I-S
Total Iron (mg/L)	1.17	-	-	-	-	-	2/month	Grab

[a]*The temperature is associated with the maximum design flow 0.057 MGD. The temperature must be kept at or below 110°F at all time.*

Proposed Effluent Limitations and Monitoring Requirements

The proposed interim effluent monitoring requirements and proposed final effluent limitations and monitoring requirements for Outfall 006 are displayed in Tables 15 and 16 below, they are the most stringent values from the above effluent limitation development.

Effluent Limitation Compliance Schedule

Whenever the Department proposes the imposition of water quality based effluent limitations on existing sources, the NPDES permit may include a schedule of compliance to achieve the WQBELs. Any compliance schedule contained in an NPDES permit must be an "enforceable sequence of actions or operations leading to compliance with the water quality-based effluent limitations ("WQBELs"). In accordance with 40 CFR 122.47(a)(3) and PA Code, Chapter 92a.51, compliance schedules that are longer than one year in duration must set forth interim requirements and dates for their achievement. In order to grant a compliance schedule in an NPDES permit, the permitting authority has to make a reasonable finding, adequately supported by the administrative record and described in the fact sheet, that a compliance schedule is "appropriate" and that compliance with the final WQBEL is required "as soon as possible".

In this case, Whemco Steel Castings Inc. may be unable to meet the proposed effluent limits at Outfall 006 for Total Residual Chlorine, Total Copper, Total Zinc, Acrolein, Acrylonitrile, Chloroform and Bis(2-Ethylhexyl) Phthalate based on the current discharge concentrations of this pollutants. Monitoring for Total Residual Chlorine, Total Copper, Total Zinc, Acrolein, Acrylonitrile, Chloroform and Bis(2-Ethylhexyl) Phthalate will be imposed for the first three years of coverage. After three years following the permit effective date, the final permit limits will take effect.

Table 25. Proposed Interim Effluent Limitation at Outfall 006

Parameter	Mass Units (lb/day)		Concentrations (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
Flow (MGD)	Report	-	-	-	-	-	2/month	Measured
pH (S.U.)	-	-	6.0	-	-	9.0	2/month	Grab
Total Residual Chlorine (mg/L)	-	-	-	Report	Report	-	2/month	Grab
Temperature (°F)	-	-	-	Report	-	110[a]	2/month	I-S
Oil and Grease	-	-	-	Report	Report	-	2/month	Grab
Total Copper (µg/L)	Report	Report	-	Report	Report	-	2/month	Grab
Total Iron	1.17	-	-	Report	Report	-	2/month	Grab
Total Zinc (µg/L)	Report	Report	-	Report	Report	-	2/month	Grab
Acrolein (µg/L)	Report	Report	-	Report	Report	-	2/month	Grab
Acrylonitrile (µg/L)	Report	Report	-	Report	Report	-	2/month	Grab
Dichlorobromethane (µg/L)	Report	Report	-	Report	Report	-	2/month	Grab
Bis (2-Ethylhexyl) Phthalate (µg/L)	Report	Report	-	Report	Report	-	2/month	Grab
Chloroform (µg/L)	Report	Report	-	Report	Report	-	2/month	Grab
PFOA (ng/L)	-	-	-	-	-	-	1/year	Grab
PFOS (ng/L)	-	-	-	-	-	-	1/year	Grab
PFBS (ng/L)	-	-	-	-	-	-	1/year	Grab
HFPO-DA (ng/L)	-	-	-	-	-	-	1/year	Grab

Table 16: Proposed Final Effluent Limitation at Outfall 006

Parameter	Mass Units (lb/day)		Concentrations (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
Flow (MGD)	Report	-	-	-	-	-	2/month	Measured
pH (S.U.)	-	-	6.0	-	-	9.0	2/month	Grab
Total Residual Chlorine (mg/L)	-	-	-	0.276	0.646	-	2/month	Grab

Parameter	Mass Units (lb/day)		Concentrations (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
Temperature (°F)	-	-	-	Report	-	110[a]	2/month	I-S
Oil and Grease	-	-	-	Report	Report	-	2/month	Grab
Total Copper (µg/L)	0.008	0.012	-	16.3	25.4	-	2/month	Grab
Total Iron	1.17	-	-	Report	Report	-	2/month	Grab
Total Zinc (µg/L)	0.068	0.11	-	142	222	-	2/month	Grab
Acrolein (µg/L)	0.002	0.003	-	4.4	6.87	-	2/month	Grab
Acrylonitrile (µg/L)	0.0004	0.0007	-	0.92	1.44	-	2/month	Grab
Dichlorobromethane (µg/L)	Report	Report	-	Report	Report	-	2/month	Grab
Bis (2-Ethylhexyl) Phthalate (µg/L)	0.002	0.004	-	4.91	7.67	-	2/month	Grab
Chloroform (µg/L)	0.007	0.011	-	14.2	22.2	-	2/month	Grab
PFOA (ng/L)	-	-	-	-	-	-	1/year	Grab
PFOS (ng/L)	-	-	-	-	-	-	1/year	Grab
PFBS (ng/L)	-	-	-	-	-	-	1/year	Grab
HFPO-DA (ng/L)	-	-	-	-	-	-	1/year	Grab

[a]*The temperature is associated with the maximum design flow 0.057 MGD. The temperature must be kept at or below 110°F at all times*

Development of Effluent Limitations

IMP No. 106 **Design Flow (MGD)** 0.057
Latitude 40º 23' 32" **Longitude** -79º 55' 56"
Wastewater Description: Contact cooling water from the quenching of the steel rolls, and incidental bearing water

Technology-Based Effluent limitations:

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1).

Temperature limits will be imposed per the Department's "*Implementation Guidance for Temperature Criteria*." As a policy, DEP normally imposes a maximum temperature limit of 110°F on discharges that contain residual heat. The limit is intended as a safety measure to protect sampling personnel or anyone who may come into contact with the heated discharge where it enters the receiving water.

Effluent standards for pH are also imposed on industrial wastes by 25 Pa. Code § 95.2(1) as indicated in Table 17.

Table 17: Regulatory Effluent Standards and Monitoring Requirements for Outfall 006

Parameter	Monthly Average	Daily Maximum	IMAX	Units
Flow	Monitor and Report		XXX	MGD
Temperature	XXX	XXX	110	°F
pH	Not less than 6.0 nor greater than 9.0			S.U.

Water Quality-Based Effluent limitations:

A toxic pollutant water quality analysis was not conducted for the discharge from IMP 106.

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l) and are displayed below in Table 18. These limitations are currently imposed on IMP 106. The effluent limitations were previously imposed based on the following reasons:

- The effluent limitations for Total Suspended Solids (TSS) and Oil and Grease are established based on Best Professional Judgment (BPJ), derived from a technical review conducted in 1999. These limitations are sourced from the Development Document for Effluent Limitations Guidelines and Standards, specifically for the Iron and Steel Manufacturing industry, Hot Forming subcategory.
- Total Iron effluent limitation was imposed based on the TMDL for Streets Run.
- pH was removed from the permit because the DMRs showed that the values virtually replicated those reported at Outfall 006.

Table 18: Current Limitations at IMP 106

Parameter	Mass Units (lb/day)		Concentrations (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
Total Suspended Solids	-	-	-	15.0	40.0	-	2/month	Grab
Oil and Grease	-	-	-	-	10.0	-	2/month	Grab
Iron, Total	-	-	-	3.4	6.8	-	2/month	Grab

Proposed Final Effluent Limitations

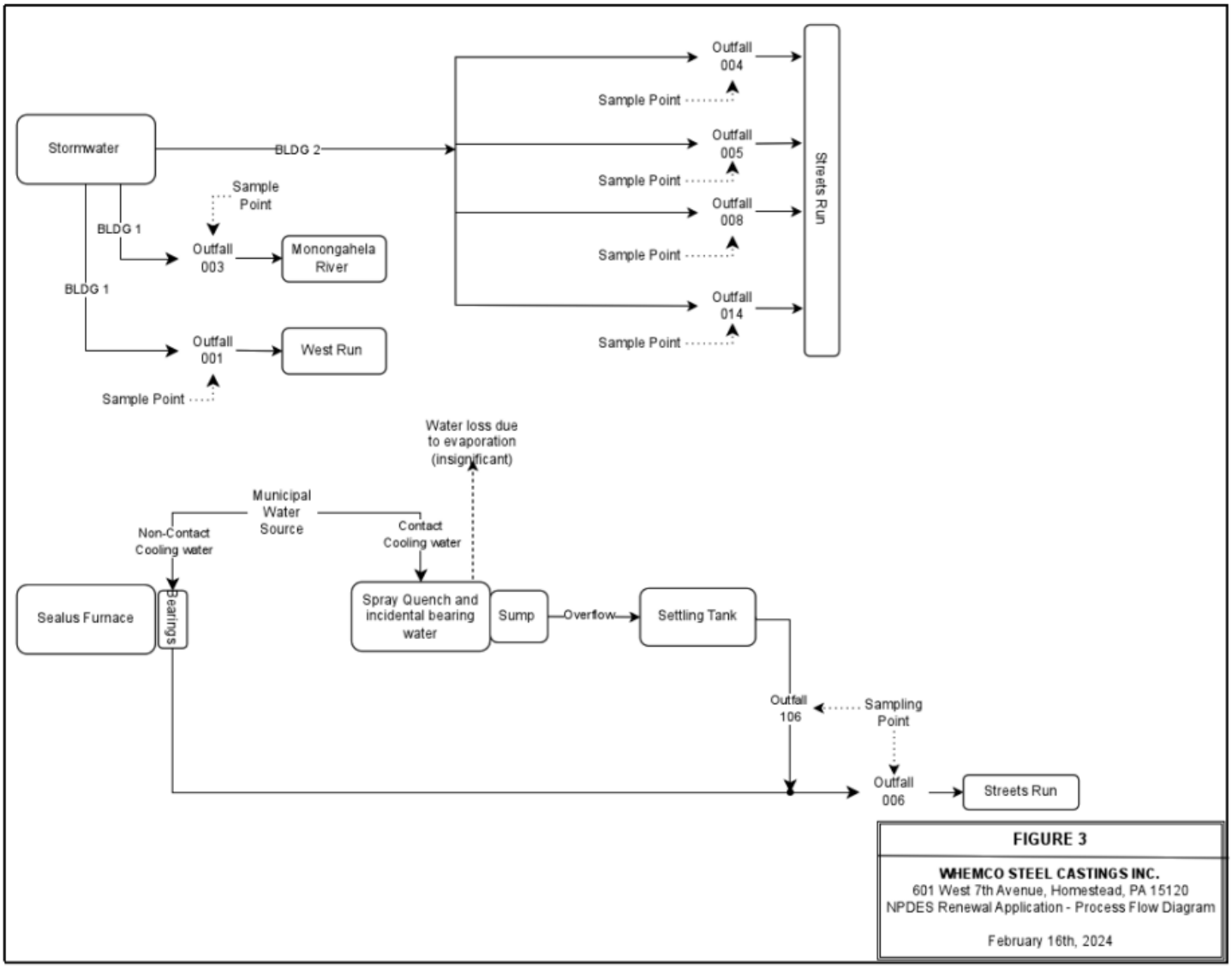
The proposed effluent monitoring requirements for IMP 106 are displayed in Table 19 below, they are the most stringent values from the above effluent limitation development.

Table 19: Proposed Effluent Monitoring Requirements at IMP 106

Parameter	Mass Units (lb/day)		Concentrations (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
Flow (MGD)	Report	-	-	-	-	-	2/month	Measured
Total Suspended Solids	-	-	-	15.0	40.0	-	2/month	Grab
Oil and Grease	-	-	-	-	10.0	-	2/month	Grab
Iron, Total	-	-	-	3.4	6.8	-	2/month	Grab

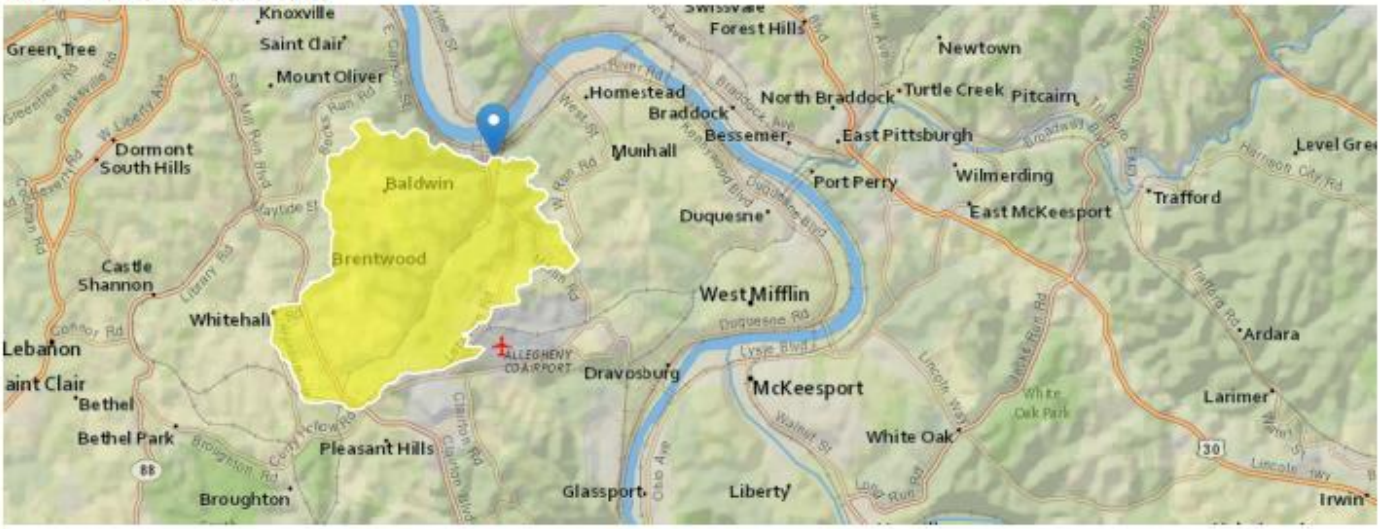
Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment C)
☒	TRC Model Spreadsheet (see Attachment D)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

ATTACHMENT A.
Water Flow Diagram


Stormwater
BLDG 2
BLDG 1
BLDG 1
Sample Point
Outfall 003
Monongahela River
Outfall 001
West Run
Sample Point
Outfall 004
Sample Point
Outfall 005
Sample Point
Outfall 008
Sample Point
Outfall 014
Sample Point
Streets Run
Water loss due to evaporation (insignificant)
Municipal Water Source
Non-Contact Cooling water
Contact Cooling water
Sealus Furnace
Bearings
Spray Quench and incidental bearing water
Sump
Overflow
Settling Tank
Outfall 106
Sampling Point
Outfall 006
Streets Run
FIGURE 3
WHEMCO STEEL CASTINGS INC.
601 West 7th Avenue, Homestead, PA 15120
NPDES Renewal Application - Process Flow Diagram
February 16th, 2024

ATTACHMENT B
StreamStats Report

Region ID: PA
Workspace ID: PA20240726190710178000
Clicked Point (Latitude, Longitude): 40.39247, -79.93277
Time: 2024-07-26 15:07:32 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	0	percent
DRNAREA	Area that drains to a point on a stream	9.86	square miles
ELEV	Mean Basin Elevation	1104	feet
FOREST	Percentage of area covered by forest	34.4012	percent
PRECIP	Mean Annual Precipitation	38	inches
URBAN	Percentage of basin with urban development	54.4905	percent

Base Flow Statistics

Base Flow Statistics Parameters [Statewide Mean and Base Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	9.86	square miles	2.26	1720
PRECIP	Mean Annual Precipitation	38	inches	33.1	50.4
CARBON	Percent Carbonate	0	percent	0	99
FOREST	Percent Forest	34.4012	percent	5.1	100
URBAN	Percent Urban	54.4905	percent	0	89

Base Flow Statistics Flow Report [Statewide Mean and Base Flow]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct (other -- see report)

Statistic	Value	Unit	SE	ASEp
Base Flow 10 Year Recurrence Interval	3.9	ft^3/s	21	21

Statistic	Value	Unit	SE	ASEp
Base Flow 25 Year Recurrence Interval	3.46	ft^3/s	21	21
Base Flow 50 Year Recurrence Interval	3.21	ft^3/s	23	23

Base 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/)

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	9.86	square miles	2.26	1400
ELEV	Mean Basin Elevation	1104	feet	1050	2580

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

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	0.355	ft^3/s	43	43
30 Day 2 Year Low Flow	0.613	ft^3/s	38	38
7 Day 10 Year Low Flow	0.132	ft^3/s	66	66
30 Day 10 Year Low Flow	0.236	ft^3/s	54	54
90 Day 10 Year Low Flow	0.424	ft^3/s	41	41

Low-Flow Statistics Citations

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

Application Version: 4.21.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

ATTACHMENT C.
Toxics Management Spreadsheet Results for Outfall 006

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Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Whemco Steel Castings, Inc** NPDES Permit No.: **PA0218081** Outfall No.: **006**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Pressure filter backwash**

Discharge Characteristics									
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.057	89	8.33						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		210									
	Chloride (PWS)	mg/L		53									
	Bromide	mg/L		0.5									
	Sulfate (PWS)	mg/L		48									
	Fluoride (PWS)	mg/L		0.6									
Group 2	Total Aluminum	µg/L	<	0.12									
	Total Antimony	µg/L	<	2									
	Total Arsenic	µg/L	<	0.68									
	Total Barium	µg/L		24									
	Total Beryllium	µg/L	<	0.12									
	Total Boron	µg/L		36									
	Total Cadmium	µg/L	<	0.15									
	Total Chromium (III)	µg/L		0.69									
	Hexavalent Chromium	µg/L		0.35									
	Total Cobalt	µg/L		0.45									
	Total Copper	µg/L		8.8									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		8.9									
	Dissolved Iron	µg/L		51									
	Total Iron	µg/L		310									
	Total Lead	µg/L		0.19									
	Total Manganese	µg/L		25									
	Total Mercury	µg/L	<	0.13									
	Total Nickel	µg/L		8.8									
	Total Phenols (Phenolics) (PWS)	µg/L		16									
	Total Selenium	µg/L	<	0.28									
	Total Silver	µg/L	<	0.1									
	Total Thallium	µg/L	<	0.13									
	Total Zinc	µg/L		190									
	Total Molybdenum	µg/L		500									
	Acrolein	µg/L	<	16									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	7.8									
	Benzene	µg/L	<	0.6									
	Bromoform	µg/L	<	0.98									
	Carbon Tetrachloride	µg/L	<	0.88									
	Chlorobenzene	µg/L	<	0.5									
	Chlorodibromomethane	µg/L	<	1.7									
	Chloroethane	µg/L	<	0.9									
	2-Chloroethyl Vinyl Ether	µg/L	<	1.7									

Group 3	Chloroform	µg/L		12									
	Dichlorobromomethane	µg/L	<	3.7									
	1,1-Dichloroethane	µg/L	<	0.63									
	1,2-Dichloroethane	µg/L	<	0.57									
	1,1-Dichloroethylene	µg/L	<	0.55									
	1,2-Dichloropropane	µg/L	<	0.66									
	1,3-Dichloropropylene	µg/L	<	0.58									
	1,4-Dioxane	µg/L	<	43									
	Ethylbenzene	µg/L	<	0.51									
	Methyl Bromide	µg/L	<	0.89									
	Methyl Chloride	µg/L	<	0.9									
	Methylene Chloride	µg/L	<	0.89									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.6									
	Tetrachloroethylene	µg/L	<	0.47									
	Toluene	µg/L	<	0.46									
	1,2-trans-Dichloroethylene	µg/L	<	0.67									
	1,1,1-Trichloroethane	µg/L	<	0.6									
	1,1,2-Trichloroethane	µg/L	<	0.45									
	Trichloroethylene	µg/L	<	0.69									
	Vinyl Chloride	µg/L	<	0.41									
Group 4	2-Chlorophenol	µg/L	<	0.15									
	2,4-Dichlorophenol	µg/L	<	0.06									
	2,4-Dimethylphenol	µg/L	<	0.19									
	4,6-Dinitro-o-Cresol	µg/L	<	1.4									
	2,4-Dinitrophenol	µg/L	<	1.7									
	2-Nitrophenol	µg/L	<	0.22									
	4-Nitrophenol	µg/L	<	1.1									
	p-Chloro-m-Cresol	µg/L	<	1									
	Pentachlorophenol	µg/L	<	0.96									
	Phenol	µg/L	<	0.55									
	2,4,6-Trichlorophenol	µg/L	<	0.25									
Group 5	Acenaphthene	µg/L	<	0.07									
	Acenaphthylene	µg/L	<	0.07									
	Anthracene	µg/L	<	0.06									
	Benzidine	µg/L	<	10									
	Benzo(a)Anthracene	µg/L	<	0.09									
	Benzo(a)Pyrene	µg/L	<	0.06									
	3,4-Benzofluoranthene	µg/L	<	0.11									
	Benzo(ghi)Perylene	µg/L	<	0.08									
	Benzo(k)Fluoranthene	µg/L	<	0.1									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.17									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.05									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.07									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	7									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.36									
	Butyl Benzyl Phthalate	µg/L	<	0.53									
	2-Chloronaphthalene	µg/L	<	0.07									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.25									
	Chrysene	µg/L	<	0.09									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.08									
	1,2-Dichlorobenzene	µg/L	<	0.11									
	1,3-Dichlorobenzene	µg/L	<	0.11									
	1,4-Dichlorobenzene	µg/L	<	0.07									
	3,3-Dichlorobenzidine	µg/L	<	0.66									
	Diethyl Phthalate	µg/L	<	0.64									
	Dimethyl Phthalate	µg/L	<	0.23									
	Di-n-Butyl Phthalate	µg/L		2.6									
	2,4-Dinitrotoluene	µg/L	<	0.4									
	2,6-Dinitrotoluene	µg/L	<	0.2									
	Di-n-Octyl Phthalate	µg/L	<	0.78									
	1,2-Diphenylhydrazine	µg/L	<	0.22									
	Fluoranthene	µg/L		0.07									
	Fluorene	µg/L	<	0.08									
	Hexachlorobenzene	µg/L	<	0.06									
	Hexachlorobutadiene	µg/L	<	0.08									
	Hexachlorocyclopentadiene	µg/L	<	0.56									
	Hexachloroethane	µg/L	<	0.15									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.1									

	Isophorone	µg/L	<	0.21										
	Naphthalene	µg/L	<	0.07										
	Nitrobenzene	µg/L	<	0.57										
	n-Nitrosodimethylamine	µg/L	<	0.08										
	n-Nitrosodi-n-Propylamine	µg/L	<	0.08										
	n-Nitrosodiphenylamine	µg/L	<	0.14										
	Phenanthrene	µg/L	<	0.06										
	Pyrene	µg/L	<	0.06										
	1,2,4-Trichlorobenzene	µg/L	<	0.15										
Group 6	Aldrin	µg/L	<											
	alpha-BHC	µg/L	<											
	beta-BHC	µg/L	<											
	gamma-BHC	µg/L	<											
	delta BHC	µg/L	<											
	Chlordane	µg/L	<											
	4,4-DDT	µg/L	<											
	4,4-DDE	µg/L	<											
	4,4-DDD	µg/L	<											
	Dieldrin	µg/L	<											
	alpha-Endosulfan	µg/L	<											
	beta-Endosulfan	µg/L	<											
	Endosulfan Sulfate	µg/L	<											
	Endrin	µg/L	<											
	Endrin Aldehyde	µg/L	<											
	Heptachlor	µg/L	<											
	Heptachlor Epoxide	µg/L	<											
	PCB-1016	µg/L	<											
	PCB-1221	µg/L	<											
	PCB-1232	µg/L	<											
	PCB-1242	µg/L	<											
	PCB-1248	µg/L	<											
	PCB-1254	µg/L	<											
	PCB-1260	µg/L	<											
	PCBs, Total	µg/L	<											
	Toxaphene	µg/L	<											
	2,3,7,8-TCDD	ng/L	<											
Group 7	Gross Alpha	pCi/L												
	Total Beta	pCi/L	<											
	Radium 226/228	pCi/L	<											
	Total Strontium	µg/L	<											
	Total Uranium	µg/L	<											
	Osmotic Pressure	mOs/kg												

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Whemco Steel Castings, Inc, NPDES Permit No. PA0218081, Outfall 006

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Streets Run**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	037189	0.42	737	10	0.0001		Yes
End of Reach 1	037189	0.1	736	10	0.0001		Yes

Q $_{7\text{-}10}$

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	0.42	0.1	0									69.49	7		
End of Reach 1	0.1	0.1	0												

Q $_{h}$

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	0.42														
End of Reach 1	0.1														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Whemco Steel Castings, Inc, NPDES Permit No. PA0218081, Outfall 006

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.862 Analysis Hardness (mg/l): 78.01 Analysis pH: 7.23

Pollutants	Stream Conc	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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	1,718	
Total Antimony	0	0		0	1,100	1,100	2,519	
Total Arsenic	0	0		0	340	340	779	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	48,090	
Total Boron	0	0		0	8,100	8,100	18,549	
Total Cadmium	0	0		0	1.582	1.66	3.8	Chem Translator of 0.954 applied
Total Chromium (III)	0	0		0	464.905	1,471	3,369	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	37.3	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	218	
Total Copper	0	0		0	10.635	11.1	25.4	Chem Translator of 0.96 applied
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	49.231	59.5	136	Chem Translator of 0.827 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	3.77	Chem Translator of 0.85 applied
Total Nickel	0	0		0	379.509	380	871	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	2.099	2.47	5.65	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	149	
Total Zinc	0	0		0	94.945	97.1	222	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	6.87	
Acrylonitrile	0	0		0	650	650	1,489	
Benzene	0	0		0	640	640	1,466	

Bromoform	0	0		0	1,800	1,800	4,122	
Carbon Tetrachloride	0	0		0	2,800	2,800	6,412	
Chlorobenzene	0	0		0	1,200	1,200	2,748	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	41,220	
Chloroform	0	0		0	1,900	1,900	4,351	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	34,350	
1,1-Dichloroethylene	0	0		0	7,500	7,500	17,175	
1,2-Dichloropropane	0	0		0	11,000	11,000	25,190	
1,3-Dichloropropylene	0	0		0	310	310	710	
Ethylbenzene	0	0		0	2,900	2,900	6,641	
Methyl Bromide	0	0		0	550	550	1,260	
Methyl Chloride	0	0		0	28,000	28,000	64,120	
Methylene Chloride	0	0		0	12,000	12,000	27,480	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	2,290	
Tetrachloroethylene	0	0		0	700	700	1,603	
Toluene	0	0		0	1,700	1,700	3,893	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	15,572	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	6,870	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	7,786	
Trichloroethylene	0	0		0	2,300	2,300	5,267	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	1,282	
2,4-Dichlorophenol	0	0		0	1,700	1,700	3,893	
2,4-Dimethylphenol	0	0		0	660	660	1,511	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	183	
2,4-Dinitrophenol	0	0		0	660	660	1,511	
2-Nitrophenol	0	0		0	8,000	8,000	18,320	
4-Nitrophenol	0	0		0	2,300	2,300	5,267	
p-Chloro-m-Cresol	0	0		0	160	160	366	
Pentachlorophenol	0	0		0	11.034	11.0	25.3	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	1,053	
Acenaphthene	0	0		0	83	83.0	190	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	687	
Benzo(a)Anthracene	0	0		0	0.5	0.5	1.15	
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	68,700	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	10,305	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	618	
Butyl Benzyl Phthalate	0	0		0	140	140	321	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	

Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	1,878	
1,3-Dichlorobenzene	0	0		0	350	350	802	
1,4-Dichlorobenzene	0	0		0	730	730	1,672	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	9,160	
Dimethyl Phthalate	0	0		0	2,500	2,500	5,725	
Di-n-Butyl Phthalate	0	0		0	110	110	252	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	3,664	
2,6-Dinitrotoluene	0	0		0	990	990	2,267	
1,2-Diphenylhydrazine	0	0		0	15	15.0	34.4	
Fluoranthene	0	0		0	200	200	458	
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	22.9	
Hexachlorocyclopentadiene	0	0		0	5	5.0	11.5	
Hexachloroethane	0	0		0	60	60.0	137	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	22,900	
Naphthalene	0	0		0	140	140	321	
Nitrobenzene	0	0		0	4,000	4,000	9,160	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	38,930	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	687	
Phenanthrene	0	0		0	5	5.0	11.5	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	298	

☑ ***CFC*** CCT (min): 20.199 PMF: 1 Analysis Hardness (mg/l): 77.304 Analysis pH: 7.21

Pollutants	Stream Conc	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	
Fluoride (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	549	
Total Arsenic	0	0		0	150	150	375	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	10,238	
Total Boron	0	0		0	1,600	1,600	3,995	
Total Cadmium	0	0		0	0.206	0.22	0.56	Chem Translator of 0.92 applied
Total Chromium (III)	0	0		0	60.026	69.8	174	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	26.0	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	47.4	
Total Copper	0	0		0	7.187	7.49	18.7	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	

Total Iron	0	0		0	1,500	1,500	3,745	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	1.899	2.29	5.72	Chem Translator of 0.829 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	2.26	Chem Translator of 0.85 applied
Total Nickel	0	0		0	41.829	42.0	105	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	12.5	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	32.5	
Total Zinc	0	0		0	94.987	96.3	241	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	7.49	
Acrylonitrile	0	0		0	130	130	325	
Benzene	0	0		0	130	130	325	
Bromoform	0	0		0	370	370	924	
Carbon Tetrachloride	0	0		0	560	560	1,398	
Chlorobenzene	0	0		0	240	240	599	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	8,739	
Chloroform	0	0		0	390	390	974	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	7,741	
1,1-Dichloroethylene	0	0		0	1,500	1,500	3,745	
1,2-Dichloropropane	0	0		0	2,200	2,200	5,493	
1,3-Dichloropropylene	0	0		0	61	61.0	152	
Ethylbenzene	0	0		0	580	580	1,448	
Methyl Bromide	0	0		0	110	110	275	
Methyl Chloride	0	0		0	5,500	5,500	13,733	
Methylene Chloride	0	0		0	2,400	2,400	5,993	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	524	
Tetrachloroethylene	0	0		0	140	140	350	
Toluene	0	0		0	330	330	824	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	3,496	
1,1,1-Trichloroethane	0	0		0	610	610	1,523	
1,1,2-Trichloroethane	0	0		0	680	680	1,698	
Trichloroethylene	0	0		0	450	450	1,124	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	275	
2,4-Dichlorophenol	0	0		0	340	340	849	
2,4-Dimethylphenol	0	0		0	130	130	325	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	40.0	
2,4-Dinitrophenol	0	0		0	130	130	325	
2-Nitrophenol	0	0		0	1,600	1,600	3,995	
4-Nitrophenol	0	0		0	470	470	1,174	
p-Chloro-m-Cresol	0	0		0	500	500	1,248	
Pentachlorophenol	0	0		0	8.465	8.47	21.1	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	227	
Acenaphthene	0	0		0	17	17.0	42.4	
Anthracene	0	0		0	N/A	N/A	N/A	

Benzidine	0	0		0	59	59.0	147	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.25	
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	14,982	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	2,272	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	135	
Butyl Benzyl Phthalate	0	0		0	35	35.0	87.4	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	400	
1,3-Dichlorobenzene	0	0		0	69	69.0	172	
1,4-Dichlorobenzene	0	0		0	150	150	375	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	1,998	
Dimethyl Phthalate	0	0		0	500	500	1,248	
Di-n-Butyl Phthalate	0	0		0	21	21.0	52.4	
2,4-Dinitrotoluene	0	0		0	320	320	799	
2,6-Dinitrotoluene	0	0		0	200	200	499	
1,2-Diphenylhydrazine	0	0		0	3	3.0	7.49	
Fluoranthene	0	0		0	40	40.0	99.9	
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	4.99	
Hexachlorocyclopentadiene	0	0		0	1	1.0	2.5	
Hexachloroethane	0	0		0	12	12.0	30.0	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	5,244	
Naphthalene	0	0		0	43	43.0	107	
Nitrobenzene	0	0		0	810	810	2,023	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	8,490	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	147	
Phenanthrene	0	0		0	1	1.0	2.5	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	64.9	

☑ ***THH*** CCT (min): 20.199 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc	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	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	

Total Antimony	0	0		0	5.6	5.6	14.0	
Total Arsenic	0	0		0	10	10.0	25.0	
Total Barium	0	0		0	2,400	2,400	5,993	
Total Boron	0	0		0	3,100	3,100	7,741	
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	
Dissolved Iron	0	0		0	300	300	749	
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	2,497	
Total Mercury	0	0		0	0.050	0.05	0.12	
Total Nickel	0	0		0	610	610	1,523	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.6	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	7.49	
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	250	
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	14.2	
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	82.4	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	170	
Methyl Bromide	0	0		0	100	100.0	250	
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	142	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	250	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	24,970	
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	74.9	
2,4-Dichlorophenol	0	0		0	10	10.0	25.0	
2,4-Dimethylphenol	0	0		0	100	100.0	250	

4,6-Dinitro-o-Cresol	0	0		0	2	2.0	4.99	
2,4-Dinitrophenol	0	0		0	10	10.0	25.0	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	9,988	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	175	
Anthracene	0	0		0	300	300	749	
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	499	
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	0.25	
2-Chloronaphthalene	0	0		0	800	800	1,998	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	2,497	
1,3-Dichlorobenzene	0	0		0	7	7.0	17.5	
1,4-Dichlorobenzene	0	0		0	300	300	749	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	1,498	
Dimethyl Phthalate	0	0		0	2,000	2,000	4,994	
Di-n-Butyl Phthalate	0	0		0	20	20.0	49.9	
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	49.9	
Fluorene	0	0		0	50	50.0	125	
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	9.99	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	84.9	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	25.0	
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	49.9	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.17	

☑ ***CRL*** CCT (min): 14.811 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc	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	
Fluoride (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	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	0.92	
Benzene	0	0		0	0.58	0.58	8.91	
Bromoform	0	0		0	7	7.0	107	
Carbon Tetrachloride	0	0		0	0.4	0.4	6.14	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	12.3	
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	14.6	
1,2-Dichloroethane	0	0		0	9.9	9.9	152	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	13.8	
1,3-Dichloropropylene	0	0		0	0.27	0.27	4.15	
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	307	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	3.07	

Tetrachloroethylene	0	0		0	10	10.0	154	
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	8.45	
Trichloroethylene	0	0		0	0.6	0.6	9.21	
Vinyl Chloride	0	0		0	0.02	0.02	0.31	
2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	0.030	0.03	0.46	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	23.0	
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	0.002	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.015	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.002	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.015	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.15	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.46	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	4.91	
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	1.84	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.002	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	0.77	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	0.77	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.77	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.46	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.001	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.15	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	1.54	

Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.015	
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	0.011	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.077	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	50.7	
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

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	0.008	0.012	16.3	25.4	40.7	µg/L	16.3	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	0.068	0.11	142	222	356	µg/L	142	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Acrolein	0.002	0.003	4.4	6.87	11.0	µg/L	4.4	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Acrylonitrile	0.0004	0.0007	0.92	1.44	2.3	µg/L	0.92	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Chloroform	0.007	0.011	14.2	22.2	35.6	µg/L	14.2	THH	Discharge Conc ≥ 50% WQBEL (RP)
Dichlorobromomethane	Report	Report	Report	Report	Report	µg/L	14.6	CRL	Discharge Conc > 25% WQBEL (no RP)
Bis(2-Ethylhexyl)Phthalate	0.002	0.004	4.91	7.67	12.3	µg/L	4.91	CRL	Discharge Conc ≥ 50% WQBEL (RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
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
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	N/A	N/A	Discharge Conc < TQL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	5,993	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	3,995	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	0.56	µg/L	Discharge Conc < TQL
Total Chromium (III)	174	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	23.9	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	47.4	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS

Dissolved Iron	749	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	3,745	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	5.72	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	2,497	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.12	µg/L	Discharge Conc < TQL
Total Nickel	105	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	12.5	µg/L	Discharge Conc < TQL
Total Silver	3.62	µg/L	Discharge Conc < TQL
Total Thallium	0.6	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Benzene	8.91	µg/L	Discharge Conc ≤ 25% WQBEL
Bromoform	107	µg/L	Discharge Conc ≤ 25% WQBEL
Carbon Tetrachloride	6.14	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	250	µg/L	Discharge Conc < TQL
Chlorodibromomethane	12.3	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	8,739	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	152	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethylene	82.4	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-Dichloropropane	13.8	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichloropropylene	4.15	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	170	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Bromide	250	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Chloride	13,733	µg/L	Discharge Conc ≤ 25% WQBEL
Methylene Chloride	307	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2,2-Tetrachloroethane	3.07	µg/L	Discharge Conc ≤ 25% WQBEL
Tetrachloroethylene	154	µg/L	Discharge Conc < TQL
Toluene	142	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	250	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,1-Trichloroethane	1,523	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2-Trichloroethane	8.45	µg/L	Discharge Conc < TQL
Trichloroethylene	9.21	µg/L	Discharge Conc ≤ 25% WQBEL
Vinyl Chloride	0.31	µg/L	Discharge Conc < TQL
2-Chlorophenol	74.9	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	25.0	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	250	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	4.99	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	25.0	µg/L	Discharge Conc < TQL
2-Nitrophenol	3,995	µg/L	Discharge Conc < TQL
4-Nitrophenol	1,174	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	235	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.46	µg/L	Discharge Conc < TQL
Phenol	9,988	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	23.0	µg/L	Discharge Conc < TQL
Acenaphthene	42.4	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS

Anthracene	749	µg/L	Discharge Conc < TQL
Benzidine	0.002	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.015	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.002	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.015	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.15	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.46	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	499	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	135	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.25	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	1,998	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	1.84	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.002	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	400	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	17.5	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	375	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	0.77	µg/L	Discharge Conc < TQL
Diethyl Phthalate	1,498	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	1,248	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	49.9	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dinitrotoluene	0.77	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.77	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.46	µg/L	Discharge Conc < TQL
Fluoranthene	49.9	µg/L	Discharge Conc ≤ 25% WQBEL
Fluorene	125	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.001	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.15	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	2.5	µg/L	Discharge Conc < TQL
Hexachloroethane	1.54	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.015	µg/L	Discharge Conc < TQL
Isophorone	84.9	µg/L	Discharge Conc < TQL
Naphthalene	107	µg/L	Discharge Conc < TQL
Nitrobenzene	25.0	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.011	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.077	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	50.7	µg/L	Discharge Conc < TQL
Phenanthrene	2.5	µg/L	Discharge Conc < TQL
Pyrene	49.9	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.17	µg/L	Discharge Conc < TQL

ATTACHMENT D
TRC Modeling Results for Outfall 006

TRC EVALUATION - Outfall 006

0.132	= Q stream (cfs)	0.5	= CV Daily
0.057	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	0.862	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.431	1.3.2.iii	WLA cfc = 0.477
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.160	5.1d	LTA_cfc = 0.277

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.276	AFC
		INST MAX LIMIT (mg/l) = 0.646	

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)**