pennsylvania DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	**NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER**	Application No.	**PA0025844**
Facility Type	**Industrial**		APS ID	**1014926**
Major / Minor	**Minor**		Authorization ID	**1311544**

Applicant and Facility Information

Applicant Name	**USHHS, CDC, NIOSH Pittsburgh**	Facility Name	**Bruceton Research Center**
Applicant Address	626 Cochrans Mill Road PO Box 18070	Facility Address	626 Cochrans Mill Road PO Box 18070
	Pittsburgh, PA 15236-3611		Pittsburgh, PA 15236-3611
Applicant Contact	Ronald Cummings	Facility Contact	Same as Applicant
Applicant Phone	412-386-6681	Facility Phone	Same as Applicant
Applicant Email	rpc6@cdc.gov		Same as Applicant
Client ID	126423	Site ID	249646
SIC Code	9651	Municipality	South Park Township
SIC Description	Public Admin. - Regulation Of Misc. Commercial Sectors	County	Allegheny
Date Application Received	April 1, 2020	EPA Waived?	Yes
Date Application Accepted	December 6, 2023	If No, Reason	

Purpose of Application: Renewal NPDES Permit Coverage

Summary of Review

The Department received an NPDES permit renewal application from the U.S. Department of Health and Human Services, Center for Disease Control and Prevention, National Institute for Occupational Safety and Heath for the Bruceton Research Center on April 1, 2020. The Department then received an updated NPDES permit application and a new Water Quality Management permit application on December 8, 2023 to reflect the proposed remediation project. The remediation project consists of soil and groundwater remediation of a historic waste disposal are by source removal. Onsite groundwater and stormwater that comes into contact with the contamination will be stored, treated, and discharged through an onsite water treatment system.

The Bruceton Research Center (BRC) is comprised of the U.S. Department of Health and Human Services Center for Disease Control, National Institute for Occupational Safety and Health (CDC NIOSH); U.S. Department of Energy National Energy Technology Laboratory (DOE NETL); and the U.S. Department of Labor Mine Safety and Health Administration that occupies NIOSH Property. The site has a SIC code of 8733, Noncommercial Research Organizations.

Since 1910, the U.S. Government has owned the Bruceton Research Site and conducted various research activities under several different agencies. The studies at this research facility included work on explosives compounds, coal analysis, acid mine drainage, and mine equipment design and use. NIOSH-Pittsburgh took over the facility from the Bureau of Mines in 1997.

CDC NIOSH is a federal agency that conducts research on mining health and safety and personal protective equipment. NETL is a U.S. Department of Energy national laboratory that produces technological solutions for America's energy

Approve	Deny	Signatures	Date
X		Adam Olesnanik, P.E. / Environmental Engineer	April 26, 2024
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	May 3, 2024

Summary of Review

challenges. From developing creative innovations and efficient energy systems that make coal more competitive, to advancing technologies that enhance oil and natural gas extraction and transmission processes.

BRC covers an area of 238 acres of hilly ground varying in elevation between 910 feet and 1,160 feet above sea level. The land slopes from west to east and is characterized by a number of steep-sided gullies oriented west to east. All stormwater drainage discharges into Lick Run, the nearest water body. CDC owns 175.3 acres and DOE NETL owns 59.7 acres.

The primary objective and mission of NIOSH Pittsburgh is to conduct research in the areas of mining health and safety and personal protective equipment technology. New projects in these areas are continually being introduced or expanded. Research is conducted in building and the onsite research mine. There are also administrative offices.

The NETL-PGH site is an energy technology research and development laboratory owned and operated by DOE. Facilities include bench-scale projects related to the production of energy from fossil fuels; laboratory facilities for analytical support; and other supporting facilities, such as a boiler room, garage, etc. Site support contractors provide technical and engineering support to DOE projects areas, including Geological and Environmental Systems; Materials Engineering and Manufacturing; Energy Conversion Engineering; systems Engineering and Analysis; and Computational Science and Engineering. Various solid and hazardous wastes are generated from laboratory facilities and site maintenance activities that require proper handling, transport and in-transit storage. Ultimately these require treatment, storage, and disposal in an environmentally acceptable manner in compliance with applicable federal, state, and local laws and regulation. Research activities at NETL-PGH generate wastewater primarily from laboratory sinks and floor drain, air conditioner, and compressor condensate, boiler blow down, and non-contact cooling water. These wastewater streams are directed to the site’s wastewater treatment facility before discharge to the Pleasant Hills Authority Municipal Sewage Treatment Plant.

While storage activities vary with the type of research projects occurring, very little outdoor storage occurs. Hazardous waste materials are contained within B-92, the Chemical Handling Facility. There are also twelve permanent dumpsters located around the facility containing different types of wastes. Road salt is stored indoors at a new road salt storage facility that was constructed in the valley fill area. In addition, construction activities occur on a regular basis either as part of research projects or routine maintenance to existing buildings and access roads. These activities required the installation of effective sedimentation control measures and stormwater diversion and detention facilities, when necessary, to prevent stormwater pollution.

There are two identified stormwater outfalls at NETL-PGH, the north outfall (Outfall 001) and the south outfall (Outfall 002). In addition, there are two groundwater discharge outfalls, the north extension outfall (Outfall 003) and the south extension outfall (Outfall 004). The current permit only requires sampling at Outfalls 001 and 002. Significant materials include substances related to industrial activities, such as process chemicals, raw materials, fuels, pesticides, dumpsters, and fertilizers. The site has four additional stormwater outfalls at the CDC NIOSH facilities, identified as SW-2, SW-4, SW-5 and SW-6. These outfalls will be renamed in the permit to be consistent with the Department’s naming convention. SW-2 will be renamed Outfall 005, SW-4 will be renamed Outfall 006, SW-5 will be renamed Outfall 007, and SW-6 will be renamed Outfall 008. The drainage area of Outfall 001 contains office and laboratory buildings where activities are conducted indoors, an outside cage storage area for compressed gases, and a 200-gallon diesel aboveground storage tank. The drainage area of Outfall 002 contains a road salt storage shed, three 1,000-gallon gasoline ASTs, two 1,000-gallon diesel ASTs, office buildings, and maintenance buildings. The drainage areas of Outfalls 003 and 004 are grassy, wooded hillsides where no industrial activities occur. The drainage area of Outfall 005 is a grassy, wooded hillside with a roadway that is closed to traffic. The drainage area of Outfall 006 is a grassy, wooded hillside and a warehouse building where materials are unloaded and stored inside until transferred to other locations. The drainage areas of Outfalls 007 and 008 are grassy, wooded hillsides with an office and laboratory building and parking lots; all work is conducted inside the buildings. The site is proposing to include a new outfall, that will be the discharge from the remediation treatment plant. This outfall was designated at DS-01 in the application but will be renamed Outfall 009 to be consistent with the Department’s naming convention.

Outfall 001 also discharges treated acid mine drainage from IMP 101. IMP 101 receives treated acid mine drainage from the onsite mine used for research. Acid mine drainage collects in the onsite research coal mine. The water is collected in the “Bridge Sump.” Lime, approximately 40 lbs., is added to raise the pH level to between 6 and 9 S.U. and the water is aerated for approximately one hour. The water is then allowed to settle in the Bridge Sump for approximately 24 hours and pumped to the “Dam Sump.” After letting the water settle for at least 48 hours, the water is discharged to the Internal Monitoring Point 101 where samples are collected and analyzed. The water eventually discharges to Lick Run via Outfall 001. The Bridge Sump capacity is 12,500 gallons and the Dam Sump capacity is 33,000 gallons. Discharge from IMP 101 occurs once or

Summary of Review

twice a week depending on the amount of water that accumulates in the mine. The IMP 101 treatment system is permitted under Water Quality Management Permit 0297201.

The site also has eight groundwater seep collection catch basins that do not discharge to the stream. As part of a plan to remediate the disposal area, the seep collectors are intended to be combined and conveyed to a treatment plant (along with any stormwater that is exposed to the contaminated material during construction) and discharged via Outfall 009 to an unnamed tributary to Lick Run (also known as McElheney Run).

During the last permit renewal NIOSH commenced the planning, permitting and design phases of a project to cap the historic waste disposal area located onsite. This historic waste and chemical disposal area, referred to as the NIOSH-Pittsburgh landfill, covers approximately 4.4 acres along the northwestern portion of the site. The disposal area was created over several years from the dumping of mill slag from offsite sources and contaminated waste generated from research conducted at the facility by the BOM. Some amount of laboratory wastes from coal research were disposed of or stored in various areas within the facility. These wastes included resin hardeners, coal derived liquids, heavy metals, construction debris, red dog fragments, coal refuse, coal ash, bricks, coal fragments and mill slag and other organic chemicals. There are no precise records of the dates, nature, locations or quantities of such waste disposal into the landfill area. The use of the landfill was discontinued in 1986 and converted to inactive status by capping the landfill with a thin layer of clay and then grading and vegetating it. The landfill was previously planning to be capped in accordance with the Pennsylvania Department of Environmental Protection's (PA-DEP) Land Recycling and Environmental Remediation Standards Act (Act 2). Remedial investigations conducted around the landfill area indicate that the groundwater has been contaminated due to the past waste disposal practices. Concentrations of detected chemicals that exceeded the PADEP Act 2 statewide health standard (SHS) medium-specific concentrations (MSC) are antimony, arsenic, beryllium, cadmium, chromium, lead and nickel. NIOSH intended to intercept all of the disposal area runoff and identified seeps in order to direct them for treatment and discharge into Lick Run. This proposed discharge was included in the previous permit and identified as IMP 201. Collection and treatment of the runoff and seeps from the disposal area was not completed, and thus no discharges via IMP 201 occurred during the previous permit cycle. At this point in time, NIOSH is no longer proposing to cap the landfill and is planning to remediate the site instead. The current remediation plans involve the excavation of the landfill. The landfill will be excavated in three phases over a period of two years. Removal of the landfill waste through excavation and offsite disposal of contaminated material will allow NIOSH to restore the landfill site to its original natural contours and eliminate future exposure pathways. NIOSH is seeking liability relief under Act 2 for the Act 2 site through a Site Specific Standard by demonstrating through active remediation, engineering and institutional controls that the exposure pathways of known contaminants will be eliminated and the potential for adverse health effects is within acceptable potential risk benchmarks. The plan for capping the site, collecting and treating the seeps, and discharging via IMP 201 is no longer being proposed and is being replaced with the remediation project which includes the treatment of the collected seeps and contaminated stormwater and discharge via Outfall 009. Because IMP 201 is going to be replaced by Outfall 009, IMP 201 will be removed from the permit.

NIOSH has submitted a Water Quality Management (WQM) permit application for the construction and operation of a treatment plant to treat the collected industrial wastewater from seeps along the disposal area and stormwater that is exposed to the contaminated material.

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 (IMP 101)	Design Flow (MGD)	0 (IMP 101: 0.036)
Latitude	40º 18' 18.6"	Longitude	-79º 58' 30"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	IW Process Effluent without ELG, Stormwater		

Receiving Waters	Lick Run (TSF)	Stream Code	39451
NHD Com ID	134839820	RMI	2.4
Drainage Area	6.55	Yield (cfs/mi^2)	0.012
Q_{7-10} Flow (cfs)	0.0803	Q_{7-10} Basis	USGS Streamstats
Elevation (ft)	904	Slope (ft/ft)	0.001
Watershed No.	19-C	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Cause Unknown, Metals, Pathogens		
Source(s) of Impairment	Acid Mine Drainage, Source Unknown		
TMDL Status	Final	Name	Peters Creek Watershed

Nearest Downstream Public Water Supply Intake	PA American Water Co. Pittsburgh		
PWS Waters	Monongahela River	Flow at Intake (cfs)	1,060
PWS RMI	4.6	Distance from Outfall (mi)	~24

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	002	Design Flow (MGD)	0
Latitude	40º 18' 01"	Longitude	-79º 58' 13"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	Stormwater		
Receiving Waters	Lick Run (TSF)	Stream Code	39451
NHD Com ID	99408428	RMI	2.0
Watershed No.	19-C	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Cause Unknown, Metals, Pathogens		
Source(s) of Impairment	Acid Mine Drainage, Source Unknown		
TMDL Status	Final	Name	Peters Creek Watershed

Discharge, Receiving Waters and Water Supply Information

Outfall No.	003	Design Flow (MGD)	0
Latitude	40º 18' 29"	Longitude	-79º 58' 37"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	Groundwater / Spring Discharge, Stormwater		

Receiving Waters	Lick Run (TSF)	Stream Code	39451
NHD Com ID	134839819	RMI	2.6
Watershed No.	19-C	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Cause Unknown, Metals, Pathogens		
Source(s) of Impairment	Acid Mine Drainage, Source Unknown		
TMDL Status	Final	Name	Peters Creek Watershed

Discharge, Receiving Waters and Water Supply Information

Outfall No.	004	Design Flow (MGD)	0
Latitude	40º 17' 52"	Longitude	-79º 58' 24"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	Groundwater / Spring Discharge, Stormwater		

Receiving Waters	Lick Run (TSF)	Stream Code	39451
NHD Com ID	99408460	RMI	1.85
Watershed No.	19-C	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Cause Unknown, Metals, Pathogens		
Source(s) of Impairment	Acid Mine Drainage, Source Unknown		
TMDL Status	Final	Name	Peters Creek Watershed

Discharge, Receiving Waters and Water Supply Information

Outfall No.	005 (SW-2 in application)	Design Flow (MGD)	0
Latitude	40º 18' 37"	Longitude	-79º 59' 07"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	Stormwater		

Receiving Waters	Unnamed Tributary to Lick Run (TSF)	Stream Code	39457
NHD Com ID	99408378	RMI	0.47
Watershed No.	19-C	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Cause Unknown, Metals, Pathogens		
Source(s) of Impairment	Acid Mine Drainage, Source Unknown		
TMDL Status	Final	Name	Peters Creek Watershed

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	006 (SW-4 in application)	Design Flow (MGD)	0
Latitude	40º 18' 31"	Longitude	-79º 58' 52"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	Stormwater		
Receiving Waters	Unnamed Tributary to Lick Run (TSF)	Stream Code	39457
NHD Com ID	99408378	RMI	0.24
Watershed No.	19-C	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Cause Unknown, Metals, Pathogens		
Source(s) of Impairment	Acid Mine Drainage, Source Unknown		
TMDL Status	Final	Name	Peters Creek Watershed

Discharge, Receiving Waters and Water Supply Information

Outfall No.	007 (SW-5 in application)	Design Flow (MGD)	0
Latitude	40º 18' 30"	Longitude	-79º 58' 48"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	Stormwater		
Receiving Waters	Unnamed Tributary to Lick Run (TSF)	Stream Code	39457
NHD Com ID	99408378	RMI	0.18
Watershed No.	19-C	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Cause Unknown, Metals, Pathogens		
Source(s) of Impairment	Acid Mine Drainage, Source Unknown		
TMDL Status	Final	Name	Peters Creek Watershed

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	008 (SW-6 in application)	Design Flow (MGD)	0
Latitude	40º 18' 30"	Longitude	-79º 58' 46"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	Stormwater		
Receiving Waters	Unnamed Tributary to Lick Run (TSF)	Stream Code	39457
NHD Com ID	99408378	RMI	0.15
Watershed No.	19-C	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Cause Unknown, Metals, Pathogens		
Source(s) of Impairment	Acid Mine Drainage, Source Unknown		
TMDL Status	Final	Name	Peters Creek Watershed

Discharge, Receiving Waters and Water Supply Information

Outfall No.	009 (DS-01 in application)	Design Flow (MGD)	0.05
Latitude	40º 18' 29"	Longitude	-79º 58' 42"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	IW Process Effluent without ELG		

Receiving Waters	Unnamed Tributary to Lick Run (TSF)	Stream Code	39457
NHD Com ID	99408378	RMI	0.1
Drainage Area	0.18	Yield (cfs/mi^2)	0.005
Q_{7-10} Flow (cfs)	0.0009	Q_{7-10} Basis	USGS Streamstats
Elevation (ft)	940	Slope (ft/ft)	0.001
Watershed No.	19-C	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Cause Unknown, Metals, Pathogens		
Source(s) of Impairment	Acid Mine Drainage, Source Unknown		
TMDL Status	Final	Name	Peters Creek Watershed

Nearest Downstream Public Water Supply Intake	PA American Water Co. Pittsburgh		
PWS Waters	Monongahela River	Flow at Intake (cfs)	1,060
PWS RMI	4.6	Distance from Outfall (mi)	~24

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0
Latitude 40º 18' 18.00" **Longitude** -79º 58' 18.00"
Wastewater Description: IW Process Effluent without ELG, Stormwater

The discharge from Outfall 001 contains stormwater and treated acid mine drainage. The treated acid mine drainage will be monitored at IMP 101.

Technology-Based Limitations

The Bruceton Research Center is not subject to Federal Effluent Limitation Guidelines (ELGs) as the SIC code is not listed under 40 CFR parts 405 through 471.

Stormwater Requirements:

The drainage area of Outfall 001 contains office and laboratory buildings where activities are conducted indoors, an outside cage storage area for compressed gases, and a 200-gallon diesel aboveground storage tank.

Outfall 001 will be subject to the monitoring requirements in Appendix J of the PAG-03 General Stormwater Permit as a minimum requirement because the outfall discharges stormwater associated with industrial activity. The reporting requirements are listed in Table 1 below. The Draft Permit will require a Corrective Action Plan when there are two consecutive exceedances of the benchmark values, listed in Part C of the permit. The benchmark values are displayed below in Table 1. 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 developed and submitted to the Department 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 BMPs may not be sufficiently controlling pollutants in stormwater.

Table 1: PAG-03 Appendix J Monitoring Requirements

Parameter	Max Daily Concentration	Benchmark Values (mg/L)	Measurement Frequency	Sample Type
Total Nitrogen	Report	XXX	1/6 Months	Grab
Total Phosphorus	Report	XXX	1/6 Months	Grab
Total Suspended Solids (TSS)	Report	100.0	1/6 Months	Grab
Oil and Grease	Report	30.0	1/6 Months	Grab
pH (S.U.)	Report	9.0	1/6 Months	Grab
Chemical Oxygen Demand (COD)	Report	120	1/6 Months	Grab

Water Quality-Based Limitations

Water Quality Based Limitations based on the Industrial wastewater discharges to Outfall 001 will be evaluated at the internal monitoring point due to the nature of the discharges to Outfall 001. Water quality analyses are typically performed under low-flow (Q_{7-10}) conditions. Since the industrial wastewater discharges from Outfall 001 will be monitoring at internal monitoring points, a formal water quality analysis cannot be accurately conducted for the stormwater discharge to Outfall 001. Stormwater discharges occur at variable rates and frequencies but not however during Q_{7-10} conditions. Accordingly, water quality-based effluent limitations are not proposed at Outfall 001.

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 and are displayed below in Table 2. The previous permit required sampling at Outfall 001 only when IMP 101 was not discharging.

Table 2: Current Effluent Limitation for 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
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/Quarter	Measure
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/Quarter	Grab
BOD5	XXX	XXX	XXX	XXX	Report	XXX	1/Quarter	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/Quarter	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/Quarter	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/Quarter	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/Quarter	Grab
Total Lead	XXX	XXX	XXX	XXX	Report	XXX	1/Quarter	Grab
Total Manganese	XXX	XXX	XXX	XXX	Report	XXX	1/Quarter	Grab
Total Mercury	XXX	XXX	XXX	XXX	Report	XXX	1/Quarter	Grab

Proposed Effluent Limitations for Outfall 001

The proposed effluent limitations and monitoring requirements for Outfall 001 are shown below in Table 3. The monitoring frequency at Outfall 001 has been changed from once per quarter to semi-annually. This gives the permittee more time to develop and implement a Corrective Action Plan if there are exceedances to the benchmark values. The Department evaluated the parameters that required monitoring in the previous permit and compared the data in the DMRs and permit application to EPA's multisector general permit benchmark values and determined that Outfall 001 has exceeded the benchmark values for Total Iron and Total Aluminum multiple time during the last permit cycle. Due to the multiple elevated discharge concentrations of Total Iron and Total Aluminum, these benchmark values from the MSGP will be included in the stormwater monitoring requirements section in Part C of the permit, requiring a Corrective Action Plan whenever there are two consecutive exceedances of the benchmark values. The benchmark values for Total Iron and Total Aluminum are 1.0 mg/L and 0.75 mg/L, respectively.

Table 3: Proposed Effluent Limitation for 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
Flow (MGD)	XXX	Report	XXX	XXX	XXX	XXX	1/6 Months	Measure
Total Nitrogen*	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Calculation
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
BOD5	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
COD	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Oil and Grease	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 Lead	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Manganese	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Mercury	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab

*Total Nitrogen is the sum of Total Kjeldahl-N (TKN) plus Nitrite-Nitrate as N (NO_2+NO_3-N), where TKN and NO_2+NO_3-N are measured in the same sample.

Development of Effluent Limitations

Outfall No.	101	**Design Flow (MGD)**	0.036
Latitude	40º 18' 16.00"	**Longitude**	-79º 58' 38.00"
Wastewater Description:	IW Process Effluent without ELG (treated abandoned mine discharge)		

IMP 101 is the internal monitoring point for the treat acid mine drainage that discharge via Outfall 001.

Technology-Based Limitations

The Bruceton Research Center is not subject to Federal Effluent Limitation Guidelines (ELGs) as its SIC code is not listed under 40 CFR parts 405 through 471.

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) which is displayed in Table 4 below.

Effluent standards for pH are also imposed on industrial wastes by 25 Pa. Code §§ 95.2(1) which is displayed in Table 4 below.

Table 4: Regulatory Effluent Standards

Parameter	Monthly Avg	Daily Max
Flow (MGD)	Monitor	Monitor
pH (S.U.)	Not less than 6.0 nor greater than 9.0 at all times	

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.

USHHS, CDC, NIOSH Pittsburgh's application was submitted before the NPDES permit application forms were updated to require sampling for PFOA, PFOS, PFBS, and HFPO-DA. Also, according to EPA's guidance, USHHS, CDC, NIOSH Pittsburgh 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. Even though USHHS, CDC, NIOSH Pittsburgh did not report results for PFOA, PFOS, PFBS, and HFPO-DA on the permit application, as a facility operating in a suspected non-source industry, it is reasonable to conclude that if USHHS, CDC, NIOSH Pittsburgh did report results for PFOA, PFOS, PFBS, and HFPO-DA on the application, the results may have been non-detect values, which would subject USHHS, CDC, NIOSH Pittsburgh to the annual monitoring requirements described in Section II.I.b of the SOP.

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 Limitations

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 former 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, mass-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, 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 site-specific 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 IMP 101

Discharges from IMP 101 are evaluated based on concentrations reported on the application and on DMRs; data from those sources are used in the Toxics Management Spread Sheet. The maximum reported value of the parameters from the application form or from 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 was run with the discharge and receiving stream characteristics shown in Table 5. 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 run in the model to determine the water quality-based effluent limits applicable to the discharge and the receiving stream. The spread sheet then compares the reported discharge concentrations with the calculated water quality-based effluent limitations to determine if there is a reasonable potential to exceed the WQBELs. Limitations are established in the draft permit where the maximum reported 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. The water quality-based limitations and monitoring requirements that are recommended by the Toxics Management Spread Sheet are displayed below in table 6.

Table 5: TMS Inputs for IMP 101

Parameter	**Value**
River Mile Index	2.4
Discharge Flow (MGD)	0.036
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	6.55
Q_{7-10} (cfs)	0.0803
Low-flow yield (cfs/mi^2)	0.012
Elevation (ft)	904
Slope	0.019

Table 6: Water Quality Based Effluent Limitations at IMP 101

Parameters	Average Monthly	Daily Maximum
Chloride	Report	Report
Sulfate	Report	Report
Total Aluminum	Report	Report
Total Cobalt (µg/L)	46.4	72.4
Dissolved Iron	Report	Report
Total Iron	Report	Report
Total Manganese (mg/L)	2.44	3.81
Total Nickel	Report	Report
Total Selenium	Report	Report
Total Thallium (µg/L)	0.59	0.91

Total Maximum Daily Load (TMDL) Considerations:

Wastewater discharges from the Bruceton Research Facility are located within the Peters Creek Watershed for which the Department has developed a TMDL. Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's 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 criterion 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). The TMDL was developed for segments in the Peters Creek Watershed. These were done to address the impairments noted on the 1996 Pennsylvania Section 303(d) list of impaired waters, required under the Clean Water act, and covers one segment on that list and additional segments on later list/reports. Peters Creek was listed as impaired for metals. All impairments resulted from drainage from abandoned coalmines. The TMDL addresses the three-primary metal associated with abandoned mine drainage (iron, manganese, aluminum) and pH. Stream data is used to calculate minimum pollutant reductions that are necessary to attain water quality criteria levels. Target concentrations published in the TMDL were based on established water quality criteria of 0.750 $^{mg}/_{L}$ total recoverable aluminum, 1.5 $^{mg}/_{L}$ total recoverable iron based on a 30-day average and 1.0 $^{mg}/_{L}$ total recoverable manganese. TMDLs prescribe allocations that minimally achieve water quality criteria (i.e., 100 percent use of a stream's assimilative capacity).

One of the major components of a TMDL is the establishment of an instream numeric endpoint, which is used to evaluate the attainment of applicable water quality. An instream numeric endpoint, therefore, represents the water quality goal that is to be achieved by implementing the load reduction specified in the TMDL. The endpoint allows for a comparison between observed instream conditions and conditions that are expected to restore designated uses. The endpoint is based on either narrative or numeric criteria available in water quality standards. Because the pollution sources in the watershed are non-point sources, the TMDLs' component makeup will be load allocations (LAs) with waste load allocations (WLAs) for permitted discharges. All allocations will be specified as long-term average daily concentrations. These long-term average concentrations are expected to meet water-quality criteria 99% of the time as required in PA Title 25 Chapter 96.3(c).

The TMDL for Peters Creek developed load allocations for four sampling sites on Peters Creek (PC5, PC4, PC3 and PC2) six sites on unnamed tributaries to Peters Creek (PCTR1-6), one site on Lewis Run (LW1), **one site on Lick Run (LR1),** and one site on Piney Fork (PF1). Sample data sets were collected in 2007 and 2008. An allowable long-term average in-stream concentration was determined at each sample point for metals and acidity. The analysis is designed to produce an average value that, when met, will be protective of the water-quality criterion for that parameter 99% of the time. An analysis was performed using Monte Carlo simulation to determine the necessary long-term average concentration needed to attain water-quality criteria 99% of the time. The simulation was run assuming the data set was log normally distributed. Using the mean and standard deviation of the data set, 5000 iterations of sampling were completed, and compared against the water-quality criterion for that parameter. For each sampling event a percent reduction was calculated, if necessary, to meet water-quality criteria. A second simulation that multiplied the percent reduction times the sampled value was run to ensure that criteria were met 99% of the time. The mean value from this data set represents the long-term average concentration that needs to be met to achieve water-quality standards.

AMD discharges from IMP 101 were in existence prior to the TMDL being finalized. The TMDL specifically references NPDES permit PA0205884 and its discharges. The TMDL did not provide a waste load allocation for discharges from IMP 101 or Outfall 001. Whenever the TMDL does not specifically provide an allocation for wastewater discharges, the Department may impose effluent limitations at criteria to ensure compliance with the TMDL. Applicable water quality criteria for the Peters Creek watershed are imposed as effluent limits and shown in Table 7.

Discharges to the Lick Run segment of the Peter's Creek watershed are only subject to the requirements associated with aluminum. The specific water quality criterion for aluminum is expressed as an acute or maximum daily in 25 Pa. Code Chapter 93. Discharges of aluminum via IMP 101 may only be authorized to the extent that they will not cause or contribute to any violation of the water quality standards. Therefore, the water quality criterion for aluminum (0.75 $^{mg}/_{L}$) is imposed as a maximum daily effluent limit (MDL). Whenever the most stringent criterion is selected for the MDL, the Department should also impose an average monthly limit (AML) and instantaneous maximum limit (IMAX) if applicable. The imposition of an AML that is more stringent than the MDL is typically not appropriate because the water quality concerns have already been fully addressed by setting the MDL equal to the most stringent applicable criterion. Therefore, where the MDL is set at the value of the most stringent applicable criterion, the AML should be set equal to the MDL. Accordingly, TMDL aluminum limits are proposed for IMP 101. The proposed aluminum limits are included in Table 7. TMDL effluent limitations for iron and manganese are not necessary in this segment of the watershed.

Table 7. TMDL Limits for IMP 101

Parameter	TMDL Limits		Units
	Average Monthly	Maximum Daily	
Aluminum, total	0.75	0.75	mg/L

<u>Anti-Backsliding</u>

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

Table 8: Existing Effluent Limitation for IMP 101

Parameters	Mass (lb/day)		Concentration (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/week	Measure
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/week	Grab
Total Suspended Solids	XXX	XXX	XXX	35	70	XXX	1/week	Grab
Total Iron	XXX	XXX	XXX	3.5	7.0	XXX	1/week	Grab
Total Manganese	XXX	XXX	XXX	2.0	4.0	XXX	1/week	Grab
Total Aluminum	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab

Proposed Effluent Limitations for IMP 101

The proposed effluent limitations and monitoring requirements for IMP 101 are shown below in Table 9 and Table 10. IMP 101 received new WQBELs for Manganese, Cobalt, and Thallium. The Department provided the permittee with a pre-draft survey, notifying the permittee of these new WQBELs. In the pre-draft survey, the permittee notified the Department that the pollutants were suspected to be in the discharge, however, the permittee is uncertain if they can achieve the limits upon permit issuance and are uncertain on how long it will take to achieve the limits. Because the permittee may not have the necessary controls in place to ensure compliance with the new WQBELs upon permit issuance, the permit will include a Schedule of Compliance, in accordance with 25 Pa. Code § 92a.51(a) of DEP's regulations, which grants the permittee three years to come into compliance with the WQBELs. Because the WQBELs will not be effective upon permit issuance, the permit will be tiered to have interim and final monitoring requirements and effluent limits. For the first three years, a reporting requirement will be imposed for Cobalt and Thallium, and the current limitations will be imposed as the interim limitations for Manganese. After three years, the final WQBELs will take effect. A Part C condition will be included in the Draft NPDES Permit outlining a Schedule of Compliance for these parameters. Please note that Total Thallium is subject to water quality-based effluent limits (WQBELs) that are necessary to comply with state water quality standards, but are less than the Department's target quantitation limits (QLs), as defined in 25 Pa. Code § 252.1, that are generally achievable by conventional analytical technology. The permittee shall analyze Total Thallium using methods that will achieve the Department Target QL (2.0 µg/L). For the purpose of compliance, a statistical value reported on the DMR that is less than the QL (i.e., "non-detect") will be considered to be in compliance.

Table 9: Proposed Interim Effluent Limitation for IMP 101

Parameters	Mass (lb/day)		Concentration (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/week	Measure
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/week	Grab
Total Suspended Solids	XXX	XXX	XXX	35.0	70.0	XXX	1/week	Grab
Total Iron	XXX	XXX	XXX	3.5	7.0	XXX	1/week	Grab
Total Manganese	XXX	XXX	XXX	2.0	4.0	XXX	1/week	Grab
Total Aluminum	XXX	XXX	XXX	0.75	0.75	XXX	1/week	Grab
Chloride	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Sulfate	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Total Cobalt (µg/L)	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Dissolved Iron	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Total Nickel	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Total Selenium	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Total Thallium (µg/L)	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
PFOA (ng/L)	XXX	XXX	XXX	XXX	Monitor	XXX	1/year	Grab
PFOS (ng/L)	XXX	XXX	XXX	XXX	Monitor	XXX	1/year	Grab
PFBS (ng/L)	XXX	XXX	XXX	XXX	Monitor	XXX	1/year	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	Monitor	XXX	1/year	Grab

Table 10: Proposed Final Effluent Limitation for IMP 101

Parameters	Mass (lb/day)		Concentration (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/week	Measure
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/week	Grab
Total Suspended Solids	XXX	XXX	XXX	35.0	70.0	XXX	1/week	Grab
Total Iron	XXX	XXX	XXX	3.5	7.0	XXX	1/week	Grab
Total Manganese	XXX	XXX	XXX	2.0	3.8	XXX	1/week	Grab
Total Aluminum	XXX	XXX	XXX	0.75	0.75	XXX	1/week	Grab
Chloride	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Sulfate	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Total Cobalt (µg/L)	XXX	XXX	XXX	46.4	72.4	XXX	1/week	Grab
Dissolved Iron	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Total Nickel	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Total Selenium	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Total Thallium (µg/L)	XXX	XXX	XXX	0.59	0.91	XXX	1/week	Grab

Table 10: Proposed Final Effluent Limitation for IMP 101

Parameters	Mass (lb/day)		Concentration (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
PFOA (ng/L)	XXX	XXX	XXX	XXX	Monitor	XXX	1/year	Grab
PFOS (ng/L)	XXX	XXX	XXX	XXX	Monitor	XXX	1/year	Grab
PFBS (ng/L)	XXX	XXX	XXX	XXX	Monitor	XXX	1/year	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	Monitor	XXX	1/year	Grab

Development of Effluent Limitations

Outfall No. 002 **Design Flow (MGD)** 0
Latitude 40º 18' 01.00" **Longitude** -79º 58' 13.00"
Wastewater Description: Stormwater

The discharge from Outfall 002 is only stormwater.

Technology-Based Limitations

The Bruceton Research Center is not subject to Federal Effluent Limitation Guidelines (ELGs) as the SIC code is not listed under 40 CFR parts 405 through 471.

Stormwater Monitoring Requirements

The drainage area of Outfall 002 contains a road salt storage shed, three 1,000-gallon gasoline ASTs, two 1,000-gallon diesel ASTs, office buildings, and maintenance buildings.

Outfall 002 will be subject to the monitoring requirements in Appendix J of the PAG-03 General Stormwater Permit as a minimum requirement because the outfall discharges stormwater associated with industrial activity. The reporting requirements are listed in Table 10 below. The Draft Permit will require the development, submission and implementation of a Corrective Action Plan whenever there are two consecutive exceedances of the stormwater benchmark values at a given outfall. The benchmark values are displayed below in Table 11 and within Part C of the draft NPDES permit. These benchmark values are not effluent limitations and 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 developed, submitted to the Department, and implemented to improve onsite 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 BMPs may not be sufficiently controlling pollutants in stormwater.

Table 11: PAG-03 Appendix J Monitoring Requirements

Parameter	Max Daily Concentration	Benchmark Values (mg/L)	Measurement Frequency	Sample Type
Total Nitrogen	Report	XXX	1/6 Months	Grab
Total Phosphorus	Report	XXX	1/6 Months	Grab
Total Suspended Solids (TSS)	Report	100	1/6 Months	Grab
Oil and Grease	Report	30	1/6 Months	Grab
pH (S.U.)	Report	9.0	1/6 Months	Grab
Chemical Oxygen Demand (COD)	Report	120	1/6 Months	Grab

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 discharges from Outfall 002 are 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 and are displayed below in Table 12.

Table 12: Current Effluent Limitation for Outfall 002

Parameters	Mass (lb/day)		Concentration (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/Quarter	Measure
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/Quarter	Grab
BOD5	XXX	XXX	XXX	XXX	Report	XXX	1/Quarter	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/Quarter	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/Quarter	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/Quarter	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/Quarter	Grab
Total Lead	XXX	XXX	XXX	XXX	Report	XXX	1/Quarter	Grab
Total Manganese	XXX	XXX	XXX	XXX	Report	XXX	1/Quarter	Grab
Total Mercury	XXX	XXX	XXX	XXX	Report	XXX	1/Quarter	Grab

Proposed Effluent Limitations for Outfall 002

The proposed effluent limitations and monitoring requirements for Outfall 002 are shown below in Table 13. The monitoring frequency at Outfall 002 has been changed from once per quarter to semi-annually. This gives the permittee more time to implement its Corrective Action Plan when there are exceedances of the benchmark values. The Department evaluated the parameters that required monitoring in the previous permit and compared the data in the DMRs and permit application to EPA's multi-sector general permit benchmark values and determined that Outfall 002 has exceeded the benchmark values for Total Iron and Total Aluminum multiple times during the last permit cycle. Due to the multiple elevated discharge concentrations of Total Iron and Total Aluminum, these benchmark values from the MSGP will be included in the stormwater monitoring requirements section in Part C of the permit, requiring a Corrective Action Plan when there are two consecutive exceedances of the benchmark values. The benchmark values for Total Iron and Total Aluminum are 1.0 mg/L and 0.75 mg/L, respectively.

Table 13: Proposed Effluent Limitation for 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
Flow (MGD)	XXX	Report	XXX	XXX	XXX	XXX	1/6 Months	Measure
Total Nitrogen*	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Calculation
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
BOD5	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
COD	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Oil and Grease	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 Lead	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Manganese	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Mercury	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab

*Total Nitrogen is the sum of Total Kjeldahl-N (TKN) plus Nitrite-Nitrate as N (NO_2+NO_3-N), where TKN and NO_2+NO_3-N are measured in the same sample.

Development of Effluent Limitations

Outfalls No. 003 - 008 **Design Flow (MGD)** 0
Latitude Varies **Longitude** Varies
Wastewater Description: Stormwater

These stormwater outfalls were identified in the previous permit and are authorized to discharge uncontaminated storm water runoff. There are no monitoring requirements proposed for these stormwater discharges. Although, no monitoring for these outfalls is required, the stormwater Part C condition regarding stormwater discharges still apply to these outfalls.

Development of Effluent Limitations

Outfall No.	009	**Design Flow (MGD)**	0.05
Latitude	40º 18' 29"	**Longitude**	-79º 58' 42"

Wastewater Description: Treated Waste Disposal Area Leachate, Groundwater and Industrial Stormwater

Outfall 009 will discharge treated disposal area groundwater seeps and contaminated stormwater associated with the remediation of the disposal area.

Technology-Based Limitations

The Bruceton Research Center is not subject to Federal Effluent Limitation Guidelines (ELGs) as the SIC code is not listed under 40 CFR parts 405 through 471.

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) which is displayed in Table 14 below.

Effluent standards for pH are also imposed on industrial wastes by 25 Pa. Code §§ 95.2(1) which is displayed in Table 14 below.

Table 14: Regulatory Effluent Standards

Parameter	Monthly Avg	Daily Max
Flow (MGD)	Monitor	Monitor
pH (S.U.)	Not less than 6.0 nor greater than 9.0 at all times	

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.

USHHS, CDC, NIOSH Pittsburgh’s application was submitted before the NPDES permit application forms were updated to require sampling for PFOA, PFOS, PFBS, and HFPO-DA. Also, according to EPA’s guidance, USHHS, CDC, NIOSH Pittsburgh 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. Even though USHHS, CDC, NIOSH Pittsburgh did not report results for PFOA, PFOS, PFBS, and HFPO-DA on the permit application, as a facility operating in a suspected non-source industry, it is reasonable to conclude that if USHHS, CDC, NIOSH Pittsburgh did report results for PFOA, PFOS, PFBS, and HFPO-DA on the application, the results may have been non-detect values, which would subject USHHS, CDC, NIOSH Pittsburgh to the annual monitoring requirements described in Section II.I.b of the SOP.

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 Limitations

NIOSH has identified 8 groundwater seeps along the toe edge of the waste disposal area. Each of these seeps have been sampled and analyzed in accordance with a PADEP NPDES Permit Application. The pollutant discharge concentrations collected from each seep were used in conjunction with the average discharge flow rates from each seep to calculate a flow weighted average for each pollutant. This data is included in Appendix E of this Fact Sheet. The flow weighted average pollutant concentration was used to develop NPDES permit effluent limitations. This method was selected since it represents the discharge concentrations expected following completion of the seep collection system. The Department evaluated the discharge for consideration of potential effluent limitations using the Department’s Toxics Management Spreadsheet.

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, mass-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 009

The Discharges from Outfall 009 are evaluated based on concentrations reported on the application and using the above-mentioned flow weighted calculation; 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 criteria 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 15. 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 F of this Fact Sheet. The water quality-based effluent limitations and monitoring requirements that are recommended by the Toxics Management Spread Sheet are displayed below in Table 16.

Table 15: TMS Inputs for Outfall 009

Parameter	Value
River Mile Index	0.1
Discharge Flow (MGD)	0.05
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	0.18
Q_{7-10} (cfs)	0.0009
Low-flow yield (cfs/mi^2)	0.005
Elevation (ft)	940
Slope	0.001

Table 16: Water Quality Based Effluent Limitations at Outfall 009

Parameters	Average Monthly (µg/L)	Daily Maximum (µg/L)	Discharge Concentration (µg/L)	Department's QL (µg/L)
Hexavalent Chromium	10.5	16.4	6.20	1.0
Total Copper	Report	Report	6.38	4.0
Total Iron	Report	Report	547	20
Dissolved Iron	Report	Report	57.3	20
Total Manganese	Report	Report	271	2.0
Total Selenium	5.05	7.87	4.09	5.0
Total Thallium	Report	Report	0.04	2.0
Total Zinc	Report	Report	32.4	5.0
Acrolein	3.0	3.03	2.50	2.0
Acrylamide	0.085	0.13	115	XXX
Benzene	0.7	1.09	1.50	0.5
1,3-Dichloropropylene	0.33	0.51	0.52	0.5
Trichloroethylene	Report	Report	0.35	0.5
4,6-Dinitro-o-Cresol	2.02	3.16	14.5	10
2,4-Dinitrophenol	10.1	15.8	16.0	10
Benzidine	0.0001	0.0002	89.1	50
Bis(2-Ethylhexyl)Phthalate	0.39	0.6	65.5	5.0

Table 16: Water Quality Based Effluent Limitations at Outfall 009

Parameters	Average Monthly (µg/L)	Daily Maximum (µg/L)	Discharge Concentration (µg/L)	Department's QL (µg/L)
3,3-Dichlorobenzidine	0.06	0.094	6.14	5.0
Di-n-Butyl Phthalate	Report	Report	7.79	5.0
Hexachlorobutadiene	0.012	0.019	0.73	0.5
Nitrobenzene	10.1	15.8	5.25	5.0
1,2,4-Trichlorobenzene	0.071	0.11	0.55	0.5

Total Maximum Daily Load ("TMDL") Considerations – Peters Creek Watershed

Wastewater discharges from NIOSH are located within the Peters Creek watershed for which the Department has developed a TMDL. The TMDL was finalized on April 7, 2009 and establishes waste load allocations for the discharge of aluminum, iron and manganese within Lick Run. 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 Peters Creek watershed are included in the state's 2008 Section 303(d) list because of various impairments, including metals, pH and sediment. The TMDL includes consideration for each river and tributary within the target watershed and its impairment sources. Stream data is then used to calculate minimum pollutant reductions that are necessary to attain water quality criteria levels. Target concentrations published in the TMDL were based on established water quality criteria of 0.750 $^{mg}/_{L}$ total recoverable aluminum, 1.5 $^{mg}/_{L}$ total recoverable iron based on a 30-day average and 1.0 $^{mg}/_{L}$ total recoverable manganese. The reduction needed to meet the minimum water quality standards is then divided between each known point and non-point pollutant source in the form of a watershed allocation. TMDLs prescribe allocations that minimally achieve water quality criteria (i.e., 100 percent use of a stream's assimilative capacity).

The TMDL for Peters Creek assigns load allocations to four sampling sites on Peters Creek (PC5, PC4, PC3 and PC2), six sites on unnamed tributaries to Peters Creek (PCTR1-6), one site on Lewis Run (LW1), one site on Lick Run (LR1), and one site on Piney Fork (PF1). An allowable long-term average in-stream concentration was determined at each sample point for metals and acidity. The analysis is designed to produce an average value that, when met, will be protective of the water-quality criterion for that parameter 99% of the time. An analysis was performed using Monte Carlo simulation to determine the necessary long-term average concentration needed to attain water-quality criteria 99% of the time. The simulation was run assuming the data set was log normally distributed. Using the mean and standard deviation of the data set, 5000 iterations of sampling were completed, and compared against the water-quality criterion for that parameter. For each sampling event a percent reduction was calculated, if necessary, to meet water-quality criteria. A second simulation that multiplied the percent reduction by the sampled value was run to ensure that water quality criteria were met 99% of the time. The mean value from this data set represents the long-term average concentration that needs to be met to achieve water-quality standards.

Discharges to the Lick Run segment of the Peter's Creek watershed are only subject to the requirements associated with aluminum. The TMDL did not provide a waste load allocation for discharges associated with the waste disposal area. Whenever the TMDL does not specifically provide an allocation for waste water discharges, the Department may impose effluent limitations at criteria to ensure compliance with the TMDL. Applicable water quality criteria for the Peters Creek watershed are imposed as effluent limits and shown in Table 16.

The specific water quality criterion for aluminum is expressed as an acute or maximum daily in 25 Pa. Code Chapter 93. Discharges of aluminum via Outfall 009 may only be authorized to the extent that they will not cause or contribute to any violation of the water quality standards. Therefore, the water quality criterion for aluminum (0.75 $^{mg}/_{L}$) is imposed as a maximum daily effluent limit (MDL). Whenever the most stringent criterion is selected for the MDL, the Department should also impose an average monthly limit (AML) and instantaneous maximum limit (IMAX) if applicable. The imposition of an AML that is more stringent than the MDL is typically not appropriate because the water quality concerns have already been fully addressed by setting the MDL equal to the most stringent applicable criterion. Therefore, where the MDL is set at the value of the most stringent applicable criterion, the AML should be set equal to the MDL. Accordingly, TMDL aluminum limits are proposed for Outfall 009. The proposed aluminum limits are included in Table 17. TMDL effluent limitations for iron and manganese are not necessary in this segment of the watershed.

Table 17. TMDL Limits for Outfall 009

Parameter	TMDL Limits		Units
	Average Monthly	Maximum Daily	
Aluminum, total	0.75	0.75	mg/L

Anti-Backsliding

The effluent limits for the discharge from the seep collection and treatment were imposed at IMP 201 in the previous permit. These previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 and are displayed below in Table 18.

Table 18: Current Limitations Imposed at IMP 201

Parameters	Mass (lb/day)		Concentration (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/week	Measure
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/week	Grab
Total Suspended Solids	XXX	XXX	XXX	30.0	60.0	XXX	1/week	24-Hr Composite
Total Aluminum	XXX	XXX	XXX	0.75	0.75	XXX	1/week	24-Hr Composite
Total Iron	XXX	XXX	XXX	1.5	3.0	XXX	1/week	24-Hr Composite
Total Manganese	XXX	XXX	XXX	2.0	4.0	XXX	1/week	24-Hr Composite
Total Cadmium	XXX	XXX	XXX	0.0055	0.0085	XXX	1/week	24-Hr Composite
Total Mercury	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Antimony	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Arsenic	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Hexavalent Chromium	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Cobalt	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Copper	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Lead	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Nickel	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Selenium	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Silver	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Thallium	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Zinc	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite

Final Effluent Limitations for Outfall 009

The effluent limitations and monitoring frequencies for Outfall 009 are displayed below in Table 19. Please note that 1,3-Dichloropropylene, 4,6-Dinitro-o-Cresol, Benzidine, Bis(2-Ethylhexyl)Phthalate, 3,3-Dichlorobenzidine, Hexachlorobutadiene, and 1,2,4-Trichlorobenzene are subject to water quality-based effluent limits (WQBELs) that are necessary to comply with state water quality standards, but are less than the Department's target 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.

Table 19: Proposed Limitations at Outfall 009

Parameters	Mass (lb/day)		Concentration (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/week	Measure
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/week	Grab
Total Suspended Solids	XXX	XXX	XXX	30.0	60.0	XXX	1/week	24-Hr Composite
Total Aluminum	XXX	XXX	XXX	0.75	0.75	XXX	1/week	24-Hr Composite
Total Iron	XXX	XXX	XXX	1.5	3.0	XXX	1/week	24-Hr Composite
Dissolved Iron	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Manganese	XXX	XXX	XXX	2.0	4.0	XXX	1/week	24-Hr Composite
Total Cadmium (µg/L)	XXX	XXX	XXX	5.5	8.5	XXX	1/week	24-Hr Composite
Total Mercury	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Antimony	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Arsenic	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Hexavalent Chromium (µg/L)	XXX	XXX	XXX	10.5	16.4	XXX	1/week	24-Hr Composite
Total Cobalt	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Copper	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Lead	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Nickel	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Selenium (µg/L)	XXX	XXX	XXX	5.05	7.87	XXX	1/week	24-Hr Composite
Total Silver	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Thallium	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Zinc	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Acrolein (µg/L)	XXX	XXX	XXX	3.0	3.03	XXX	1/week	24-Hr Composite
Acrylamide (µg/L)	XXX	XXX	XXX	0.085	0.13	XXX	1/week	24-Hr Composite

Table 19: Proposed Limitations at Outfall 009

Parameters	Mass (lb/day)		Concentration (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Benzene (µg/L)	XXX	XXX	XXX	0.7	1.09	XXX	1/week	24-Hr Composite
1,3-Dichloropropylene (µg/L)	XXX	XXX	XXX	0.33	0.51	XXX	1/week	24-Hr Composite
Trichloroethylene (µg/L)	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
4,6-Dinitro-o-Cresol (µg/L)	XXX	XXX	XXX	2.02	3.16	XXX	1/week	24-Hr Composite
2,4-Dinitrophenol (µg/L)	XXX	XXX	XXX	10.1	15.8	XXX	1/week	24-Hr Composite
Benzidine (µg/L)	XXX	XXX	XXX	0.0001	0.0002	XXX	1/week	24-Hr Composite
Bis(2-Ethylhexyl)Phthalate (µg/L)	XXX	XXX	XXX	0.39	0.6	XXX	1/week	24-Hr Composite
3,3-Dichlorobenzidine (µg/L)	XXX	XXX	XXX	0.06	0.094	XXX	1/week	24-Hr Composite
Di-n-Butyl Phthalate (µg/L)	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Hexachlorobutadiene (µg/L)	XXX	XXX	XXX	0.012	0.019	XXX	1/week	24-Hr Composite
Nitrobenzene (µg/L)	XXX	XXX	XXX	10.1	15.8	XXX	1/week	24-Hr Composite
1,2,4-Trichlorobenzene (µg/L)	XXX	XXX	XXX	0.071	0.11	XXX	1/week	24-Hr Composite
PFOA (ng/L)	XXX	XXX	XXX	XXX	Monitor	XXX	1/year	Grab
PFOS (ng/L)	XXX	XXX	XXX	XXX	Monitor	XXX	1/year	Grab
PFBS (ng/L)	XXX	XXX	XXX	XXX	Monitor	XXX	1/year	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	Monitor	XXX	1/year	Grab

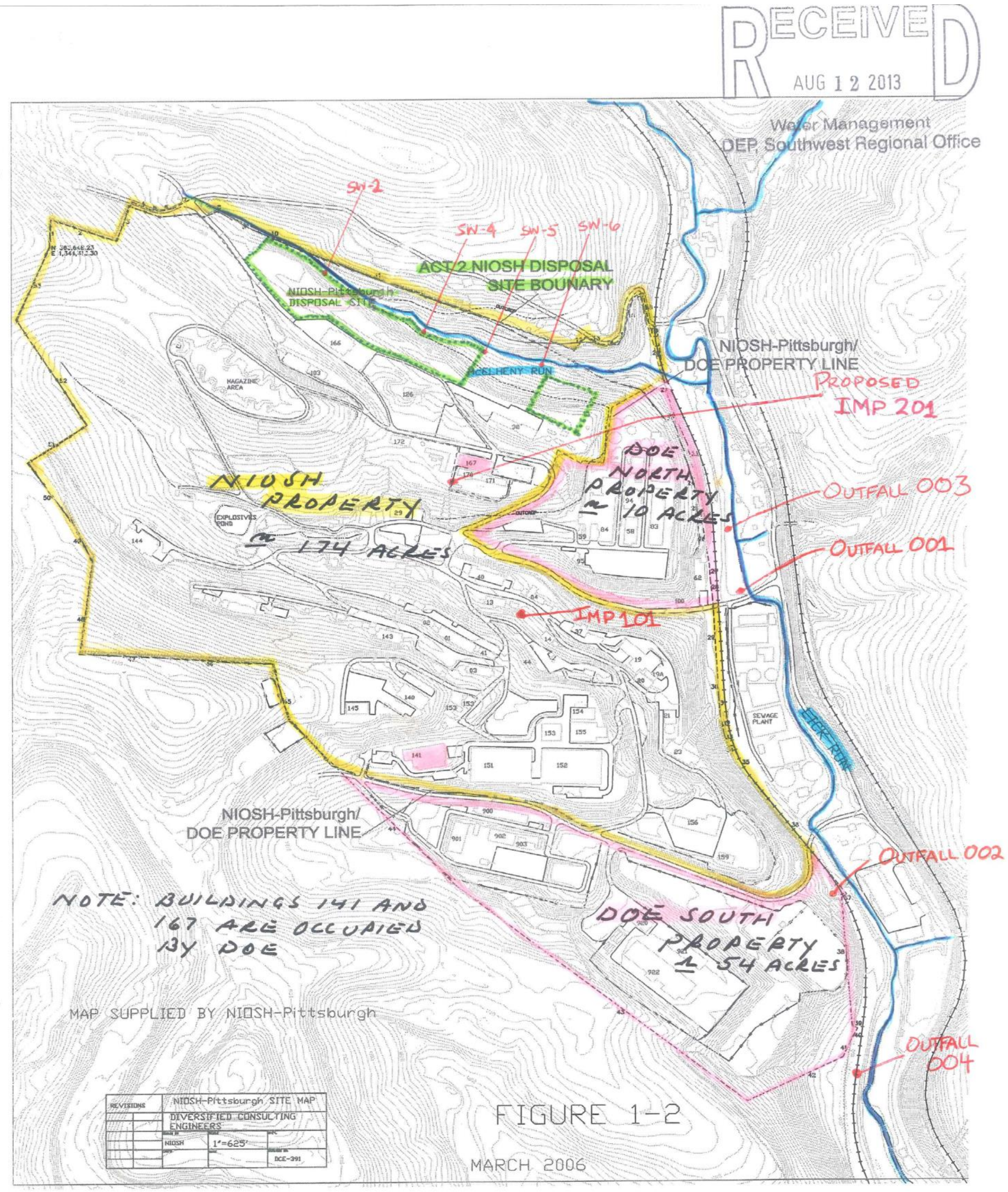
Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment **C and F**)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	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:

Attachments:

Attachment A: Site Plan
Attachment B: Stream Stats at Outfall 001
Attachment C: IMP 101 Toxics Management Spreadsheet
Attachment D: Stream Stats at Outfall 009
Attachment E: Seep Analytical Results and Flow Weighted Average
Attachment F: Outfall 009 Toxics Management Spreadsheet

Attachment A:

Site Plan

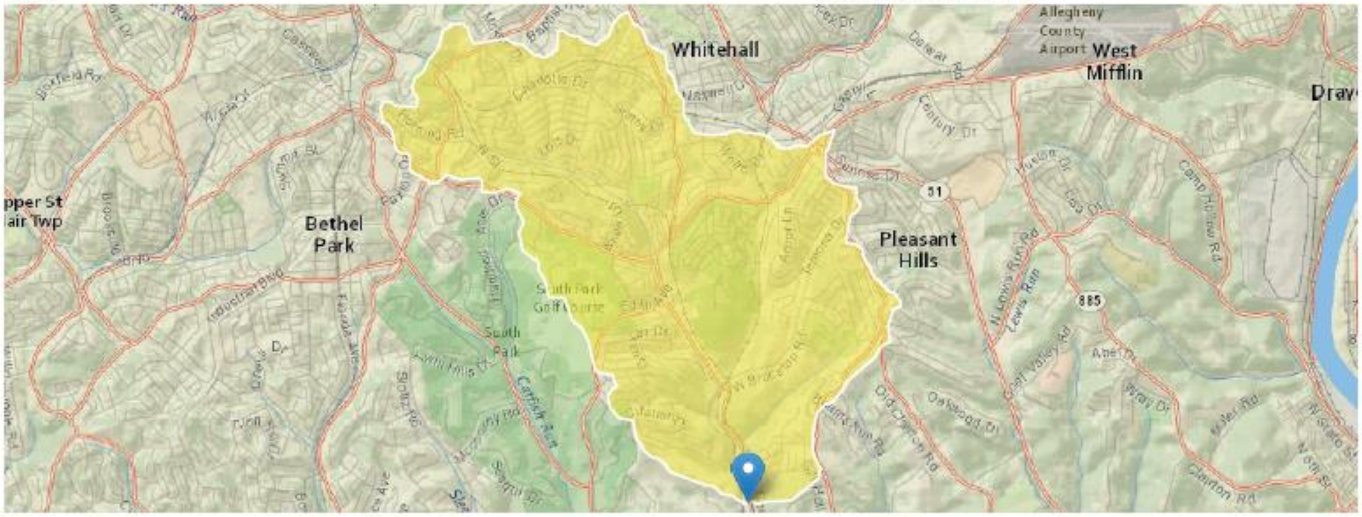

RECEIVED
AUG 12 2013
Water Management
DEP Southwest Regional Office
SW-2
SW-4
SW-5
SW-6
ACT 2 NIOSH DISPOSAL SITE BOUNARY
NIOSH-Pittsburgh DISPOSAL SITE
McELHENY RUN
NIOSH-Pittsburgh/
DOE PROPERTY LINE
PROPOSED IMP 201
DOE NORTH PROPERTY ≈ 10 ACRES
NIOSH PROPERTY ≈ 174 ACRES
OUTFALL 003
OUTFALL 001
IMP 101
EXPLOSIVES POND
MAGAZINE AREA
SEWAGE PLANT
PECK RUN
NIOSH-Pittsburgh/
DOE PROPERTY LINE
OUTFALL 002
NOTE: BUILDINGS 141 AND 167 ARE OCCUPIED BY DOE
DOE SOUTH PROPERTY ≈ 54 ACRES
MAP SUPPLIED BY NIOSH-Pittsburgh
OUTFALL 004
NIOSH-Pittsburgh SITE MAP
DIVERSIFIED CONSULTING ENGINEERS
NIOSH
1"=625'
DCE-391
FIGURE 1-2
MARCH 2006

Attachment B:

Stream Stats at Outfall 001

StreamStats Report

Region ID:	PA
Workspace ID:	PA20200708155004930000
Clicked Point (Latitude, Longitude):	40.30493, -79.97523
Time:	2020-07-08 11:50:24 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	6.55	square miles
ELEV	Mean Basin Elevation	1121.1	feet

Low-Flow Statistics Parameters[Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	6.55	square miles	2.26	1400
ELEV	Mean Basin Elevation	1121.1	feet	1050	2580

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

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

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	0.226	ft^3/s	43	43
30 Day 2 Year Low Flow	0.397	ft^3/s	38	38
7 Day 10 Year Low Flow	0.0803	ft^3/s	66	66
30 Day 10 Year Low Flow	0.148	ft^3/s	54	54
90 Day 10 Year Low Flow	0.273	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/)

Attachment C:

IMP 101 Toxics Management Spreadsheet

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.0, July 2020

Discharge Information

Instructions | Discharge | Stream

Facility:	Bruceton Research Facility	NPDES Permit No.:	PA0025844	Outfall No.:	101
Evaluation Type:	Major Sewage / Industrial Waste	Wastewater Description:	Treated Acid Mine Drainage Discharge		

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
0.036	2040	7.43						

	Discharge Pollutant	Units		Max Discharge Conc	Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
Group 1	Total Dissolved Solids (PWS)	mg/L		4930									
	Chloride (PWS)	mg/L		1340									
	Bromide	mg/L		0.09									
	Sulfate (PWS)	mg/L		1060									
	Fluoride (PWS)	mg/L		0.77									
Group 2	Total Aluminum	µg/L		430									
	Total Antimony	µg/L		0.175									
	Total Arsenic	µg/L		0.642									
	Total Barium	µg/L		47									
	Total Beryllium	µg/L		0.079									
	Total Boron	µg/L		132									
	Total Cadmium	µg/L		0.0002									
	Total Chromium (III)	µg/L	<	2.07									
	Hexavalent Chromium	µg/L	<	2									
	Total Cobalt	µg/L		66.5									
	Total Copper	µg/L		2.18									
	Free Available Cyanide	µg/L											
	Total Cyanide	µg/L		0.006									
	Dissolved Iron	µg/L		240									
	Total Iron	µg/L		1440									
	Total Lead	µg/L		0.087									
	Total Manganese	µg/L		1390									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		95.7									
	Total Phenols (Phenolics) (PWS)	µg/L		39									
	Total Selenium	µg/L		1.3									
	Total Silver	µg/L	<	0.041									
	Total Thallium	µg/L		0.443									
	Total Zinc	µg/L		88									
	Total Molybdenum	µg/L		0.513									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.0, July 2020

Stream / Surface Water Information

Bruceton Research Facility, NPDES Permit No. PA0025844, Outfall 101

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Lick Run**

No. Reaches to Model: **1**

◉ Statewide Criteria
○ Great Lakes Criteria
○ ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	039451	2.4	904	6.55			Yes
End of Reach 1	039451	2.2	895	6.6			Yes

Q 7-10

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	2.4	0.1	0.0803									100	7		
End of Reach 1	2.2	0.1													

Q h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	2.4														
End of Reach 1	2.2														

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Toxics Management Spreadsheet
Version 1.0, July 2020

Model Results

Bruceton Research Facility, NPDES Permit No. PA0025844, Outfall 101

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

☑ ***Hydrodynamics***

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

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
2.4	0.08		0.08	0.056	0.009	0.379	7.544	19.885	0.048	0.257	1.261
2.2	0.09		0.085								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
2.4	0.82		0.82	0.056	0.009	0.861	7.544	8.763	0.135	0.091	0.928
2.2	0.864		0.86								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 1.261 PMF: 1 Analysis Hardness (mg/l): 894.48 Analysis pH: 7.13

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	1,831	
Total Antimony	0	0		0	1,100	1,100	2,686	
Total Arsenic	0	0		0	340	340	830	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	51,279	
Total Boron	0	0		0	8,100	8,100	19,779	
Total Cadmium	0	0		0	16.866	19.8	48.3	Chem Translator of 0.852 applied
Total Chromium (III)	0	0		0	3427.912	10,848	26,489	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	39.8	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	232	
Total Copper	0	0		0	105.910	110	269	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	626.581	1,328	3,243	Chem Translator of 0.472 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	4.02	Chem Translator of 0.85 applied
Total Nickel	0	0		0	2988.767	2,995	7,313	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	139.353	164	400	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	159	
Total Zinc	0	0		0	750.101	767	1,873	Chem Translator of 0.978 applied

☑ *CFC* CCT (min): 1.261 PMF: 1 Analysis Hardness (mg/l): 894.48 Analysis pH: 7.13

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
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	537	
Total Arsenic	0	0		0	150	150	366	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	10,012	
Total Boron	0	0		0	1,600	1,600	3,907	
Total Cadmium	0	0		0	1.121	1.37	3.35	Chem Translator of 0.817 applied
Total Chromium (III)	0	0		0	445.901	518	1,266	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	25.4	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	46.4	
Total Copper	0	0		0	58.240	60.7	148	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	3,663	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	24.417	51.8	126	Chem Translator of 0.472 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	2.21	Chem Translator of 0.85 applied
Total Nickel	0	0		0	331.960	333	813	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	12.2	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	31.7	
Total Zinc	0	0		0	756.237	767	1,873	Chem Translator of 0.986 applied

☑ *THH* CCT (min): 1.261 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments

Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
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	13.7	
Total Arsenic	0	0		0	10	10.0	24.4	
Total Barium	0	0		0	2,400	2,400	5,860	
Total Boron	0	0		0	3,100	3,100	7,570	
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	733	
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	2,442	
Total Mercury	0	0		0	0.050	0.05	0.12	
Total Nickel	0	0		0	610	610	1,490	
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	0.59	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ *CRL* CCT (min): 0.928 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
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	

☑ ***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
Chloride (PWS)	Report	Report	Report	Report	Report	mg/L	N/A	N/A	Discharge Conc > 10% WQBEL (no RP)
Sulfate (PWS)	Report	Report	Report	Report	Report	mg/L	N/A	N/A	Discharge Conc > 10% WQBEL (no RP)
Total Aluminum	Report	Report	Report	Report	Report	µg/L	1,174	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Cobalt	0.014	0.022	46.4	72.4	116	µg/L	46.4	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	733	THH	Discharge Conc > 10% WQBEL (no RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	3,663	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Manganese	0.73	1.14	2,442	3,810	6,105	µg/L	2,442	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Nickel	Report	Report	Report	Report	Report	µg/L	813	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	Report	Report	Report	Report	Report	µg/L	12.2	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Thallium	0.0002	0.0003	0.59	0.91	1.47	µg/L	0.59	THH	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
Bromide	N/A	N/A	No WQS
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Antimony	13.7	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	24.4	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	5,860	µg/L	Discharge Conc ≤ 10% WQBEL
Total Boron	3,907	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Hexavalent Chromium	25.4	µg/L	Discharge Conc ≤ 10% WQBEL

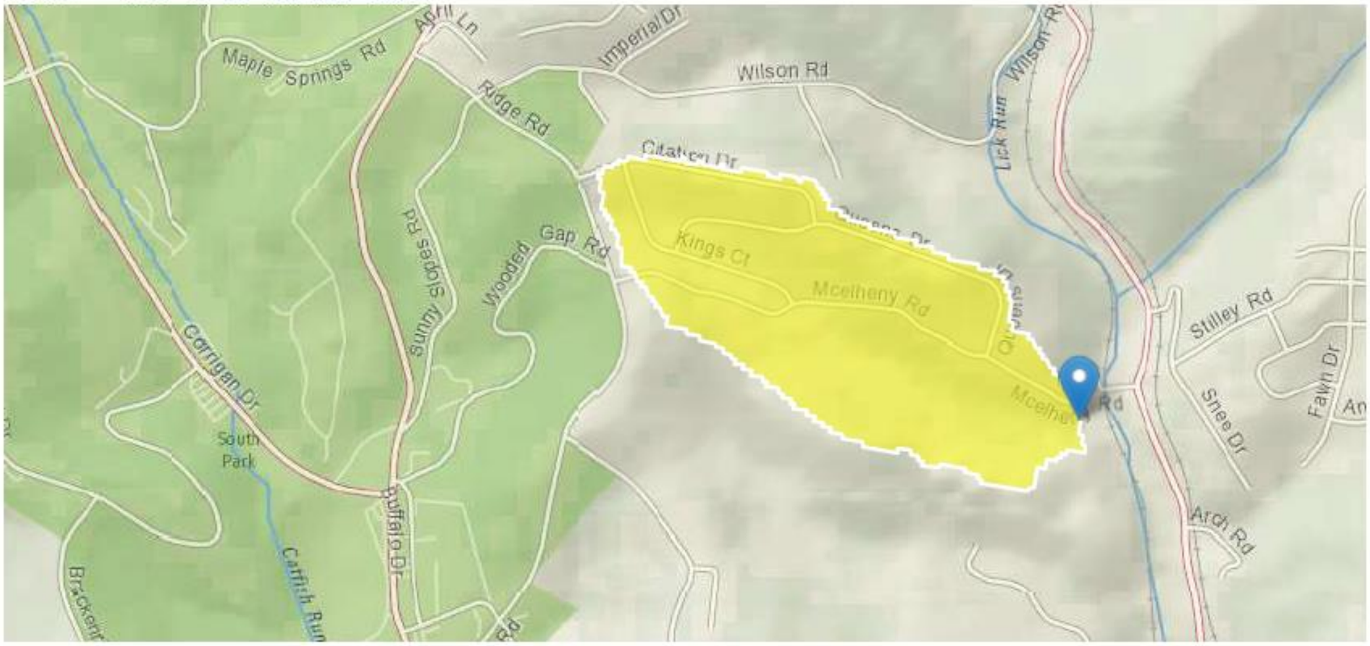
Total Chromium (III)	1,266	µg/L	Discharge Conc < TQL
Total Copper	148	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	126	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Mercury	0.12	µg/L	Discharge Conc < TQL
Total Zinc	1,200	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	257	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS

Attachment D:

Stream Stats at Outfall 009

Oufall 009 StreamStats Report

Region ID: PA
Workspace ID: PA20240103161358651000
Clicked Point (Latitude, Longitude): 40.30825, -79.97794
Time: 2024-01-03 11:14:18 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.18	square miles
ELEV	Mean Basin Elevation	1080	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.18	square miles	2.26	1400
ELEV	Mean Basin Elevation	1080	feet	1050	2580

Low-Flow Statistics Disclaimers [Low Flow Region 4]

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

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

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.00365	ft^3/s
30 Day 2 Year Low Flow	0.00757	ft^3/s
7 Day 10 Year Low Flow	0.000934	ft^3/s
30 Day 10 Year Low Flow	0.00225	ft^3/s
90 Day 10 Year Low Flow	0.00489	ft^3/s

Low-Flow Statistics Citations

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

Application Version: 4.19.2
StreamStats Services Version: 1.2.22
NSS Services Version: 2.3.2

Attachment E:

Seep Analytical Results and Flow Weighted Average

Parameter (µg/L)	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	Flow Weighted Average
Flow (MGD)	0.0000203	0.000002	0.000098	0.000044	0.00097	0.000379	0.000612	0.000435	0.00256
Total Dissolved Solids (mg/L)	492	580	104	758	1100	598	108	468	632
Chloride (mg/L)	2.38	**1.94**	**1.94**	179	331	283	25.5	83.8	191
Bromide (mg/L)	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	0.04	0.04
Sulfate (mg/L)	154	130	18.2	125	150	18.5	**3.45**	36.4	70.7
Fluoride (mg/L)	0.96	0.88	0.21	0.33	0.88	0.15	**0.1**	0.17	0.43
Total Hardness (mg/L)	493	445	122	318	427	135	75.1	338	272
Total Aluminum	240	30	20	250	10	150	30	60	50.3
Total Antimony	2.71	0.417	0.152	0.224	1.5	**0.125**	**0.125**	**0.125**	0.67
Total Arsenic	0.592	0.605	0.586	0.705	0.64	0.628	**0.441**	1.03	0.66
Total Barium	25.3	23.2	13.1	29.3	29.5	20.1	17.6	90.1	34.9
Total Beryllium	**0.039**	**0.039**	**0.039**	**0.039**	**0.039**	**0.039**	**0.039**	0.039	0.04
Total Boron	316	344	105	77.2	219	8.63	**8.5**	18.7	97.6
Total Cadmium	**0.0002**	**0.002**	**0.0002**	**0.0002**	0.0004	**0.0002**	**0.0002**	**0.0002**	0.0003
Total Chromium	**2.07**	**2.07**	**2.07**	**2.07**	**2.07**	**2.07**	**2.07**	**2.07**	2.07
Hexavalent Chromium	**20**	2	**20**	**20**	**2**	**2**	**2**	**20**	6.20
Total Cobalt	0.185	0.172	0.057	0.302	0.172	0.109	0.044	1.28	0.32
Total Copper	1.71	1.05	1.17	1.54	14.7	1	1.98	0.629	6.38
Total Cyanide	**4**	**4**	**3**	**4**	**4**	**4**	**4**	**4**	3.96
Total Iron	1180	40	40	390	**20**	0.15	30	3030	547
Dissolved Iron	30	**20**	30	110	**20**	40	**20**	210	57.3
Total Lead	0.202	**0.075**	**0.075**	0.365	0.082	0.133	0.0225	0.12	0.09
Total Manganese	11.7	6.25	1.68	101	0.934	9.49	4.59	1570	271
Total Mercury	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	0.20
Total Molybdenum	8.73	1.91	1.02	0.869	18.5	0.261	0.347	0.324	7.31
Total Nickel	1.4	1.31	0.653	1.19	13.1	0.875	0.528	2.01	5.62
Total Phenols (Phenolics)	18	**5**	5.1	18	0.02	17	15	50	15.3
Total Selenium	14.3	10.1	1.45	1.8	9.32	**0.631**	**0.631**	**0.631**	4.09
Total Silver	**0.0005**	**0.0005**	**0.0005**	**0.0005**	**0.0005**	**0.0005**	**0.0005**	**0.00005**	0.0004
Total Thallium	**0.038**	**0.038**	**0.038**	**0.038**	**0.038**	**0.038**	**0.038**	0.045	0.04
Total Zinc	10	**5**	**5**	9	77	**5**	**5**	**5**	32.4
Acrolein	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	2.50
Acrylamide	**110**	**100**	**110**	**110**	**120**	**110**	**110**	**120**	115
Acrylonitrile	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	2.50
Benzene	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**2.5**	**2.5**	**2.5**	1.50
Bromoform	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	0.50
Carbon Tetrachloride	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	0.25
Chlorobenzene	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	0.25
Chlorodibromomethane	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	0.25
Chloroethane	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	0.50
2-Chloroethyl Vinyl Ether	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	2.00
Chloroform	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	0.25

Parameter (µg/L)	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	Flow Weighted Average
Dichlorobromomethane	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.02	0.21
1,1-Dichloroethane	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
1,2-Dichloroethane	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
1,1-Dichloroethylene	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.50
1,2-Dichloropropane	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
1,3-Dichloropropylene	0.75	0.75	0.75	0.75	0.5	0.5	0.5	0.5	0.52
Ethylbenzene	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Methyl Bromide	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.50
Methyl Chloride	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.50
Methylene Chloride	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
1,1,2,2-Tetrachloroethane	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Tetrachloroethylene	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Toluene	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
1,2-trans-Dichloroethylene	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
1,1,1-Trichloroethane	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
1,1,2-Trichloroethane	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Trichloroethylene	0.25	0.25	0.25	0.25	0.515	0.25	0.25	0.25	0.35
Vinyl Chloride	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.50
2-Chlorophenol	0.66	0.66	0.67	0.67	0.68	0.57	0.67	0.67	0.66
2,4-Dichlorophenol	0.53	0.53	0.53	0.53	0.54	0.53	0.53	0.54	0.54
2,4-Dimethylphenol	0.42	0.42	0.43	0.43	0.44	0.43	0.43	0.43	0.43
4,6-Dinitro-o-Cresol	15	15	15	15	16	15	15	10	14.5
2,4-Dinitrophenol	16	16	16	16	16	16	16	16	16.0
2-Nitrophenol	0.63	0.63	0.64	0.64	0.65	0.64	0.64	0.64	0.64
4-Nitrophenol	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.50
p-Chloro-m-Cresol	0.63	0.63	0.64	0.64	0.65	0.64	0.64	0.64	0.64
Pentachlorophenol	8.7	8.7	8.8	8.8	9	8.8	8.8	8.9	8.89
Phenol	5	5	5.1	5.1	5.2	5.1	5.1	5.1	5.14
2,4,6-Trichlorophenol	0.7	0.7	0.71	0.71	7.2	0.71	0.71	0.72	3.17
Acenaphthene	0.67	0.67	0.68	0.68	0.69	0.68	0.68	0.68	0.68
Acenaphthylene	0.67	0.67	0.68	0.68	0.69	0.68	0.68	0.68	0.68
Anthracene	0.51	0.51	0.51	0.51	0.52	0.51	0.51	0.52	0.52
Benzidine	94	94	95	95	97	95	95	56	89.1
Benzo(a)Anthracene	0.77	0.77	0.78	0.78	0.8	0.78	0.78	0.79	0.79
Benzo(a)Pyrene	0.55	0.55	0.55	0.55	0.56	0.55	0.55	2	0.80
3,4-Benzofluoranthene	1	1	1	1	1	1	1	1	1.00
Benzo(ghi)Perylene	0.71	0.71	0.72	0.72	0.73	0.72	0.72	0.73	0.73
Benzo(k)Fluoranthene	0.91	0.91	0.92	0.92	0.94	0.92	0.92	0.93	0.93
Bis(2-Chloroethoxy)Methane	0.69	0.69	0.7	0.7	0.71	0.7	0.7	0.71	0.71
Bis(2-Chloroethyl)Ether	0.41	0.41	0.42	0.42	0.43	0.42	0.42	0.42	0.42
Bis(2-Chloroisopropyl)Ether	0.6	0.6	0.6	0.6	0.62	0.6	0.6	0.61	0.61
Bis(2-Ethylhexyl)Phthalate	64	64	65	65	66	65	65	66	65.5

Parameter (µg/L)	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	Flow Weighted Average
4-Bromophenyl Phenyl Ether	0.65	0.65	0.66	0.66	0.67	0.66	0.66	0.66	0.66
Butyl Benzyl Phthalate	4.8	4.8	4.8	4.8	4.9	4.8	4.8	4.9	4.85
2-Chloronaphthalene	0.61	0.61	0.61	0.61	0.63	0.61	0.61	0.62	0.62
4-Chlorophenyl Phenyl Ether	0.63	0.63	0.64	0.64	0.65	0.64	0.64	0.64	0.64
Chrysene	0.84	0.84	0.84	0.84	0.86	0.84	0.84	0.85	0.85
Dibenzo(a,h)Anthrancene	0.74	0.74	0.75	0.75	0.77	0.75	0.75	0.76	0.76
1,2-Dichlorobenzene	0.53	0.53	0.53	0.53	0.54	0.53	0.53	1	0.61
1,3-Dichlorobenzene	0.51	0.51	0.51	0.51	0.52	0.51	0.51	0.5	0.51
1,4-Dichlorobenzene	0.63	0.63	0.64	0.64	0.65	0.64	0.64	0.64	0.64
3,3-Dichlorobenzidine	6	6	6.1	6.1	6.2	6.1	6.1	6.1	6.14
Diethyl Phthalate	5.8	5.8	5.9	5.9	6	5.9	5.9	6	5.95
Dimethyl Phthalate	0.58	0.58	0.58	0.58	0.6	0.58	0.58	0.59	0.59
Di-n-Butyl Phthalate	7.7	7.7	7.7	7.7	7.9	7.7	7.7	7.8	7.79
2,4-Dinitrotoluene	0.53	0.53	0.53	0.53	0.54	0.53	0.53	0.54	0.54
2,6-Dinitrotoluene	0.62	0.62	0.63	0.63	0.64	0.63	0.63	0.63	0.63
1,4-Dioxane	25	25	25	25	25	25	25	25	25.0
Di-n-Octyl Phthalate	7.1	7.1	7.1	7.1	7.9	7.1	7.1	7.2	7.42
1,2-Diphenylhydrazine	0.51	0.51	0.51	0.51	0.54	0.51	0.51	0.52	0.52
Fluoranthene	0.62	0.62	0.63	0.63	0.64	0.63	0.63	0.63	0.63
Fluorene	0.71	0.71	0.72	0.72	0.73	0.72	0.72	0.72	0.72
Hexachlorobenzene	0.58	0.58	0.58	0.58	0.6	0.58	0.58	0.59	0.59
Hexachlorobutadiene	0.71	0.71	0.72	0.72	0.73	0.72	0.72	0.73	0.73
Hexachlorocyclopentadiene	5.1	5.1	5.2	5.2	0.53	5.2	5.2	5.2	3.43
Hexachloroethane	0.64	0.64	0.65	0.65	0.66	0.65	0.65	0.65	0.65
Indeno(1,2,3-cd)Pyrene	0.88	0.88	0.89	0.89	0.9	0.89	0.89	0.89	0.89
Isophorone	0.56	0.56	0.56	0.56	0.57	0.56	0.56	0.57	0.57
Naphthalene	0.61	0.61	0.61	0.61	0.63	0.67	0.61	0.62	0.63
Nitrobenzene	5.2	5.2	5.2	5.2	5.3	5.2	5.2	5.3	5.25
n-Nitrosodimethylamine	0.69	0.69	0.7	0.7	0.71	0.7	0.7	0.71	0.71
n-Nitrosodi-n-Propylamine	0.73	0.73	0.74	0.74	0.76	0.74	0.74	0.75	0.75
n-Nitrosodiphenylamine	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.3	1.25
Phenanthrene	0.57	0.57	0.57	0.57	0.59	0.57	0.57	0.58	0.58
Pyrene	0.56	0.56	0.56	0.56	0.57	0.56	0.56	0.57	0.57
1,2,4-Trichlorobenzene	0.54	0.54	0.54	0.54	0.55	0.54	0.54	0.55	0.55

Attachment F:

Outfall 009 Toxics Management Spreadsheet

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Bruceton Research Center** NPDES Permit No.: **PA0025844** Outfall No.: **009**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Disposal Site Seep Discharge**

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
0.05	272	7						

	Discharge Pollutant	Units		Max Discharge Conc	Trib Conc (0 if left blank)	Stream Conc (0 if left blank)	Daily CV (0.5 if left blank)	Hourly CV (0.5 if left blank)	Stream CV (0 if left blank)	Fate Coeff (0 if left blank)	FOS (0 if left blank)	Criteria Mod (1 if left blank)	Chem Transl (1 if left blank)
Group 1	Total Dissolved Solids (PWS)	mg/L		632									
	Chloride (PWS)	mg/L		191									
	Bromide	mg/L	<	0.04									
	Sulfate (PWS)	mg/L		70.7									
	Fluoride (PWS)	mg/L		0.43									
Group 2	Total Aluminum	µg/L		50.3									
	Total Antimony	µg/L		0.37									
	Total Arsenic	µg/L		0.66									
	Total Barium	µg/L		34.9									
	Total Beryllium	µg/L	<	0.036									
	Total Boron	µg/L		97.6									
	Total Cadmium	µg/L		0.0003									
	Total Chromium (III)	µg/L	<	2.07									
	Hexavalent Chromium	µg/L		6.2									
	Total Cobalt	µg/L		0.32									
	Total Copper	µg/L		6.38									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	3.96									
	Dissolved Iron	µg/L		57.3									
	Total Iron	µg/L		547									
	Total Lead	µg/L		0.09									
	Total Manganese	µg/L		271									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		5.62									
	Total Phenols (Phenolics) (PWS)	µg/L		15.3									
	Total Selenium	µg/L		4.09									
	Total Silver	µg/L		0.002									
	Total Thallium	µg/L		0.04									
	Total Zinc	µg/L		32.4									
	Total Molybdenum	µg/L		5.62									
	Acrolein	µg/L	<	2.5									
	Acrylamide	µg/L	<	115									
	Acrylonitrile	µg/L	<	2.5									
	Benzene	µg/L	<	1.5									
	Bromoform	µg/L	<	0.5									

Group 3	Carbon Tetrachloride	µg/L	<	0.25									
	Chlorobenzene	µg/L		0.25									
	Chlorodibromomethane	µg/L	<	0.25									
	Chloroethane	µg/L	<	0.5									
	2-Chloroethyl Vinyl Ether	µg/L	<	2									
	Chloroform	µg/L	<	0.25									
	Dichlorobromomethane	µg/L	<	0.21									
	1,1-Dichloroethane	µg/L	<	0.25									
	1,2-Dichloroethane	µg/L	<	0.25									
	1,1-Dichloroethylene	µg/L	<	0.5									
	1,2-Dichloropropane	µg/L	<	0.25									
	1,3-Dichloropropylene	µg/L	<	0.52									
	1,4-Dioxane	µg/L	<	0.25									
	Ethylbenzene	µg/L	<	0.5									
	Methyl Bromide	µg/L	<	0.5									
	Methyl Chloride	µg/L	<	0.25									
	Methylene Chloride	µg/L	<	0.25									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.25									
	Tetrachloroethylene	µg/L	<	0.25									
	Toluene	µg/L	<	0.25									
	1,2-trans-Dichloroethylene	µg/L	<	0.25									
	1,1,1-Trichloroethane	µg/L	<	0.25									
	1,1,2-Trichloroethane	µg/L	<	0.25									
	Trichloroethylene	µg/L		0.35									
	Vinyl Chloride	µg/L	<	0.5									
Group 4	2-Chlorophenol	µg/L	<	0.66									
	2,4-Dichlorophenol	µg/L	<	0.54									
	2,4-Dimethylphenol	µg/L	<	0.43									
	4,6-Dinitro-o-Cresol	µg/L	<	14.5									
	2,4-Dinitrophenol	µg/L	<	16									
	2-Nitrophenol	µg/L	<	0.64									
	4-Nitrophenol	µg/L	<	1.5									
	p-Chloro-m-Cresol	µg/L	<	0.64									
	Pentachlorophenol	µg/L	<	8.89									
	Phenol	µg/L	<	5.14									
	2,4,6-Trichlorophenol	µg/L	<	3.17									
Group 5	Acenaphthene	µg/L	<	0.68									
	Acenaphthylene	µg/L	<	0.68									
	Anthracene	µg/L	<	0.52									
	Benzidine	µg/L	<	89.1									
	Benzo(a)Anthracene	µg/L	<	0.79									
	Benzo(a)Pyrene	µg/L	<	0.8									
	3,4-Benzofluoranthene	µg/L	<	1									
	Benzo(ghi)Perylene	µg/L	<	0.73									
	Benzo(k)Fluoranthene	µg/L	<	0.93									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.71									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.42									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.61									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	65.5									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.66									
	Butyl Benzyl Phthalate	µg/L	<	4.85									
	2-Chloronaphthalene	µg/L	<	0.62									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.64									
	Chrysene	µg/L	<	0.85									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.76									
	1,2-Dichlorobenzene	µg/L	<	0.61									
	1,3-Dichlorobenzene	µg/L	<	0.51									
	1,4-Dichlorobenzene	µg/L	<	0.64									
	3,3-Dichlorobenzidine	µg/L	<	6.14									
	Diethyl Phthalate	µg/L	<	5.95									
	Dimethyl Phthalate	µg/L	<	0.59									
	Di-n-Butyl Phthalate	µg/L	<	7.79									
	2,4-Dinitrotoluene	µg/L	<	0.54									

	2,6-Dinitrotoluene	µg/L	<	0.63									
	Di-n-Octyl Phthalate	µg/L	<	7.42									
	1,2-Diphenylhydrazine	µg/L	<	0.52									
	Fluoranthene	µg/L	<	0.63									
	Fluorene	µg/L	<	0.42									
	Hexachlorobenzene	µg/L	<	0.59									
	Hexachlorobutadiene	µg/L	<	0.73									
	Hexachlorocyclopentadiene	µg/L	<	3.43									
	Hexachloroethane	µg/L	<	0.65									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.89									
	Isophorone	µg/L	<	0.57									
	Naphthalene	µg/L	<	0.63									
	Nitrobenzene	µg/L	<	5.25									
	n-Nitrosodimethylamine	µg/L	<	0.71									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.75									
	n-Nitrosodiphenylamine	µg/L	<	1.25									
	Phenanthrene	µg/L	<	0.58									
	Pyrene	µg/L	<	0.57									
	1,2,4-Trichlorobenzene	µg/L	<	0.55									
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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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Bruceton Research Center, NPDES Permit No. PA0025844, Outfall 009

Instructions | Discharge | Stream

Receiving Surface Water Name: **Unnamed Tributary to Lick 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	039457	0.1	940	0.18			Yes
End of Reach 1	039457	0.01	915	0.19			Yes

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

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	0.1	0.1	0.0009									100	7		
End of Reach 1	0.01	0.1	0.0009												

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	0.1														
End of Reach 1	0.01														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Bruceton Research Center, NPDES Permit No. PA0025844, Outfall 009

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.000 PMF: 1 Analysis Hardness (mg/l): 270.02 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	759	
Total Antimony	0	0		0	1,100	1,100	1,113	
Total Arsenic	0	0		0	340	340	344	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	21,244	
Total Boron	0	0		0	8,100	8,100	8,194	
Total Cadmium	0	0		0	5.285	5.86	5.92	Chem Translator of 0.902 applied
Total Chromium (III)	0	0		0	1285.317	4,067	4,115	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	16.5	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	96.1	
Total Copper	0	0		0	34.264	35.7	36.1	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	186.857	289	292	Chem Translator of 0.646 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1.67	Chem Translator of 0.85 applied
Total Nickel	0	0		0	1084.995	1,087	1,100	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	17.759	20.9	21.1	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	65.8	
Total Zinc	0	0		0	271.881	278	281	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	3.03	

Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	650	650	658	
Benzene	0	0		0	640	640	647	
Bromoform	0	0		0	1,800	1,800	1,821	
Carbon Tetrachloride	0	0		0	2,800	2,800	2,833	
Chlorobenzene	0	0		0	1,200	1,200	1,214	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	18,209	
Chloroform	0	0		0	1,900	1,900	1,922	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	15,175	
1,1-Dichloroethylene	0	0		0	7,500	7,500	7,587	
1,2-Dichloropropane	0	0		0	11,000	11,000	11,128	
1,3-Dichloropropylene	0	0		0	310	310	314	
Ethylbenzene	0	0		0	2,900	2,900	2,934	
Methyl Bromide	0	0		0	550	550	556	
Methyl Chloride	0	0		0	28,000	28,000	28,326	
Methylene Chloride	0	0		0	12,000	12,000	12,140	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,012	
Tetrachloroethylene	0	0		0	700	700	708	
Toluene	0	0		0	1,700	1,700	1,720	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	6,879	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	3,035	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	3,440	
Trichloroethylene	0	0		0	2,300	2,300	2,327	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	567	
2,4-Dichlorophenol	0	0		0	1,700	1,700	1,720	
2,4-Dimethylphenol	0	0		0	660	660	668	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	80.9	
2,4-Dinitrophenol	0	0		0	660	660	668	
2-Nitrophenol	0	0		0	8,000	8,000	8,093	
4-Nitrophenol	0	0		0	2,300	2,300	2,327	
p-Chloro-m-Cresol	0	0		0	160	160	162	
Pentachlorophenol	0	0		0	8.723	8.72	8.82	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	465	
Acenaphthene	0	0		0	83	83.0	84.0	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	303	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.51	
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	30,349	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	4,552	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	273	

Butyl Benzyl Phthalate	0	0		0	140	140	142	
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	830	
1,3-Dichlorobenzene	0	0		0	350	350	354	
1,4-Dichlorobenzene	0	0		0	730	730	738	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	4,047	
Dimethyl Phthalate	0	0		0	2,500	2,500	2,529	
Di-n-Butyl Phthalate	0	0		0	110	110	111	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	1,619	
2,6-Dinitrotoluene	0	0		0	990	990	1,002	
1,2-Diphenylhydrazine	0	0		0	15	15.0	15.2	
Fluoranthene	0	0		0	200	200	202	
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	10.1	
Hexachlorocyclopentadiene	0	0		0	5	5.0	5.06	
Hexachloroethane	0	0		0	60	60.0	60.7	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	10,116	
Naphthalene	0	0		0	140	140	142	
Nitrobenzene	0	0		0	4,000	4,000	4,047	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	17,198	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	303	
Phenanthrene	0	0		0	5	5.0	5.06	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	132	

☑ *CFC* CCT (min): 0.000 PMF: 1 Analysis Hardness (mg/l): 270.02 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
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	223	
Total Arsenic	0	0		0	150	150	152	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	4,148	
Total Boron	0	0		0	1,600	1,600	1,619	
Total Cadmium	0	0		0	0.490	0.56	0.57	Chem Translator of 0.867 applied
Total Chromium (III)	0	0		0	167.193	194	197	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	10.5	Chem Translator of 0.962 applied

Total Cobalt	0	0		0	19	19.0	19.2	
Total Copper	0	0		0	20.928	21.8	22.1	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	1,517	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	7.282	11.3	11.4	Chem Translator of 0.646 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	0.92	Chem Translator of 0.85 applied
Total Nickel	0	0		0	120.509	121	122	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	5.05	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	13.2	
Total Zinc	0	0		0	274.105	278	281	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	3.03	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	130	130	132	
Benzene	0	0		0	130	130	132	
Bromoform	0	0		0	370	370	374	
Carbon Tetrachloride	0	0		0	560	560	567	
Chlorobenzene	0	0		0	240	240	243	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	3,541	
Chloroform	0	0		0	390	390	395	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	3,136	
1,1-Dichloroethylene	0	0		0	1,500	1,500	1,517	
1,2-Dichloropropane	0	0		0	2,200	2,200	2,226	
1,3-Dichloropropylene	0	0		0	61	61.0	61.7	
Ethylbenzene	0	0		0	580	580	587	
Methyl Bromide	0	0		0	110	110	111	
Methyl Chloride	0	0		0	5,500	5,500	5,564	
Methylene Chloride	0	0		0	2,400	2,400	2,428	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	212	
Tetrachloroethylene	0	0		0	140	140	142	
Toluene	0	0		0	330	330	334	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	1,416	
1,1,1-Trichloroethane	0	0		0	610	610	617	
1,1,2-Trichloroethane	0	0		0	680	680	688	
Trichloroethylene	0	0		0	450	450	455	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	111	
2,4-Dichlorophenol	0	0		0	340	340	344	
2,4-Dimethylphenol	0	0		0	130	130	132	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	16.2	
2,4-Dinitrophenol	0	0		0	130	130	132	

2-Nitrophenol	0	0		0	1,600	1,600	1,619	
4-Nitrophenol	0	0		0	470	470	475	
p-Chloro-m-Cresol	0	0		0	500	500	506	
Pentachlorophenol	0	0		0	6.693	6.69	6.77	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	92.1	
Acenaphthene	0	0		0	17	17.0	17.2	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	59.7	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.1	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	6,070	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	921	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	54.6	
Butyl Benzyl Phthalate	0	0		0	35	35.0	35.4	
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	162	
1,3-Dichlorobenzene	0	0		0	69	69.0	69.8	
1,4-Dichlorobenzene	0	0		0	150	150	152	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	809	
Dimethyl Phthalate	0	0		0	500	500	506	
Di-n-Butyl Phthalate	0	0		0	21	21.0	21.2	
2,4-Dinitrotoluene	0	0		0	320	320	324	
2,6-Dinitrotoluene	0	0		0	200	200	202	
1,2-Diphenylhydrazine	0	0		0	3	3.0	3.03	
Fluoranthene	0	0		0	40	40.0	40.5	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	2.02	
Hexachlorocyclopentadiene	0	0		0	1	1.0	1.01	
Hexachloroethane	0	0		0	12	12.0	12.1	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	2,124	
Naphthalene	0	0		0	43	43.0	43.5	
Nitrobenzene	0	0		0	810	810	819	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	3,440	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	59.7	
Phenanthrene	0	0		0	1	1.0	1.01	

Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	26.3	

☑ ***THH*** CCT (min): 0.000 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
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	5.67	
Total Arsenic	0	0		0	10	10.0	10.1	
Total Barium	0	0		0	2,400	2,400	2,428	
Total Boron	0	0		0	3,100	3,100	3,136	
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	303	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	1,012	
Total Mercury	0	0		0	0.050	0.05	0.051	
Total Nickel	0	0		0	610	610	617	
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	0.24	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	3.03	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	101	
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	5.77	
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	33.4	

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	68.8	
Methyl Bromide	0	0		0	100	100.0	101	
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	57.7	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	101	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	10,116	
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	30.3	
2,4-Dichlorophenol	0	0		0	10	10.0	10.1	
2,4-Dimethylphenol	0	0		0	100	100.0	101	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	2.02	
2,4-Dinitrophenol	0	0		0	10	10.0	10.1	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	4,047	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	70.8	
Anthracene	0	0		0	300	300	303	
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	202	
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	0.1	
2-Chloronaphthalene	0	0		0	800	800	809	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	1,012	
1,3-Dichlorobenzene	0	0		0	7	7.0	7.08	
1,4-Dichlorobenzene	0	0		0	300	300	303	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	607	

Dimethyl Phthalate	0	0		0	2,000	2,000	2,023	
Di-n-Butyl Phthalate	0	0		0	20	20.0	20.2	
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	20.2	
Fluorene	0	0		0	50	50.0	50.6	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	4.05	
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	34.4	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	10.1	
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	20.2	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.071	

☑ *CRL* CCT (min): 0.004 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
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	
Acrylamide	0	0		0	0.07	0.07	0.085	
Acrylonitrile	0	0		0	0.06	0.06	0.073	
Benzene	0	0		0	0.58	0.58	0.7	
Bromoform	0	0		0	7	7.0	8.46	
Carbon Tetrachloride	0	0		0	0.4	0.4	0.48	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	0.97	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	1.15	
1,2-Dichloroethane	0	0		0	9.9	9.9	12.0	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	1.09	
1,3-Dichloropropylene	0	0		0	0.27	0.27	0.33	
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	24.2	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	0.24	
Tetrachloroethylene	0	0		0	10	10.0	12.1	
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	0.67	
Trichloroethylene	0	0		0	0.6	0.6	0.73	
Vinyl Chloride	0	0		0	0.02	0.02	0.024	
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	0.036	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	1.81	
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	0.0001	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.001	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0001	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.001	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.012	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.036	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	0.39	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	0.15	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.0001	
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	0.06	
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	0.06	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.06	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.036	
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	0.0001	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.012	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	0.12	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.001	
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	0.0008	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.006	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	3.99	
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
Hexavalent Chromium	0.004	0.007	10.5	16.4	26.3	µg/L	10.5	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	22.1	CFC	Discharge Conc > 10% WQBEL (no RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	303	THH	Discharge Conc > 10% WQBEL (no RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	1,517	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Manganese	Report	Report	Report	Report	Report	µg/L	1,012	THH	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	0.002	0.003	5.05	7.87	12.6	µg/L	5.05	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Thallium	Report	Report	Report	Report	Report	µg/L	0.24	THH	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	278	AFC	Discharge Conc > 10% WQBEL (no RP)
Acrolein	0.001	0.001	3.0	3.03	3.03	µg/L	3.0	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Acrylamide	0.00004	0.00006	0.085	0.13	0.21	µg/L	0.085	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Benzene	0.0003	0.0005	0.7	1.09	1.75	µg/L	0.7	CRL	Discharge Conc ≥ 50% WQBEL (RP)
1,3-Dichloropropylene	0.0001	0.0002	0.33	0.51	0.82	µg/L	0.33	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Trichloroethylene	Report	Report	Report	Report	Report	µg/L	0.73	CRL	Discharge Conc > 25% WQBEL (no RP)
4,6-Dinitro-o-Cresol	0.0008	0.001	2.02	3.16	5.06	µg/L	2.02	THH	Discharge Conc ≥ 50% WQBEL (RP)
2,4-Dinitrophenol	0.004	0.007	10.1	15.8	25.3	µg/L	10.1	THH	Discharge Conc ≥ 50% WQBEL (RP)
Benzidine	5.04E-08	7.87E-08	0.0001	0.0002	0.0003	µg/L	0.0001	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Bis(2-Ethylhexyl)Phthalate	0.0002	0.0003	0.39	0.6	0.97	µg/L	0.39	CRL	Discharge Conc ≥ 50% WQBEL (RP)
3,3-Dichlorobenzidine	0.00003	0.00004	0.06	0.094	0.15	µg/L	0.06	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Di-n-Butyl Phthalate	Report	Report	Report	Report	Report	µg/L	20.2	THH	Discharge Conc > 25% WQBEL (no RP)
Hexachlorobutadiene	0.000005	0.000008	0.012	0.019	0.03	µg/L	0.012	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Nitrobenzene	0.004	0.007	10.1	15.8	25.3	µg/L	10.1	THH	Discharge Conc ≥ 50% WQBEL (RP)
1,2,4-Trichlorobenzene	0.00003	0.00005	0.071	0.11	0.18	µg/L	0.071	THH	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	750	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	5.67	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	10.1	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	2,428	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	1,619	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	0.57	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	197	µg/L	Discharge Conc < TQL

Total Cobalt	19.2	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Total Lead	11.4	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.051	µg/L	Discharge Conc < TQL
Total Nickel	122	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Silver	20.9	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrylonitrile	0.073	µg/L	Discharge Conc < TQL
Bromoform	8.46	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	0.48	µg/L	Discharge Conc < TQL
Chlorobenzene	101	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	0.97	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	3,541	µg/L	Discharge Conc < TQL
Chloroform	5.77	µg/L	Discharge Conc < TQL
Dichlorobromomethane	1.15	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	12.0	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	33.4	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	1.09	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	68.8	µg/L	Discharge Conc < TQL
Methyl Bromide	101	µg/L	Discharge Conc < TQL
Methyl Chloride	5,564	µg/L	Discharge Conc < TQL
Methylene Chloride	24.2	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	0.24	µg/L	Discharge Conc < TQL
Tetrachloroethylene	12.1	µg/L	Discharge Conc < TQL
Toluene	57.7	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	101	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	617	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	0.67	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.024	µg/L	Discharge Conc < TQL
2-Chlorophenol	30.3	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	10.1	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	101	µg/L	Discharge Conc < TQL
2-Nitrophenol	1,619	µg/L	Discharge Conc < TQL
4-Nitrophenol	475	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	160	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.036	µg/L	Discharge Conc < TQL
Phenol	4,047	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	1.81	µg/L	Discharge Conc < TQL
Acenaphthene	17.2	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	303	µg/L	Discharge Conc < TQL

Benzo(a)Anthracene	0.001	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.0001	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.001	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.012	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.036	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	202	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	54.6	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.1	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	809	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	0.15	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.0001	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	162	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichlorobenzene	7.08	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dichlorobenzene	152	µg/L	Discharge Conc ≤ 25% WQBEL
Diethyl Phthalate	607	µg/L	Discharge Conc ≤ 25% WQBEL
Dimethyl Phthalate	506	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.06	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.06	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.036	µg/L	Discharge Conc < TQL
Fluoranthene	20.2	µg/L	Discharge Conc < TQL
Fluorene	50.6	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.0001	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	1.01	µg/L	Discharge Conc < TQL
Hexachloroethane	0.12	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.001	µg/L	Discharge Conc < TQL
Isophorone	34.4	µg/L	Discharge Conc < TQL
Naphthalene	43.5	µg/L	Discharge Conc ≤ 25% WQBEL
n-Nitrosodimethylamine	0.0008	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.006	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	3.99	µg/L	Discharge Conc < TQL
Phenanthrene	1.01	µg/L	Discharge Conc < TQL
Pyrene	20.2	µg/L	Discharge Conc < TQL