pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

NORTHCENTRAL REGIONAL OFFICE
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0010031**
Facility Type	**Industrial**	APS ID	**1033213**
Major / Minor	**Major**	Authorization ID	**1344726**

NPDES PERMIT FACT SHEET ADDENDUM No. 1

Applicant and Facility Information

Applicant Name	**Shawville Power LLC**	Facility Name	**Shawville Generating Station**
Applicant Address	250 Power Plant Road, Box F	Facility Address	250 Power Plant Drive
	Shawville, PA 16873		Shawville, PA 16873
Applicant Contact	Karen E. McClelland	Facility Contact	John Telford
Applicant Phone	(724) 877-4462	Facility Phone	(814) 768-4283
Client ID	350842	Site ID	244416
SIC Code	4911	Municipality	Bradford Township
SIC Description	Trans. & Utilities - Electric Services	County	Clearfield
Date Published in PA Bulletin	October 23, 2021	EPA Waived?	No
Comment Period End Date	November 21, 2021	If No, Reason	Major Facility

Purpose of Application: Renewal of an existing NPDES permit for the discharge of industrial wastewater, stormwater, and sewage.

Internal Review and Recommendations

Comment/Response

Comments from the permittee were received via letter dated November 15, 2021. The comments and DEP's responses are as follows:

1. **Comment: Part A.I.F. Outfall 405 – The addition of monitoring and reporting for Hexavalent Chromium** – The data used for modeling the draft permit for Hexavalent Chromium was <10 µg/l, which was submitted with the 2015 permit renewal. GenOn understands the use of the 2015 data for modeling in this permit due to Outfall 205 being shutdown during the 2021 renewal sampling, however; Hexavalent Chromium is not a parameter sampled for or expected to be present in effluent from a sewage treatment plant. In addition, the flow effluent from the sewage treatment plant (if the discharge is resumed) is minor in comparison to the flow at Outfall 405. Therefore, the data submitted in 2021 for Outfall 405, 1.2 µg/l, should be used in the modeling, as it was analyzed to a QL of 0.50 µg/l which is significantly lower and more representative of the discharge than the 10 µg/l QL used in 2015. Using 1.2 µg/l in the attached TMS model run results in the discharge concentration being less than ten percent of the WQBEL and therefore, no monitoring or limits are required in the permit. A copy of the TMS model run is attached. We request the removal of the monitoring and reporting of Hexavalent Chromium.

   Response: DEP agrees that a hexavalent chromium concentration 1.2 µg/l is more representative of the expected discharge characteristics. The TMS model has been modified accordingly and no longer recommends limits or monitoring requirements for hexavalent chromium.

Approve	Return	Deny	Signatures	Date
X			*Derek S. Garner* Derek S. Garner / Project Manager	December 22, 2021
X			*Nicholas W. Hartranft* Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	December 22, 2021

Internal Review and Recommendations

2. **Comment: Part A.I.F. Outfall 405 – The addition of monitoring and limits for Acrylamide** – Acrylamide was a new parameter required for the 2021 NPDES renewal application. PADEP application instructions did not provide a Target QL Value for Acrylamide. Our lab used analytical method EPA 8015C with an MDL of 5000 µg/l. Modeling resulted in new monitoring and limits being added to the draft permit. A QL of less than 4.64 µg/l would be required to show compliance with the new limits. Research into accredited laboratories showed that no labs in the U.S. are accredited to analyze Acrylamide below an MDL of 10 µg/l; therefore, GenOn would not be able show compliance for this parameter. Based on October 29, 2021 guidance from Mr. Derek Garner of the Department, GenOn evaluated all chemicals used in wastewater treatment and determined that no chemicals used contain Acrylamide; and therefore, it would not be present in the discharge. We request that the Acrylamide monitoring and limits be removed from the permit.

   Response: The TMS model incorrectly applied a target QL of 0.1 µg/l to acrylamide, which resulted in a limit being recommended. Since testing resulted in a non-detect, and Shawville has verified that no treatment chemicals contain acrylamide DEP believes that it is acceptable to rule out reasonable potential. Accordingly, no limits or monitoring requirements for acrylamide are proposed.

3. **Comment: Part A.I.A. Outfall 005 – The addition of calculated limits for Acrylamide and Reporting for Hexavalent Chromium –** Comments 1 and 2 above, show that monitoring is not required at Outfall 405 for Acrylamide or Hexavalent Chromium; therefore, reporting results and complying with calculated limits is not required at Final Outfall 005. We request that requirements for these parameters be removed from the permit.

   Response: Since requirements for hexavalent chromium and acrylamide have been removed from the internal monitoring points, requirements at Outfall 005 are no longer applicable and have also been removed.

4. **Comment: Part A.I.A. Outfall 005 – The addition of Total Mercury calculated limits –**The data used for modeling Mercury was 8.16 µg/l. The value reported in the 2015 application for Outfall 405 was 8.16 ng/l not µg/l. A value of < 0.100 µg/l was reported for Outfall 405 in the 2021 application. Mercury was not sampled for the application for Outfall 205. Modeling using either the correct units of measure for the 2015 data or the < 0.100 µg/l from 2021 show that the discharge concentration is less than the TQL, therefore; no monitoring or limits are required. A copy of the TMS model run is attached. Please remove the reporting requirements and calculated Mercury limits from Outfall 005. Mercury monitoring did not appear in the draft permit on Outfall 205 or Outfall 405.

   Response: Based on the revised input data, requirements for total mercury are no longer necessary to protect the receiving water and have been removed from the permit.

5. **Comment: Fact Sheet Page 12 – Clean Water Act Sec. 316(b) Determination –** Shawville does not have a "new unit" as defined. The permit condition later in the back of the permit is fine and follows the applicable requirement for cooling towers.

   Specifically, § 125.94(e) requires existing facility's with new units to achieve the impingement mortality and entrainment standards, at a minimum, to a level commensurate with that which can be attained by the use of a closed-cycle recirculating system.

   This is incorrect:

   40 CFR 125.92(k) Existing facility means any facility that commenced construction as described in 40 CFR 122.29(b)(4) on or before January 17, 2002 (or July 17, 2006 for an offshore oil and gas extraction facility) and any modification of, or any addition of a unit at such a facility. A facility built adjacent to another facility would be a new facility while the original facility would remain as an existing facility for purposes of this subpart. A facility cannot both be an existing facility and a new facility as defined at § 125.83.

   40 CFR 125.92(u)

   New unit means a new "stand-alone" unit at an existing facility where construction of the new unit begins after October 14, 2014 and that does not otherwise meet the definition of a new facility at § 125.83 or is not otherwise already subject to subpart I of this part. A stand-alone unit is a separate unit that is added to a facility for either the same general industrial operation or another purpose. A new unit may have its own dedicated cooling water intake structure, or the new unit may use an existing or modified cooling water intake structure.

Internal Review and Recommendations

Shawville is regulated as an existing facility (no new unit) under 40 CFR 125.94(a)(1) and is subject to the BTA (best technology available) standards for impingement mortality under paragraph (c) of this section and entrainment under paragraph (d) of this section including any measures to protect Federally-listed threatened and endangered species and designated critical habitat established under paragraph (g) of this section and is not regulated as a new unit under Section (e).

Under 40 CFR 125.94(b), Shawville must comply with the impingement mortality standard in §125.94(c) and with the entrainment standard under §125.94(d).

Specifically for impingement mortality, Shawville is complying with the alternative at 40 CFR 125.94(c)(1), (Closed-cycle recirculating system). *A facility must operate a closed-cycle recirculating system as defined at § 125.92(c). In addition, you must monitor the actual intake flows at a minimum frequency of daily. The monitoring must be representative of normal operating conditions, and must include measuring cooling water withdrawals, make-up water, and blow down volume. In lieu of daily intake flow monitoring, you may monitor your cycles of concentration at a minimum frequency of daily;*

For entrainment, DEP has determined that our closed-cycle recirculating system meets the site-specific BTA standard for entrainment under §125.94(d).

Response: DEP agrees that Shawville is an existing facility with an existing unit. Per 40 CFR Part 125, Subpart J and clarified in the *Technical Development Document for the Final Section 316(b) Existing Facilities Rule (EPA-821-R-14-002)*, an existing unit that is demolished and replaced at the same location regardless of change in fuel, capacity or cooling water intake flow, is still considered an existing unit.

6. **Comment: Part B.I.G. – Termination of Permit Coverage (25 Pa. Code § 92a.74 and 40 CFR 122.64) -** Condition #2 under Part B.I.G. is not required under 25 Pa. Code § 92a.74 and 40 CFR 122.64 and we request that this condition be removed.

   Response: Part B I.G.1 of the permit requires the permittee to submit a notice of termination ("NOT") per 40 CFR 122.64, and incorporated by reference at 92a.74. When a permittee proposes to terminate a discharge, DEP must review the justification and methodology to ensure it is being done in a proper manner; hence the requirements at Part B I.G.2 of the permit. DEP believes that the requirements at Part B.I.G. are appropriate and should remain in the permit.

Comments were received from the U.S. EPA via email dated December 8, 2021. The comments and DEP's responses are as follows:

1. **Comment:** The fact sheet documents include the rationale for continued TN and TP monitoring at IMP 405, due to the expectation (historically) for this discharge to introduce a net TN or TP increase to the load contained within the intake water. The continued monitoring is consistent with PADEP's Chesapeake Bay Phase 3 WIP Wastewater Supplement, but the fact sheet doesn't indicate whether PADEP has evaluated the monitoring data collected to date to understand if there is a net increase in TN or TP, and what that value may be. EPA recommends including a discussion of that data in the fact sheet.

   Response: Intake sampling for nitrogen and phosphorus completed for the application indicate that the pollutants are not present in detectable amounts. Historic sample results dating back to 2016 for IMP 405 show an average total nitrogen concentration of 17.4 mg/l and an average total phosphorus concentration of 0.23 mg/l. Since total nitrogen and total phosphorus were not detected in the intake results but are detected in the industrial waste streams at IMP 405 a net increase exists and continued monitoring is appropriate.

2. **Comment:** Page 21 of the fact sheet notes that sampling at IMP 205 shows detectable amounts of the TMDL pollutants in the STP effluent. The permit imposes monitoring for total aluminum and manganese, but does not include monitoring for total iron at IMP 205. Application data for IMP 205 in Attachment E of the fact sheet documents that total iron is detected, and pages 34-35 of the fact sheet documents proposed requirements for IMP 205 that includes monitoring for total iron, but these proposed requirements do not match the permit requirements. It is unclear whether this was an omission, but it seems like total iron monitoring would be appropriate. Please clarify the expectations for the permit.

Internal Review and Recommendations

Response: Total iron monitoring requirements were erroneously omitted from IMP 205. The error has been corrected.

3. **Comment:** Regarding 316(b) and Cooling Water Intake Structure requirements:

    a. Part C.IV.E. of the permit states that "[i]f DEP determines methods to meet impingement and entertainment BTA requirements are not sufficient, the permittee shall employ additional controls to reduce adverse impacts from impingement and entrainment." What information will DEP use to make this determination? In other words, what is the permittee required to do to determine BTA compliance now that the closed cycle cooling system is installed? Please clarify.
    b. After looking over some of the previous fact sheet discussions, it is unclear exactly how PADEP determined BTA for entrainment. While a closed cycle cooling system meets BTA for impingement (40 CFR 125.95(c)(1)), fact sheets still need to evaluate whether that technology also meets BTA for entrainment. We didn't see this information in the previous fact sheet discussions, and EPA would like to set up a call with PADEP to better understand how PADEP evaluated the permit application information for this facility.

Response: DEP's responses are as follows:

    a. DEP has previously determined that impingement mortality and entrainment requirements are satisfied through the permittee's construction and operation of the closed-cycle cooling system. There are no further requirements from the permittee to prove the closed-cycle cooling system is BTA.

    b. As part of the current application the permitee was required to include an entrainment reduction technology evaluation. DEP believes that the brief evaluation (below) satisfies EPA's concerns regarding entrainment. If EPA still has concerns, DEP is open to a conference call.

    Item 2 of the Additional Studies section, Instructions for Module 5, requires that an entrainment reduction technology evaluation be attached to Module 5 if the facility withdraws less than or equal to 125 MGD on an Actual Intake Flow (AIF) basis. Shawville installed and began operating a closed-cycle recirculating cooling system (CCRS) in March 2017. CCRS is the default Best Technology Available (BTA) for compliance with both the Impingement Mortality and Entrainment requirements in Clean Water Act 316(b). CCRS is the technology to which all other technologies are compared in an entrainment reduction technology evaluation. As demonstrated in Module 5, Shawville has reduced its cooling water intake flows by 99.8% (from a Design Intake Flow (DIF) of 426 MGD to an AIF of 0.83 MGD). Entrainment reductions correlate directly with flow reductions, so entrainment has been reduced by at least 99.8%, without taking credit for reduced operations during part of the entrainment season (April through August). There is no other technology currently available that would provide comparable entrainment reductions to CCRS. No additional evaluations are necessary.

SUMMARY OF CHANGES

1. Based on revised modeling input data the permit no longer proposes effluent limits or monitoring requirements for hexavalent chromium or total mercury.
2. Effluent limits and monitoring requirements for acrylamide were erroneously proposed and have been removed.
3. Total iron monitoring requirements were erroneously omitted from IMP 205. The error has been corrected.

Based on the changes made to the permit, the permit will be redrafted and published in the PA Bulletin for an additional thirty-day comment period.

Discharge Information

Instructions | Discharge | Stream

Facility: **Shawville Generating Station** NPDES Permit No.: **PA0010031** Outfall No.: **005**

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

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
3.445	805	7						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		1827		316							
	Chloride (PWS)	mg/L		49.28		10							
	Bromide	mg/L		3.69		0.1							
	Sulfate (PWS)	mg/L		832		200							
	Fluoride (PWS)	mg/L		0.2		0.1							
Group 2	Total Aluminum	µg/L		1100		47.4							
	Total Antimony	µg/L		1.29									
	Total Arsenic	µg/L	<	9.95									
	Total Barium	µg/L		73		40.3							
	Total Beryllium	µg/L	<	0.5									
	Total Boron	µg/L		538.26									
	Total Cadmium	µg/L	<	0.1									
	Total Chromium (III)	µg/L	<	9.95		0.7							
	Hexavalent Chromium	µg/L		1.2		0.6							
	Total Cobalt	µg/L		2.99		0.5							
	Total Copper	µg/L	<	4.97		0.8							
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		27									
	Dissolved Iron	µg/L		152									
	Total Iron	µg/L		1800		140							
	Total Lead	µg/L		0.3									
	Total Manganese	µg/L		2100		40							
	Total Mercury	µg/L	<	0.1									
	Total Nickel	µg/L		5.97		4.3							
	Total Phenols (Phenolics) (PWS)	µg/L	<	9.95									
	Total Selenium	µg/L		4.18									
	Total Silver	µg/L	<	1.99									
	Total Thallium	µg/L		6.96									
	Total Zinc	µg/L		300		3.4							
	Total Molybdenum	µg/L		57.7									
	Acrolein	µg/L	<	1									
	Acrylamide	µg/L	<	5000									
	Acrylonitrile	µg/L	<	0.5									
	Benzene	µg/L	<	0.2									
	Bromoform	µg/L	<	0.5									

Group 3	Carbon Tetrachloride	µg/L	<	0.2									
	Chlorobenzene	µg/L	<	0.2									
	Chlorodibromomethane	µg/L	<	0.4									
	Chloroethane	µg/L	<	0.2									
	2-Chloroethyl Vinyl Ether	µg/L	<	0.4									
	Chloroform	µg/L		0.7									
	Dichlorobromomethane	µg/L	<	0.2									
	1,1-Dichloroethane	µg/L	<	0.2									
	1,2-Dichloroethane	µg/L	<	0.2									
	1,1-Dichloroethylene	µg/L	<	0.2									
	1,2-Dichloropropane	µg/L	<	0.2									
	1,3-Dichloropropylene	µg/L	<	0.2									
	1,4-Dioxane	µg/L	<	0.1									
	Ethylbenzene	µg/L	<	0.2									
	Methyl Bromide	µg/L	<	0.5									
	Methyl Chloride	µg/L	<	0.5									
	Methylene Chloride	µg/L	<	0.4									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.2									
	Tetrachloroethylene	µg/L	<	0.4									
	Toluene	µg/L	<	0.2									
	1,2-trans-Dichloroethylene	µg/L	<	0.5									
	1,1,1-Trichloroethane	µg/L	<	0.2									
	1,1,2-Trichloroethane	µg/L	<	0.5									
	Trichloroethylene	µg/L	<	0.2									
	Vinyl Chloride	µg/L	<	0.2									
Group 4	2-Chlorophenol	µg/L	<	0.2									
	2,4-Dichlorophenol	µg/L	<	0.2									
	2,4-Dimethylphenol	µg/L	<	0.2									
	4,6-Dinitro-o-Cresol	µg/L	<	1.01									
	2,4-Dinitrophenol	µg/L	<	1.01									
	2-Nitrophenol	µg/L	<	0.51									
	4-Nitrophenol	µg/L	<	0.51									
	p-Chloro-m-Cresol	µg/L	<	0.2									
	Pentachlorophenol	µg/L	<	0.51									
	Phenol	µg/L	<	0.2									
	2,4,6-Trichlorophenol	µg/L	<	0.2									
Group 5	Acenaphthene	µg/L	<	0.1									
	Acenaphthylene	µg/L	<	0.1									
	Anthracene	µg/L	<	0.1									
	Benzidine	µg/L	<	0.1									
	Benzo(a)Anthracene	µg/L	<	0.51									
	Benzo(a)Pyrene	µg/L	<	0.1									
	3,4-Benzofluoranthene	µg/L	<	0.1									
	Benzo(ghi)Perylene	µg/L	<	0.1									
	Benzo(k)Fluoranthene	µg/L	<	0.1									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.1									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.1									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.1									
	Bis(2-Ethylhexyl)Phthalate	µg/L		2.2									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.1									
	Butyl Benzyl Phthalate	µg/L	<	1.01									
	2-Chloronaphthalene	µg/L	<	0.1									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.1									
	Chrysene	µg/L	<	0.1									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.1									
	1,2-Dichlorobenzene	µg/L	<	0.2									
	1,3-Dichlorobenzene	µg/L	<	0.2									
	1,4-Dichlorobenzene	µg/L	<	0.2									
	3,3-Dichlorobenzidine	µg/L	<	0.51									
	Diethyl Phthalate	µg/L	<	1.01									
	Dimethyl Phthalate	µg/L	<	1.01									
	Di-n-Butyl Phthalate	µg/L	<	1.01									
	2,4-Dinitrotoluene	µg/L		0.6									

	2,6-Dinitrotoluene	µg/L	<	0.2									
	Di-n-Octyl Phthalate	µg/L	<	1.01									
	1,2-Diphenylhydrazine	µg/L	<	0.1									
	Fluoranthene	µg/L	<	0.1									
	Fluorene	µg/L	<	0.1									
	Hexachlorobenzene	µg/L	<	0.1									
	Hexachlorobutadiene	µg/L	<	0.1									
	Hexachlorocyclopentadiene	µg/L	<	0.51									
	Hexachloroethane	µg/L	<	0.1									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.1									
	Isophorone	µg/L	<	0.2									
	Naphthalene	µg/L	<	0.1									
	Nitrobenzene	µg/L	<	0.1									
	n-Nitrosodimethylamine	µg/L	<	0.1									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.1									
	n-Nitrosodiphenylamine	µg/L	<	0.1									
	Phenanthrene	µg/L	<	0.1									
	Pyrene	µg/L	<	0.1									
	1,2,4-Trichlorobenzene	µg/L	<	0.1									
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											

Stream / Surface Water Information

Shawville Generating Station, NPDES Permit No. PA0010031, Outfall 005

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **West Branch Susquehanna River**

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	018668	164.15	1037	930			Yes
End of Reach 1	018668	162.84	1036	972			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	164.15	0.1338										220	7		
End of Reach 1	162.84	0.1338										220	7		

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	164.15														
End of Reach 1	162.84														

Model Results

Shawville Generating Station, NPDES Permit No. PA0010031, Outfall 005

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

☑ ***Hydrodynamics***

Q 7-10

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)
164.15	124.43		124.43	5.329	0.00014	1.17	205.322	175.519	0.54	0.148	3492.676
162.84	130.05		130.0536								

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)
164.15	503.46		503.46	5.329	0.00014	2.134	205.322	96.213	1.161	0.069	1509.397
162.84	523.277		523.28								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.066 Analysis Hardness (mg/l): 451.21 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)	316000	0		0	N/A	N/A	N/A	
Chloride (PWS)	10000	0		0	N/A	N/A	N/A	
Sulfate (PWS)	200000	0		0	N/A	N/A	N/A	
Fluoride (PWS)	100	0		0	N/A	N/A	N/A	
Total Aluminum	47.4	0		0	750	750	1,825	
Total Antimony	0	0		0	1,100	1,100	2,783	
Total Arsenic	0	0		0	340	340	860	Chem Translator of 1 applied
Total Barium	40.3	0		0	21,000	21,000	53,071	
Total Boron	0	0		0	8,100	8,100	20,494	
Total Cadmium	0	0		0	8.694	9.87	25.0	Chem Translator of 0.881 applied
Total Chromium (III)	0.7	0		0	1957.195	6,194	15,670	Chem Translator of 0.316 applied
Hexavalent Chromium	0.6	0		0	16	16.3	40.3	Chem Translator of 0.982 applied
Total Cobalt	0.5	0		0	95	95.0	240	

Total Copper	0.8	0		0	55.581	57.9	145	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	140	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	317.640	556	1,406	Chem Translator of 0.571 applied
Total Manganese	40	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	4.17	Chem Translator of 0.85 applied
Total Nickel	4.3	0		0	1675.222	1,679	4,240	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	42.949	50.5	128	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	164	
Total Zinc	3.4	0		0	420.062	430	1,082	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	7.59	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	650	650	1,645	
Benzene	0	0		0	640	640	1,619	
Bromoform	0	0		0	1,800	1,800	4,554	
Carbon Tetrachloride	0	0		0	2,800	2,800	7,084	
Chlorobenzene	0	0		0	1,200	1,200	3,036	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	45,542	
Chloroform	0	0		0	1,900	1,900	4,807	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	37,952	
1,1-Dichloroethylene	0	0		0	7,500	7,500	18,976	
1,2-Dichloropropane	0	0		0	11,000	11,000	27,831	
1,3-Dichloropropylene	0	0		0	310	310	784	
Ethylbenzene	0	0		0	2,900	2,900	7,337	
Methyl Bromide	0	0		0	550	550	1,392	
Methyl Chloride	0	0		0	28,000	28,000	70,843	
Methylene Chloride	0	0		0	12,000	12,000	30,361	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	2,530	
Tetrachloroethylene	0	0		0	700	700	1,771	
Toluene	0	0		0	1,700	1,700	4,301	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	17,205	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	7,590	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	8,602	
Trichloroethylene	0	0		0	2,300	2,300	5,819	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	1,417	
2,4-Dichlorophenol	0	0		0	1,700	1,700	4,301	
2,4-Dimethylphenol	0	0		0	660	660	1,670	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	202	
2,4-Dinitrophenol	0	0		0	660	660	1,670	
2-Nitrophenol	0	0		0	8,000	8,000	20,241	
4-Nitrophenol	0	0		0	2,300	2,300	5,819	
p-Chloro-m-Cresol	0	0		0	160	160	405	

Pentachlorophenol	0	0		0	8.723	8.72	22.1	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	1,164	
Acenaphthene	0	0		0	83	83.0	210	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	759	
Benzo(a)Anthracene	0	0		0	0.5	0.5	1.27	
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	75,904	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	11,386	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	683	
Butyl Benzyl Phthalate	0	0		0	140	140	354	
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	2,075	
1,3-Dichlorobenzene	0	0		0	350	350	886	
1,4-Dichlorobenzene	0	0		0	730	730	1,847	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	10,120	
Dimethyl Phthalate	0	0		0	2,500	2,500	6,325	
Di-n-Butyl Phthalate	0	0		0	110	110	278	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	4,048	
2,6-Dinitrotoluene	0	0		0	990	990	2,505	
1,2-Diphenylhydrazine	0	0		0	15	15.0	38.0	
Fluoranthene	0	0		0	200	200	506	
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	25.3	
Hexachlorocyclopentadiene	0	0		0	5	5.0	12.7	
Hexachloroethane	0	0		0	60	60.0	152	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	25,301	
Naphthalene	0	0		0	140	140	354	
Nitrobenzene	0	0		0	4,000	4,000	10,120	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	43,012	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	759	
Phenanthrene	0	0		0	5	5.0	12.7	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	329	

☑ ***CFC*** CCT (min): 720 PMF: 0.454 Analysis Hardness (mg/l): 270.43 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)	316000	0		0	N/A	N/A	N/A	
Chloride (PWS)	10000	0		0	N/A	N/A	N/A	
Sulfate (PWS)	200000	0		0	N/A	N/A	N/A	
Fluoride (PWS)	100	0		0	N/A	N/A	N/A	
Total Aluminum	47.4	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	2,552	
Total Arsenic	0	0		0	150	150	1,740	Chem Translator of 1 applied
Total Barium	40.3	0		0	4,100	4,100	47,137	
Total Boron	0	0		0	1,600	1,600	18,562	
Total Cadmium	0	0		0	0.491	0.57	6.56	Chem Translator of 0.867 applied
Total Chromium (III)	0.7	0		0	167.399	195	2,251	Chem Translator of 0.86 applied
Hexavalent Chromium	0.6	0		0	10	10.4	114	Chem Translator of 0.962 applied
Total Cobalt	0.5	0		0	19	19.0	215	
Total Copper	0.8	0		0	20.955	21.8	245	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	140	0		0	1,500	1,500	33,254	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	7.293	11.3	131	Chem Translator of 0.646 applied
Total Manganese	40	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	10.5	Chem Translator of 0.85 applied
Total Nickel	4.3	0		0	120.662	121	1,358	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	57.9	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	151	
Total Zinc	3.4	0		0	274.454	278	3,193	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	34.8	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	130	130	1,508	
Benzene	0	0		0	130	130	1,508	
Bromoform	0	0		0	370	370	4,292	
Carbon Tetrachloride	0	0		0	560	560	6,497	
Chlorobenzene	0	0		0	240	240	2,784	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	40,603	
Chloroform	0	0		0	390	390	4,524	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	35,963	
1,1-Dichloroethylene	0	0		0	1,500	1,500	17,401	
1,2-Dichloropropane	0	0		0	2,200	2,200	25,522	
1,3-Dichloropropylene	0	0		0	61	61.0	708	
Ethylbenzene	0	0		0	580	580	6,729	
Methyl Bromide	0	0		0	110	110	1,276	
Methyl Chloride	0	0		0	5,500	5,500	63,805	

Methylene Chloride	0	0		0	2,400	2,400	27,842	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	2,436	
Tetrachloroethylene	0	0		0	140	140	1,624	
Toluene	0	0		0	330	330	3,828	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	16,241	
1,1,1-Trichloroethane	0	0		0	610	610	7,077	
1,1,2-Trichloroethane	0	0		0	680	680	7,889	
Trichloroethylene	0	0		0	450	450	5,220	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	1,276	
2,4-Dichlorophenol	0	0		0	340	340	3,944	
2,4-Dimethylphenol	0	0		0	130	130	1,508	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	186	
2,4-Dinitrophenol	0	0		0	130	130	1,508	
2-Nitrophenol	0	0		0	1,600	1,600	18,562	
4-Nitrophenol	0	0		0	470	470	5,452	
p-Chloro-m-Cresol	0	0		0	500	500	5,800	
Pentachlorophenol	0	0		0	6.693	6.69	77.6	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	1,056	
Acenaphthene	0	0		0	17	17.0	197	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	684	
Benzo(a)Anthracene	0	0		0	0.1	0.1	1.16	
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	69,606	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	10,557	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	626	
Butyl Benzyl Phthalate	0	0		0	35	35.0	406	
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	1,856	
1,3-Dichlorobenzene	0	0		0	69	69.0	800	
1,4-Dichlorobenzene	0	0		0	150	150	1,740	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	9,281	
Dimethyl Phthalate	0	0		0	500	500	5,800	
Di-n-Butyl Phthalate	0	0		0	21	21.0	244	
2,4-Dinitrotoluene	0	0		0	320	320	3,712	
2,6-Dinitrotoluene	0	0		0	200	200	2,320	
1,2-Diphenylhydrazine	0	0		0	3	3.0	34.8	

Fluoranthene	0	0		0	40	40.0	464	
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	23.2	
Hexachlorocyclopentadiene	0	0		0	1	1.0	11.6	
Hexachloroethane	0	0		0	12	12.0	139	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	24,362	
Naphthalene	0	0		0	43	43.0	499	
Nitrobenzene	0	0		0	810	810	9,397	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	39,443	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	684	
Phenanthrene	0	0		0	1	1.0	11.6	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	302	

☑ ***THH*** CCT (min): 720 PMF: 0.454 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)	316000	0		0	500,000	500,000	N/A	
Chloride (PWS)	10000	0		0	250,000	250,000	N/A	
Sulfate (PWS)	200000	0		0	250,000	250,000	N/A	
Fluoride (PWS)	100	0		0	2,000	2,000	N/A	
Total Aluminum	47.4	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	65.0	
Total Arsenic	0	0		0	10	10.0	116	
Total Barium	40.3	0		0	2,400	2,400	27,415	
Total Boron	0	0		0	3,100	3,100	35,963	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0.7	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0.6	0		0	N/A	N/A	N/A	
Total Cobalt	0.5	0		0	N/A	N/A	N/A	
Total Copper	0.8	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	3,480	
Total Iron	140	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	40	0		0	1,000	1,000	11,177	
Total Mercury	0	0		0	0.050	0.05	0.58	
Total Nickel	4.3	0		0	610	610	7,031	
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	2.78	

Total Zinc	3.4	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	34.8	
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	1,160	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	383	
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	789	
Methyl Bromide	0	0		0	100	100.0	1,160	
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	661	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	1,160	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	116,010	
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	348	
2,4-Dichlorophenol	0	0		0	10	10.0	116	
2,4-Dimethylphenol	0	0		0	100	100.0	1,160	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	23.2	
2,4-Dinitrophenol	0	0		0	10	10.0	116	
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	46,404	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	812	
Anthracene	0	0		0	300	300	3,480	
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	2,320	
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	1.16	
2-Chloronaphthalene	0	0		0	800	800	9,281	
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	11,601	
1,3-Dichlorobenzene	0	0		0	7	7.0	81.2	
1,4-Dichlorobenzene	0	0		0	300	300	3,480	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	6,961	
Dimethyl Phthalate	0	0		0	2,000	2,000	23,202	
Di-n-Butyl Phthalate	0	0		0	20	20.0	232	
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	232	
Fluorene	0	0		0	50	50.0	580	
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	46.4	
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	394	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	116	
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	232	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.81	

☑ ***CRL*** CCT (min): 720 PMF: 0.691 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)	316000	0		0	N/A	N/A	N/A	
Chloride (PWS)	10000	0		0	N/A	N/A	N/A	
Sulfate (PWS)	200000	0		0	N/A	N/A	N/A	
Fluoride (PWS)	100	0		0	N/A	N/A	N/A	
Total Aluminum	47.4	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	40.3	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)	0.7	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0.6	0		0	N/A	N/A	N/A	
Total Cobalt	0.5	0		0	N/A	N/A	N/A	
Total Copper	0.8	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	140	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	40	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	4.3	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	3.4	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	4.64	
Acrylonitrile	0	0		0	0.06	0.06	3.97	
Benzene	0	0		0	0.58	0.58	38.4	
Bromoform	0	0		0	7	7.0	464	
Carbon Tetrachloride	0	0		0	0.4	0.4	26.5	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	53.0	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	378	
Dichlorobromomethane	0	0		0	0.95	0.95	62.9	
1,2-Dichloroethane	0	0		0	9.9	9.9	656	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	59.6	
1,3-Dichloropropylene	0	0		0	0.27	0.27	17.9	
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	1,325	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	13.2	
Tetrachloroethylene	0	0		0	10	10.0	662	
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	36.4	

Trichloroethylene	0	0		0	0.6	0.6	39.7	
Vinyl Chloride	0	0		0	0.02	0.02	1.32	
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	1.99	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	99.4	
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	0.007	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.066	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.007	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.066	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.66	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	1.99	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	21.2	
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	7.95	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.007	
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	3.31	
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	3.31	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	3.31	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	1.99	
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	0.005	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.66	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	6.62	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.066	

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	0.046	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.33	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	219	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	33.6	52.4	1,170	1,825	2,924	µg/L	1,170	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Manganese	Report	Report	Report	Report	Report	µg/L	11,177	THH	Discharge Conc > 10% WQBEL (no RP)
Total Thallium	0.08	0.12	2.78	4.34	6.96	µg/L	2.78	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	693	AFC	Discharge Conc > 10% WQBEL (no RP)
Acrylamide	0.13	0.21	4.64	7.23	11.6	µg/L	4.64	CRL	Discharge Conc ≥ 50% WQBEL (RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Antimony	65.0	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	116	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	27,415	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	13,136	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	6.56	µg/L	Discharge Conc < TQL
Total Chromium (III)	2,251	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	25.8	µg/L	Discharge Conc ≤ 10% WQBEL

Total Cobalt	154	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	93.1	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	3,480	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	33,254	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	131	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.58	µg/L	Discharge Conc < TQL
Total Nickel	1,358	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	57.9	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	81.9	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	4.87	µg/L	Discharge Conc < TQL
Acrylonitrile	3.97	µg/L	Discharge Conc < TQL
Benzene	38.4	µg/L	Discharge Conc < TQL
Bromoform	464	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	26.5	µg/L	Discharge Conc < TQL
Chlorobenzene	1,160	µg/L	Discharge Conc < TQL
Chlorodibromomethane	53.0	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	29,191	µg/L	Discharge Conc < TQL
Chloroform	378	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	62.9	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	656	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	383	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	59.6	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	17.9	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	789	µg/L	Discharge Conc < TQL
Methyl Bromide	892	µg/L	Discharge Conc < TQL
Methyl Chloride	45,408	µg/L	Discharge Conc < TQL
Methylene Chloride	1,325	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	13.2	µg/L	Discharge Conc < TQL
Tetrachloroethylene	662	µg/L	Discharge Conc < TQL
Toluene	661	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	1,160	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	4,865	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	36.4	µg/L	Discharge Conc < TQL
Trichloroethylene	39.7	µg/L	Discharge Conc < TQL
Vinyl Chloride	1.32	µg/L	Discharge Conc < TQL
2-Chlorophenol	348	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	116	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	1,070	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	23.2	µg/L	Discharge Conc < TQL

2,4-Dinitrophenol	116	µg/L	Discharge Conc < TQL
2-Nitrophenol	12,974	µg/L	Discharge Conc < TQL
4-Nitrophenol	3,730	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	259	µg/L	Discharge Conc < TQL
Pentachlorophenol	1.99	µg/L	Discharge Conc < TQL
Phenol	46,404	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	99.4	µg/L	Discharge Conc < TQL
Acenaphthene	135	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	3,480	µg/L	Discharge Conc < TQL
Benzidine	0.007	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.066	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.007	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.066	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.66	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	1.99	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	2,320	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	21.2	µg/L	Discharge Conc ≤ 25% WQBEL
4-Bromophenyl Phenyl Ether	438	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	1.16	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	9,281	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	7.95	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.007	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	1,330	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	81.2	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	1,184	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	3.31	µg/L	Discharge Conc < TQL
Diethyl Phthalate	6,487	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	4,054	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	178	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	3.31	µg/L	Discharge Conc ≤ 25% WQBEL
2,6-Dinitrotoluene	3.31	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	1.99	µg/L	Discharge Conc < TQL
Fluoranthene	232	µg/L	Discharge Conc < TQL
Fluorene	580	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.005	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.66	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	8.11	µg/L	Discharge Conc < TQL
Hexachloroethane	6.62	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.066	µg/L	Discharge Conc < TQL
Isophorone	394	µg/L	Discharge Conc < TQL

Naphthalene	227	µg/L	Discharge Conc < TQL
Nitrobenzene	116	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.046	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.33	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	219	µg/L	Discharge Conc < TQL
Phenanthrene	8.11	µg/L	Discharge Conc < TQL
Pyrene	232	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.81	µg/L	Discharge Conc < TQL